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Implications of financialisation for sustainability

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Abstract: Over the last thirty years, the historical increasing expansion of financial systems has experienced a phase of acceleration, the second one after the industrial revolution. During this phase of financialisation, the logic of finance has acquired a significant role in economic decisions of all broad institutional elements: financial and non-financial corporations, government and households. Usually formulated with a negative connotation, the notion of financialisation as an “excessive” growth of finance, however, remains elusive and with vague operative implications. We first discuss different features, manifestations and processes which are encompassed in the second financialisation. We then review the literature on its implications by distinguishing the effects on endogenous sustainability, namely on the functioning of financial systems, and the effects on the social and economic spheres: productive investments, human capital, distribution, resilience and exposure to shocks and to systemic risks. Finally, our critical survey focuses on a recent hot debate on the role of financialisation in shaping the incentives for environmental protection, and in restructuring the interests and power equilibrium among different stakeholders on the uses – current, future and speculative – of environmental goods and services.

Keywords: financialisation, sustainability.

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1. Introduction

In the introduction of *Financialisation and the World Economy*, one of the most prominent contributions on financialisation, Epstein (2005: 3) defines financialisation as “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies”. This quite broad definition encompasses different manifestations of the phenomenon: changes within financial systems, within non-financial sectors and activities, alterations in distribution of economic and political power between capital and labour, across population and social groups both at national and transnational level. Some authors stress the political economy meaning of financialisation. Blackburn (2006: 39) defines financialisation ‘as the growing and systemic power of finance and financial engineering’, and Palley (2007: 2) as ‘a process whereby financial markets, financial institutions, and financial elites gain greater influence over economic policy and economic outcomes’. Others use more descriptive definitions. Krippner (2005: 174), for instance, refers to financialisation as ‘a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production’. A widespread expansion of trade in all dimensions (across space, time, degrees of tangibility, divisibility, excludability, rivalry, measurability of goods and services) seems at the basis of financialisation. Growth in access, availability and variety of financial instruments is both stimulated by and is functional to this extension of these possibilities since it raises means and opportunities to exchange capital assets and risks. Financial systems, with the help of new technologies, now allow selling and buying almost any type of financial asset, financial liability and equity instruments, packages of capital, or structured products. This evolution has implicitly brought to the consolidation of a specific notion of economic agents where the logic of finance permeates all economic choices. Firms are increasingly seen as a bundle of tradable assets, what Crotty (2005) defines as “financial” or “portfolio” notion of non-financial businesses or Tomaskovic-Devey and Lin (2011: 545) denote as ‘the finance conception of the firm’. Households are regarded as groups of people who jointly sustain a preferred consumption pattern by purchasing credit



and implementing investment decisions. Stockammer (2012: 46) summarises this process arguing that 'actors increasingly perceive themselves like financial institutions manipulating their balance sheets, as if they were managing a portfolio of assets'.

The brief overview on the definitions of financialisation aimed to recall that this concept refers to a range of different phenomena; it is used to describe specific developments in financial systems as well as interpretative notions concerning the broad system of reproduction of productive factors, services and goods. The elusive character of this concept, however, can create different understandings of what financialisation is all about and is responsible for. This paper reviews the theoretical and empirical literature on the recent phases of financialisation (since the late 1970s), namely on the Second financialisation, in advanced economies with the aim of disentangling its different nuances and implications. By providing an overview of the 'state-of-the-art' in the academic literature, this paper identifies the main findings and knowledge gaps of research on the nexus between financialisation and sustainability in the economic, social and environmental spheres. The rest of the paper is organised as follows. Section 2 discusses the principal manifestations and key features of the second financialisation. Section 3 reviews the existing literature on its implications for financial markets, non-financial businesses, households and the environment. Section 4 concludes.

2. A closer look to manifestations of financialisation.

The last thirty years have witnessed a growing importance of the financial sector which has been measured by a significant rise of its contribution to income, profits and value added, as higher growth rate of stock market capitalisation to the GDP ratio, and in general as the rapid increase in the value of financial transactions compared to the industrial sectors (Orhangazi, 2008; Fine, 2011; Onaran et al. 2011; Kus, 2012; Greenwood and Scharfstein, 2013; Müller, 2013). The impressive growth of finance has affected the macro-economic structure of several countries. At the same time, international financial liberalisation and capital account liberalisation, namely the reduction of entry barriers of the banking sector industry and the liberalisation of international capital, have led to a considerable expansion



of the global financial markets as well as the rise in their international mobility as compared to that of other production factors. However, financial systems have seen not only a growth in their scale but also in their pervasiveness and influence on the interactions with the real sector. This section develops this vision by offering an overview of the main manifestations and processes of the second financialisation, while the following sections discuss in detail their implications for sustainability.

2.1 Financialisation and the increase in complexity of financial markets

The recent expansion of the financial sector at national and global level has been accompanied by important changes within the financial sector itself. The evolution of financial systems, in particular, has been characterised by: (i) a proliferation and expansion of different types of financial assets and financial innovations (securitisation, collateralised debt obligations and other derivatives) associated with a growth in the share of financial assets under professional management (Greenwood and Scharfstein, 2013); (ii) the development of the “shadow banking” system¹ and a growing importance of non-banking financial institutions (investment funds, pension funds, insurance companies, hedge funds)²; (iii) a shift from a ‘retain and hold’ to a ‘buy and sell on’ (Anderesson et al. 2012) or ‘originate-and-distribute’ banking model, namely a shift from the traditional banking which generates income from the interest differential between rates on deposits and on loans to a model where banks do not hold the loans they originate but they transfer risks by repackaging and securitising them; (iv) a progressive weakening of the distinction between commercial banking and investment banking.

According to some authors, financialisation has changed the core functions of the financial system and the nature of its relationship with non-financial units. The financial institutions are seen as increasingly detached from the real productive sector: it has been observed that financial markets have been evolving as “a growth industry in its own right” (Engelen, 2003:1367) where capitals switch from the primary, secondary or tertiary circuit to the quaternary circuit of capital and which serves and facilitates the trade in money, credit,

securities, derivatives rather than real markets (Aalbers, 2008). A similar progressive process of separation has occurred with respect to the relationship between financial system and regulatory and supervisory authorities. Financialisation has been fostered by an increasing reliance on self-regulation mechanisms of financial markets. Self-regulation is a mechanism of quality vigilance that is commonly applied in financial markets. The players in these markets generally form a Self-Regulated Organisation (SRO) composed by some members. In the securities industry, for instance, many are the SROs, such as the National Association of Securities Dealers (NASD) and to the National Stock and Commodity Exchanges (e.g., the NYSE) to impose industry rules related to exchange. The market self-regulation has largely affected the financial intermediaries set of rules, capturing through lobbying both definition of the rules and the supervisory bodies' behaviour.

2.2 Financialisation of non-financial businesses

Financialisation of non-financial corporations (NFCs) has occurred through two main transformations. First, financialisation has brought a reinforcement of a proprietary view of the firm and a corporate governance model based on maximising shareholder value (Lazonick and O'Sullivan, 2000; Feng et al., 2001; Froud et al., 2000; Engelen, 2002; Müller, 2013), namely on the objective of predominantly pursuing shareholders' interests through the payment of high dividends and sustaining the firm's share price (Faulconbridge and Muzio, 2009) and ensuring returns to shareholders which outperform the cost of capital. This process was also facilitated by the introduction of performance-related pay schemes and stock options meant to obtain a stricter alignment between managers' and shareholders' objectives (Lazonick and O'Sullivan, 2000; Stockhammer, 2004). Second, NFCs are increasingly active on financial markets both in the forms of interest payments, dividends and share buybacks and in the forms of earnings from financial operations. Transfers of resources from productive uses to financial payments has grown over the last thirty years: the share of resources used by NFCs to pay interests grew considerable in the 1980s due to high interest rates (see Crotty, 2005 on US), but in several cases, even in the successive period of low interest rates, it remained at levels above that of 1950s and 1960s

(see Alvarez, 2012 on France). At the same time, NFCs increasingly invest in financial assets and receive financial incomes (Orhangazi, 2008), develop financial activities (Baud and Durand, 2012) and offer financial services (Milberg and Winkler, 2010). Over the 1991-2007 period, for instance, in OECD countries NFCs saw a considerable rise in non-financial corporate net lending which reflected both a fall in corporate investment and an increase in corporate saving (André et al. 2007). As a result, during this period, NFCs in OECD countries overall turned into net lender.

2.3 Financialisation of households' decisions and basic needs

Transformations of financial markets, coupled with processes of privatisations, pension reforms and the general and continuous shrinking of the State's role as provider of [life-cycle] and basic services (education, health, sanitation, social protection), have led to a greater engagement of households in financial markets and diffusion of financial systems in daily life. Households are more frequently involved in financial operations (Lapavistas, 2011) and their wealth and income are increasingly dependent on financial perturbations and on financial markets through different channels:

- a. Provision of households' credit through mortgages and consumer loans has grown over the last three decades.
- b. The role of households as financial assets holders has grown: in several OECD countries, overall, from the 1980s to the years prior to the 2007-2008 crisis, the stock of households' financial assets relative to GDP considerably grew and its change in composition reveals a lower preference for traditional forms of savings such as deposits and a growing interests in riskier instruments, such as equities, derivatives, and insurance technical reserves. In particular, a steady increase in investment in institutionalised assets (pension funds, life insurance and mutual funds) has been a common feature of several countries prior to the crisis (De Bonis et al. 2013; Lapavistas and Powell, 2013).
- c. The connection between global financial markets and markets of services and goods for basic needs and capabilities has strengthened. Bayliss et al. (2013)



underline two telling examples: the system of mortgage-backed securities has created a direct linkage between financial vagaries and housing, while privatisation has transformed several public services, such as water, into private assets whose production and provision is influenced by shareholders' interests and asset pricing by financial markets. Analogously, as observed by O'Neill (2013), financialisation of transport, energy and communication infrastructure has directed priorities of these industries to financial performance.

d.

2.4 Financialisation of commodity market and of natural resources

The increasing role of financial motives, financial markets and financial actors in commodity markets and in the use of natural resources is strictly intertwined with other ongoing processes, namely privatisation, commodification and marketisation of natural resources and ecosystem services. In this paper, we propose a definition of financialisation of commodities and natural resources which includes two main elements:

- a. The rise in financial investment in commodities and composite commodity indexes (i.e. the Standard & Poor's Goldman Sachs Commodity Index, the Dow Jones – Union Bank of Switzerland Commodity Index), structured products on commodity indexes, in futures and options on commodities and in OTC commodity derivatives (UNCTAD, 2011) to diversify financial portfolios..
- b. The growth of environmental finance defined as “all market-based instruments designed to deliver environmental quality and to transfer environmental risk” (Labatt and White, 2002).

3. The nexus between financialisation and sustainability

3.1 Implications of financialisation for financial systems

A number of contributions underline that the prevailing structure of the financial system in modern economies consists of the banking and the capital market subsystems. In some countries (Germany, Japan, France, Italy, Spain) the banking orientation is stronger, while other financial systems (US and UK) are more market oriented. (Amable, 2003; Demirgüç-Kunt and Levine, 1999; Levine, 2000; Ergungor, 2002).

According to Gerschenkron (1962), the historical process drives towards the market also the financial systems that were mainly oriented towards bank credit. As already observed in the first chapter, the Second financialisation developed within a system of rules and behaviours essentially focused on market opportunities.

Observing the nature of the different business lines and their regulatory constraints, we can distinguish financial intermediaries mainly focused on credit and monetary functions from those mainly oriented towards investment (table 1). Commercial and retail banks are formally regulated and supervised by national or international bodies. The same functions can be performed by unregulated firms (shadow banking) making possible regulatory arbitrages.

The case of investment banking is more complicated. In many European countries, where they developed only in the last few decades, they are formally regulated. In the US, the same institutions are either unregulated or self-regulated.

Table 1: The financial subsystems and regulatory constraints

	Regulated and Supervised	Unregulated or self-regulated
Credit & Monetary functions	Commercial and Retail Banks	Shadow Banks
Investment Functions	Investment Banks and other financial firms (Europe)	Investment Banks (US)

The issue about financialisation and sustainability within the financial system affects all these subsystems. The processes characterising the activity of the subsystems could help designing the financialisation through three different channels:

- Financialisation through interbank indebtedness;
- Financialisation through securitisation, derivatives and other financial innovations;
- Financialisation through hedge, private equity and other unregulated funds.

3.1.1 Financialisation through interbank indebtedness

Since the late 1980s commercial and retail banks have largely followed the German organisational model of universal banking and became more market oriented at least for two reasons: (i) the maturity mismatch needed either a stronger liquidity buffer or a higher dependence from the interbank market; (ii) the trading opportunities were exploited taking large exposures in proprietary trading portfolios.

Within the banking system the large flows of deposits and debt are traded in the interbank markets, where interest rates are transmitted to the term structure, affecting rate for borrowers. In normal times, interbank markets are among the most liquid in the financial sector and the financial literature has historically devoted a relatively low consideration to the interbank market due to the short-term nature of exchanged deposits (Gabbi et al., 2013). Banks have accepted non-collateralised loans when counterparties were considered safe and sound enough and liquidity risk has been perceived as marginal due to the central bank role as lender of last resort. A number of investigations of the interbank markets microstructure shed lights on their fragility even before the crisis suggesting that the growing financialisation brought about stronger interconnections driving the credit system towards a dangerous “fault line”. For instance, the evolution of the network topology of the European interbank market shows that the liquidity and credit exposures made the interbank market extremely weak (Iori et al., 2008).

In addition, the interbank market over-reacted to the 2007-2008 financial crisis further revealing its fragility and its asymmetric and biased behaviour in favour of largest banks: liquidity in the interbank market has considerably dried up, even at short maturities, and an

increasing dispersion in the credit conditions of different banks has emerged. The weakness of interbank markets contributes to explain the liquidity crunch experienced with the crisis. On the demand side, a possible explanation for the crunch suggested by Cassola et al. (2010) was adverse selection, with banks preferring not to reveal their needs for liquidity, which could lead to credit rationing, and switching from a highly transparent electronic market to more opaque over-the-counter trades. At the same time, an increasing number of studies has analysed how the financial crisis has affected the credit conditions of banks in the interbank market. Angelini et al. (2009) show that the rate paid by banks before the crisis did depend on bank size with large banks getting better rates. During the crisis borrower creditworthiness, measured by rating and capitalisation, became significant and sizeable, with larger banks still experiencing better borrowing conditions both before and after the Lehman collapse. Nonetheless the main determinant of the increasing spreads appears to be the overall increase in risk aversion.

In brief, existing investigations on the evolution of interbank markets during the second financialisation before and after the 2007-2008 financial crisis have detected a number of fragilities in their functioning.

3.1.2 Financialisation through securitisation, derivatives and other financial innovations

Another way to extend financialisation is through financial innovations which originate both in credit markets and in financial environments. Their development has largely weakened the financial structures and the agents involved often originate unsustainable leverage ratios and hyper-speculative exposures. Some financial innovations have eased the enlargement of networks and weakened their links. The credit market often observes the credit risk transfer (CRT) from originators to other portfolios, especially to save capital for further loans. There are many transfer techniques used for this purpose (Bedendo and Bruno, 2012): loan sales, credit derivatives, and securitisation. Among others, securitisations could be analysed as network facilitators aimed at transferring the credit and financial exposure to third parties. The “opportunity” of selling illiquid assets in financial markets has been considered as a way to save capital, to minimise credit losses,



to generate liquidity, and to accelerate decisions affecting banks' size preferring a "buy strategy" instead of a "make" one. Securitisation has had a significant impact as catalyser of the generating process of the financial crisis by pushing the excessive indebtedness of households, while contributing to the rapidity and intensity of its transmission. This phenomenon has greatly reduced the incentives of the units securitising assets to review their value and the risk involved by holding them. The systemic consequences of securitisation considered benign ex ante by supervisory authorities ("the market knows better") proved to be devastating ex post ("no one knows"). In particular, the ensuing discharge of banks' responsibilities encouraged their excessive leverage that was a crucial precondition of the crisis (Fisher, 1933, Minsky, 1982, and many recent contributions). Securitisation has also increased in consequence of banks' regulatory arbitrage to reduce the capital absorbed by credit risk transferring the loans/mortgages exposure from the banking book to the trading book (Minton, Sanders, Strahan, 2004; Panetta and Pozzolo, 2010).

From the point of view of propagation, the growing importance of securitisation-based structured finance in the balance sheets of economic units increased the rapidity and strength of contagion originating a generalised balance sheet recession (Koo, 2011). In particular, within such an environment, the agents playing a role within the securitisation process could suffer with lack of liquidity because of the complexity to fire sell assets (Basel Committee on Banking Supervision, 2008) and, consequently, increase the exposure of the economic units to systemic risk. The evolution of financialisation by securitisation is closely linked to the risk size as well as to the way risk is managed by rating agencies. Critical analyses made by various institutions and authors (Crotty and Epstein, 2009; IMF, 2009; Crotty, 2009) reveal that the success of credit transfer solutions was all the more high as information distortion and the complexity of the new financial instruments were higher, and the quick spreading of securitisation evolved as the role of investment banks and financial institutions grew and commercial banks began to play the role of financial investors.

Whether securitisations and the other credit transfer techniques originate a link between the credit and the financial market, derivatives ease the financialisation with underlying assets whose nature can be financial (interest rate, currency and equity derivatives), credit (credit default swaps) and real (commodity derivatives).

Originally, derivatives have been issued to hedge risk exposures, particularly for industrial purposes. In general, given the volatility of exchange rates, interest rates and commodity prices over the past few decades, many firms have come to realise that they have significant exposures to these risk factors. The widespread use of derivative instruments in today's foreign exchange, interest rate and commodity markets, confirms that many firms have decided that they must manage the uncertainty due to unexpected fluctuations (Smith, 1995). The positive role of derivatives to hedge the exposure to different types of risks is confirmed by theoretical and empirical studies which in the past decades were conducted in order to provide rationales and evidence on the determinants of corporate hedging; Smith et al. (1985) and Fenn et al. (1997) make available a comprehensive overview of the economic motivations to hedge, from tax optimisation to cash flow reduction, from financial distress costs minimisation to risk-aversion of stakeholders. Tax motives are reported by the pillar study by Smith and Stulz (1985), who find that derivative hedging reduces the variability of pre-tax firm value, therefore increasing the after-tax expected firm value due to the convexity of the tax-schedule. Empirical evidence by Graham and Rogers (2002) supports this conclusion, finding that derivative usage increases the level of debt ratio by an average of 3%, which, in turn, leads to a higher tax shield, increasing after tax firm value by an average of 1.1%. The reduced variability of cash flows given by hedging can lower the probability of default and the subsequent bankruptcy costs, increasing firm value (Smith and Stulz, 1985). Moreover, as it increases non-default outcomes, derivative usage increases the stakes in which equity holders are the residual claimants, which, in turn, decrease the incentives for equity holders to under-invest (Bessembinder, 1991).

Within the framework of pecking order theory (Myers, 1984), firms avoiding external funds in their capital structure puzzle (either too costly or unavailable) see hedging as an important instrument able to smoothen out cash-flows to meet future funding needs (Froot,

Schaffstein and Stein, 1993). This result is confirmed by the empirical study of Geczy et al. (1997) which shows that companies with higher quick ratios (a proxy for immediate funds availability) are less likely to hedge, whilst companies with higher growth opportunity have a higher probability of hedging, thus suggesting that derivative usage increases the availability of internal funds, especially in presence of financial constraints.

Finally, with the systematic use of securitisation and derivatives, commercial and retail banks have increased their aptitude to market orientation, becoming, *de facto*, investment banks and increased the incentives to reduce the protection against losses, both reducing the capital absorption and increasing the size of market speculative exposures.

3.1.3 *Financialisation through hedge, private equity and other unregulated funds*

A third subsystem where financialisation affects the endogenous sustainability is [the] shadow banking, whose term was originally introduced by McCulley (2007) focussing mainly on nonbank financial institutions engaging in maturity transformation. Shadow banks do something similar to commercial banks when raising short-term funds within the money markets to invest in assets with longer maturities. But because they are not subject to traditional bank regulation, they cannot borrow in an emergency from their central banks and do not cover their deposit with an insurance scheme.

A broader definition of shadow banks, suggested by the Financial Stability Board (FSB), includes all the organisations which are unregulated (or less regulated than commercial banks) and which act a maturity transformation, a liquidity transformation, leveraging their financial structure, transferring the credit risk. Under this definition shadow banks would include broker-dealers, money market mutual funds, and hedge funds.

Sustainability issues arose during the recent global financial crisis when investors became sceptical about the fair value of those longer-term assets inducing them to withdraw their funds. To repay these investors, shadow banks had to “fire sell” assets. The impact of these decisions is a market value collapse, , forcing other shadow banking entities to replicate the same strategy, creating further uncertainty about the financial stability. At the peak of the crisis, so many investors withdrew or would not roll over their funds that, many

financial institutions ran into serious difficulty. Some shadow banks were controlled by commercial banks and were bailed out by their stronger bank parent.

The issues about sustainability within the shadow banking and the financial system in general are based on the reduced disclosure about their assets, unclear governance and the interconnections with banks; virtually no loss-absorbing capital or cash for redemptions; and a lack of access to formal liquidity support to help prevent fire sales.

In 2012, the FSB conducted its second “global” monitoring exercise to examine all nonbank credit intermediation in 25 jurisdictions and the euro area, which was mandated by the Group of 20 major advanced and emerging market economies. The results are rough because they use a catch-all category of “other financial institutions,” but they do show that the U.S. shadow banking system is still the largest. The FSB exercise does not gauge the risks that shadow banking poses to the financial system. The FSB also does not measure the amount of debt used to purchase assets the degree to which the system can amplify problems, or the channels through which problems move from one sector to another. Banking supervisors are examining the exposure of traditional banks to shadow banks and trying to contain it through capital and liquidity regulations.

An issue which could be originated by the rules introduced by Basel 2.5 for the trading book (particularly the stressed value-at-risk and the incremental risk charge) is that many banks decided to sell part of their books to un-regulated or under-regulated financial entities. Hanson, Kashyap, and Stein (2011) argue that the regulatory decision to enhance capital requirements for banks may trigger regulatory arbitrages, encouraging a large relocation of banking activities towards the shadow banking system. Therefore, since many shadow banking entities were either lightly regulated or outside the purview of regulators, the authorities are contemplating expanding the scope of information reporting and regulation. Even though the link between regulation and financial innovation is not new, since the implementation of Basel accords, the issue of regulatory arbitrage has attracted a lot of revitalized awareness. Stein (2010) highlights as one of the main forces behind securitisation is the circumvention of capital and other regulatory requirements. Acharya,



Schnabl, and Suarez (2013) show empirically that regulatory arbitrage was critical in the recent phenomenal growth of shadow banking.

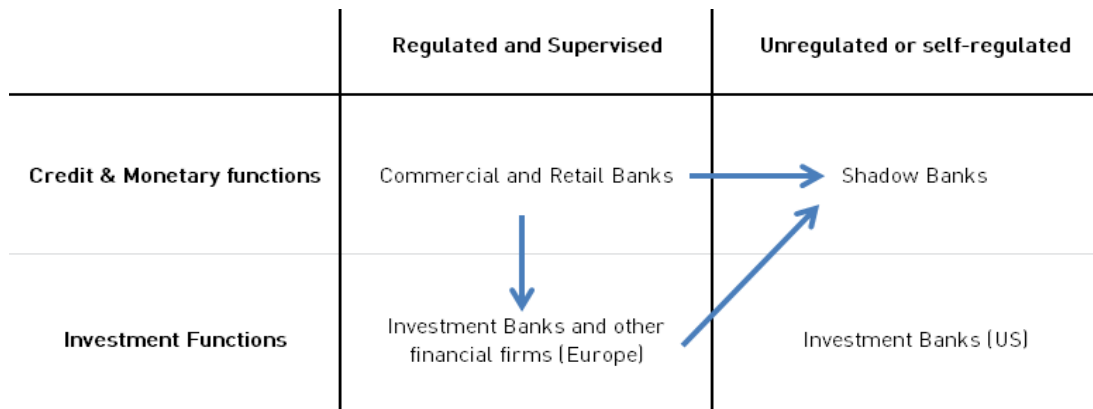
Even in the presence of recent heated debates on how to regulate financial markets, the literature that formally studies regulatory arbitrage and its link with shadow banking is still scarce. An exception is Plantin (2012) who argues that “relaxing capital requirements for traditional banks so as to shrink shadow activity may be more desirable than tightening them.”

This rationalisation of shadow banking complements other explanations that focus on the risk-sharing properties of securitisation. Gennaioli, Shleifer, and Vishny (2013) show that an increase in investors' wealth drives up securitisation. This also introduces fragility because banks become interconnected and more exposed to systemic risk. Gorton and Metrick (2010) structure their proposal to regulate shadow banking around the idea that securitisation arises because it appeared to agents involved that it could reduce the failure risk, thanks to the diversification effects. Ricks (2010) also proposes to extend the safety net of public insurance to shadow banking to reduce its fragility. However, as Adrian and Ashcraft (2012) extensively document, regulation has persistently failed in stabilising shadow banking, increasing the rationale that shadow banking would be intrinsically unsustainable.

In order to reduce the regulatory costs and by-pass the banking supervision, during the last decade commercial banks have progressively transferred part of their books to unregulated financial institutions. The interconnection between commercial and shadow banks is affecting the financial system sustainability by enhancing the contagion effect.

In conclusion, the three processes described have significantly increased the financial fragility of banking institutions, often due to regulatory incentives or arbitrages. Table 2 shows the processes.

Table 2: The financial subsystems and regulatory constraints



3.2 Implications of financialisation for non-financial businesses.

The theoretical literature has studied the implications of financialisation for non-financial firms both at macroeconomic and microeconomic level. Until the 2007-2008 crisis, the prevailing view saw the expansion of finance as beneficial for economic growth and real business activities. Financial systems, in fact, perform a set of financial services that are expected to serve economic activities and to promote creation of value added in real economy. Financial systems provide (i) payment services which are crucial for daily business activity, (ii) insurance and risk-pooling services which should reduce businesses' exposure to risks, and (iii) intermediation services which should facilitate real investments and efficient capital allocation by matching providers and users of funds. Financial systems can help hedging risks and increasing the solvency capacity of non-financial firms. The literature on the positive role of finance for the economic performance dates back to more than a century ago from the seminal work by Schumpeter (1911) to cross-country studies by King and Levine (1993), and Rajan and Zingales (1998), but also the shareholder value orientation and the increase in intensity and complexity of financial system over the last 20-30 years was expected to improve economic efficiency and firms' performance. Several contributions, for instance, found that the use of derivatives to hedge risks had multiple benefits for non-financial firms. At the same time, agency theorists, considering managers



as agents and shareholders as principals, have argued that shareholder value orientation, pay-performance sensitivity and incentive alignment between managers and shareholders provide managers with incentives to pursue the best possible economic performance measured by return rate on corporate stock (Jensen and Meckling, 1976; Jensen and Murphy, 1990; Fama and Jensen, 1983; Sundaram and Inkpen, 2004). Turner (2010: 13) pointed out that, according to the proponents of financial market deepening, "complex securitisation increased the extent to which assets offered to investors could be tailored to their specific preferences for specific combinations of risk/return and liquidity". Moreover, Greenwold and Scharfstein (2013) argue that professional asset management, lowering cost of capital to corporation, is likely to benefit young firms. This view is in line with the empirical analysis by Fama and French (2004) who found that weaker firms and firms with longer-term expected payoffs increased their capacity to have access to public equity financing. According to the authors, this change can be associated with a reduction in information and trading costs in line with the efficient-market theory. It is worth underscoring that other interpretations are possible. The decline in the cost of equity capital in this period for new firms can also be considered the result of too optimistic expectations, consistently with the theory of behavioural finance.

In case of NFCs, there is also a debate about the role of portfolio investors when they buy stocks within their financial portfolios whose goal is to diversify among assets. Since hedging the expected volatility and correlation impact is expected to be lessened, the rationales of diversification can be distorted.

Despite numerous benefits expected from development and sophistication of financial markets, in the last decade criticism about the implications for non-financial businesses of what it has been increasingly considering an excessive growth of finance started to mount. The negative effects of financialisation on long-term economic sustainability of firms have become increasingly evident. At micro-economic level, one of the most investigated effect of these transformations is the impact on business investment behaviour. In addition to developments in real and labour markets and to the reduced role of governments as regulator and supplier of public services, growing operations in financial markets and

changes in power relations among stakeholders in favour of managers and shareholders compared to workers³ (Aglietta 1999; Dallery, 2009; Duménil and Lévy, 2011) have led to changes in objectives and constraints of investment decisions. As we have mentioned in section 2.2 increased financial profit opportunities *vis-à-vis* real investment and tighter relationship between shareholders' and managers' interests can direct resources from real and productive to financial investment. Financial investment becomes an increasingly attractive and accessible alternative compared to real investment especially in time or markets characterised by uncertain prospects, risks, low margin of profitability and stagnant demand. Moreover, short-term and reversible investments meet best shareholders' preferences for today's profitability compared to tomorrow's profitability (Dallery, 2009) or for profits as opposed to growth (Stockhammer, 2004), while at the same time allowing a "wait and see" strategy which is preferable in an uncertain business environment (Baud and Durand, 2012). Finally, as noticed by Rappaport (2005), managers' concerns to defend their reputation and remuneration by sustaining company stock prices and dividends have fed a sort of "short-term performance obsession". Option-based incentives are more valuable at higher level of risks and for short-term returns. In other words, shareholder value orientation by influencing management's incentives and risk aversion is likely to induce CEOs towards short-term and financial investment and operations. Looking at the US case, Lazonick and O'Sullivan (2000) claim that the consolidation of shareholder value orientation led to a shift from 'retain and invest' to 'downsize and distribute' in the investment behaviour. The models proposed by Dallery (2009), based on Post-Keynesian theory of the firm, refer to this argument showing that a reinforcement of shareholders' power has a theoretically positive impact on real capital accumulation only under very restrictive conditions. Empirical evidence largely confirms the hypothesis of an overall negative link between increasing profit opportunities through financial operations and real capital accumulation. The econometric study by Demir (2009a) on all publicly traded industrial firms in Argentina, Mexico and Turkey, for instance, finds that, in the period between early 1990s and early 2000s, the rising gap between return rates on financial assets and return rates on long-term fixed investments depressed new fixed

investment spending and had a positive and significant effect on financial assets to aggregate capital ratio. In other words, profitability of financial investment significantly affected portfolio allocation decisions of real sector firms in these countries by diverting spending from real to financial investment. Moreover, in Turkey, the share of financial investments in total assets is found to reduce the negative effects of macroeconomic uncertainty on the profitability of manufacturing firms (Demir, 2009b), that is financial operations can be used as a strategy to sustain profits in conditions of lowering in profit margins of productive activity. Orhangazi (2008) finds similar firm-level evidence results by analysing a panel of US NFCs over the period 1973-2003. His estimates suggest that increased financial pay-out ratios have a negative effect on real investment and, for large firms, a rise in past financial investments is not used to sustain current real investments, rather financial income and profits significantly depress them. According to these findings, therefore, financialisation of US NFCs, especially of large businesses, has produced a negative impact on real investment. Analogously, evidence collected by Bauer et al. (2008) suggests a negative relationship between investor-sensitive corporate governance and company capital expenditures. Finally, Blundell-Wignall and Roulet (2013) using a panel of more than 4,000 global companies over the period 1997-2011 find that high cost of equity and low borrowing rates boost buybacks and dividend payments while reducing long capital expenditure, that is investment. In other words, in a context in which financialisation and public interventions are sustaining the gap between interest rates and cost of equity, “companies [...] are keeping their capital expenditure contained, and they are taking advantage of cheap corporate borrowing rates to issue debt and build up cash flow” (p. 14). Other studies have investigated the relation between financialisation and real investment in NFCs by using macroeconomic data. Stockhammer (2004) tries to test the hypothesis that the change in management priorities due to financialisation (measured by the share of interest and dividend income of NFCs) reduced propensity to real investment during the 1960s-1990s period. His results are not fully conclusive but indicate that in Germany, one of the least financialised economy in the period considered, the growth rate of gross business capital stock was driven by the profit share, cost of capital and capacity utilisation, while in



the US, the most financialised country, rentiers' income was the only significant variable across different specifications with a negative sign. In addition to econometric evidence, the possibility that a greater involvement of NFCs in financial operations can crowd out real investment is mirrored by an increase in repurchasing or buyback of shares which can drain NFCs funds and which has been documented for the US and European countries (Crotty, 2005; Lazonick, 2013; Blundell-Wignall and Roulet, 2013). Between 1997 and 2012, for instance, cash dividend paid and buybacks rose from about 1% to more than 2% and more than 3% of sales in OECD and US companies in the MSCI global index, respectively (Blundell-Wignall and Roulet, 2013).

The effects of financialisation on investment behaviour presents further connected implications for sustainability and competitiveness of non-financial firms. A shift from long to short term performance and from real to financial assets diverting resources from investment in long-run profitability, such as research and development expenditure, undermines firms' competitiveness and productivity. Lazonick (2010, 2012, 2013), for instance, offering a critical and historical overview of the business model of US corporations and analysing their changes in innovative strategies, top executive compensation and allocation of profits, convincingly concludes that the growing influence of the stock market on corporate resource allocation, due to the increasing stock-based compensations of top executives, has produced three main perverse consequences. It has encouraged manipulation of stock prices producing financial instability; it has reduced investments in innovation, job creation and quality delivery; it has, consequently, eroded competitiveness of the industrial sector making the whole economic system more fragile.

Evidence of the negative impact of financialisation on innovation is not limited to the US economy. Seo et al. (2012), for instance, when analysing a sample of Korea's NFCs in the 1994-2009 period, found that, after the 1997-98 Asian financial crisis, increased dividend payments and stock buybacks were associated with a decline in R&D investment. This vicious spiral towards a contraction of productivity in the real sector might be further accentuated if, as argued by Kedrosky and Stangler (2011: 9), financialisation "could have a suppressive effect on potential entrepreneurship by draining away human capital" since the

overexpansion of gain opportunities in the financial sector and the surge in remuneration of top financial managers can create a competition of highly qualified workers⁴.

Another concern about efficiency costs and implications of financialisation on sustainability of NFCs relates to a potential mitigation of market capacity to select the most competitive firms. Financialisation can contribute to the permanency of non-competitive firms in the market because they can rely on financial investment to maintain and sustain profit rates, despite increasing market instability, risks and global cost competition (Orhangazi, 2011).

Financialisation affects not only firms' use of funds but also their sources. According to Palley (2007), financialisation appears to have boosted firms' leverage and level of indebtedness through different channels: (i) shareholder value orientation and the increasing gap between cost of debt and the cost of equity which creates incentives to issue debt (and retire equity⁵); (ii) financial innovation and engineering and asset price inflation which enhances collateral capacity of NFCs; (iii) lowering of credit standards which eases firms' access to borrowing. While access to credit can be seen as beneficial for firms' performance and activity, over-indebtedness can be a source of fragility and unsustainability. Andersson et al. (2012) have recently underscored this argument: the authors observe that in the financialised UK and US economies, firms (but also households) are increasingly able to generate wealth recapitalisation ahead of their surplus capacity. Moreover, "this capitalisation process becomes self-sustaining and increasingly decoupled from cash/earnings extraction capacity" (Andersson et al., 2012, p. 86). The authors, recalling Minskyian dynamic, observe that this process can induce firms to turn from hedged into speculative and Ponzi units and the entire business system might become more vulnerable to financial perturbations and prone to fall into a crisis.

In conclusion, financialisation can help non-financial firms support their performance and profit rates and survive in competitive market with expansionary effects also for extended periods. However, it introduces distortive incentives and creates fragility. High and unsustainable levels of leverage, short-term orientation, distortions in hedging policy, in risk and asset management and biased trade-off between financial and real investments can expose the real economy to deep crises, as demonstrated by the current Great



Recession, reducing the capacity of recovery and driving real economy along unsustainable economic paths in the long run.

3.3 Implications of financialisation for households and social classes

Human and financial capital are sources of income and productive inputs which intrinsically differ in degree and freedom of mobility, accumulation limits and concentration. The next section discusses how financialisation influences households' behaviour and welfare along a number of different dimensions which in large part relate to changes in the relation and equilibrium between human and financial capital.

3.3.1 *Income distribution*

Over the past three decades, both Gini coefficient and the income gap between the richest and poorest 10% have grown⁶ in most OECD countries, despite a big deal of variety across countries in levels of inequality and size of increases. Inequality and financialisation trends have been put in relation by several scholars (Lazonick and Sullivan, 2000; Palley, 2007 among others). More recently, Stiglitz (2012: 36) argued that financialisation is “responsible both for increasing inequality and increasing fragility”. Kus (2012) using data from 20 OECD countries over the 1995-2007 period finds that, after controlling for a set of standard explanations of income distribution, a number of financialisation indicators⁷ are positively and strongly associated with income inequality. We have not found other econometric studies on the relation between financialisation and income inequality, but a number of considerations are consistent with the view that financialisation exacerbates income concentration.

First, financialisation affects the managers' incentives as well as the rate of return on financial capital, on labour and skill premium. Income of middle-class and blue-collar workers is likely to deteriorate since expansion of finance, increased reliance on financial earnings and the search for short-term profits can occur at the expense of production, real investments, labour costs and long-run productivity (see section above). Second, growing

profit opportunities in financial markets can influence inequality through changes in political and economic power distribution which can push policies and institutional settings closer to the interests of rentiers and financial operators. According to Duménil and Lévy (2005: 25), for example, in the US in the late 1970s “finance took over the state and institutions of the Keynesian compromise”. Other authors even embed political economy considerations directly into the definition of financialisation. Blackburn (2006: 39), for example, defines financialisation “as the growing and systemic power of finance and financial engineering”, and Palley (2007: 2) as “a process whereby financial markets, financial institutions, and financial elites gain greater influence over economic policy and economic outcomes”. In addition, existing literature has dealt with three main topics which can also shed light on the relationship between income inequality and financialisation:

- i. A number of studies (see next sections) have investigated the impact of financialisation on other inequality dimensions which affect income distribution, namely inequality of labour income and functional distribution of income. As labour income is usually the most important source of household income, its dispersion contributes to explain trends in income inequality. Moreover, to the extent that capital and labour are not equally distributed across population, a change in functional distribution translates in a change in income distribution.
- ii. A growing body of studies investigates the distributive consequences of international capital mobility and capital account liberalisation which can be considered to be the pillars of the international dimension of financialisation. Capital account liberalisation (CAL) potentially affects income inequality through different channels. First, CAL can improve the capacity of financially-constrained firms to borrow from international markets. The consequent reduction in cost of capital and technological transfer through capital markets can boost real investments and economic growth and, indirectly, employment creation and poverty reduction. The empirical evidence on the nexus between CAL and economic growth, however, is still mixed (Hulten and Webber, 2010). Second, benefits of capital liberalisation tend not to be homogeneously distributed across firms and industries.



Small firms, for instance, might be unable to fully take advantage of foreign bank entry (Gormley, 2010). Capital inflows are likely to prefer sectors which exhibit higher rates of return, short-term profitability and speculative earnings (such as FIRE sectors). Third, CAL increases firms' access to foreign capital. Consequently, demand for skilled workers is likely to grow more than that for unskilled workers since usually complementarity of capital with respect to skilled labour is greater than with respect to unskilled labour. This, in turn, widens wage inequality. Larrain (2013), for instance, using industry-level data for 23 industrialised countries from 1975 to 2005 finds that capital account openness increased wage inequality. Analogously, Furceri, Jaumotte, and Loungani (2014), by examining 58 episodes of major capital account reform in 17 advanced economies, show that, on average, capital account liberalisation is followed by an increase in the Gini coefficient by 1 and 5 percentage points after one and five years, respectively. Beherman et al. (2007), based on dataset of 18 Latin American countries for 1977-98, show that capital account liberalisation rose urban wage gaps. Also evidence provided by Jaumotte et al. (2013), using a panel of 51 countries over the 1981-2003 period, suggest that financial globalisation, and in particular inward FDI stock to GDP, are associated with higher inequality.

- iii. Another channel through which financialisation affects income inequality is its effects on financial fragility (see section 3.3.4). Macroeconomic volatility and economic crises in general have a disproportional adverse impact on poor and less well-off households (Lustig 2002, Agenor 2002; Laursen and Mahajan 2005). Financialisation, by increasing exposure to exogenous or endogenous shocks, can produce regressive effects⁸.

The next sections discuss in details this literature.

3.3.2 *Labour income inequality*

Financial and trade globalisation, the changing role of investors and the alterations on incentives management of non-financial firms, in combination with trade unions'

marginalisation, skilled-biased technological change and regulatory reforms, have affected the employment and salary strategy of business in several countries. While it is not easy to disentangle the effects of these intertwined processes, it is widely acknowledged that financialisation has been accompanied by a surge in top officers' remuneration and a rise of compensation in financial sectors compared to other sectors. Several studies monitor disparities in employee earnings in the period of financialisation (since 1980s) of the US economy: Mishel et al. (2007 cited in Palley, 2007) report that CEO remuneration surged from 38 times to 262 times average worker pay between 1979 and 2005; a boom in the pay of top five officers of S&P 500 companies from the 1990s to the 2000s has been documented by Bebchuck and Grinstein (2005). Similarly, Tomaskovic-Devey and Lin (2011) estimate that, in the US, compensation in the financial sector climbed from levels in line with average overall compensations prior to 1980 to about 60 percent higher than the rest of the economy by 2000. Moreover, they show that in the securities, commodities and investment industry labour earnings exploded probably because of commission-based system of payment which allow reaping "great earnings benefits from the increased volume and velocity of investment activity from the increased volume and velocity of investment activity" (Tomaskovic-Devey and Lin, 2011: 549). The size of this surge of labour remuneration in financial and top officers' occupations has induced doubts about the consistency of this trend with a proportional rise in skill intensity, labour productivity and risks. Indeed, Arestis et al. (2013) find that in the US individuals working in managerial and financial occupations have gained a wage premium during the last three-four decades. Philippon and Reshef (2012) not only confirm the existence of a finance wage premium but also document that it has increased over time. They calculate that "workers in finance earn the same education-adjusted wages as other workers until 1990, but by 2006 the premium is 50% on average" (Philippon and Reshef, 2012: 1605). This wage gap is even more pronounced for top decile earners and, in particular, for executives. Interestingly, Philippon and Reshef also show that the excess wage in financial sector compared to the rest of the private sector, cannot be fully explained by a rise in earnings, risks and changes in the size distribution of firms. This indirectly suggests that the unexplained excess wages could represent a form of rent⁹.

Other contributions have tested whether indicators of financialisation are statistically significant determinants of earnings dispersion. Lin and Tomaskovic-Devey (2011), for instance, analysing US data at the industry level in the period 1970-2008, find that increased dependence of non-financial and non-agricultural private firms on financial income¹⁰ has a significant and positive impact on top executives' compensation share and on earnings dispersion among employees and it exerts a negative impact on labour's share of income¹¹. Similar results are also obtained by Van Arnum and Naples (2013). Another interesting study that links the process of financialisation and top officer remuneration is offered by Shin (2012) that examines data on CEO compensation in 290 large non financial US firms in the period of 1996–2006. His study shows that firms which are more in line with shareholder value orientation, namely which adopt monitoring mechanisms and incentive compensation plans, are more likely to pay higher executive compensation. Shin explains these results arguing that conformity to shareholder value mandates would enhance CEOs' reputation and legitimacy, and consequently their pay, regardless of their product market performance. Under this perspective, shareholder value orientation would induce perverse incentives which create losses of efficiency and regressive outcomes.

Even more worrisome is the fact that this process of labour earnings polarisation through financialisation may be self-reinforcing. The expansion of financial investments and, in particular, of professional asset management and of stock-based and commission-based remunerations has created rent opportunities which can be better exploited in less regulated financial systems. This encourages a demand for more financialised economies and less regulated financial markets. At the same time, regulatory authorities might progressively weaken. Philippon and Reshef (2012: 1606), referring to US economy in the 2000s, observed, for instance, that it became impossible "for regulators to attract and retain highly skilled financial workers because they could not compete with private sector wages".

3.3.3 Functional distribution



Many advanced economies since the 1980s have experienced a decline in labour share of income¹². At the same time, several studies document a rise in the so-called rentiers' income share and a shift of the distribution of profits in favour of rentiers, regardless some differences in the definitions of rentier¹³ income (Epstein and Jayadev, 2005 on OECD countries from the 1960 to the 1990s; Onarn et al., 2011 on USA in the 1960-2007 period). Financialisation, by encouraging the growth of return rate on bond, stocks and other financial assets, increases rentiers' income and capital gains. Moreover, shareholder value orientation and the dominance of short-term performance can reduce managements' incentives to follow and meet workers' interests, while the increasing earnings opportunities through financial operations tends to partially detach profits and real investments. Rise in real wages and expansion of employment usually collide with other managers and shareholders' objectives: curbing costs, distribution of dividends and sustaining stock prices. The potential negative effect of financialisation on labour share and workers' remuneration is clearly illustrated in Lin and Tomaskovic-Devey (2011: 24) which, referring to financialisation of US economy, argue that

“the increasing reliance on earnings through financial channels restructured the social relations and the income dynamics in the non-finance sector. Substituting production and sales investment with financial investment decoupled the generation of surplus from production, strengthening owners' and elite workers' negotiating power relative to other workers. In addition, the financial conception of the firm reduced the commitment to production in the career strategies of CEOs, further marginalizing labor's role in U.S. corporations. The result was a structural and cultural exclusion of the general workforce from revenue generating and compensation setting processes”.

The impact of financialisation on labour income can also operate through less visible channels. Baud and Durand (2012: 258), for instance, document that financialisation processes might alter bargaining power, as well as distribution of gains and wealth, among different firms' stakeholders through “financialisation of operations”, namely a change in financial relations among stakeholders that occurs when financial objectives are added to operational objectives. By providing qualitative evidence on strategies of leading retailers, indeed, they conclude that financialisation has allowed retailers to use 'forced funds' for

their accounts by accumulating growing stocks of liabilities towards workers (and state and suppliers too). Theoretical contributions based on Kaleckian approach have tried to model the main channels through which the process of financialisation can affect functional distribution. Hein (2013) illustrates and elaborates this literature by discussing two main factors that can influence labour income share and are likely to be influenced by financialisation processes, namely sectoral composition of the economy and mark-up pricing. First, a change in output sectoral composition in favour of financial sector, that is a key feature of financialisation processes, implies a rise in high profit share sectors and, consequently a decrease in wage share. Second, different types of overhead costs (such as dividend and interest payments, management salaries, labour costs) and profit claims and target return of different stakeholders can affect the mark up (Lavoie 2002, Hein and Van Treeck, 2010, Dallery and van Treeck 2011). Financialisation increases, intensifies and strengthens the bargaining power of claims by top executives and by “rentiers” which receive dividends and interest payments. This generates a rise in mark-up pricing and a decline in share of labour income. All these elements and arguments can explain why a number of empirical studies have found a negative effect of different indicators of financialisation on wage share (Alvarez, 2012 on France; Dünhaupt 2013 on a sample of 13 OECD countries; Lin and Tomaskovic-Devey, 2011 on US).

To conclude, the literature on functional distribution of income has provided several explanations of declining labour share. Some of them do not directly relate with financialisation (technological and productivity changes and migration flows, trade liberalisation), others are elements which have contributed to financialisation (monetary and fiscal policies, deregulation of labour markets); others are intrinsic elements of financialisation. Thus, there is a need for more study on to what extent the effects of financialisation combine and interact with these processes, but growing evidence suggests that financialisation has produced a change in functional distribution to the detriment of labour income share and in favour of rentier incomes.

3.3.4 Consumption smoothing, vulnerability and coping strategies to different types of shock and volatility

According to modern finance theory, households' participation in financial market increases consumption smoothing and risk diversification capacity. In this sense, financialisation, allowing a rise in household indebtedness and hedging capacity, would perform a social function since it improves satisfaction of households needs and ability to cushion exogenous shocks. However, as noted by Barba and Pivetti (2009), the theoretical framework of life cycle and permanent income hypotheses of mainstream theories, based on the assumption of perfect rationality and foresight in agents' maximising behaviour, tend to exclude the possibility of unsustainable paths of household debt. This hypothetical scenario strongly grounded in mainstream theory, however, sharply contrasts with the reality of the last years. Financialisation seems instead to encourage households' indebtedness, consumption expenditure and housing investment above sustainable levels, namely ahead of their earnings capacity (Onarn et al., 2011; Andersson et al. 2012; Greenwood and Scharfstein, 2013). Financial innovation and instruments, deterioration of creditworthiness standards and financial deregulation have allowed an increased leverage and accessibility to credit also for households with poor credit score. In addition, financial and housing asset price inflation generates a wealth effect which can motivate an expansion of private consumption through indebtedness. All these factors can increase household living standards. Onarn et al. (2011), for instance, when analysing US quarterly data for the period 1960–2007, found that an increase in housing wealth had a strong expansionary effect on consumption. At the same time, household living conditions become more linked to financial fluctuations and exposed to financial shocks. A high degree of leverage of economic units (households, banks or firms) amplifies risks of contagion and facilitates transmission and extension of financial disturbance to households and firms as recently shown by the 2007-2008 financial crisis. This risk is particularly relevant considering that, as seen in section 3.1, financialisation also introduces some elements of unsustainability and volatility in financial systems and that capital account liberalisation can increase exposure to boom of capital inflows and sudden stop, especially in low and

middle income countries. Evidence collected by Prasad et al. (2007: 464) on the effects of financial globalisation in developing countries, indeed, suggests that countries in the early stages of financial integration have been exposed to significant risks of higher output and consumption volatility. Moreover, some manifestations of financialisation have been identified as recurrent characteristics of past financial crises. Claessens et al. 2013, examining a wide variety of financial crises (banking, balance-of-payments, and sovereign debt crises), observe that the typical patterns prior to crises include asset price bubbles, rapid, prolonged and large expansions of credit, deterioration in lending standards, risky liability structures of financial intermediaries, poor regulation and supervision of domestic financial systems and underestimation of systemic risks. Based on this evidence, we can argue that financialisation is a source of increased vulnerability to financial crises which generally produce major and persistent adverse effects on average living standards and on distribution as demonstrated by the ongoing Great Recession. Negative effects on employment and poverty and welfare status are under the eyes of everyone and recent data (OECD, 2013) data, indeed, show that in OECD countries, inequality in income from work and capital (excluding welfare state interventions) increased more between 2007 and 2010 than in the previous twelve.

3.4 Implications of financialisation for environmental sustainability

Academic literature has largely overlooked the environmental dimension of financialisation, but initial observations can be drawn by discussing the potential environmental effects of some of the features of financialisation processes examined in the previous sections. First, opportunities of financial investment and incentives to search for long-term and short-term and high returns in financialised economies is likely to crowd out funds, resources, competencies and investment for green projects and for actions consistent with sustainability whose benefits are usually uncertain and require a medium-long time horizon to materialise. A shrinking in the planning horizon of investment, in particular, is likely to divert financial resources from environmental and conservation programmes or from R&D expenditure for eco-innovations which produce benefits over a

long time horizon. On the other hand, the borrowing wave that has been observed during the expansionary period of financialisation in several countries (i.e. prior to the 2007-2008 financial crisis) might have benefited from green projects by reducing financial barriers to green investment. This effect, however, is not automatic. Financial constraints are not the only obstacle to green investment which usually also faces market policy, institutional and information barriers at the same time. Policy support, instead, seems to be a crucial driver of investment in green projects.

Finally, financialisation influences the use and conservation of environmental resources through its effects on pricing and assignment of economic value to natural resources. This happens through two main processes: financialisation of commodity and development of mechanisms and systems for putting a financial value to ecosystem services and resources.

3.4.1 Financialisation of commodities

Over the last years, commodity prices movements have been dominated by global food and energy shocks combined with their upwards trends. Food and commodity prices can have important social and environmental consequences since they can influence investment in nature-based sectors. The recent food and energy price shocks, for instance, have produced heavy poverty and distributive impacts which can also have triggered a rush for natural resources both for productive and speculative uses. An emblematic example of the nexus between energy, food prices shocks and environment is represented by the so-called land grabbing¹⁴, namely the current wave of large scale land acquisitions that several developing countries have been experiencing since the late 2000s and that it is raising concerns for equity and sustainability. Indeed, a report of the High Level Panel of Experts on Food Security and Nutrition commissioned by the UN Committee on World Food Security concludes that “large scale investment is damaging the food security, incomes, livelihoods and environment for local people” (HLPE 2011: 8). Understanding the role of

financialisation in shaping dynamics of international food and commodity prices is, therefore, a necessary step in the analysis of its social and environmental repercussions. The so-called financialisation of commodities market observed in the 2000s denotes two main related processes. Fattouh et al. (2013: 12) describe financialisation of oil market as a growing interest and involvement of financial investors outside oil industry in commodity futures markets and as “the increasing acceptance of oil derivatives as a financial asset by a wide range of market participants including hedge funds, pension funds, insurance companies, and retail investors”. UNCTAD (2011) and Tang and Xiong (2012) stress the importance of growing commodity index investment and the development of synthetic indexes which track returns on weighted commodity baskets. These trends are expected to increase price co-movements of commodities and to expand the role of financial factors in determining the price of each commodity compared to that of its supply and demand. For these reasons, financialisation and speculation on commodity prices have been discussed as possible determinants of energy and food price spikes and prices co-movements but there is no consensus on the extent and degree of their effects. According to the review by Fattouh et al. (2013), for instance, the view that speculation and financialisation of oil market have driven oil spot prices after 2003 is not supported by existing findings. Analogously, Irwin and Sanderds (2012) suggest that there is little evidence that passive index investment caused a massive bubble in commodity futures prices. In contrast, Gilbert (2010) identifies a strong and significant impact of index-based investment in agricultural futures in explaining the 2007-2008 food price spike. At the same time, Tadesse et al. (in press), investigating wheat, maize, and soybeans markets, find that price shocks are explained by demand and supply, but also by two factors linked to financialisation, namely the relations between food, energy, and financial markets and by speculation. In line with this view, estimates provided by Henderson et al. (2012) indicate that financial institutions' behaviour and demand for commodity exposure have a significant effect in price formation in the commodities futures markets. At the same time, Silvennoinen and Thorp (2013) find that since the early 2000s (when financialisation of commodities started) commodity futures and stock markets have become more integrated in several major equity markets

(US, German, French, UK and Japanese) and that increases in volatility and financial traders' short open interest have raised futures returns volatility for many commodities. The expansion of financial trading in commodity market has been accompanied by a rise in correlation between oil and agricultural prices and in correlation between commodity futures returns and conventional stock and bond returns have increased. This implies that, in the financialisation period, shocks can be more easily transmitted (and therefore amplified) across different agricultural and natural resources commodities and between commodity and conventional financial assets.

In brief, a growing literature shows that financial motives significantly contribute to price movements and price shocks of natural commodities, food and energy. This implicitly calls for interventions to enhance surveillance and regulations of financial investors participating in commodity markets. Measures suggested by UNCTAD (2011), for instance, go in this direction: improved transparency and position limits in commodity futures exchanges and OTC markets, transaction taxation, and requirements to hold positions for a minimum amount of time. Along with these proposals, we can add the ban for naked (speculative) commodity derivatives, as already experienced for credit default swaps. Even though there is a debate on the impact of these forms of regulation, especially when not harmonised among super-national regulators, this could reduce the speculative impact on commodity prices. We reckon that the need to reduce speculation and to regulate commodity futures market in order to limit risks of commodity price shocks should not divert attention from the role of fundamentals (such as increasing demand of raw materials), namely from more challenging agendas requiring greater efforts for less environmentally intensive consumption and production at global level.

3.4.2 Financialisation of environmental services

The emergence of monetisation of nature and the increasing role of finance in valuing the environment are embedded in the institutional set up of neoliberalism and market environmentalism which have become prominent since the late 1980s (Gómez-Baggethun and Ruiz Pérez, 2011). These processes have occurred within commodity and financial



markets which trade natural-based financial assets and instruments, but also within decision-making processes of banks and financial institutions and of non financial firms. Over the last 15 years a number of measures have been proposed and introduced in order to increase the alignment between financial and economic decisions and the 'value' of natural resources and environmental services. International institutions and organisations have launched several initiatives (The United Nations Environment Programme Finance Initiative, UNEP/BASE Sustainable Energy Finance Initiative, Global Sustainable Investment Alliance, FSinsight) to promote direct engagement of finance sector in sustainability actions. A complete overview of these initiatives goes beyond the scope of this paper¹⁵, but a recent and emblematic example is offered by the Natural Capital Declaration signed in 2012 at the Rio 20+ Conference by 39 CEOs of major financial institutes which voluntarily committed to 'integrate natural capital considerations into loans, equity, fixed income and insurance products'. At the same time, the search for corporate sustainability measurement and reporting criteria has grown (see Ernst & Young's survey, 2011). The Economics of Ecosystem and Biodiversity (TEEB) for Business Coalition is working to introduce and spread standardised methods for natural capital accounting and reporting in business. Bloomberg already collects ESG data from 4,100 companies from 52 countries. More than 700 institutional investors participate in the Carbon Disclosure Project, which asks 2,400 of the world's largest companies to voluntarily measure and disclose their environmental information. Most of these initiatives are based on voluntary agreements and voluntary participation. Their effective implementation, therefore, is an open issue and there is a substantially lack of systematic evaluation of their environmental effects. In other cases, pricing signals for environmental services are based on more mandatory government interventions such as market-based environmental policies. Examples include cap-and-trade schemes for emissions of carbon dioxide (CO₂) or sulfur dioxide which, in turn, have given rise to a proliferation of environmental markets and exchanges (European Climate Exchange, the Chicago Climate Exchange and the Chicago Climate Futures Exchange) and related carbon derivatives. Few figures can show how carbon is rapidly transforming in a financial instrument: in 2011, European Union Allowances (EUAs) sold in

the primary market (US\$1.7 billion) accounted for slightly more than 1% of the total EUA market value, while EUA futures (US\$130.8 billion) and options on EUAs (US\$14.2 billion) represented about 88% and 10%, respectively, of total EUA transaction value (World Bank 2012). Financialisation is also a critical precondition for green offset markets (Fairhead et al. 2012) which represent other examples of interventions for pricing nature. There are now several biodiversity offsets and compensation programmes which have stimulated the opening of a number of platforms and information clearinghouses for transactions for environmental market-based mechanisms and for biodiversity offsetting and compensation banking (see for example, Speciesbanking.com and [Mission Markets Earth](http://MissionMarketsEarth.com)). A recent report (Madsen et al., 2011) has found 45 existing compensatory mitigation programmes and 1,100 mitigation banks worldwide. A recent frontier of integration of sustainability considerations into finance and business activities through a system of environmental pricing is also represented by new environmental-linked financial products and indexes such as carbon-index-linked corporate bonds launched by JPMorgan in 2007. In 2008, Credit Suisse was the first bank to even launch a 'carbon structured product' which bundled together carbon credits from 25 different offset projects¹⁶, while over the last years proposals for new financial instruments which might help raise capital to green investments and environmental conservation projects have been advanced: Mandel et al. (2010) have proposed the creation of "biodiversity derivatives"¹⁷, while Mainelli and Onstwedder promoted index linked carbon bonds¹⁸. Sullivan (2013) refers to this process as "financialisation of environmental conservation"¹⁹. In brief, in the era of financialisation, markets for environmental transactions are rapidly growing and financial markets have progressively incorporated new environmental services and natural resources. But what are the effects of these initiatives?

Let's start with cap-and-trade schemes for CO₂. The European Commission has placed great emphasis on EU ETS as the largest and most cost-effective tool for cutting greenhouse gas emissions, but its impact on investment on low-carbon technologies is not equally strong. Most existing empirical evidence finds that the effects of EU ETS on technological innovation are limited or moderate (for a review see Borghesi et al. 2012).

The role of other initiatives for evaluating the environment through financial mechanisms is even more debated. The dispute around financialisation of nature or natural capital accounting (depending on the preferred – negative or positive – connotation) has found a telling manifestation during the recent *World Forum on Natural Capital*²⁰ and its counter-forum *Nature is not for Sale*²¹. The proponents of a deeper inclusion of finance in environmental protection and management of natural resources support the idea that monetisation of nature can move the value of nature, of environmental services and of benefits of environmental protection from an invisible to a visible status. Pricing environmental resources (natural capital assets, environmental risks and environmental free-access or public goods and services) can mobilise financial resources and business practices towards investment in environmental conservation and towards the incorporation of sustainability principles in economic and financial activities and decisions. In other words, giving a monetary value to nature is expected to transform hidden costs, risks, services, wealth capacity in financial returns, gain opportunities²², risk or cost reductions, or, as recently stated in a UNEP-FI report, in ‘material for financial institutions’ (Mulder et al. 2013: 5). This message is clearly emphasised in the portal of the Carbon Disclosure Project (www.cdp.org) which reports that ‘climate change, water scarcity, flooding, pollution and deforestation present material risks and opportunities to investors’. These sanguine arguments, however, fall apart when we also consider second-round effects. This process can also open new environmental threats and adverse effects on equity and environmental justice because of two main intrinsic and unavoidable failures and iniquities in evaluating nature within the financial and economic realms. First, monetisation of environmental goods and services can amplify their exposure to vagaries, volatility and failures of markets driving prices far from fundamentals. In the light of the ongoing crisis, the reliance on financial markets to ensure a “proper” pricing of natural capital and to avoid shocks in its use is at least questionable. Second, financialisation is conducive to an agenda attempting to save nature through a commodification of its resources, services, perceived values, but the complexity of ecosystems cannot be narrowed down, compressed and summarised in a single metric or in a single service. Beyond ethical issues, this

process of “synthesis” is technically impossible since natural ecosystems provide multiple and indivisible services. In a certain sense, even if it was theoretically desirable, monetisation of ecosystem services would be unfeasible and uncompleted, and therefore it would leave some “orphan” environmental services without incentives for their protection. The result is likely to be overexploitation or deterioration of those environmental values, services and resources which are not included in economic and financial measurement systems. This “selective” and “uncompleted” process of financialisation is also likely to produce adverse social effects on population groups whose livelihoods is linked to these environmental services. A perverse paradox might emerge: in the name of a legitimated defense of nature, new forms of dispossession can arise. Sullivan (2012) observes that monetisation of nature can create new economic rents which encourage a rush for appropriation of value rents. Fairhead et al, (2012: 254) refer to this “green grabbing” as a process through which new “valuations of nature are legitimising and incentivising new appropriations, and multiplying them”. A similar position is maintained by Paton and Bryant (2012: 98) who, pointing out how Clean Development Mechanism (CDM)²³ projects are producing negative social and ecological impacts, argue that “[M]arket principles are thereby extended to the environment in a *very limited way*, based on properties required for trading [...] *Broader* social and ecological factors are not priced or covered” (emphasis added). Kosoy and Corbera (2010) reviewing the literature on payments for ecosystem services (PES) and examples from carbon sequestration, watershed, protection and biodiversity conservation services conclude that the monetary valuation of ecosystem services denies their multiplicity and complexity and create power asymmetries because it does not take into account the actual availability and use of ecosystem services across time, geographical areas and population groups. Analogously, Bracking (2012: 271), when focusing on the increased involvement of private equity funds and development finance institutions in nature-based sectors in Africa, observes that “financiers have wrought a dissociated, incomplete and partial valorisation of the non-human world”. Bull et al. (2013) in a recent review of the literature on implementation, theoretical and practical problems of biodiversity offsetting reach similar conclusions.



In conclusion, the debate is divided between those wanting more finance and those wanting to remove finance from environmental protection initiatives. The discussion around this topic is deeply polarised between two opposite positions based on different theoretical, conceptual and, in some cases, ethic argumentations. Integrating natural capital in financial products and services is seen as a way to value nature more and better or, conversely, as a way to impose a profit-oriented notion of nature at the expense of distributive, ethical and sustainable logics. We believe that the skeptical view relies on stronger theoretical arguments, though further systematic empirical evidence, currently scarce, is needed to solve this dilemma.

4. Conclusions

This paper has discussed the main features and manifestations of the acceleration experienced by the financialisation process since the 1980s and its implications for sustainability relying on an extensive review of the literature. Financialisation produces effects which can create long-term trends (such as those on functional income distribution) but can also change across different periods of economic growth, slowdown and recession (i.e. effects on consumption growth), it encompasses a range of different processes and involves all components of the economy (FCs, NFCs, government institutions and households). Interpreting the implications of financialisation for sustainability, therefore, requires a methodological diverse and empirical dual-track approach which combines different methods of investigations. Historical contributions allow identifying long-term trends, long-waves in the evolution of financial systems and different stages of financialisation. At the same time, theoretical models enrich the discussion of all possible channels of transmission and interaction. Moreover, they can contribute to interpret empirical evidence which might provide apparently contradictory indications: financialisation can produce multiple effects at the same time and opposite impacts across different economic phases. In financialised economies, households can finance increasing levels of expenditure despite stagnant wages and firms can sustain their profit despite



growing competition. Times of prosperity, despite their fragile and vulnerable nature, can endure for several years before collapsing as recently shown by the Great Recession. However, high levels of indebtedness amplify real effects of a financial crisis and hinder the following economic recovery. The model by Palley (2009: 49-50) which considers different stages of financialisation clearly shows these changing implications: 'the process of financialisation is long-running and expansionary in the early and middle stages made financialisation' but then it constrains consumption and investment 'through de-leveraging and debt service payments'. This historical and theoretical approach can help also take into account the mutual causation that occurs between financial systems and real economy as well as between the role of finance and public intervention. As noted by Orhangazi (2011: 3), '[F]inance was shaped by and in turn shaped the rest of the economy and in this process played a contradictory role by sometimes providing solutions to the problems in the economy while at other times contributing to their creation or exacerbation'. Evidence-based works are equally relevant to verify what effects specific features of financialisation have produced on the ground and how and whether other casual paths interact with processes fostered by financialisation. It is advisable that empirical research follows two parallel but consistent lines of research: descriptive and broad analysis comparing the overall evolution of financialisation with general patterns in the socio-economic and environmental realms, and in-depth evidence of the single causal interactions which can operate simultaneously either in a mutually-reinforcing or in a counteracting way.

By referring to this methodological approach, this paper mainly draws from theoretical and empirical literature on the features of the recent phases of financialisation and it is complementary to the first chapter which includes historical analyses of this phenomenon and contributions in the realm of history of economic thoughts.

We have discussed different channels of interactions and sustainability dimensions. Several studies suggest that Second financialisation has allowed the introduction of fragilities and systemic risks in financial systems undermining their sustainability. It also seems that financialisation generates sources of non-sustainability in the non-financial sector and in the interactions between financial and non-financial units. We have identified a set of



developments associated with financialisation which promote a short-term orientation in investment decisions and governance, reduce incentives for productive real investments and induce an excessive financial leverage. All these processes tend to generate risks for overall competitiveness of economic systems but also regressive distributive effects. More controversial is the debate on the nexus between financialisation and environmental sustainability. We show that the discussion around this topic is deeply polarised between two opposite positions, while empirical evidence is actually quite sparse. However, we have found important elements of concerns for global social justice and environmental sustainability. Increasing evidence is consistent with the notion that financialisation has played a significant role in the recent price shocks in food and energy markets, while the wave of speculative investment in natural resources is likely to produce perverse environmental and social impact. Moreover, the so-called financialisation of environmental conservation tends to enhance the financial value of environmental resources but it is selective: not all stakeholders have the same opportunities and not all uses and values of natural resources and services are accounted for. This mechanism brings new risks and challenges for environmental services and their users that are excluded by official systems of natural capital monetisation and accounting.

¹ Pozsar, Adrian, Ashcraft, and Boesky (2010) define shadow banks as “financial intermediaries that conduct maturity, credit, and liquidity transformation without explicit access to central bank liquidity or public sector credit guarantees”.

² Greenwood and Scharfstein (2013) show that in the US the contribution of the securities industry to financial sector growth from the 1980s to the 2000s was substantially greater than the contribution of the credit intermediation industry.

³ Duménil and Lévy (2011: 87), by analysing neoliberalism under U. S . financial hegemony in the period from the late 1970s to the current crisis, observes that “the alliance between the managerial and the capitalist classes was substituted for the previous alliance between the managerial and the popular classes”.

⁴ The link between financialisation and misallocation of talents in the economy, however, is not fully confirmed by the recent analysis on MIT bachelor's graduates by Shu (2013) which finds that graduate schools and finance compete for students with the highest academic

talent, but students that choose between these two different careers are not fully comparable.

⁵ On this mechanism, see also Blundell-Wignall and Roulet (2013).

⁶ For more details about trends in distribution of personal income and their possible drivers see OECD (2011 and 2013).

⁷ Kus elaborates a financialisation indicator aggregating total value of stock traded on the stock market exchange as a percent of GDP, bank income before tax as a percent of GDP and securities under bank assets.

⁸ For a recent and detailed discussion about the channels through which economic fluctuations and crises affect inequality and also on the role of inequality as a cause of crises, see Stiglitz (2012).

⁹ The social costs of these excessive wages can be particularly relevant if, as argued by Greenwood and Scharfstein (2013) professional asset management has not ensured a more accurate monitoring and search for information. Indeed, evidence provided by Bai, Philippon, and Savov (2012) shows that the information content of market prices has not increased since 1960.

¹⁰ Measured by financial receipts (which include interest, dividends, and capital gains) as a share of the revenue generated from the selling of goods and services.

¹¹ The ratio of compensation to the sum of compensation and gross operating surplus.

¹² For an overview on trends in labour income share see Hein (2013).

¹³ In Epstein and Jayadev (2005) rentier income includes the profits earned by financial firms and interest income of non financial non-government resident units, while it excludes the dividends of NFCs. Onarn et al. (2011) instead defines the share of rentier income of NFCs as net interest and dividend payments to total profits.

¹⁴ For a brief overview of the drivers of this phenomenon see von Braun and Meinzen-Dick (2009).

¹⁵ For an overview on initiatives related to interventions for better 'green accounting' see Sullivan (2013).

¹⁶ For details see <http://www.fern.org/pt-br/node/5247>.

¹⁷ The idea is that "governments issue modified derivatives contracts to sell species' extinction risk to market investors and stakeholder" (p. 44 cited in Sullivan 2013).

¹⁸ http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=6658.

¹⁹ Sullivan defines "financialisation of environmental conservation" as "1. the turning of financiers to conservation parameters as a new frontier for investment, and 2. the rewriting of conservation practice and nonhuman worlds in terms of banking and financial categories (2013, p. 198).

²⁰ Simon Milne, CEO of Scottish Wildlife Trust, the institution organiser of the conference, maintained that "Ultimately nature is priceless. But it is not valueless. The urgent challenge facing us in the next decade is to more fully understand this value, and the critical services nature provides to our economy and society" (<http://www.naturalcapitalforum.com/>).

²¹ The Declaration on Biodiversity Offsetting promoted by The Forum on Natural Commons, which organised the counter-forum, states that "Past cases of biodiversity offsetting shows

how it opens up natural resources to further exploitation, and undermines communities' rights to be able to manage and protect the natural commons" (<http://naturenotforsale.org/declaration/>).

²² See, for example, the case of wetland mitigation banking described in Bayon (2008).

²³ The CDM is a mechanism which allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits. These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol (<http://cdm.unfccc.int/about/index.html>).

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THE ABSTRACT OF THE PROJECT IS:

The research programme will integrate diverse levels, methods and disciplinary traditions with the aim of developing a comprehensive policy agenda for changing the role of the financial system to help achieve a future which is sustainable in environmental, social and economic terms. The programme involves an integrated and balanced consortium involving partners from 14 countries that has unsurpassed experience of deploying diverse perspectives both within economics and across disciplines inclusive of economics. The programme is distinctively pluralistic, and aims to forge alliances across the social sciences, so as to understand how finance can better serve economic, social and environmental needs. The central issues addressed are the ways in which the growth and performance of economies in the last 30 years have been dependent on the characteristics of the processes of financialisation; how has financialisation impacted on the achievement of specific economic, social, and environmental objectives?; the nature of the relationship between financialisation and the sustainability of the financial system, economic development and the environment?; the lessons to be drawn from the crisis about the nature and impacts of financialisation? ; what are the requisites of a financial system able to support a process of sustainable development, broadly conceived?'

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