



Editorial

# Financialization and information technology: A multi-paradigmatic view of IT and finance – Part II

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Ten years have passed since industrialized countries completed the implementation of their financial liberalization programs (Abiad *et al.*, 2008). The global financial landscape is characterized by immense complexity, global expansion, ownership concentration and systemic fragility, as is indicated by several stylized facts. The debt of corporations, households and governments has indeed increased massively: in the Eurozone, the volume of financial instruments issued by corporations was multiplied by 30 between 2003 and 2015, jumping from 1 billion to 30 billion euros. In the meantime, the cost of banking bailout programs in the aftermath of the 2008 global financial crisis induced a sharp rise in public debt levels. Financial innovation has also intensified, echoing the massive development of the shadow banking industry (Gennaioli *et al.*, 2012). In 2014, shadow banking represented 75 trillion dollars and accounted for 25% of global financial assets (Financial Stability Board, 2014). An unprecedented rise of banking mergers, acquisitions and concentration has also taken place. A set of financial institutions has now been formally identified as “systematically important” due to their global size, complexity and interconnectedness (Financial Stability Board, 2014). For instance, the near doubling in size of the EU and US banking systems between 1996 and 2012 was entirely attributable to the growth of the 20 largest banks (European Systemic Risk Board, 2014). All these changes, which have exposed the banking sector to greater tail risk, have taken place in a broader context in which banks have abandoned their former “credit culture” in favour of a culture of “shareholder value” (Lazonick, 2013). Such unfettered expansion of the financial sector has had a myriad of implications for organizations, economies and societies. The concept of *financialization* has been put forth within a wide array of social sciences (including economics, sociology, geography and accounting studies) in order to encompass these changes.

The starting point for this double special issue is the observation that the literature on financialization tends to overlook the fact that the expansion of financial markets,

actors and narratives has been accompanied by an unprecedented expansion in information technology. The digitalization of trading has indeed increased the velocity and complexity of global financial products, contributing to the emergence of the new opaque and complex context for securities discussed above. Our objective is therefore to lay the groundwork for further studies, which view technology as a correlative, and even a causal mechanism in global financial events and outcomes. The papers contained in Part II of this special issue build on the themes, issues and critical debates raised in Part I and offer new methodological and paradigmatic insight into the interactions between financialization and information technology. The selected papers use a wide array of methodologies, such as case studies, empirical analyses and conceptualization, and together they provide a multi-layered picture of financialization.

The interdisciplinary nature of the concept of financialization clearly poses a challenge for information technology research. Because of its very nature, financialization needs to be discussed in studies which seek to understand financial sector changes from a macrosocial perspective. However, as noted in the editorial of Part I, IT researchers are used to looking through the *microscope* rather than the *telescope* to analyse the adoption and deployment of information technology. The bulk of IT research therefore tends to leave aside the various macrosocial implications of technological development. Such implications, however, are inherent to the concept of financialization. Importing the latter to the area of information technology research will therefore require the development of a critical awareness of the various meta-theoretical assumptions of this field. Information technology researchers will need to acknowledge that the selection of relevant research questions as well as the methods used to answer them and the interpretation of research results are influenced by tacit paradigmatic assumptions.

The study of financialization in the field of IT research will therefore provide fresh opportunities for understanding the broader implications of how technology plays a

mediating role in economies and societies. An eclectic approach to the disciplinary literature on financialization, coupled with methodological diversification, will foster a greater appreciation of the mediating role of financial and technological innovations across different levels and units of analysis. We hope that the juxtaposition of these various approaches will shed additional light on the various facets of financialization, help address its constitutive complexity and ambiguity, while simultaneously contributing to the further development of information technology research by promoting paradigmatic diversification.

The remainder of this editorial is structured as follows. We first provide an interdisciplinary overview of the financialization literature. Next, we lay the epistemological ground for connecting financialization with information technology research by adapting Burrell and Morgan's (1979) paradigmatic decomposition matrix to the analysis of technological development. Finally, we discuss the selected papers contained in this special issue and attempt to identify avenues for further research.

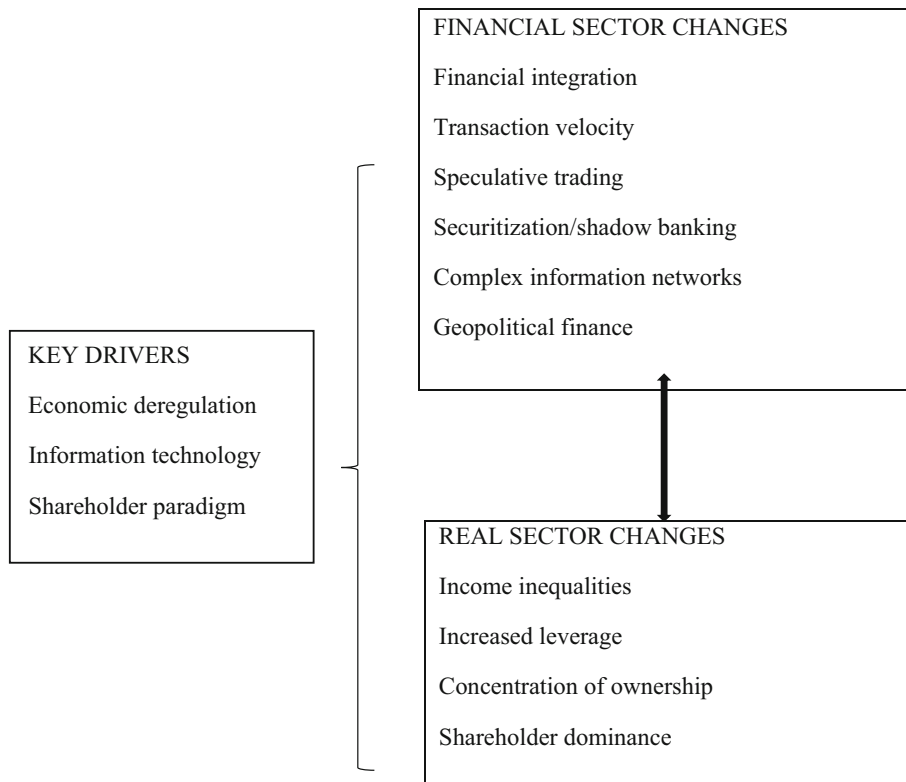
**Disciplinary approaches in financialization: An overview**

As suggested in Lagoarde-Segot (2016), financialization may be depicted as the joint product of the development of information technologies, the deregulation of economies and the rise of the “shareholder value paradigm”, at various levels. Figure 1 shows that these three trends manifest themselves via the following interrelated changes, which are occurring simultaneously in the financial and in the real sectors:

- In the financial sector, key changes include financial liberalization reforms, financial transaction velocity, speculative trading, securitization/shadow banking, complex information networks and geopolitical finance;
- In the real sector, key changes include increased income inequalities, increased leverage, concentration of financial and real assets’ ownership, and shareholder dominance.

A broad range of interdisciplinary studies has shown that financialization has profoundly altered the relationship between finance, economies, territories, organizations and even daily life. This interdisciplinary literature provides a rich and contrasted view of the myriad of implications of the effects and processes of financialization. While a comprehensive review of the financialization literature is beyond the scope of this special issue, it is useful to summarize the key findings obtained in previous studies. The existing body of work on financialization falls into four main categories.

*Macroeconomic studies* analyse financialization as the driving force of a “finance-led” regime of capitalistic accumulation. The latter is characterized by the expansion of the financial sector in the economy, the stagnation of real wages, increased levels of private debt, rising levels of income inequality, lower economic growth and increased systemic fragility (Stockhammer, 2004; Piketty, 2013; Plihon, 2002; Cordonnier *et al.*, 2015; Aglietta, 2016). A set of recent empirical estimates conducted in industrialized countries indicates that the relationship uniting finance and economic growth takes the form of an inverted U-shaped relationship (Arcand *et al.*, 2012; Manganelli and Popov, 2013; Rousseau



**Figure 1** Financialization: a conceptual framework. Source: Lagoarde-Segot (2016).

and Wachtel, 2011; Ductor and Grechyna, 2013).<sup>1</sup> Two main lines of explanations justify this view. First, excessive financial development tends towards a misallocation of human and capital resources, which hinders the growth of factor productivity (Cecchetti and Kharroubi 2012; Borio *et al.*, 2016). Second, larger financial sectors tend to undergo deeper and more frequent financial crises, which are in turn associated with recessions (Reinhart and Rogoff, 2009; Alessi and Detken, 2014).

*Critical accounting studies* demonstrate the development of an active market for corporate control and the adoption of fair-value reporting has blended the spheres of cash earnings and wealth accumulation in the corporate sector's accounts (Gleadle *et al.*, 2014). Several case studies have underlined that this increased focus on short-term financial profitability has been detrimental to real investment in different national contexts (Lazonick and O'Sullivan, 2000; Froud *et al.*, 2000; Jürgens *et al.*, 2000; Morin, 2000; Williams, 2000). For instance, a study published by Reuters (2015) indicates that the dividends and buyback to net income ratio has increased steadily over recent years, reaching 116% in 2015 in a sample of 3297 publicly traded, non-financial, US corporations. There is also increasing evidence of a disconnection between CEO compensation and performance. This feature is indicative of rent extraction behaviour operating mainly through bargaining effects in the market for CEOs (Piketty *et al.*, 2014; Frydman and Jenter, 2010). These findings echo a study by Lazonick (2013) which highlights a perfect negative correlation between financial and non-financial equity issues in the USA, and a widespread use of levered stock buybacks to sustain the growth of earnings per share and senior management remuneration.

The *sociological literature* has analysed the impact of financialization on the subjective understanding of one's socioeconomic role. These studies show that financialization results from the democratization of finance (whereby mass marketed financial products have been made available to large parts of the population) and from the dissemination of specific narratives and discourses that emphasize individual responsibility alongside risk-taking and financial education (Langley, 2008; Blackburn, 2006). As workers and households become increasingly enrolled in circuits of finance, the creditor to debtor relationship emerges as a dominant form of social relations and ordinary individuals are progressively turned into financial subjects (*homo debitor*) (Sokol, 2015).

Finally, the *geographical literature* examines the spatial implications of the observed mutations in the financial sector. For instance, Sokol (2015) highlights that the concentration of financial activities in a restricted number of financial centres produces new power relations between states and territories through the emergence of "financial chains" (which are channels of value transfer and social relationships). The interactions between governments and free markets are reconfigured and become intertwined through their subjection to financial logic and financial interests (Hendrikse and Sidaway, 2010; Caprotti, 2010). Another example is given by Cloke (2010, 2013) who argues that financialization has given rise to the emergence of *ultra capital*, which he defines as a hybrid form of circulating capital, driven by the erosion of difference at the state/private regulatory interface into a contiguous politico-financial relational space.

One contribution of this special issue is to extend our understanding of financialization by connecting it to the field of IT research. However, given its critical and interdisciplinary nature, financialization is also a *disruptive* concept. Importing it into IT studies will thus require the acknowledgement that technological development can be studied from a variety of paradigmatic perspectives. This is the objective of the next section.

### A multi-paradigmatic view of information technology in finance

Burrell and Morgan (1979) heuristic paradigmatic matrix may be used to highlight the role of paradigmatic assumptions in information technology research. Recall that the matrix categorizes research depending on the chosen assumptions regarding the *nature of science* and the *nature of society*. As shown in Figure 2, assumptions regarding the *nature of science* can be ranked according to a subjective – objective dimension. These refer to assumptions regarding ontology, epistemology, human nature and methodology:

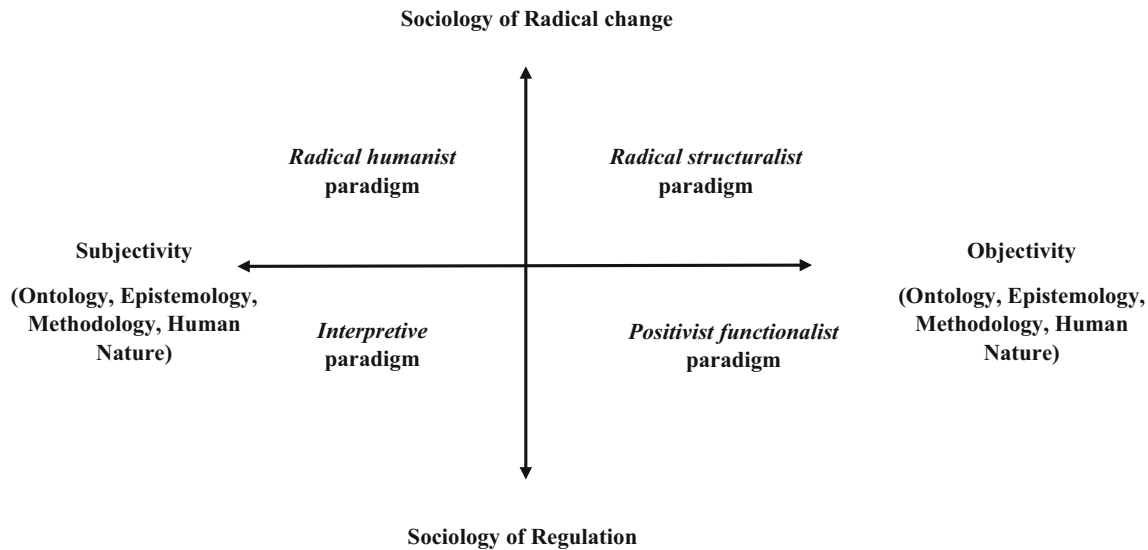
- Ontological assumptions are concerned with the essence of the studied phenomenon: is the phenomenon objective and external to the individual, or is it subjective and the product of the individual's mind?
- Epistemological assumptions are concerned with the nature of knowledge: is knowledge an external reality that has to be acquired, or is it a relative concept linked first and foremost to personal experience?
- Assumptions about human nature are concerned with the relationship between humans and their environments: are humans the product, or the creators of their environment?
- Assumptions about methodology are related to the procedures of scientific inquiry: should researchers seek to uncover universal mechanisms or understand the ways in which humans create, modify and interpret the social world in a given situation?

Assumptions regarding the nature of society can be represented according to two conflicting views on social processes:

- The regulation view assumes cohesiveness and unity of society and seeks to explain why a given society tends to remain intact rather than fall apart;
- The radical change view analyses society based on the assumption of structural conflicts and modes of domination and seeks to develop alternatives rather than acceptance of the status quo.

As shown in Figure 2, the interaction of these four assumptions gives rise to four paradigms in the social sciences: the *positivist functionalist* paradigm, the *interpretive* paradigm, the *radical humanist* paradigm and the *radical structuralist* paradigm. In what follows, we demonstrate that these paradigmatic views tacitly determine the way in which the relationship between information technology, finance and society is conceptualized.

The *positivist functionalist paradigm* sees technology as contributing to total factor productivity and having a positive impact on progress, via economic growth. This paradigm,



**Figure 2** The matrix of social sciences.

Source: adapted from Burrell and Morgan (1979).

which is heavily based on neoclassical economics, identifies human progress with the accumulation of the capital stock and identifies technology as one of the forces underlying the latter. For instance according to Nobel Prize Winner, Romer (1993, p. 345): “No amount of saving and investment, no policy of macroeconomic fine-tuning, no set of tax and spending incentives can generate sustainable economic growth unless it is accompanied by the countless large and small discoveries that are required to create more value from a fixed set of natural resources”. This becomes apparent when one considers the standard “New Growth Theory” production function relative to firm  $i$  as:

$$Y_i = F(k_i, K, \mathbf{x}_i)$$

where  $K$  is the accumulated “stock of knowledge” in the economy as a whole,  $\mathbf{x}_i$  is the vector of all inputs different from knowledge and  $k_i$  is the firm specific knowledge. The function is taken to be homogeneous of degree one in  $k_i$  and  $\mathbf{x}_i$  and homogeneous of a degree greater than one in  $k_i$  and  $K$ . This implies that knowledge accumulation – which stems from private research and development – provides positive externalities which counteract any tendency of the marginal product of capital (and thus the rate of profit) to fall. Technological innovations in the fields of information technology and finance are hence seen as contributing to human progress by fostering capital accumulation. This paradigm is used in studies which promote the adoption and diffusion of information technology. It rests on a research agenda that seeks to enhance technological intensity in all sectors of the economy – including the financial sector. This paradigm views the various areas of IT deployment in the financial sector (from mobile banking to hard frequency trading) favourably given their expected contribution to productivity (see, for instance, Mention and Torkkelli, 2014). Most economics, finance and information technology research fall into this category.

The *interpretive paradigm* provides an alternative view by analysing technology primarily as a social process. This paradigm is heavily influenced by the social construction of technology (SCOT) developed initially by Pinch and Bijker (1984). The latter analyses technological development as being characterized by three key components. First, understanding a given technology requires us to identify the *relevant social groups* which play a role in the development of the technological artefact under consideration. It is the interaction between such groups (which include engineers, advertisers and consumers) which defines a technological artefact. One important implication is that there is no “one best way” to create a new technological artefact, given that different social groups associate different meanings to a given artefact. This leads to *interpretive flexibility* as the second component of SCOT. Interpretive flexibility means that technology design and use is an open process that can generate different outcomes depending on its social circumstances. It follows that technological development is not an exogenous, neutral answer to an objective problem, but rather, results from the interaction of the relevant social groups regarding the very definition of the problem that the artefact is supposed to solve. The third component of SCOT refers to the process of *closure and stabilization*, which implies that a technological artefact will stabilize in its final form only when it is considered satisfactory by all social groups, i.e. that the controversies regarding the conflicting images of an artefact are resolved. When all relevant social groups see the technological problem as being solved, the closure is said to be “rhetorical”, the alternative being the reformulation of the technological problem itself. This paradigm, which is often used by sociologists of technology (Latour, 1987), has profound implications for the way in which the relationship between finance and IT is conceptualized. In the interpretive view, financial market prices are not *discovered* (as in the neoclassical Walrasian auction system) but *fabricated* through algorithmic configurations determined by the state of competition in the market for financial IT. In other words,

prices are “immanent to trading practice and to the exchange architecture within which trading takes place” (Muniesa, 2014, p. 61)

The *radical humanist* paradigm views technology as a form of ideology to which the majority of people in society become subjected. This view could be associated with the Frankfurt School or with personalist thinkers. For instance according to Habermas (1968), the rationalization of human activities serves as a veil which hides a form of political domination by hiding the network of macrosociological interests (*gesamtgesellschaftlich*) in which strategies are chosen, technologies are utilized and systems are designed. In other words, the search for technical efficiency, behind a mask of “rationality”, serves as an ideological justification of the existing balance of powers between groups of agents with conflicting interests. The focus on “rationality” indirectly justifies existing relations of productions, given that these provide an adequate institutional framework for technological extension. A different but related approach is provided by Ellul (1964, 1977), who argues that technology is characterized by “autonomy, unity, universality, totalization, automatic growth, causal progression and the absence of purpose” (1977, p. 56). This has led to the emergence of a “technical system” in which human societies prioritize the search for technical efficiency over all other forms of potentialities. By virtue of its autonomy from its creator (humans), technology, rather than being a means to an end, has become the main force that shapes societies. This new “technical order” is embedded in political institutions such as states and has induced the emergence of a totalizing social organization incompatible with individual and collective freedom: the human being is reduced to “a slug inserted into a slot machine” (1964, p. 135). For instance, Cloke (2010) argued that the development of securitization – which was at the origin of the global financial crisis – required, as a prerequisite, the development of a cyber-environment “whose purpose, through velocity of circulation and complex intermediation is to conceal value, ownership and location” (p. 7). The mass deployment of IT in deregulated and internationally integrated financial markets has developed from “complex, contingent and subtle blendings of human actors and technical artefacts to form actor-networks (which are sociotechnical hybrids)” (Graham, 1998, p. 167). From a radical humanist perspective, these trends have diminished political autonomy and gradually turned corporations, citizens and policymakers into financial *subjects*, for the benefit of capital holders and the financial industry.

Finally, the *radical structuralist paradigm* sees technology as a “superstructure” whose independent evolution provides the material basis upon which the evolution of societies is based. This paradigm is rooted in Marxian technological determinism. It argues that the development of the productive forces (which include technological innovations and changes in the existing productive forces) is an autonomous force that supersedes cultural or political influences. In addition, it claims that technological development is the long-run determinant of historical change. In this view, the independent rise in technological development coincides with a particular set of relations of production (that is, humans’ relations to the forces of production forces and to other people). Over the course of technological development, existing relations of production are discarded and replaced

with new ones that allow for the further expansion of productive capabilities. It follows that the social, moral and political states of nations change with the material powers of production. This paradigm, which is often used by industrial sociologists (Watson, 1995), has strong implications for the analysis of the relationship between IT and financialization. Marxian scholars indeed argue that the deployment of information technology in financial markets corresponds to a new phase in the development of capitalism marked by the domination of “fictitious capital” (i.e. capital that derives its fictitious value from circulation) over production. By transforming money into electromagnetic waves, information technologies maximize the speed and the complexity of capital circulation. Financial profits are thus accountancy and technological (rather than economic) creations: income streams do not stem from the purchase/selling of actual commodities (M–C–M’), but from suppositional cash flows in which financial products of various kinds are traded, at a high speed (Fuchs and Mosco, 2016). This new context gives market participants the *illusion* that money has the ability to create value on its own (M–M’), that is to say that capital accumulation results from a relationship between things rather than from a relationship between humans. However, given its disconnection from production, the fictitious value of financial assets collapses at regular intervals. The increased reliance of financial market speculators on IT thus generates financial crises of increasing intensity (Duménil and Lévy, 2006).

Given that all four approaches rest *in fine* on ontological and epistemological hypotheses, it is impossible to demonstrate the superiority of a given approach without relying on a particular ad hoc worldview (Ardalan, 2008). This heuristic matrix therefore offers the epistemological diversity required to explore the complex links uniting technology and financialization. The papers contained in Part II of this special issue contribute to the diversification of information technology research as they rest on various disciplinary and methodological views. Taken together, they provide a nuanced and detailed analysis of financialization in the context of information technology studies and pave the way for a new interdisciplinary research agenda. The content of these papers is summarized in the following section.

### Special issue papers

In his paper “An essay on financial information in an era of computerization”, Schinckus analyses how the computerization of the financial markets affects our ability to collect information about financial prices. This discussion is particularly important given that the concept of information is at the heart of financial economics. He argues that the growing computerization of financial markets has generated a form of a “hyper-reality”. This term was borrowed from sociological literature (Baudrillard, 1994) and reflects the fact that our modern society is increasingly saturated with images, signs, codes, symbols and technology. This situation exaggerates the real to the point where this phenomenon might create new realities detached from its original form. It follows that there is no longer “something” to which financial prices refer. Schinckus then discusses this phenomenon by showing the implications of the Flash Crash for the traditional ways of collecting information in finance (technical analysis,



fundamental analysis and statistical approach). One important puzzle is that the algorithmization of financial markets leads to question about how we can intervene in events when they are simulated and replaced by pseudo-events (i.e. flash crashes are not based on an economic reality). He concludes by highlighting that the ambiguity of financialization calls for a diversification of financial economics based upon a new combination of conceptual and theoretical perspectives. The conclusions of this paper are backed up by several empirical studies included in this special issue.

The second paper “Effects of transparency: analyzing social biases on trader performance in social trading” by Glaser and Risius develops an empirical analysis of the behaviour of traders on a social trading platform. After scraping all trader profiles on a daily basis between 10 and 12 pm UTC+2, they gathered a raw profile data set comprised of profile snapshots of around 33,000 traders for each day between 17/06/2013 and 01/2014. Historical trades for every unique trader profile were obtained subsequently, resulting in a final sample of 3.79 million trades and around 33,000 profiles per day. Their fixed-effect regression estimates then showed that social trading significantly reinforces behavioural biases. In particular, when investors can openly compare success measures of traders, it causes traders to trim their performance metrics. Such a phenomenon could be explained by the social platform’s volume-based trader remuneration models: traders share the profit from premiums imposed on execution prices for follower trades with the platform operating broker. This implies that trades do not need to be winning trades for the trader to make a profit. One important consequence of these results is that the development of social trading implies a further departure from the information efficiency hypothesis. Given that the latter is a necessary condition for the allocative efficiency, the authors call for a better regulatory monitoring of social platform trading. The latter could indeed be justified both from the point of view of customer protection and the monitoring of systemic risk.

In their paper “Beauty-Contests in the age of Financialization: Information Activism and Retail Investor Behavior”, Rickett and Datta examine the extent to which increased communication prompts herding behaviour among retail investors. Using a final sample of 2046 event observations retrieved from financial information blogs, they examined the effect of information activism on prices and trading volume, in bull and bear market contexts, and for different categories of firms. Their results indicate that retail investors appear to rely on online information activists during uncertain economic conditions. Findings also denote that abnormal returns are associated with information activism during uncertain economic conditions and are more frequently observed for buy recommendations when information asymmetry is high (this is particularly true for stocks exchanges where unsophisticated investors tend to trade more heavily). Overall these findings back up the view that financialization has shifted profit-making to speculative trading rather than fundamental trade or commodity production. This paper points out that IT development in the context of financialization takes a downstream toll by reducing market efficiency.

These results echo the paper *More than Just Noise? Examining the Information Content of Stock Microblogs on Financial Markets* by Li, Van Dalen and van Rees which examines the extent to which stock microblog messages are

related to financial market indicators and the mechanism leading to efficient aggregation of information. The contribution of this paper is to investigate the information content of stock microblogs with respect to individual stocks and to explore the effects of social influences on an interday and intraday basis. The authors collected and analysed more than 1.2 million stock-related messages (i.e. tweets) related to S&P 100 companies over a period of 7 months. Their results showed that the sentiment of messages affects contemporaneous daily abnormal stock returns and that message volume predicts 15-min follow-up returns, trading volume and volatility. Following knowledgeable investors advice results in more power in explaining changes in market features. This offers an explanation for the efficient aggregation of information on microblogging platforms. This paper shows that the deployment of information technology, social media in financial markets, affects the price construction process by offering new opportunities for speculation.

In the paper “Three different ways to skin a cat: Financialization in the emergence of national e-ID solutions”, Ben Eaton and colleagues consider the growing phenomenon of financialization from a cross-country perspective with the focal technology of national electronic identification (e-ID) solutions. Adopting a cross-disciplinary analysis, the authors present three cases from Denmark, Norway and Sweden, developed from primary (interviews) and secondary data (online sources and documents). Findings show that different governance solutions emerge resulting from a convergence of interests and interdependency of resources between different actors over time. The authors’ propose a dialectic process model and identify five mechanisms that drive the national e-ID initiative. The comparative country approach contributes to financialization debates since it applies the theory of collective action to observe how competing interests, resources and governance change over time in the interplay between financial and public sector actors. While financialization literature focuses on different regimes of accumulation and modes of firm management, this research sheds light on financialization in a public policy and IT context, albeit using only one example of technology, but with implications for other large-scale programs.

### New directions

Taken together, the papers contained in this special issue allow us to make two nested conjectures. *First*, the development of information technology has played an instrumental role in the financialization process. As shown by the various empirical studies, information technology simultaneously affects the physical nature of financial markets, the meaning of prices and the interplay between financial actors and regulators – which are all important aspects of financialization. *Second*, the deployment of information technologies in financial markets shapes the price fabrication process. The apparent gap between the relatively slow pace at which economic and corporate information is revealed and the observed velocity of market transactions – which take place via social networks and automated trading platforms – indicates that financial market prices depart from the efficient market hypothesis (which was put forth in the 1970s). This special issue should hence lead us to reconsider both the content of mainstream financial economics and the

expected positive relationship between the deployment of information technologies and social welfare. Further research is needed in order to understand how information technology interacts with financialization – not only to better describe the latter, but also to respond to the economic and social challenges that it brings.

To conclude, it may be useful to highlight a few promising research questions in the field of financialization and information technology. Given the conclusions of this special issue, and following a taxonomy developed by Lewis and Grimes (1999), we propose that such research could be based on *multi-paradigmatic reviews* (in which researchers reveal the impact of theorists' assumptions on their understanding of a phenomenon), on *multi-paradigmatic research* (in which researchers apply different paradigmatic lenses simultaneously in order to examine different aspects of a phenomenon), on *meta-paradigmatic research* (in which insight from different paradigms is linked within a theoretical reference system) or on *metatriangulation* (a process of building theory from multiple paradigms). Bearing this in mind, the following set of questions appears of particular interest in order to extend IT research beyond the conventional positivist functionalist paradigm:

1. How might we characterize the technological frame of financialization? What goals, problems, theories and exemplary artefacts structure group members' thinking about information technology in finance? How does this tacitly guide and shape the further development of technological artefacts in financial markets? This set of research questions would fall into the "interpretive paradigm".
2. To what extent does technological development contribute of the rise of the finance-led accumulation regime? Can we compare and contrast the current financialization era with previous historical periods where technology reinforced the power of financial institutions and served the interests of the upper capitalist class? To what extent does the deployment of information technology in financial markets transform individual money holders into passive capitalists? This set of research questions would fall into the "radical structuralist paradigm".
3. Does the development of technology in the financial sphere affect human autonomy and intentionality? To what extent does the deployment of technology in financial markets provide a justification for the domination of financial interests and narratives and contribute to the rise of the *homo-debtor*? Alternatively, could information technology be used in order to roll back financialization and make the financial system work for the benefit of society? This set of research questions would fall into the "radical humanist paradigm".

It is our hope that this double special issue will be a stepping stone for the development of a new interdisciplinary and epistemologically grounded research agenda exploring the links between finance, information technology and society.

#### Note

- 1 Such estimates typically indicate that the finance-growth relationship reverses when the credit-to-GDP ratio exceeds 90%.

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