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New Paradigms for Sustainable Financial Regulation : An International Perspective

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Préambule

La gestion financière responsable vise la maximisation de la richesse relative au risque dans le respect du bien commun des diverses parties prenantes, actuelles et futures, tant de l'entreprise que de l'économie en général. Bien que ce concept ne soit pas en contradiction avec la définition de la théorie financière moderne, les applications qui en découlent exigent un comportement à la fois financièrement et socialement responsable. La gestion responsable des risques financiers, le cadre réglementaire et les mécanismes de saine gouvernance doivent pallier aux lacunes d'un système parfois trop permissif et naïf à l'égard des actions des intervenants de la libre entreprise.

Or, certaines pratiques de l'industrie de la finance et de dirigeants d'entreprises ont été sévèrement critiquées depuis le début des années 2000. De la bulle technologique (2000) jusqu'à la mise en lumière de crimes financiers [Enron (2001) et Worldcom (2002)], en passant par la mauvaise évaluation des titres toxiques lors de la crise des subprimes (2007), la fragilité du secteur financier américain (2008) et le lourd endettement de certains pays souverains, la dernière décennie a été marquée par plusieurs événements qui font ressortir plusieurs éléments inadéquats de la gestion financière. Une gestion de risque plus responsable, une meilleure compréhension des comportements des gestionnaires, des modèles d'évaluation plus performants et complets intégrant des critères extra-financiers, l'établissement d'un cadre réglementaire axé sur la pérennité du bien commun d'une société constituent autant de pistes de solution auxquels doivent s'intéresser tant les académiciens que les professionnels de l'industrie. C'est en mettant à contribution tant le savoir scientifique et pratique que nous pourrons faire passer la finance responsable d'un positionnement en périphérie de la finance fondamentale à une place plus centrale. Le développement des connaissances en finance responsable est au cœur de la mission et des intérêts de recherche des membres tant du Groupe de Recherche en Finance Appliquée (GReFA) de l'Université de Sherbrooke que de la Chaire Desjardins en finance responsable.

La finance responsable (ou durable) vise donc notamment à développer des modèles, des produits et des services ainsi qu'à orienter les marchés financiers et les décisions en matière de fiscalité dans une perspective durable et responsable. À cet effet, les Professeur(e)s Frank Coggins, Claudia Champagne et Lyne Latulippe ont publié en 2018 aux Éditions *Thompson Reuters* un recueil de textes s'intitulant « Éléments de la finance responsable : une approche multidimensionnelle ». Ce collectif contribue à mieux définir et délimiter la finance responsable en la décloisonnant dans une perspective multidimensionnelle. Il regroupe des textes d'universitaires de différentes disciplines ainsi que de spécialistes de l'industrie financière, propose des pistes pour tendre vers une meilleure finance, vers une finance plus responsable. Le présent cahier de recherche constitue l'un des textes (chapitres) tirés de ce collectif.

New Paradigms for Sustainable Financial Regulation: An International Perspective

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1. INTRODUCTION

In most developed countries financial scandals, crimes and other misconducts are not tolerated and/or severely punished offenses. These wrongdoings are multi-rooted with devastating consequences. Some may affect a number of clients undermining the confidence of the markets as in the cases of Norbourg and Société Générale, while in other cases the pernicious effects are deeper, lasting and, above all, systemic, like the LIBOR scandal and the manipulation of foreign exchange and commodity benchmarks (Thompson, 2016). In the cases of widely shared misdeeds, the identification of a single culprit becomes extremely difficult.¹ By and large, in these scandals, a great number of individuals is involved and this happens in various layers of the businesses. Due to the complexity of their intricacies, the amplitude of the offense takes time to get uncloaked. Because of their perverseness and extensiveness, the risks of contagion are great. Eventually, the latter becomes *systemic*, jeopardizing the entire national economy and in some cases the international financial system, as it was the case with the recent global financial crisis (GFC).

Both types of behavior are perceived as unfair, unethical, and unjustified and various proposals have been made to contain, and if possible, to eliminate them completely. The approaches differ though both geographically (from country to country) and temporally (depending on the gravity of the problem at the moment it occurs). Responsible finance has become a branch of applied finance and a lot of progress has been realized lately in understanding misconduct in the business world and develop new models and tools to be used to control this misbehavior (Duxbury, 2015a, 2015b). Although sound governance rules may be invoked as a tool to “correct” wrong conduct at a micro level (individual or firm), regulation is a more powerful

1. Even in the case where an individual has been identified as the culprit for financial misconduct, it is hard to believe that he acted alone. Usually, he has the backing, at least implicitly, of his supervisors.

tool when the behavior of the whole industry or many industries is to be modified.

Indeed, financial regulation aims at constraining the behavior of economic agents and align their individual objectives to the ones of the economy as a whole based on fairness and justice. From this perspective, regulation is part of responsible finance. This idea is not new though. Early regulation of the US financial markets² was aiming at reducing “conflicts of interest among officers and directors” of the financial institutions and strengthen the governance by prohibiting “officers and directors of member banks from borrowing from their own institutions and required them to report all borrowing from all other organizations” (Komai and Richardson, 2011, p. 14).

The regulation of the financial industry is in continuous change and evolution. Nonetheless, there are major breaks in the history of regulation during which its overhaul is necessary in order to take into account the structural, technological and behavioral changes that occur in this industry (Claessens, 2009). In the US, the latest revamp was made in 2010, immediately after the 2008 aftermath of the GFC with the introduction of the *Dodd-Frank Act* (DFA). Many countries have followed suit. For instance, the European Union (EU) has introduced a quite extensive legislation, the *Markets in Financial Instruments Directive*³ (MiFID I/MiFID II) and the *Markets in Financial Instruments Regulation*⁴ (MiFIR). As a response to the LIBOR scandal, a new piece of regulation, the *EU Benchmarks Regulation* has also been introduced lately.

Since the 2007-08 financial crisis, a great deal of progress has been made to harmonize the US and the EU regulations. Nonetheless, the revisions and/or the possible repeal of the DFA, as it was announced by the new US administration, may cause inconsistencies in global regulation and create competition to the “race to the bottom” (Drezner, 2006; Tonelson, 2000), a phenomenon allegedly to

2. The regulation of the US financial system starts as early as 1789 but its modern roots may be traced back in 1913 with the creation of “the Fed” (Federal Reserve) and in 1933 with enactment of the *Glass-Steagall Act* and the creation of the SEC (the US Securities and Exchange Commission).

3. MiFID I was enacted in 2004 but it came into force in 2008. It was further refined and significantly modified in 2014 as MiFID II. From a Directive, it became Regulation and passed as MiFIR (*Markets in Financial Instruments Regulation*) which will come into force in 2018.

4. Many of the clauses of these regulations and the new Benchmark regulation will become effective in 2018.

have occurred during the deregulation era, which contributed to the 2007-08 financial crisis (Fligstein and Goldstein, 2012; Zhu, 2011).

This paper examines the traditional and new paradigms for sustainable financial regulation and the consequences of the race to the bottom when regulations of the financial industry in various international contexts are not coordinated. A comparison of the mismatch in the timing of coordination of the US and the EU regulatory regimes highlights the dynamics of the “regulatory competition” and the incentives it provides in creating a “regulatory arbitrage” and a destabilization of the financial industry. It argues that, from a point of view of society as a whole, the negative consequences associated with greater misconduct observed in regimes with more lenient regulations could be limited by the adoption of harmonized and well-coordinated cross-border regulatory regimes. From an international perspective, any regulatory reform should respect some “common minimum standards of regulation”, in order to avoid the race to the bottom and limit the propagation of systemic risk. This is particularly true when factors such as “insufficient legal authority”, lack of resources, political will and skills diminish the ability of regulatory agencies to effectively enforce compliance with existing rules and regulations (Carvajal and Elliott, 2007).

Section 2 presents the main characteristics of the financial markets and their regulatory environment. To put the analysis into perspective, a brief comparison of the US and the EU regulations is made. Section 3 deals with the literature review and examines analytically the paradigms and methodologies used to evaluate the effects of the regulatory arbitrage and the race to the bottom phenomena. Section 4 examines the new EU benchmarking regulation and the establishment of minimum common regulatory standards and the “regulatory arbitrage” it may create due to lack of coordination with the equivalent US regulation. Lastly, section 5 concludes.

2. FINANCIAL MARKETS CHARACTERISTICS AND THEIR REGULATORY ENVIRONMENT

Most economists agree to say that regulation is necessary because market solutions are not satisfactory in all market structures. Pareto optimality or efficient outcomes occur in perfectly competitive markets which are characterized by an absence of returns to scale, frictions or externalities. The equilibrium that these market

conditions entail is sustainable and the market solution is economically efficient. Therefore, there are no benefits associated with a government intervention or regulation.

Informational frictions and externalities are considered as the most important factors justifying a government intervention, particularly in the financial markets. For instance, information asymmetry provides advantages to one of the parties at the expense of the other and creates the issues of adverse selection and moral hazard. Both result in providing benefits to the ones with private information and/or to the ones who take excessive risks. Insider trading is illegal and excessive risk-taking activities combined with externalities or strong spillover effects are deemed immoral. This is particularly important for the financial industry because externalities/spillover effects are strong and pernicious and affect many other industries and the economy as a whole, creating thereby a systemic risk. Financial regulation, by limiting the interaction of economic agents and establishing clear responsibilities for them by adjusting their relationships, aims at avoiding the endemic propagation of systemic risk.

Independent regulators, government agencies and/or self-regulating organizations (SRO) have been created to regulate the financial industry. Independent regulators are generally not financed by the government and they are immune from political interference. The FINRA (Financial Industry Regulatory Authority in the US) is an SRO and an independent regulator. It has the authority to enforce federal security laws and industry rules. The role of self-regulation is rather limited in Europe (Carson, 2011) and SROs exist mainly in countries with common-law regimes (UK, US, Canada, etc.).

Government agencies, like the SEC (the US Securities and Exchange Commission) which regulates the securities market in the US, have the authority to allocate some regulatory responsibilities to specified SROs. In the EU, the EC (European Commission) defies classification since it issues regulations, directives and decisions, jointly referred to as EU law. Regulations are binding and have legal force throughout the Union, while directives are general guidelines aiming at desired results but they cannot be achieved unless national authorities put laws in place. Decisions are binding laws destined to specific parties and are the result of specific cases. The EMIR (*European Market Infrastructure Regulation*) and the MiFID are regulations aiming at building a harmonized regulatory framework across the EU.

The regulatory differences across jurisdictions may create incentives to economic agents to shift location and behavior because of regulatory competition and regulatory arbitrage. Regulators may compete to offer a regulatory environment in order to provide incentives to firms to locate their activities in their jurisdiction. Regulatory competition is clearly a manifestation of and depends on the enforcement regime in place (Xiao, 2014). Regulators with weak enforcement regimes but with strong regulation may attract more firms than regulators with weak regulations but strong enforcement regimes (Carvajal and Eliot, 2007).

Regulatory arbitrage may occur when economic agents are able to identify and use some aspects of regulations to their advantage. Regulatory competition makes easier the regulatory arbitrage. For instance, when the *Dodd-Frank Act* was enacted, European and Asian regulators were rather slow to adopt similar regulations. The DFA required centralized clearing rather than bilateral settlement of derivatives transactions and set July 2011 as the date for full compliance. The EU adopted a similar act after a year and a half, i.e., end of 2012. Fears of putting the US entities in a disadvantageous position were expressed at that time because of the differences in the regulatory regimes and the risks for regulatory arbitrage.

Regulatory competition and regulatory arbitrage are a serious concern not only for the US securities regulators but also for other bodies dealing with the regulation of the banking industry. Banking regulators focus on prudential regulation which protects customers and reduces systemic risk through monitoring the safety and soundness of banking and other financial institutions. Prudential regulation purports to thwart financial contagion (limiting the spread of financial shocks to other locales), promoting thereby financial stability. In the EU, the ESRB (European Systemic Risk Board) and in the US, the DFA attempt to mitigate systemic risks among other objectives, and a cross-border cooperation is required to avoid the regulatory competition and arbitrage.

Regulatory arbitrage could occur not only in cross-border jurisdictions but also in intra-country jurisdictions, particularly when different regulators are responsible for regulating different but closely related industries (the banking and securities industries, for instance). In both cases, coordination and close alignment of regulations are important to avoid/diminish regulatory arbitrage. Noticeably, a similarity in regulators' objectives is not enough to avoid/

diminish regulatory arbitrage though. Different regulators use different tools to achieve their objectives and this is a determinant factor in the creation of regulatory arbitrage (Spatt, 2009).

For instance, the bank regulators may be reluctant or unwilling to make public the results of stress tests for fear of lost confidence from the public while the securities regulators may be tempted to release information which may help investors take better investment decisions. Both regulators aim at reducing systemic risk but their approaches are different. In this environment, regulatory arbitrage may become a serious concern. The differences in the regulatory approaches may provide incentives to players in one industry to enter into the other in order to take advantage of the nuances of regulation. This may incentivize them to take excessive risks, to blur market information and make markets less transparent and more prone to systemic risk.

Traditionally, securities regulation was aiming at protecting individual investors with few resources and unsophisticated investment experience. Hedge funds, private equity, venture capital and fintech funds were less regulated because investors were wealthy individuals with lots of resources and/or institutional investors with lots of investing experience. The 2007-08 financial crisis revealed that systemic risk and financial instability may originate from loss of confidence in the financial system because the existing regulations were not focusing on the most important players but chiefly on retail (individual) investors. But regulatory arbitrage is an important issue, particularly with large and institutional investors who are willing to take excessive risks and avoid an overwhelming regulation. This is why the DFA in the US and the MiFID/EMIR regulations in Europe focused on many important elements concerning the functioning of OTC (over-the-counter) markets and their transparency. They both impose business conduct standards, position limits, retention requirements, segregation of collateral, trading requirements and registrations and clearing obligations of OTC derivatives markets. Table 1 provides a summary of the main characteristics of both regulations.

Table 1 – Comparison of Derivatives Regulatory Regimes: the US DFA and the EU EMIR-MiFID

Characteristics	The DFA	MiFID/EMIR
Scope	<p>A number of OTC derivatives across asset classes.</p> <p>Swaps – on a broad range of transactions but excludes physically settled non-financial forward, futures, FX options.</p> <p>Security based swaps – on a single security, loan or index including credit default swaps regulated by SEC (US Securities and Exchange Commission).</p>	<p>A number of OTC derivatives across asset classes and the ones included in MiFID's Annex 1 C (4-10).</p>
Registration Requirements (RR)	<p>Depending on the financial product, registration is required either under the SEC or the CFTC (US Commodity Futures Trading Commission).</p> <p>SEC and CFTC registration and authorization requirements for DCOs (Derivatives Clearing Organizations).</p>	<p>No specific RRs for counterparties but a professional counterparty must be approved under MiFID.</p> <p>Authorization requirements for CCP (Central Clearing Counterparties).</p>
Trading, Reporting and Record Retention Requirements	<p>Cleared swaps must be executed on an exchange or SEF (Swap Execution Facility).</p> <p>Daily real-time public reporting.</p> <p>Trade record retention requirements.</p>	<p>Cleared “sufficiently liquid swaps” must be executed on Regulated Markets, MTF (Multilateral Trading Facilities) or OTF (Organized Trading Facilities).</p> <p>Compulsory reporting to trade repository of any cleared/non-cleared OTC derivatives.</p>
Capital and Margin Requirements (CMR)	<p>Applicable to SDs (swap dealers) and MSPs (major swap participants).</p> <p>Regulators propose minimum capital requirements and initial/variation margins.</p>	<p>CMR are set by CCPs respecting regulatory standards.</p>
Business Conduct Standards	<p>For DCOs: general conduct rules and requirements for trading, surveillance, operations, compliance and financial information.</p> <p>For SDs and MPs: obligation to disclose material risks, incentives and conflicts of interest and responsibilities to “Special Entities”.</p>	<p>For CCPs: obligation to act in the best interests of clearing members and ensure fair and clear communications.</p>
Position Limits	<p>Exchange traded and OTC contracts are limited to 28 core physically delivered contracts.</p>	<p>ESMA (European Securities and Markets Authority) coordinates the position limits set by national regulators and intervenes when there is threat to the financial stability.</p>

Source: Compilation by the author.

The regulation of the financial industry brings economic benefits but its costs are certainly challenging. The latter may be direct or indirect (unintended). The direct costs of regulation are associated with the costs of implementing the regulation (for instance more compliance lawyers). The unintended costs are the indirect costs of regulation associated with the loss of investment activity in the country because of regulatory competition and arbitrage. Net regulatory burden, the difference between private benefits and private costs of regulation, may occasionally be quite high and because of that, policy makers may be reluctant to enact more regulations.

Arguably, from a theoretical point of view, the unintended costs – the ones associated with regulatory competition and arbitrage –, are simple and easy to analyze concepts. However, their empirical estimation defies conventional paradigms, particularly when one is interested in measuring the way economic decisions and behavior change due to technological and institutional changes and the introduction of regulation. Accepting this limitation and recognizing, at least implicitly, that important costs are associated with regulation, sunset⁵ provisions have been introduced in some regulations. This certainly is not the case with DFA and the new US Administration is eager to re-examine the costs and benefits of this regulation and to make changes if necessary.

To evaluate the costs and benefits of a regulation, a thorough examination and analysis of the paradigms and methodologies is required. This would allow for better evaluation of regulation's full impact and for making adjustments in the light of the results. But in making such an analysis, it is important to adopt a "system-wide" or holistic approach. The latter takes into account "the interactions between and across institutions, markets, participants and jurisdictions and across types of risks" (Claessens and Kodres, 2014, p. 4). It also considers the effects of unintended costs one regulation could have on another within and across national and international jurisdictions. A literature review and a critical analysis of the traditional and current paradigms would allow us to select the paradigm that better explains investors' behavior, predicts the functioning of the financial markets and considers the full costs of regulation, particularly the costs associated with regulatory arbitrage. This is a topic to which we now turn.

5. Sunset provisions allow regulations to automatically fade out, if no further action is taken by the regulators.

3. LITERATURE REVIEW: METHODOLOGIES AND PARADIGMS USED TO EVALUATE THE EFFECTS OF THE REGULATORY ARBITRAGE

The regulation of financial markets evolves over time but its core objectives remain. These are:

1. Protect investors.
2. Safeguard transparency, fairness and efficiency in the markets.
3. Reduce systemic risk.

Although the objectives are clear, the means used to achieve them ignite a lot of debate. This is so because there are many financial paradigms and each one has different implications for regulatory practice. This section describes three major paradigms used to explain the objectives of regulation and demonstrates the connection between financial paradigms and financial theory and uses as a case example the financial crisis to illuminate the contributions of pragmatism to regulatory practice.

Here, the three paradigms are stylized and classified as traditional-structuralist paradigm, the efficient market or “Stiglerian paradigm” and the behavioral paradigm. The first two are more static while the latter incorporates dynamic elements in the decision making process and better explains the evolution of the financial regulation. By taking into account the ever-increasing globalization of financial markets and the growing risks for businesses and investors, the behavioral paradigm brings to the forefront the need for a harmonization of cross-border regulations in order to reduce regulatory competition and arbitrage. The behavioral paradigm implicitly assumes that changes that occur in the financial industry affect the way decisions are taken and since the industry evolves, recurrent revisions of the financial regulation are necessary. The analysis below suggests that the EU BMR (Benchmarking Regulation) has been designed with the behavioral paradigm in mind.

3.1 The traditional-structuralist paradigm

A paradigm is a pattern of beliefs and practices not directly testable through research but the choice of a paradigm explains the

assumptions made in the field of regulatory finance (Baker and Filbeck, 2013; Spremann, 2010; Kavous, 2001).

In traditional finance, the earliest paradigm used to justify the regulation of the securities industry, the structuralist paradigm, was based on the belief that market failures are present in the financial industry. The market failure comes from the existence of large financial corporations which are capable of controlling the market at the expense of individual investors (structuralist view of regulation). Originally, regulation of the financial industry was thus aiming at protecting individual investors (investor-protection regulation).

Initially, such regulation was limited in scope and imposed a cap on banking and brokerage fees (CBI, 2016).⁶ However, the ever-increasing complexity of financial markets, the proliferation of exchange venues, the technological changes, the appearance of ECNs (electronic communications networks) and the fragmentation of trade, brought about significant changes and new regulations (*Regulation National Market System (Regulation NMS)*, for instance). The focus of the new regulations was to reduce excessive intermediation and wider spreads that some market participants managed to enjoy by hindering competition in the market (Gentzoglanis, 2006).

In the US, *Regulation NMS* with its so-called “trade-through” provision, which prohibits trades at prices inferior to the best quoted prices, has resulted in high levels of high-frequency trading⁷ and this raises questions about the overall fairness of the securities markets. With these changes, the US and other jurisdictions, have revised and extended the scope of regulation in order to protect both institutional and individual investors.

In the traditional/structuralist paradigm, regulation is an exogenous variable. It is not determined within the system and it does not interact with it. Simply, regulation determines the external environment of the financial firms and the latter respond passively to that. There are no feedbacks. There are one direction effects. They go from regulation to the structure of the industry. All in all, the effi-

6. The *Dodd-Frank Act* and MiFID I and II have an important number of clauses aiming at protecting individual consumers and investors (CBI, 2016).

7. High-frequency trading also occurs in markets not subject to SEC oversight or to *Regulation NMS*. For instance, the “E-Mini” S&P 500 futures contract is traded in the CME (Chicago Mercantile Exchange) and is one of the most actively traded products in the United States.

cient market/Stiglerian paradigm is firmly rooted into the financial theory. Nonetheless, it remains static in nature and ignites a deeper and wider debate about its applicability in practice. Many view the efficient market/Stiglerian paradigm as the best alternative to the structuralist/traditional model.

3.2 The efficient market or “Stiglerian” paradigm

One of the pillars of modern financial economics is the *efficient market hypothesis* (EMH). It is a paradigm used to justify the efficiency of financial markets and to question the need for financial regulation. According to this paradigm, an “invisible hand” reigns and regulates the markets so that their equilibrium is always assured. Ultimately, the interaction of economic agents with opposing interests results in a balanced and efficient market.

According to this hypothesis, freely competitive markets are characterized by prices which are fair and fully justified. Given that the market information is continuously updated, the value of the financial assets accurately reflects this information and risks. Overpricing and/or mispricing of risk is openly refuted. Assuming market efficiency, regulation becomes unnecessary.

This hypothesis, finds its theoretical underpinnings in the works of the economists associated with the Chicago School and particularly with Stigler’s (1971) seminal paper on regulation. The latter supports the idea of “laissez-faire” and free markets with no government interventions. If markets were to be regulated, the only form of regulation is self-regulation.

Stigler uses an economic approach to explain why regulation exists and to demonstrate that regulation is costly. In the process of maximizing the economic benefits that regulation brings about to regulated industries, the interplay of supply and demand for regulation brings undesirable results. Generally speaking, the demand for regulation comes from the industry which seeks protection and immunity from competitive forces. Politicians adopt favorable to the industry regulations in exchange for a political support. The so-called producer-protection regulation is the result of the interplay of supply and demand for regulation. The supply comes from politicians aiming at accessing political office while the demand for regulation comes from the regulated firms themselves in order to get higher and secure profits.

Stigler's view of producer-protection regulation has ultimately gave rise to a similar view named regulatory capture (Albino *et al.*, 2013). The latter is essentially a producer-protection regulation albeit, it has originally been designed as a consumer-protection regulation. According to the capture theory, regulation always evolves and ends up in favor of the industry. Further, the higher the asymmetry of information and its technical complexity is (and therefore the outside verification is difficult), the higher are the probabilities for regulatory capture (Laffont and Tirole, 1993). Regulation is thus unnecessary since its original purpose to protect the consumer (investor) eventually fades out. At any rate, the Stiglerian regulation is typically bad and/or too costly, albeit ubiquitous. This is so because the expected benefits resulting from the adoption of favorable to the industry regulation are concentrated and the costs are dispersed, although the costs per person are higher than the benefits per person. The ultimate result of this regulation is a loss of social welfare.

Hence, according to Stigler, deregulation brings more benefits to society than regulation. Since the efficiency of the markets is achieved without the need for the government, deregulation of the financial industry would bring benefits to society. In the late 90s and early 2000s, this view started making waves and many regulations, deemed too stringent for the financial markets, were repealed. For instance, in the US, the *Glass-Steagall Act* was repealed in 1999 under the *Financial Services Modernization Act*. Critics (Fox, 2009) of the EM/Stiglerian paradigm blamed the belief in efficient markets for the great deal of havoc created during the financial crisis of 2007-08.

The EM/Stiglerian paradigm is strongly entrenched in the notion of financial market equilibrium, an efficient outcome that rests on the assumption of *no arbitrage* in the pricing of securities and other financial products. Market prices are thus right, or in LeRoy's (2008) terms, the prices of securities follow a martingale and by definition bubbles in asset prices are not existent (LeRoy, 2008). The GFC of 2007-08 and numerous empirical studies, chiefly the ones related to the equity premium puzzle and excess volatility shed more light on the real functioning of the markets and cast serious doubts on the validity of the assumptions of the EM/Stiglerian paradigm. As an alternative to the latter, the behavioral paradigm emerged. This is examined next.

3.3 The behaviorist paradigm

The apparent failure of regulation based on the traditional and EM/Stiglerian paradigms to predict/prevent the 2007-08 financial crisis led financial theorists to investigate thoroughly the behavior of investors and their perception of risks, from the perspective of behavioral finance. The investment decisions taken under uncertainty, information asymmetry and the complexity of markets and financial products are better analyzed by the new tools of behavioral finance (Baltussen, 2015; Kahneman and Tversky, 1979). All the same, behavioral finance is not yet a complete body of knowledge (Shefrin, 2000; Baker and Nofsinger, 2010; Ackert and Deaves, 2012). Nonetheless, it seeks to provide explanations for investors' behavior by "combining behavioral and cognitive psychological theory with conventional economics and finance" (Baker and Filbeck, 2013).

According to behaviorist paradigm, and contrary to the traditional-structuralist paradigm, investors do not always behave rationally, yet they do make good decisions. The behaviorist paradigm utilizes the behavioral characteristics of investors in complex situations to explain market bubbles and other disequilibrium outcomes. For instance, overconfidence, anchoring bias and herding are "normal" social behaviors which may be used to explain the investment decisions taken during economic cycles. More specifically, there is an anchoring bias when individuals "anchor" or overweigh recent events more than distant ones, particularly when they want to make predictions of future events. Herding occurs when investors follow other investors without making a personal analysis and evaluation of the information at hand but simply follow the crowd. In turn, overconfidence may bias the decisions of investors and eventually accept high risks. The ultimate outcome depends on the new knowledge individuals accumulate and how they are able to use it by taking into account the human and cognitive constraints.

The behavioral finance paradigm takes into account the complexity of the financial markets and the constraints imposed by its external environment, particularly the ones coming from the new market reality, i.e., globalization of the financial markets and their interdependency. The core assumption of the behavioral paradigm is that investors use heuristics, quick decision-making short-cuts, which reduce the search time and resources to find solutions. Investors take decisions using cognitive processes and integral, incidental and other emotions (Lerner *et al.*, 2015).

The behavioral finance paradigm departs from traditional rational choice models to allow for “constructed” preferences, rather than stable preferences. Constructed preferences refer to decision outcomes that investors classify according to expected emotional response. In their “Affect Integrated Model of Decision-making (AIMD)”, Lerner *et al.* (2015) illustrate the role of expected emotional response in the current decision-making process. For instance, when investors expect a painful shock, like a market downturn, may feel fear *now* and decide to defer their investment decisions. Thus, anticipated emotional response plays an important role in assuming *current* risk. Investors, depending on their emotional anticipations, may take excessive or not enough risk and this exerts a bias on investments.

Table 2 summarizes the objectives of the securities regulation and the underpinning paradigms.

Table 2 – Objectives of the securities regulation and underpinning paradigms

Objectives of the securities regulation	Type of regulation	Underpinning paradigm	Results
Protect investors	Individual investor-protection regulation	Structuralist-Market failure paradigm	Inward-looking regulation (regulation within boundaries)
Safeguard transparency, fairness and efficiency	Mix of investor-producer-protection regulation	Efficiency market hypothesis paradigm	Inward-looking regulation (regulation within boundaries)
Reduce systemic risk	Holistic cross-border regulation	Behaviorist paradigm	Outward-looking regulation (regulation beyond boundaries)

Source: Author's conception

Regulation of the financial markets may create a more stable environment and provide incentives to investors in taking an optimal quantity of risk. In globalized markets, harmonization of the cross-border regulations contributes to making the regulatory arbitrage and the RTB (Race to the Bottom) phenomena less attractive. According to the behaviorist paradigm, regulation has to take into account the degree of globalization of financial markets and their

interdependence. The approach to regulation is thus more holistic and considers its cross-border impact. But the type of cross-border regulation, i.e., hard or soft, plays an important role in the determination of the final outcome.

3.3.1 The behaviorist paradigm and the harmonization of the cross-border regulation

The behavioral finance paradigm considers systemic risk as an externality and as such its provision is less than optimal. This inefficiency makes nations vulnerable to contagion effects, particularly when “soft” cross-border regulation is adopted rather than “hard”. The distinction between hard and soft cross-border regulation is important because it has repercussions on the scope of regulation, its enforcement and on the capacity of multinationals to use regulatory arbitrage. Soft cross-border regulation is based on a simple mutual understanding among regulators, is nonbinding and its enforcement is rather limited. In the context of globalized markets and in a soft cross-border regulatory regime, national regulators find it difficult to assert authority over mobile and higher risk operations of financial institutions. This regime is more prone to a regulatory arbitrage and opens the door to a race to the bottom.

Notwithstanding the benefits arising from hard cross-border harmonization, the costs of reaching a “generally agreed framework of regulation” (Coffee, 2014) are quite important and must be taken into account. Arguably, a cost-benefit analysis must be made since there is a tradeoff between hard and soft cross-border regulations and the direct and indirect costs associated with them. Direct costs (negotiation and other costs associated with hiring lawyers and other trade specialists) are higher under a hard cross-border regulation than in a soft regulatory regime, while the opposite is true for the indirect costs (regulatory arbitrage). Further, soft regulation is easier to implement, while hard regulation is more difficult.

A cost-benefit analysis is tedious and probably challenging in practice, at least from a theoretical point of view. But in the absence of a first-best, i.e., an all-inclusive (hard) regulation, a second-best (soft) may be better than no harmonization at all. Accordingly, a compromise may be the “optimal” outcome. An example of this compromise may be the *Dodd-Frank Act* in the US and the MiFID/EMIR regulations in the EU. Although the OTC derivatives regulation was enacted in the aftermath of the financial crisis in the US, the EU

adopted a similar legislation almost two years later. Despite their similarities, there are still important discrepancies and divergent interpretations which may provide opportunities for regulatory arbitrage. A further harmonization is certainly necessary.

In view of that, the behavioral finance paradigm makes cross-border harmonization a necessary condition for avoiding, at least partially, regulatory arbitrage and systemic risk. The harmonization of a cross-border regulation should aim at making:

- regulatory arbitrage less attractive,
- domestic and foreign regulatory regimes more sustainable,
- regulatory competition less viable,
- regulatory enforcement abroad stronger.

Should a cross-border derivatives regulation had been in place before the collapse of AIG⁸ (American International Group), the costs of its solvency would have been much less than the US-governmental bailout of \$182.5 billion in loans and the spread of systemic risks much less widespread. AIG used to operate in opaque and unregulated OTC derivatives markets undertaking high risks with domestic and international counterparts without being obliged to post collateral margins for its obligations. When AIG's insolvency became evident and its inability to comply with margin calls and other requirements was clear, AIG's risks became systemic not only in the US but in the entire international financial system. Thus, according to the behavioral paradigm, in globalized financial markets, harmonization of the cross-border (soft) regulation is essential in limiting the spread of systemic risk worldwide.

4. BENCHMARKING REGULATION (BMR) AND STANDARDS AND THE REVISION OF THE *DODD-FRANK ACT*

Benchmarking regulation is important because benchmarks and standards are key financial variables and if wrongly used can create systemic risks and contagion effects. In the securities and/or

8. AIG, American International Group, Inc., then the largest insurance company in the United States.

derivatives markets, benchmark indices are used to track mutual funds' performance using the well-known Sharpe and/or Sortino indices, etc., set interest rates (LIBOR/Euribor) for corporate or consumer loans (mortgages or consumption) or in any other situation to determine amounts payable or the value of certain financial contracts and assets. Misuse of these indices can create misdeeds and disorder in the financial system.

The IOSCO (International Organization of Securities Commissions) adopted in 2013 the *Principles for Financial Benchmarks*.⁹ The EU benchmarking regulation (BMR) builds on these Principles but goes beyond them in order to provide for a more coordinated regulatory environment to the conflict of interest and governance issues that arise in the use of benchmarks in the financial industry. The recent revelations about the misuse of these benchmarks, particularly the LIBOR index (and FX scandals) has ignited the debate and gave rise to the benchmarking regulation (BMR) and standards in the EU (Thompson, 2016).

While the MiFID/EMIR regulations in Europe and the *Dodd-Frank Act* in the US enacted in 2012 and 2010 respectively make provisions for cross-border activities (Zaring, 2012), particularly with regard to over-the-counter (OTC) derivatives (Donovan-Smith *et al.*, 2013), the EU BMR is miles ahead of the US equivalent legislation. Further, the BMR builds on the recent advances in behavioral finance and it is designed to take into account the evolving nature of decision-making tools and perceptions. Contrary to the previous regulations, the BMR requires a periodic revision of benchmarks (every two years) offering thereby the tools to make the framework more responsive to the needs of the investors, the industry and the public in general since financial products which do not create any particular problems and/or risks to the public may be exempted from regulation or may be subject to lesser regulation.

In that sense, the BMR is viewed as a “preventive regulatory framework”. It aims at improving the standards already used by the industry and at promoting new ones which would enhance governance, improve the integrity of benchmarks and sustain confidence in the financial markets. Financial firms involved in benchmarked activities are obliged to formulate their strategy to regulatory compliance. Hence, a higher control over the benchmark process ensures

9. In 2012, the IOSCO adopted the *Principles for Oil Price Reporting Agencies*.

a better protection of the investors and the public in general. By and large, these objectives (consumer/investor-protection regulation and systemic risks reduction) are not different from the existing ones in the DFA and the MiFID/EMIR regulations. Nonetheless, the BMR operationalizes the *dynamic aspects of behavioral paradigm* by including a *recurrent* revision of benchmarks in order to take into account changes that may occur in the financial industry.

The new BMR is also distinctive from the other regulations. It imposes restrictions on the use of benchmarks on a variety of entities such as banks, investment firms, insurance companies, fund managers and pension funds. These entities cannot use benchmarks unless they are produced by an EU authorized administrator. Some non-EU benchmarks may be used if they are qualified for use in the EU under the BMR's third country regime.

The BMR establishes a code of conduct and requires that all contributors to EU benchmarks maintain systems and controls to "ensure reliability and integrity of their input data". This contrasts with similar regulations elsewhere, like in the UK and Japan where the authorities have chosen to regulate a limited number of critical benchmarks. In the US, the authorities have chosen self-regulation as the best means to "regulate" benchmarks and achieve thereby the IOSCO *Principles*. Besides, the BMR includes a wider range of indices than the corresponding US regulation, like indices linked to interest rates, currencies, securities, commodities and even weather (used as benchmark in the financial derivatives in the liberalized electricity and gas markets).

Undoubtedly, these discrepancies in the benchmarking regulations among major trading partners may be construed as definite breaches of the principle of harmonized regulation, the underlying belief of the behavioral paradigm for avoiding regulatory arbitrage and reducing systemic risk worldwide.

A means to reduce discrepancies is the requirement that investment firms could trade across jurisdictions provided they have harmonized their regulations. For instance, in the EU, UCITS (Undertakings for Collective Investment in Transferable Securities), essentially mutual funds, could be sold to any European investors provided that the regulatory regimes of member States are harmonized. In the U.K., the rules of the Financial Conduct Authority (FCA), the country's financial regulator, are being replaced by the BMR and

this change in regulation affects a wide set of financial firms and instruments. Nonetheless, in an integrated European financial system regulatory competition and arbitrage cannot be admitted.

The EU BMR goes beyond the boundaries of its member States. In the case of non-EU benchmarks, administrators have three ways to qualify their benchmark for use in the EU: equivalence, recognition and endorsement. These requirements may provide incentives to non-EU administrators in refraining from obtaining access to the EU financial markets, particularly when their activities from the EU derive low revenues and/or the costs of compliance are high. Undoubtedly, the EU BMR requires further harmonization with the US DFA, particularly with respect to benchmarks and standards, should the regulatory competition and arbitrage as it is predicted by the behavioral paradigm be avoided.

5. CONCLUSIONS

This paper analyzes the problems arising from inconsistencies in cross-border financial regulation using the dynamic behavioral model. The analysis demonstrates that important costs, particularly the ones associated with regulatory competition and regulatory arbitrage, are created from a non-harmonization of regulations. To reduce these costs a closer cooperation among trading partners is necessary to develop a “commonly agreed regulatory framework” for the purpose of reducing these costs and the ones associated with contagion effects and systemic risk.

The dynamic behavioral model, by taking into account the changing nature of decision-making units and incorporating a regular revision period for the commonly agreed cross-border regulation, makes the regulation of the financial system more sustainable. The benchmarking regulation in the EU, albeit not perfect, is an illustrative example of the application of the dynamic behavioral model in practice. Consequently, the EU’s benchmarking regulation constitutes a first step towards developing an “optimal regulation from an international perspective”, despite the fact that there are still many issues to be settled between the US and the EU.

Despite the appeal of the dynamic behavioral model and its increasing popularity, its capacity to predict and fully address the 2007-08 type of financial crises is far from proven. Nonetheless, this model contributes to better understand investors’ decision-making

process in a constantly changing financial environment. It highlights the problems and the financial implications of the race to the bottom and regulatory arbitrage that arise from a non-alignment of regulations across countries.

Admittedly, much of the research on behavioral finance is still in progress and there is a need for a refinement of the behavioral paradigm. Undeniably, advances in the theory of regulation and behavioral finance and greater availability of data would contribute to making the behavioral paradigm more robust, capable of providing sound predictions which could be verified by empirical estimations.

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