Research in finance:
When performativity leads to reflexivity

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Abstract:
To assess the impact of research in finance over the past sixty years, how to measure the effect of theories on practices, on the financial industry's growth and, too, on the social norms and institutional arrangements that organize the realm of finance? This article's principal contribution is to insist on the role of theory in the social construction of finance and on the necessity for financial theory to stop neglecting its performative effects. Research will thus have a more ambitious position in debates on the social utility of finance and will suggest novel perspectives, in particular for regulations in this realm.

From the start of the meltdown in 2007-2008, finance, its actors and institutions have been the focus of debates about the tenability of their practices as exposed by the media.[1] The record fines paid by big international banks to regulatory authorities and the sensational trials of traders sued by their employers or prosecuted by public authorities formed a body of evidence for indicting an industry that had, for a long time, thrived and was used to expanding. Its legitimacy came under question. Academics and researchers in finance were not spared, even less so those who (especially in the United States) held jobs as advisors in economic policy or governors of central banks. We need but recall the abashed explanations by professors in *Inside Job*, a documentary film about responsibility for the crisis. A notable, unprecedented event: in 2015, Luigi Zingales, president of the American Finance Association,[2] opened this organization's annual congress with the question "*Does finance benefit society?*" Observing the swelling "*dissonance*" between the financial industry and public opinion, he asked questions about the responsibility of those who had produced this knowledge and about the called-for improvements (ZINGALES 2015).

The meltdown seemed to be triggering a moral crisis (MUNIR 2011, ORLÉAN 2009). This context serves as an excellent prism for analyzing how the impact of research in finance has been refracted on practices in the financial industry and on society in general. Over a 60-year period, this research started from next to naught, scaled summits of visibility, won the Nobel Prize in Economics for a half dozen academics, and established its dominance as an intellectual field in the managerial sciences (WHITLEY 1986) — before it was accused of being at least partly responsible for the financial crisis or for negative trends in contemporary capitalism (DAVIS *et al*. 1994, PRYKE & ALLEN 2000, LIPUMA & LEE 2004, AGLIETTA & REBÉRIOUX 2004, ARTUS *et al*. 2008, BRYAN & RAFFERTY 2006 & 2014, ZINGALES 2015).

[1] This article has been translated from French by Noal Mellott (Omaha Beach, France). The translation into English has, with the editor's approval, completed a few bibliographical references.
[2] AFA is the major academic organization backing research worldwide in financial economics.

We can adopt a perspective for looking backwards on this context, a potentially useful perspective with lessons and questions about how to interpret, measure or judge the general impact on society that a certain type of intellectual endeavor for constructing a science — finance — has had. This leads us to try to distinguish between several sorts of effects and to understand their interrelations. Such is the effort pursued in this article.

I shall start by describing the direct impact that financial theory has had from its origins on practices in the financial industry and, in turn, on itself, *i.e.*, as a cumulative process that built a paradigm and worked out a worldview that has furnished the cognitive framework shared by players in this industry. The concept of performativity will be used to describe the strong, often unforeseen, sway financial theory has had over social reality. In fact, it has had a part in changing this reality. To illustrate the power of these processes in changing society, I shall take examples from the field of financial regulation, which is well suited to articulating financial theory with the quest for a common good. It will then be shown that research in finance still utterly fails to take account of its effects on the social construction of reality — this has been pointed out in other disciplines or by participants in current social debates. After discussing how these other disciplines have addressed this phenomenon, I shall analyze the omissions ensuing from the failure of financial theory to do as much. In the main, this article will dwell on the knowledge produced by these other disciplines and the benefits for financial theory were it to engage in a dialog with them. Financial theory could thus take a larger place in social debates about the financial industry's practices and reclaim the goal of more actively and innovatively helping to construct the common weal.

The direct impact of research on finance

Research in finance has, since Markowitz (1952), strongly affected the practices of financiers in the markets (MACKENZIE 2006). Peter Bernstein, a fund manager and then president of a financial consultancy firm, was apparently the first to have pointed this out so clearly. His description of a handful of academics venturing into modern finance and setting off an unprecedented revolution in financial theory did not overlook the fact that these academics, had a fascination with Wall "*and it conquered them*", since most of them would become, at one time or another, partners in a Wall Street firm or employees of big investment houses (BERNSTEIN 1995:18; MACKENZIE & SPEARS 2014, CHARREAUX & ALBOUY 2017). He clearly praised these innovators who founded modern finance (among them: Bachelier, Markowitz, Sharpe and Leland). They have deeply altered how we see things, even though, at the time, their theories stirred up controversy. In fact, no fund manager now works without referring to the conception of profitability and risks formulated by Markowitz (1952) and Sharpe (1964). The principle of diversification, which we also owe to them, now serves as the grounds for all arguments in finance; and the use of derivatives to manage risks in line with the model of Black and Scholes (1973) has been universally accepted (MACKENZIE & MILLO 2003, MARTIN 2015).

While satisfying practical needs for portfolio management or the valuation of financial assets, these inventors of modern finance (in touch with Wall Street or as part of the financial industry, as Bernstein pointed out) kept up on finance and favored changes in the financial industry (CHIAPELLO & WALTER 2016). They very much contributed to creating new activities, mainly the new methods used for fund and risk management (index tracking, strategies of portfolio insurance, funds specialized in arbitrage).

With regard to risk management, gigantic markets sprung up "outside the markets" — the now well-known over-the-counter markets (OTC) of derivatives (with a notional value of $542,000 billion in June 2017 compared with $33,000 billion for derivatives traded on stock markets.[3] This growth relied, obviously and fully, on the Black-Scholes model's nearly infinite possibilities for designing innovative financial products (MACKENZIE 2006, HUAULT & RAINELLI-LE MONTAGNER 2009). This model provided the theoretical grounds for later developments. Without the possibilities offered by it, the level of the aforementioned valuations could never have been reached; and the role of banks as intermediaries in these new activities would never have grown as fast as it did (MORGAN 2008, HUAULT & RAINELLI-LE MONTAGNER 2009, LÉPINAY 2011, MACKENZIE & SPEARS 2014).

Whereas Bernstein, as a practitioner in finance, praised the academic research in finance of the 1950s-1990s, Arnold *et al*. (2003) shifted the focus to the balance sheet of this research. They analyzed the influence of the best-known articles in finance on subsequent research. Using this method to measure the cumulative impact of the knowledge produced, they ranked the fifty most often cited articles in the discipline's major (and most prestigious) academic journals: *Journal of Business*, *Journal of Finance*, *Journal of Financial Economics*, *Journal of Finance and Quantitative Analysis*, *Review of Financial Studies* and *Financial Management*. These articles were at the origin of the cumulative process, since several academics cited them in order to expand on, or improve, the initially reported results. Among these "source-articles", Arnold *et al*. have pointed to the influence of Jensen and Meckling (1976) and Black and Scholes (1973), which extends far beyond the academic circles of finance out into the other social sciences. A quick use of Google Scholar corroborates this conclusion. The authors of the principal theories of modern finance are, without a doubt, now the references to be cited. Markowitz (1952), Sharpe (1964), Black and Scholes (1973), and Jensen and Meckling (1976) were cited respectively 23,000, 17,000, 30,000 and 56,000 times in academic journals, thus well beyond the circle of research in finance.

Nor should we overlook that the authors mentioned, these founding fathers of modern finance, all came from the United States. The influence of their thinking on developments in finance reflected both this country's economic power during the period 1950-1990 and its institutions. The financing of the American economy by the financial markets along with the history of changes in economic conditions, legal institutions and ideas about what corporations should be and how they should be controlled are factors that, in the United States, led to a conception of the firm centered on "shareholder value" (FLIGSTEIN 1993, ZORN 2004, ZORN *et al*. 2014). This value was based on an extension of the theories of market efficiency and agency (JENSEN & MECKLING 1976). American preeminence in the world economy accounts, in part, for the diffusion of these ideas to all developed countries.

By looking back on developments in academic finance over the past sixty years, we are able to do something more than measure the knowledge accumulated thanks to research in finance. This perspective lets us see that this discipline had a single, very coherent paradigm with underpinnings that never came under question till quite recently (RAINELLI-LE MONTAGNER 2003, ZINGALES 2015). The internal coherence of finance is illustrated by Myers (2015), as he commented on his part in building this paradigm while emphasizing his role as an expert on valuation and discount rates with public authorities. What he had to say

[3] *BIS Statistical Bulletin*, June 2017.

about the impact of the classroom manual he wrote with Brealey and Franklin (1980) was positive: this worldwide bestseller among manuals on finance had, since its first edition, substantially improved practices in the financial industry.

In fact, modern financial theory has oriented discussions about finance for about sixty years now, and served as the reference mark for decision-makers, both public and private. It forms a coherent whole with a much more complex epistemology than is apparent (RAINELLI-LE MONTAGNER 2003, DE SCHEEMAEKERE 2009). It is a "paradigm" in the sense of Thomas Kuhn. From 1950 till at least the mid-1990s, financial theory ceaselessly worked out this paradigm while handling any anomalies observed with the procedures that are normally and typically used during phases of change in science (KUHN 1972). As a consequence, the paradigm's underpinnings — the theory of rational expectations and the efficient market hypothesis — did not come under discussion. Research in finance would be crowned with the Nobel Memorial Prize in Economics in 2013, which was given to Eugene Fama (even though he had to share this award with Robert Shiller, a major critic of the efficient market hypothesis).

Modern financial theory has directly and significantly affected both practices in finance and the intellectual conception of financial phenomena. Research in finance was influential, even triumphant, till the meltdown, because it claimed to have launched a successful, cumulative process for constructing a body of knowledge over a long period in phase (and sometimes under tension) with both the expectations of market practitioners and technological trends in the industry (in particular, big data and "dematerialized" trading). Playing an indispensable role in the operation of the global financial system at all levels, including financial regulation and accounting (MERTON 1995), this theory seemed to have a special place among the other subdisciplines of the managerial sciences.

- In marketing, practitioners put the tools designed by academic research to use, but the rate of penetration of research in practices was much lower than in finance (ROBERTS *et al*. 2014).
- This question is even more acute in organizational research, an academic field that Davis (2015) has compared to a tourist sight located in San Jose, California: the Winchester Mystery House, a Victorian mansion of 160 rooms with architectural curiosities of no practical use (doors opening onto walls, hallways winding nowhere, staircases going up to the ceiling, and so forth). He used this image to describe research in finance where, as he pointed out, the ceaseless search for fresh, interesting results seems to have deviated academics from the quest for truth — to the detriment of the stock of knowledge produced and of its impact on practices.
- A final example: in management accounting, the split between academic research and its practical implications seems more marked than in finance. Some authors have drawn the conclusion that research in accountancy has wandered too far from the preoccupations of professionals (BALDVINSDOTTIR *et al*. 2010, KAPLAN 2011, PARKER *et al*. 2011). According to a study conducted in the United States, academic accounting research mainly exercises influence over students in higher education, much more than it has a direct impact on professionals (MOEHRLE *et al*. 2009).

As we see, the academic discipline of finance has an odd relation with practices, a relation without precedent in the other managerial sciences. This has consequences on the influence it wields (often unexpectedly via processes, both complex and emergent) on practices in finance and on the regulation of finance in contemporary society.

The performativity of financial theory

The fact that financial theories have had (and continue having) a pervasive influence on practices is, for academic researchers in finance, evident but also inconceivable. This influence, taken for granted, boosts their personal feelings of socially utility, but it hardly ever causes them (except for ZINGALES 2015 & SHILLER 2012) to wonder about whether the practices they have helped develop and legitimate contribute to the common good. Ultimately, this academic field has paid no attention to its exercise of influence nor to its unexpected consequences. Questions of this sort sometimes crop up elsewhere, in particular during public debates about the causes of big financial crises. But in response, financial theory has been relatively silent and fully helpless. We need but recall Alan Greenspan admitting in 2008 that the crash had opened his eyes to the "*flaw*" in economic arguments and had left him in a "*state of shocked disbelief*" when the central pillar upholding the theory of free markets collapsed: he could not grasp precisely why this was happening.[4]

Outside or on the margins of research in finance, a few academics have pointed to the processes whereby modern financial theory has helped construct the phenomena that it tries to describe (RAINELLI-LE MONTAGNER 2003, MACKENZIE 2006. BRYAN & RAFFERTY 2006), and studies have been conducted in this sense (MACKENZIE & MILLO 2003, HUAULT & RAINELLI-LE MONTAGNER 2009, MACKENZIE & SPEARS 2014, MARTIN 2015, RAINELLI-WEISS & HUAULT 2016). To shed light on these processes, the multifaceted concept of performativity has been put to use (CALLON 1998, MACKENZIE & MILLO 2003) with its variable meanings for researchers in the managerial sciences (GOND *et al*. 2015, ABRAHAMSON *et al*. 2016) and for philosophers, linguists and the sociologists of science (*e.g.*, HARDING 2003, LEARMONTH 2005 or CABANTOUS & GOND 2011, not to mention: SEARLE 1969, DERRIDA 1979, BUTLER 1997 & CALLON 2007). This work has proven to be quite valuable.

To illustrate performativity, let us take as example, among the many possibilities, an approach that has tried to observe and understand how theories shape "reality" to the point of becoming self-fulfilling (BARNES 1983, PICKERING 1995, CALLON 1998, MACKENZIE & MILLO 2003). Studies of this sort have sought to analyze the often emergent effects (not envisioned by the theory itself) of applying the theory's cognitive scheme in actual practice. Ferraro *et al*. (2005) have described and identified three explanations of the processes at work in this sort of performativity. I shall borrow from them to show how financial theory has taken part in: constructing the INSTITUTIONAL ARRANGEMENTS that oversee the organization of the financial markets, establishing SOCIAL NORMS and shaping a VOCABULARY (or "language") that has a lasting effect on how individuals see finance, its markets and firms. On purpose, the examples cited have to do with the regulation of finance, a special field for observing the encounter between modern financial theory and the quest for the "good society".

[4] Hearing on 23 October 2008 before the Committee on Oversight and Government Reform of the US House of Representatives.

Institutional arrangements

The theory with probably the most impact, globally and visibly, on modern financial institutions is the efficient market hypothesis. Declared forty years ago by Jensen (1978) to have been corroborated ("*There is no other proposition in economics which has more solid empirical evidence supporting it*"), it has come under discussion since two anomalies have been discovered. The first was pointed out by the supporters of behavioral finance, who accumulated empirical evidence on biases among investors on the markets (BROIHANNE *et al*. 2004, ORLÉAN 2009). The second was related to the repetition and scope of successive financial crises since the 1950s: their regularity matched less the predictions of the market efficiency hypothesis than the historical record of such crises over time (KINDLEBERGER 2001).

Regardless of whether it is valid or whether the academic community accepts it (ZINGALES 2015), market efficiency theory has had a major impact on the financial markets, in particular the OTC markets, and their regulation, *i.e.* organization. Till the subprime crisis, researchers in finance were more than pleased with the power of their theory-making (notably the Black-Scholes model), which enabled big investment banks to offer several and various innovative financial products (MORGAN 2008, HUAULT & RAINELLI-LE MONTAGNER 2009, LÉPINAY 2011, MARTIN 2015). Till the crisis, no one ever thought that these innovations could be somberly put to use to deceive less informed investors (ZINGALES 2015).

The general goodwill of both the financial community and regulatory authorities toward these innovative products stimulated the growth of enormous markets with very few regulations, such as the OTC. Any thoughts about regulating them started out from the postulate that regulations had to be avoided if they deterred business and that, instead, activities on these markets had to be boosted in any way soever (HUAULT & RAINELLI-WEISS 2013). Underlying this postulate was an idea directly derived from market efficiency theory, namely: free transactions produce efficient markets that properly fulfill their function. The freer buyers and sellers are to engage unhindered in transactions, the more the private information they hold comes to be reflected in the prices of the traded financial assets. In this way, the information is made available to other investors. Under the market efficiency paradigm, market activities are always desirable, since the markets thus generated are capable of fully assuming their role, namely sending credible signals to economic agents (ORLÉAN 2009). Debates about the regulation — organization — of the OTC markets naturally focused on achieving this efficiency by granting the players there full freedom (RAINELLI-WEISS & HUAULT 2016). These markets thus developed with hardly any restrictions thanks to the market efficiency theory and to theories about the valuation of assets, which extolled "market completeness" and enthusiastically welcomed any innovative products.

Paradoxically, the OTC markets are still lacking in transparency. Under the institutional arrangements made for them, sellers do not have to publically post the prices offered to buyers.[5] Since the OTC markets supposedly emitted reliable signals to private players and public authorities, they were left to grow. No one was interested in the actual opacity in which these signals were being emitted; and no analysis, made of how this opacity represented a wellspring of profit for the big investment banks dominant on these markets (RAINELLI-WEISS & HUAULT 2016).

This case brings us back to the debate about performativity (MACKENZIE & MILLO 2003 & 2006, MACKENZIE 2006, CABANTOUS & GOND 2011, MUNIESA 2014, GOND *et al*. 2015). It lets us glimpse the gap between the performative theory of action on reality and the performativity theory of self-fulfilling promises. The OTC markets did not become efficient because the theory of market efficiency strongly affected how they were regulated and organized. However this remark does not at all invalidate the observation that this theory has acted on the reality of these markets. We are face-to-face with a theory that "*provoked economic reality*", which, otherwise, would have taken a quite different "*performative turn*" (MUNIESA 2014).

Social norms

A look at the legal requirements to which fund managers are subject offers us a glimpse of financial theory's indirect influence on social norms. In the United States, as in Canada and other countries with a system of law of an "Anglo-Saxon" type, these requirements, called the "fiduciary duty", are at the juncture of two institutional rationales: on the one hand, the legal implications of the duty of fund managers to protect the assets entrusted to them and, on the other hand, financial theory's prescriptions to these managers about how to perform their job as investors (LYDENBERG 2014). These two institutional rationales do not necessarily have the same idea about the appropriate behavior for fund managers.

Lydenberg has drawn attention to the gap between the"*reasonable behavior*" normally applied in law and the "*rational behavior*" inherited by modern financial theory from neoclassical economics. In the case of the fiduciary duty, reasonable behavior has long been defined in terms of prudence and moderation based on the personal judgement and intelligence of an agent who attends to the consequences that investment decisions have in the real world. Under the influence of modern financial theory, in particular its recommendations about portfolio management, the standard of reasonable behavior has, as Lydenberg has pointed out, gradually been replaced with the norm of rational behavior, as defined by Markowitz during the 1950s. This norm prescribes maximizing the wealth of the persons who have entrusted their assets to a fund manager, who thus has the job of ringing up the most profits possible for these persons. The difference resulting from this replacement is important.

[5] This situation is changing in Europe, since the enforcement on 3 January 2018 of the second EU directive on the market in financial instruments (MIFID 2).

Setting reasonable behavior as a desirable standard is based on ideas about how individuals normally act by complying with the norms and principles accepted by the majority. Traditionally, the prudent investor executes his fiduciary duty by acting "*with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims*".[6] A reasonable behavior thus implies a certain conception of social norms and of reason, and is associated with the schools of ethics that inquire into the concepts of equity, justice and the common good. In contrast, the rational individual is a figure in classical economics and, by extension, finance, who acts for his own interests. However unegoistic or general his interests might be, he does not refer to a social norm, nor to widely shared principles. He pursues a personal, individual "good", defined without reference to others. This principal references are to the philosophy of utilitarianism and the concepts of efficiency, maximized utility and private well-being.

Replacing reasonable behavior with rational behavior in the fiduciary duty might, as Lydenberg has stated, explain the increasing discomfort felt by investors who have doubts about whether the criteria of profitability and risk will always suffice to set their level of satisfaction. We need but think of the emergence of socially responsible investment funds or the inconsistency between reaching financial goals and maintaining the workforce for investors who are wage-earners in a firm confronted with a hostile leveraged buyout (LBO). This replacement of "reasonable" with "rational" writes off as profits and losses any broader aspects of the fiduciary duty, such as the fair distribution of profits between generations or concerns for the impact of investments on the real economy.

During the first half of the 20th century in the United States, the fiduciary duty of fund managers was mainly defined in terms of reasonable behavior. During the second half of the century, the table turned because of the changes in the financial industry that resulted from theory-making in finance: portfolio management, derivative trading, confidence in market efficiency (LYDENBERG 2014). A prudent investment, defined as an advised selection of a variety of investment products that is based on the fund manager's sense of judgment, was replaced with an investment that correctly controlled risks in line with financial theory. The law evolved in the 1990s. The fund manager was no longer required to act as a prudent person but as a prudent investor who applies the principles of the theory of portfolio management. References to the figure of a rational investor thus came to prevail over the standards of a reasonable person. Justified by financial theory, this replacement was, given its normative nature, to stave off corruption and avoid conflicts of interest, even as these risks were increasing owing to the size of the funds being managed — a growth mainly due to the unprecedented development of mutual and retirement funds. The objective was no longer to act so much in the interest of the beneficiaries of these funds as in the interest of the fund's "economic performance" as measured by profitability and risks. Financial theory is fully accountable for this change (LYDENBERG 2014).

Montagne's (2012) analysis of this changing definition of prudence, the core of the fiduciary duty in the United States, helps us make a finer assessment of how modern financial theory has affected social norms. It shows how the principles of prudence came, at first timidly, under the influence of modern portfolio management theory in American law, even though this theory was not yet fully accepted by all experts. Time played in favor of the theory, as judges and attorneys invoked it more frequently and as it became a standard for education

[6] US Code 29 ch. 18, §1104 (a)(1)(B) available via https://www.law.cornell.edu/uscode/text/29/1104#.

in finance. Little by little, judges would ground their legal arguments on the theory of market efficiency. This did not lead them to make one-sided decisions, but it did enable this theory to sway the definition of the social and legal standards of importance to the concerned parties (MONTAGNE 2012:106).

Through this example of the fiduciary duty, we see how modern financial theory has influenced the social and legal norms for defining the appropriate behavior that fund managers should adopt. This influence reaches beyond a mere redefinition of practices. It extends deeply into the normative and legal landscape. Although judges still have a margin of interpretation, this theory clearly has an impact on their decisions and thus deeply alters behaviors in the financial industry.

Vocabulary

The concept of fair value — now part of the International Financial Reporting Standards (IFRS) adopted by developed countries during the first decade of the 21st. century — has prevailed as a method for the valuation of financial assets. Defined as the value at which an asset could be sold during a normal market transaction, it stands, as a bookkeeping method, opposite the "historic costs" of assets, which had long figured in national accounting standards, especially in France. Fair value accounting emerged dominant out of a contradictory debate, amply documented in the literature. Pushed by a small group in the "*accounting research industry*" (MILLER & POWER 2013:575) who were not bound by the institutions and conventional practices in the profession, fair value was initially criticized for its lack of realism, which stemmed from the hypotheses underlying financial theory (BROMWICH 2007, RONEN 2008). In fact, fair value accounting can claim to be fair and objective only if the markets are liquid and transparent enough for market prices to reflect, at every moment, the actual values of traded assets. Adopting fair value as a universal accounting principle entailed, therefore, accepting financial theory's premises about market efficiency as guaranteed by the intensity of trading: the prices of traded assets thus quickly become part of the available price information.

The goal of the accountants who advocated fair value accounting was to draw closer to practices in the financial markets and thus overcome the separation between an asset's market price and its historic cost, a disconnection that ran through traditional bookkeeping. This amounted to a rupture, whence the heated debates about this concept. To adopt fair value was to assign accountancy a new role as a "*mirror of the market*" (MILLER & POWER 2013:591). Thanks to the efficient market hypothesis, the financial markets could legitimately become the primary source of information and, thereby, the grounds for all bookkeeping practices. In this sense, the adoption of fair value in international accountancy standards sent a very strong signal about the influence wielded by financial theory over practices and over the very conception of markets and organizations (WHITLEY 1986, DAVIS 2009). That this method of marking asset values to market has been called "fair value" is evidence that this influence has reached into the very vocabulary we use.

Having recognized this linguistic dimension, we are still left facing the question of performativity. How did the adoption of this phrase, underlain by a theoretical paradigm, affect finance? The international adoption of fair value accounting thoroughly modified bookkeeping practices. It ran into practical difficulties, however. In particular, when the conditions for the efficient market hypothesis did not hold, accountants had to resort to expedients (including the well-known models for banks) to estimate what the market price would be, were it to exist. Furthermore, during the 2007-2008 meltdown, fair value accounting, when applied to banks' balance sheets, turned out to be too close to the business cycle, a factor that had to be corrected — corrections that, in turn, aroused debated. So, this leaves us far from the conclusion that the adoption of fair value accounting had unequivocal self-fulfilling effects. Nonetheless, it was, for sure, a powerful vector for modifying bookkeeping practices and thus diffusing the influence of financial theory into the practices of organizations and markets. The adoption of fair value accounting can be seen as an evident effect of financial theory's performativity.

By analyzing the impact of academic research and the theories it produces on institutional arrangements, social norms and the vocabulary for organizing finance, we come to realize the full ambit of financial theory's performativity, especially in matters related to regulation. More or less voluntarily, without it being conceptualized, outside any conscious predictions or precise agenda of its own, financial theory has, over the long run, influenced the regulation of the markets and organizations that it is to analyze. Noteworthy is that modern financial theory has not sought to examine this issue. The performativity of financial theory has been observed and studied by academics from other fields — sociology (MACKENZIE & MILLO 2003, MACKENZIE 2006, LÉPINAY 2011, MONTAGNE 2012), ethnology and anthropology (MIYAZAKI 2007, HO 2009), accountancy (VOLLMER *et al*. 2009, POWER 2010, SVETLOVA 2012) and public economics (LOCKWOOD 2015) — but not by academic research in finance.

The last part of this article will dwell on the consequences ensuing from this situation, not on all the relations between financial theory and its subjects of study (far beyond this article's scope), but on the field of financial regulation.

What would a more reflexive financial theory be good for?

Accountancy is an academic discipline with a subject matter close to finance. Given how this discipline takes account of the performativity of its knowledge — as compared with the absolute silence of research in finance on its question — the gap between the two disciplines in relation to reflexivity is impressive. To a much greater extent than finance, accountancy, as practiced in academic circles, has borrowed from a methodology that, springing from sociology and anthropology (BOURDIEU 2001), applies the tools habitually used to make an analysis not just to the subject of study but also to the work and thoughts of the researcher conducting the study. This reflexivity implies that academics abandon the illusion of a transparent relation with their subject of study and explicate researchers' social references by paying attention to how a researcher's presence or the methods used might affect the findings.

Indispensable in the toolkit of ethnologists and historians, who have to investigate their own starting grounds in order to better explore their subject of study, reflexivity is not the strong point in academic research on finance. The reason for this is probably that finance naturally (but not without illusions: RAINELLI-LE MONTAGNER 2003) tends to see itself as belonging to the natural rather than the social sciences. Academics can study a theory's performativity only if they accept the validity of a reflexive approach and refrain from conceptualizing the subject of study separately from the analysis to be made of it. To see whether a theory is performative, academics must be capable of this reflexivity and recognize the benefits of stating in their studies the presuppositions and perspectives that they have taken for granted, as well as the effects that their analyses might have on practices. The absence of any recognition — by academics in finance — of the performativity of the theories they have worked out probably stems from the reluctance of this discipline's founding fathers and their successors to place this field of knowledge fully within the social sciences. By not doing this, they deprived research in finance of the tool of reflexivity, which other disciplines amply use.

The question thus arises of whether the methodological stance adopted by researchers in finance has negative consequences that call for remedial action. In financial regulation, the major disadvantage is that this absence of reflexivity keeps academic research on finance from taking part in debates in society about issues related to finance. Such debates often occur when a financial crisis has broken out with potentially grave, economic and social, consequences. Once the theory's performative effects are left outside analysis, the theory itself is handicapped, evidence of this coming from Alan Greenspan's words quoted earlier in this article. To declare that one does not know why a crisis is happening is, for sure, to admit to the weakness of one's theory (HARGIE *et al*. 2010). In the debates sparked by recessions and about regulating finance, this absence of reflexivity leaves research in finance speechless, a silence that can impair this discipline's image in society. It is as if the financial meltdown were a litmus test, as if the whole system (with its principles based on financial theory's paradigm and with the performativity already described) were flawed.

Public opinion has questions about these flaws, but this discipline's absence of reflexivity severely limits it ability to answer them. Of course, researchers in finance have studied regulation (HENDERSHOTT *et al*. 2011, EASLEY *et al*. 2011, HASBROUCK & SAAR 2013, CHABOUD *et al*. 2014, DUCHIN & SOSYURA 2014, BENOIT *et al*. 2017); but they do so from within the framework of the initial paradigm. Behavioral finance, which some academics have described as an approach that deeply alters this paradigm (CHARREAUX & ALBOUY 2017), has not yet laid a new foundation for engaging in this sort of debate. As Marti and Scherer (2016) have stated, authors of financial studies, stuck within the paradigmatic framework of academic finance, have ultimately retained market efficiency as the single criterion of the quality of regulation in finance. Since this efficiency is closely related to market activities, they are thus unfailingly led to prefer more to fewer transactions, to embrace any technological innovations that make trading more intensive. This amounts to proposing more of the same old thing. They lack the ability to take into account the theory's potentially negative effects, for example, on market stability or due to the "incentives" that the development of new markets offer for deceit or fraudulent behavior (DUFFIE & STEIN 2015). This ability can only come from a reflexivity that takes account of the performative effects of the paradigm that serves as a benchmark in finance.

Like the founding fathers of modern finance's paradigm, we can insist that the right thing to do is to strictly adhere to the paradigm's boundary conditions. Given the last global financial crisis and the questions it has raised about regulation and the helplessness of regulators to make a dent in current financial market regulations (MUNZER 2016, PHILIPPON 2017, BENOIT *et al*. 2017, DUFFIE & STEIN 2015), we can also wonder whether this unreflexive position will not eventually make academic research in finance less and less capable of formulating convincing responses to questions about the regulation of the financial markets. Might this falling back onto to the original paradigm not condemn this research to advocating changes that are technical or technocratic, and incremental? If so, the discipline would not be silent, as described, but would be seriously handicapped in its theory-making. After all, reality in finance extends far beyond the framework of modern financial theory (in particular under the effect of cumulative, performative factors).[7] When it is overlooked, this reality could beget a hard-to-control "monster" (ACHARYA *et al*. 2010, SCHNEIBERG & BARTLEY 2010, PHILIPPON 2017). Owing to its size, complexity and the huge costs of coordination occasioned by regulating it worldwide, the financial system already leaves us with the impression that it has become impossible to reform. Given the herculean efforts required and admitting a sort of helplessness, some authors have apparently left the situation in the hands of technological trends, *e.g.*, the FinTechs that are to create a better financial system than the one we now have (PHILIPPON 2017).

What would reflexivity be good for in financial research? How might a reflexivity that takes the theory's performativity into account move researchers in finance beyond their current state of helplessness?

First of all, studying the effects resulting from the theory could probably open new fields of inquiry for research. For instance, the question of market stability, barely broached by academics in finance, has been studied by sociologists, who are more inclined to take account of reflexivity. By asking how algorithms accomplish tasks that human beings used to do, some of these sociologists have shown that algorithms tend to diminish the ability of market players to give meaning to events when the markets are roiled (MACKENZIE *et al*. 2012) and that this loss of meaning tends to amplify market volatility (BEUNZA & MILLO 2015). This leads these players — contrary to the authors of financial theory for whom high-frequency trading increases efficiency — to favor regulating this sort of trading because it destabilizes the markets. By examining how innovative financial products have been used in various lands for the purpose of rule evasion, Thiemann and Lepoutre (2017) have drawn attention to: regulatory networks for the markets, the "*embeddedness*" of market institutions in these networks, and the importance of power relations in regulatory structures. Emphasizing the interpretations made of the rules, they have insisted that regulation should be "*such that the regulated depend on the regulators for rule interpretation and not the reverse*" (p. 1814). In the power relations between regulators and the regulated on the financial markets, the former are in a weaker position when they depend, as often happens, on the latter's proposals about how to interpret and apply the rules that have come out of a complex process involving both parties.

[7] Thiemann and Lepoutre (2017) have used the phrase "*creative compliance*" to show how rules are always diverted or dodged by market players who put financial theory's flexibility to use.

The foregoing examples illustrate how a study of finance theory's performative effects on market practices can produce new knowledge and open heretofore unnoticed lines of research while adding to what would be the common good with regard to the regulation of the financial sector. Opening to reflexivity would likely keep research in finance from contracting its horizon to the single goal of improving market efficiency, taken in a narrow sense. This research would then be capable of address other questions about, for instance, market stability — What is the desirable level of stability? How to reach it? — or the incentives for fraud or rule evasion in financial systems (DUFFIE & STEIN 2015, THIEMANN & LEPOUTRE 2017),

Secondly, a more reflexive approach to the theory's performative effects or to the financial practices related to it, by allowing for questions beyond the single one of market efficiency, would lead to taking under consideration the viewpoints of the new stakeholders interested in this issue. By studying how the innovative financial products derived from the theory lead to a literal invention of a market for these products, several issues have been raised about power relations, stakeholders' interests and financial institutions' roles (MACKENZIE & MILLO 2003, HUAULT & RAINELLI-LE MONTAGNER 2009, LÉPINAY 2011, BEUNZA & STARK 2012, THIEMANN & LEPOUTRE 2017). These studies, which recognize financial theory's performativity and have adopted realistic positions (What are the actual practices on the financial markets?) do not overlook the parties encountered in the course of research. They thus provide thoughts for contributing to debates about the form of regulation in finance that is desirable in view of a common good.

By recognizing its performativity and adopting a realistic position, financial theory could break out of the role where it is confined when it sticks tightly to its original paradigm. It would thus be better fitted to broaden its reflections by including more stakeholders and to make its reflections more relevant to questions about the regulation of the ever evolving financial sphere — now far removed from the state of the financial industry that existed when the foundation was laid for the still dominant paradigm.

Conclusion: An *ex ante* evaluation of the impact of research

This review of the possible impact that research in finance has had on, in particular, the regulation of finance, comes to a close with the following question: Among the processes identified, what is to be retained that can be useful for what comes next?

A lesson of the 2007-2008 financial meltdown is that we must be prudent and recognize the historicity of the objectives pursued by a paradigm. Contrary to what we might have believed during the last decade of the 20th century, when finance reigned triumphant, we are much less certain about whether the producers of knowledge should back research that will have a strong impact on practices, lead to inventing innovative financial products and stimulate the growth of a whole sector of the economy. It no longer seems that this is a sure way to do what is right. Whoever wants to adopt a normative perspective about what would be a "good" or "right" theory, a theory worth building, probably has to accept, like Marti and Scherer (2016), the plurality of potential objectives. By studying financial innovations from the communication-as-action approach proposed by Habermas, these two authors have drawn attention to the objectives of market efficiency, stability and social justice; and proposed inquiring into the impact of financial innovations and the regulation of finance on

each of these dimensions. They urge researchers to break free from the limitations of existing theories, which, by their very nature, tend to exclude a plurality of dimensions.

When trying to normatively define the "right" research in finance, we probably have to admit that, beyond the economic agents directly involved, the organization of the economic or financial system concerns the whole society. It raises questions about the common good. In finance as in accountancy with its standards, both technical fields for sure, diverging interests raise, in fact, a political question. By confining this divergence to technocratic spheres, we lose this fact from sight, and the possibility for a democratic debate is more or less forgone (RAMANNA 2015). It follows from this that a "desirable" research might be, above all, pluralistic, capable of adopting various, sometimes contrary perspectives and of breaking free from the performative straitjacket of the paradigms that made financial theory a success.

Recognizing financial theory's performativity and then adopting a reflexive position in relation to this discipline are, in my opinion, potentially efficient ways to open new perspectives for this field of research, assign it diverse objectives and eventually take account of stakeholders' interests, which certain paradigms have overlooked. What we learn from history is that, without this plurality of objectives and perspectives, there is a major risk of pursing research with an impact that turns out to be disappointing — at least only for certain stakeholders but at worst for the whole society and the common good.

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