NEW FINANCIAL REGULATORY PHILOSOPHY: A PARADIGM SHIFT IN SECURITIES MARKET SUPERVISION

Phuong Duong *, Jinghui Liu **, Ian Eddie ***

* Brisbane Campus, Holmes Institute, Brisbane, Australia
** *Corresponding author,* School of Business and Tourism, Gold Coast Campus, Southern Cross University, Australia
Contact details: School of Business and Tourism, Gold Coast Campus, Southern Cross University, Southern Cross Drive, Bilinga LD 4225, Australia
*** Head of Business, Macquarie Park Campus, Excelsia College, Australia

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Abstract

The objective of this paper is to identify the changes in the financial regulatory philosophy in the securities market supervision after the 2008 global financial crisis. The mix-methodology researches are concluded by interviewing 101 securities regulators to investigate the impacts of the crisis on securities market supervision philosophy. Evidence is found to support the hypothesis that the 2008 global financial crisis has created a paradigm shift from standard finance to behavioural finance in securities supervision. However, regulators are still in a philosophical crisis when the theoretical ground they once believed turned out to be not suitable for the securities supervision. The analysis undertaken in this paper contributes to apprehend the theoretical aspects of the paradigm shift and constructs a pertinent financial regulatory philosophy, which observes the nature of securities markets, responds to the problems revealed by the 2008 global financial crisis, and takes into consideration the nature of emerging markets. Consequently, this paper proposes a multi-fold theoretical ground within the Keynesian regulation framework to be adopted for the construction of a securities market supervision philosophy in order to efficiently cope with market developments and be resilient to financial crises.

Keywords: Securities Market Supervision Philosophy, Behavioural Finance, Standard Finance, Global Financial Crisis, International Organisation of Securities Commissions

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1. INTRODUCTION

The 2008 global financial crisis (GFC) caused "the collapse of the whole intellectual edifice" of financial supervision (Krugman, 2009) and led to another philosophical crisis. It raised a critical question as to which economic theory should be used as the underlying theoretical framework of securities market supervision (SMS) after the 2008 GFC. There has been increasing research undertaken to investigate the impact of the financial crisis on various aspects. For example, Hassanein and Younis

(2020) have studied the financial crisis and cost behaviour in the UK. However, there are limited studies undertaken regarding SMS philosophy.

Supervision in financial markets in general and the securities markets, in particular, is a public policy process that is a purposive and consistent course of governmental actions in response to perceived problems arising in markets (Anderson, 2016). Five areas of the securities regulation and supervision include investor protection, increasing of market efficiency, completing of market organisational market structure, wealth capturing, and encouraging competition in the industry. As a process of public policy, SMS activities are undertaken within one of the central themes of neo-classical economics: market failures and government intervention.

This paper investigates to what extent regulators of SMS should let the market invisible hand do its job and how far they should intervene to correct market failures. Within the framework of this study, SMS philosophy is the way that the regulators answer the question and justify their answers by relevant economic frameworks. It is the "theoretical underpinnings" (Davis, 2011) of securities regulation that reflects a set of values or standards based on an economic rationale to back up the supervisory system and framework.

The research questions, which are discussed in this paper, are: 1) how the 2008 GFC has changed the SMS philosophy; 2) whether emerging markets followed the same trend of developed markets in the post-GFC paradigm shift; 3) what is SMS theoretical framework after 2008 GFC period.

The paper is structured into six sections: Section 2 outlines the literature review of SMS philosophy. Sections 3 briefly explains the research questions and research method in use. Section 4 discusses the research findings. Section 5 discusses the regulatory implications for securities markets by analysing the post-GFC paradigm shift and recommending a new SMS philosophy. Finally, Section 6 summarises and concludes the paper.

2. LITERATURE REVIEW

Some studies have reviewed the imprints of standard finance and behavioural finance for pre-2008 GFC SMS philosophy. According to Statman (2014), standard finance has four foundation blocks, including 1) investors are rational (Fama, 1965); 2) markets are efficient (Malkiel & Fama, 1970; Fama, 1998; Fama & French, 2004); 3) investment portfolios should be designed in accordance with the rules of mean-variance portfolio theory (Markowitz, 1999; Black, Jensen, & Scholes, 1972; Fama & French, 2004); 4) expected returns are a function of risk alone (Treynor, 1962; Cootner, 1964).

Malkiel and Fama (1970) developed the efficient market hypothesis (EMH), based on the supposition that: "an ideal capital market is a market in which prices provide accurate signals for resource allocation: that is, a market in which firms can make production-investment decisions, and investors can choose among the securities that represent ownership of firms' activities under the assumption that securities at any time 'fully reflect' all available information".

Two major perspectives of standard finance that had been a long time served as the critical theoretical frameworks of SMS prior to 2008 GFC include: 1) investors are rational and they should be protected primarily by information disclosure; 2) securities markets are efficient. Therefore the market-based approach of supervision should be used and self-regulation is a compulsory component of SMS architecture besides securities regulators. Pre-2008 GFC SMS philosophy supposed that securities regulators should facilitate the invisible hand of the market to do its job, leave rational investors to make justified investment decisions based on the full-disclosure by firms, rely on market self-correction, self-regulation and hence deregulate as much as they can.

Since the first days of its establishment, the International Organization of Securities Commission (IOSCO, 1990) had called for a market supervision mechanism, in which "any attempt of supervision must combine information disclosure, regulation, and self-regulation in the proportion that particular circumstance and case might call for". The Organization also defined the securities regulatory objectives as "to promote market efficiency" (IOSCO, 2003), alleged that "full-disclosure of material information to investors is the most important means for ensuring investor protection" and recommended compulsorily use of self-regulation as a key securities regulation principle.

The ideologies of standard finance formed an economic premise that financial markets aggregate useful information for regulators in making various policy decisions (Bond, Goldstein, & Prescott, 2006). The concept of "rational individual investors" was adopted to analyze the tradeoffs of the Securities and Exchange Commission (SEC)'s investor protection with regulations on shareholder voting rights and market efficiency (Pound, 1991). In many markets, the market-based approach was suggested to empower investors and securities regulation was recommended to be left to the stock exchanges where the firms are listed (Romano, 1998). The paradigm underlined many policies and laws of the financial regulators such as the 2002 Sarbanes Oxley Act as well as provided a ground for the courts to give decisions in the class action litigation (Bond et al., 2006). Lawyers, judges, and other decision-makers in the securities market assume that market participants' knowledge and behavior entirely based on the EMH and its "utility theory" underpinnings (Nawrocki & Viole, 2014). The economic theory formed a basis for a legal policy that impacts doctrines in securities regulation litigation prior to the 2008 GFC (Hammer & Groeber, 2007). Pre-2008 GFC market-based approach was a framework argued by Alan Greenspan that "free, competitive markets are by far the unrivalled way to organize economies" and trying to regulate markets does not work (Ward, 2008). With the mindset of reliance on self-regulation, securities regulators in many markets transferred certain supervisory responsibilities to Self-Regulating Organisations (SROs), especially stock exchanges (IOSCO, 2003).

Whereas, behavioural finance offers an alternative block for each of the foundation blocks of standard finance: 1) investors are not rational, they are "normal", confused by frames (Shefrin & Statman, 1985; Statman, 1999), biased under uncertainty (Modigliani & Miller, 1958; Tversky & Kahneman, 1974), affected by their sentiments (Barberis, Shleifer, & Vishny, 1998) or overconfidence (Peng & Xiong, 2006) and often overreact to unexpected and dramatic news events (De Bondt & Thaler, 1985); 2) markets are not efficient, even if they are difficult to beat (Shefrin, 2002); 3) investors design portfolios according to the rules of behavioural portfolio theory (Shefrin & Statman, 2000), not mean-variance portfolio theory; 4) expected returns are not determined merely by risk but a function of market factor, book-to-market factor, market cap factor, momentum affect factor, social responsibility factor, status factor and more (Statman, 2014).

Though not as influential as the ideas of the standard finance, ideologies of behavioural finance are considered as forces that shape financial regulations (Shefrin, 2010) such as suitability regulations and merit regulations.

Suitability regulations concern the responsibility of securities brokers to their clients. "Know your clients" is one of the principles to ensure that stocks or bonds recommended by securities brokers to their clients are suitable for the clients' needs and financial conditions. Suitability regulations are important for behavioural investors because they are tools that help investors control the effects of their cognitive errors and self-control problems (Duong, 2016).

Merit regulations are designed to protect investors from themselves. Merit regulations are predefined standards used by securities regulators as criteria to judge the conduct of market participants. The rationale behind merit regulations is that people are susceptible to their cognitive errors and they will overpay for the securities if they are left to their own decisions. However, merit regulations have for a long time been replaced by disclosure-based regulations, which were first introduced in the United States in 1933 and then became strongly recommended in the 2000s after the Asian financial crisis (AFC) in 1997.

"Circuit breaker" is another rule based on behavioural finance to prevent a market crash (Duong, 2016). In all the stock exchanges, the device is compulsorily installed in trading systems to automatically stop transactions in case there is a severe drop in prices due to the "herd philosophy" of investors.

Even though ideologies of behavioural finance have become more and more influential, and one might assume that it would play an important role in securities market regulation, behavioural finance was absent from legislation as well as judicial decisions (Nawrocki & Viole, 2014) in financial markets.

3. RESEARCH QUESTIONS AND RESEARCH METHOD

SMS literature shows that the financial crisis had triggered another crisis of regulatory philosophy. Financial regulators seemed to be confused about their appropriate financial regulatory "field of vision" (Bernanke, 2008). Many academics and practitioners (Erskine, 2010; Erta, Hunt, Iscenko, & Brambley, 2013) came up with the idea that the standard finance and EMH had to answer for the 2008 GFC. The literature of SMS reflected a regulatory philosophy crisis, characterised with four features, including:

1. Values of standard finance and EMH were blamed as a wrong theoretical framework that led to the 2008 GFC.
2. Ideologies of behavioural finance were revisited as a better conceptual framework to explain financial crises.
3. Policy recommendations focused on more regulation rather than developing a comprehensive theoretical framework that better responded to market developments and resilient to financial crises.
4. Post-GFC financial regulatory reform debate had focused mainly on addressing the problems that had arisen in the financial systems of developed economies rather than that of emerging markets (IMF, World Bank, & FSB, 2011).

Within the paradigm of critical realism, mixed-methods were employed to investigate the research questions. A mixed-methods approach is justified in this study for its ability to generate complementarity, completeness, development, expansion, confirmation, compensation and diversity (Zachariadis, Scott, & Barrett, 2013) in order to consider the external reality of the 2008 GFC impacts on SMS philosophy by quantitative instruments and acknowledge the complexities of crisis-induced policy developments by in-depth qualitative research method (Sobh & Perry, 2006). The study was designed in a way that allows triangulation in different stages of the study with the purpose to enhance the precision of the representation of crisis impacts on SMS philosophy by examining it with different theories, methods, and data sources (Denzin, 1978; Modell, 2007). A sequential mixed-methods approach was developed, which is a three-stage framework with qualitative and quantitative methods employed in a sequence that the results from one stage feed into the later one.

Responding to the issues raised by the literature of financial economics, this study investigates the following research questions:

1. How the 2008 GFC has changed the SMS philosophy?

2. Whether emerging markets followed developed markets in the post-GFC paradigm shift?

3. What is the new SMS philosophy and can it respond effectively to market developments and be resilient to financial crises?

This study conducted empirical quantitative research. A cross-sectional structured survey questionnaire was sent to 42 securities regulators during 2013-2014 in order to collect data for descriptive and comparative research strategies. The survey aimed to identify the various impacts of the 2008 GFC on SMS philosophy, especially the crisis impacts on SMS philosophy and investigate the convergence and divergence of developed and emerging markets in the policy responses to the crisis impacts.

Focus group interviews and documentary research were conducted for confirmation, completeness, and reproduction of the findings from the previous investigation for the period 2008-2016. The focus group interviews were conducted to investigate thinking of securities regulators and practitioners regarding what economic theory should be used as the post-GFC SMS philosophy. The findings from this analysis help to understand the mismatching of findings in the quantitative analysis regarding the SMS philosophy after the 2008 GFC. The documentary research examined 465 policy papers of IOSCO and 486 documents/websites of 101 securities regulators and international organisations, such as World Bank, IMF, Asian Development Bank (ADB), in order to verify and validate the findings in previous investigations regarding the actual impacts of the 2008 GFC on the SMS philosophy.

Quasi-statistics technique (Barton & Lazarsfeld, 1955) was used in focus group data and documentary data analysis to provide richer information and yield a form of mixed methods data analysis (Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). This method does not only allow testing and supporting claims that are intrinsically quantitative, but also enables assessment of the amount of evidence in the data that bears on a particular conclusion or threat (Maxwell, 2005).

4. DISCUSSION OF RESEARCH FINDINGS

4.1. Paradigm shift of securities markets supervision after the 2008 global financial crisis

Despite the exploratory research findings that securities regulators were strongly criticised for abandoning the supervisory philosophy prior to the 2008 GFC, which essentially relied on insights of standard finance and EMH, the quantitative empirical research showed that securities regulator respondents were hesitant to do so after 2008 GFC. Instead, they chose to adopt the ideologies from behavioural finance while preserving selected values of standard finance (see Table 1).

Table 1. SMS philosophy before and after 2008 GFC

SMS philosophy	*Before GFC (%)*	*After GFC (%)*
Standard finance, which supports EMH	81.58	7.89
Theory of behavioural finance and behavioural economics	2.63	0
A mixture of behavioural finance and standard finance	10.53	81.58
Other	5.26	10.53

4.2. Securities markets supervision paradigm shift for developed and emerging markets

Data analysis further shows a mix of convergence and divergence between two groups of developed and emerging market respondents in terms of SMS philosophy after the 2008 GFC. Both groups have re-evaluated their SMS theoretical framework and adopted ideas of behavioural finance in post-GFC time. However, no developed market respondents rely solely on standard finance as their SMS philosophy after 2008 GFC while a small group of emerging market respondents (12.5%) still do so (see Table 2).

After the 2008 GFC, the number of respondents from the developed group that rely on both standard finance and behavioural finance as their theoretical framework for SMS increased from 7.14% to 92.86%. Similarly, 75% of respondents from emerging markets use a combination of behavioural finance and standard finance. However, 12.5% of respondents from this group have retained standard finance and EMH as their sole economic theory for SMS.

Table 2. Change in SMS philosophy of developed and emerging markets before and after the 2008 GFC

	Developed markets before GFC %	*Developed market after GFC %*	*Emerging markets before GFC %*	*Emerging markets after GFC %*
Standard finance, which supported EMH	85.7	0.0	79.2	12.5
Behavioural finance	0.0	0.0	4.2	0.0
A mixture of behavioural finance and standard finance	7.14	92.86	12.5	75.0
Others	7.1	7.1	4.2	12.5

Emerging markets tend to follow developed markets in the post-GFC SMS policy reform through the channels of IOSCO and other international organisations. Following developed markets in SMS policymaking, it seems a tradition for emerging markets and the mimic action of emerging markets in the post-GFC SMS paradigm shift currently is not an exception.

However, emerging markets are facing a shock of a paradigm shift because they are now proposed to re-regulate all what they were recommended to deregulate before the 2008 GFC. What should be the theoretical framework for post-GFC SMS is yet an unanswered question. The critical question for emerging markets is whether it is always the right thing to follow developed markets without re-thinking the current systems and recognizing the prevailing emerging market conditions and institutions. After the 1997 AFC, emerging market regulators, taking into consideration IOSCO's and IMF's recommendations, had followed developed markets in accelerating deregulation, establishing market-based regulation, and developing the SMS system that relied heavily on full-disclosure and self-regulation. Ten years later, when most of them have not yet completed the construction of that EMH-based SMS framework, emerging markets were showered with totally different recommendations from IOSCO, G20, and other international organisations on the re-regulation of securities markets they were advised to deregulate before the 2008 GFC. Inevitably, emerging markets were not well prepared for the shock of this paradigm shift.

4.3. The shock of paradigm shift and the need for a new philosophy of securities market supervision

Focus group interviews in qualitative explanatory research-validated and explained the outcomes of quantitative empirical research regarding the role of behavioural finance and standard finance in the post-GFC supervisory framework. Documentary research also validated the post-GFC SMS paradigm shift through two channels: 1) policy recommendations by IOSCO and 2) responses by IOSCO members in post-GFC SMS policy reform. The paradigm shift was reflected through three key policy themes that were initiated by IOSCO which were followed by securities regulators after the 2008 GFC (see Table 3):

1. Removing "self-regulation" but keeping "disclosure" in the three-dimension supervisory framework of information disclosure, regulation, and self-regulation (IOSCO, 2010, 2013).

2. Adoption of behavioural finance's concepts by securities regulators that investors' decision-making is biased required additional regulation to complement the weakness of the exciting disclosure-based investor protection regime. (IOSCO, 2013).

3. Adoption of new insight into investor protection (IOSCO, 2020).

4. Adoption of a risk-based supervisory approach that nurtured by behavioural finance to cope with emerging risks and financial crisis (IOSCO, 2009).

5. Promotion of the sustainable finance network. IOSCO recognizes the growing importance of sustainable finance and promotes disclosure of environmental, social, and governance risks. It recommends securities members to incorporate these risks into their investment analysis and decision making (IOSCO, 2019, 2020).

Table 3. Securities regulators' responses to IOSCO's paradigm shift

Policies	*Number*	*%*
Plans to implement IOSCO policy recommendations	101	100
Paradigm shift in SMS mentioned in official report or policy papers of regulators	94	93
Enhancement of regulation or policy reform of stock exchanges and SROs*	79	78
Policies to strengthen disclosure and transparency	97	96
Customer protection and investor education programs conducted with a new perception of 'behavioural' investors	87	86
Adoption of a risk-based supervisory approach	90	89
Participation in project of Sustainable Finance	90	89

*Note: * Not applicable to 5 (4.95%) researched securities regulators.*

Four post-GFC policy themes that promoted the SMS paradigm shift by IOSCO were advocated extensively by the securities regulators through various approaches:

1. Recommendations of IOSCO on the regulation of SROs and strengthening disclosure requirements.

2. IOSCO's investor education initiatives with insights from behavioural finance.

3. Adoption of a risk-based approach by IOSCO members during the period 2008-2015.

4. Initiation of the project "Sustainable finance in emerging markets and the role of the securities regulators in the period from 2017 to 2020" (IOSCO, 2019, 2020).

The paradigm shift is possibly explained by the awareness of securities regulators regarding the failures of standard finance and the advantages of behavioural finance in addressing risks and market behaviour, explaining financial crisis and establishing a responsive supervisory framework. However, in spite of the inevitability of the paradigm shift, a complete post-GFC SMS philosophy has not been well developed (Erskine, 2014) and securities regulators are picking and choosing ideologies from some competing theories.

5. POLICY IMPLICATIONS FOR SECURITIES MARKETS

5.1. Comprehending the theoretical aspects of post-GFC SMS paradigm shift

It is argued that before laying the first brick to build a new SMS philosophy, securities market regulators should survive the shock of the paradigm shift by understanding it. This means that they should observe the real characteristics of the investors they protect and the markets they supervise in an analytical framework.

First, as the 2008 GFC indicated, securities investors are not rational; they are human with biased behaviour and recognition errors (Shefrin, 2001; Shefrin & Statman, 1994). The investor protection framework should be redesigned to address human investors with biases and to be more effective than the current "full-disclosure regime".

Second, the securities markets are not always efficient (Shleifer, 2000). Markets can be wrong and the price is not always right (Thaler, 2009). Principal-agent problems often lead the credit rating agencies, public companies, investment managers, stock exchanges and other SROs to weigh their self-interests more than those of public investors. Markets are only efficient if they are well regulated and supervised to ensure that market failures do not harm the efficient allocation of resources by markets.

Third, the price in the securities market is easily distorted by herd behaviour. The 2008 GFC proved that investor sentiment that reflects unrealistic optimism or pessimism, leads to booms and busts of the securities markets (Keynes, 1930a, 1930b; McCulley, 2009). The sentiment that nurtures the booms and busts often takes the form of herd behaviour. The importance of economic conduct and the role of "animal spirits" (Keynes, 1936) should not be disregarded (Shiller, 2010). Securities regulators need to rethink the role of investors' behaviour in driving markets to turbulence and contagion.

Fourth, the GFC is a prominent example demonstrating that the more securities market develops with sophisticated innovative products, the likelier it performs with the booms and busts cycles that were coined as Minsky moments and Minsky journeys (McCulley & Fuerbringer, 2007; Minsky, 1999, 2008; Harcourt & Kriesler, 2013). As long as reasonable deregulation and product innovation exist, Minsky journeys will recur, punctuated by Minsky moments. It is a reality that what regulators should do is to have the good sense to set up a counter-cyclical regulatory policy.

Finally, one of the important implications of the 2008 GFC is that the securities market needs to be perceived as a sophisticated network inside other complex networks. The financial system is a network with complexity and homogeneity. As evidenced by the 2008 GFC, the collapse of some important nodes (Soramäki & Cook, 2016) can cause disruption in other nodes and lead to chaos in the entire network.

5.2. Developing post-GFC SMS philosophy

In order to avoid the pre-GFC theoretical fallacy, it is argued that emerging market policymakers should come back to the Keynesian rule of thumb for effective regulation to set up the post-GFC SMS philosophy and justify their policy choices by the relevant theories where they are applicable.

The Keynesian regulation is based on the central tenet that government intervention can stabilize the economy (Keynes, 1936). The regulatory conception requires securities regulations to focus on the specific source of the market failures and address these failures by relevant regulatory. The failures of securities markets include behavioural biases of investors, information asymmetries, principal-agency problems, monopoly, demerit goods, public goods, and negative externalities.

1. Behavioural biases of investors. Behavioural biases of investors should be recognized as a conventional market failure (Lewis, 2013) because they lead to price distortion, and prevent the efficient allocation of funds and investments in the securities market. Biases in investment decisions often lead to mispricing of stocks, facilitating moral hazards, escalating herding action, and resulting in market booms and busts.

The investor behavioural biases and insights of behavioural finance should be embraced in other areas of SMS by emerging market regulators, including: 1) development of disclosure regulations to enhance supervision of securities products; 2) designing of the market integrity framework to address the market abuses conducted by taking advantages of investor biases such as market manipulations; 3) establishing micro-prudential regulation and practitioners conduct like fits and proper, know-your-client, and conflict of interests. In a wider spectrum, investor behavioural biases need to be researched from the perspectives of the financial instability hypothesis (Minsky, 1999) to set up policy programs for financial crisis prevention and financial stability.

2. Information asymmetry. Information asymmetry is the market failure where one party of a transaction (either buyer or seller) has more or better information compared to the other. Information asymmetry is the root cause of mispricing in the securities market. Information asymmetry, in the context of separation between the ownership and management of public companies, enables conflicts of interest (Jensen & Meckling, 1976) and facilitates insider trading (Martins & Paulo, 2014).

Transparency requirements, including financial reporting and on-going disclosure, should be at the centre of policymaking to address the information asymmetry and to ensure an efficient price formation, constraining insider trading, limiting herding actions, and expanding the market liquidity. However, as "further disclosure, no matter how high quality or comprehensive, cannot overcome market failure" (Pearson, 2009), enforcement and prosecution of insider trading, market manipulation and other market abuses that make use of information asymmetry are important.

3. Principal-agency problem. The agency problem is another market failure, where the authorized agents (corporate managers, securities practitioners, fund managers, services providers) may work for their self-interests rather than the best interests of the principals (shareholders, investors, clients). Agency problems are closely linked with moral hazards and conflict of interests, which are applicable in the supervision of market intermediaries, SROs, and market institutions (MIs), and public companies.

One of the painful truths revealed by the 2008 GFC is that the SROs and other market gatekeepers could not perform efficiently their self-regulation function due to the principal-agency problem and conflict of interests.

Emerging market regulators should undertake relevant supervisory arrangements that reduce conflicts of interest and make the public companies, securities practitioners, SROs, and MIs responsively perform their responsibilities to market stakeholders. Insights of behavioural finance (Erta et al., 2013) and agency theory (Jensen & Meckling, 1976; Eisenhardt, 1989) need to be adopted in the regulatory and supervisory strategies, including enforcement of rules and standards to protect creditors and investors; setting the terms for entry and exit (Armour, Hansmann, & Kraakman, 2009); and implementing corporate governance principles for emerging markets (Kandrac & Schlusche, 2015; Ciftci, Tatoglu, Wood, Demirbag, & Zaim, 2019).

4. Monopoly. Three types of monopoly in the emerging stock markets identified in this study are: 1) natural data monopoly; 2) ownership monopoly; 3) trading monopoly. Natural data monopoly exists due to the concentration of information and data within the operators of trading platforms or securities settlement and clearing systems. Ownership monopoly can be seen in the cases of equitized state-own-enterprises (SOEs) available in the markets which transited from centralized to market economies. In the markets, although the SOEs already became public and listed on stock markets, governments still monopoly the ownership and intervene deeply into the company operations.

Trading monopoly happens in the secondary stock market as the power that influences other investors' decisions, enabling market manipulation to succeed. The accumulation of shares by large investors often induces further buying by pubic investors and price acceleration. The manipulators then sell the stock and realize their arbitraged returns. Market abuses employing monopoly in emerging markets are dangerous because they can be conducted in an easy, fast, and effective manner with any stock, jeopardizing market equity, market stability, and investor protection.

Relevant rules applied to each type of monopoly should be in place to prevent market abuses. Insights of behavioural finance are relevant for designing regulations and supervision of market abuses attached to stock market monopoly, including requirements of prudent and fiduciary responsibilities, conflict of interest, fit and proper requirements, and trading rules to prevent market manipulations.

5. Demerit goods. Demerit goods exist when markets fail to control the manufacture and sale of goods or services, which are harmful to individual consumers or create negative externalities. As implied by the 2008 GFC, the products like highly leveraged standard financial products and derivatives can easily turn into demerit goods (Duong, Liu, & Eddie, 2013) or toxic securities (Black, 2009; Fujii, 2012) if the process of creation, distribution, and trading of the securities generate more risks to investors and systemic instability than the benefits they bring.

In the context that exceeding complexities of derivative products, coupled with the investor behavioural constraints, have made the full disclosure regime unsuccessful in enabling investors to make fully informed decisions, merit regulation was recommended to securitized derivative debt products (Solaiman, 2013). In the meantime, substantive transparency requirements were proposed to the Over-The-Counter (OTC) derivative products, mainly standardized ones, including mandatory registration, clearing through Central Clearing Counterparty (CCP) and reporting (IOSCO, 2011, 2012; IOSCO & BIS, 2012; IOSCO, BCBS, & FSB, 2015).

Because the derivatives markets in emerging economies are developing, the proposed re-regulation trend currently put the emerging regulators before two regulatory dilemmas: 1) the tradeoff between tight and safe regulation that may limit market growth and a more flexible but riskier framework that provides some space for financial innovation (Prasad, 2011) and 2) the discrepancy between the requisite to pursue global derivative market reform and low capacity in terms of market infrastructure and institutions to accommodate that reform (FSB, 2014; Mminele, 2013).

It is advocated that behavioural finance and financial market instability hypothesis should be adopted by emerging regulators to research the investor behavioural constraints and market phenomena in derivatives markets in order to set up a relevant regulatory and supervisory framework.

6. Public goods. An implication from the 2008 GFC is that systemic stability is a public good, which market fails to produce and hence should be provided by the government. Since global financial stability was recognized as a global public good after the 1997 AFC, systemic risks once again became the centre of financial regulatory reform that was highlighted by the 2008 GFC (Moshirian, 2011). The crisis has revealed the fragility of the financial system, highlighted the linkage of systemic risks, and indicated that many risk-taking activities were taken by non-bank institutions and escaped the regulatory web, which was designed mainly for banks (González-Páramo, 2010; Tumpel-Gugerell, 2010).

A special supervisory framework applied for these institutions should be established with visions of network theory and risk-based approach. Given the context that supervisory agencies in many emerging markets are facing lack of operational independence, limited resources and lack of specialized human capital (FSB, 2011; IMF et al., 2011; World Bank, 2013; IOSCO, 2020), a balanced and tailored reform process (World Bank, 2013) with priorities should be considered by emerging market regulators to enhance systemic stability.

7. Negative externalities. Another important implication of the 2008 GFC is that negative externalities are critical failures of financial markets, where the default of one important institution may cause insolvency of other institutions and instability of the whole system. Some of the negative externalities are relevant to justify regulation of the securities market, including: 1) the failure of a financial institution might impose costs to non-contracting third parties; 2) the failure of a financial institution might cause runs on other solvent financial institutions, causing contagion and systemic instability; 3) the failure of the market intermediaries might lead to the collapse of the payment system or the securities market, that in turn causes economic negative effects; 4) the failure of financial instruments insured or guaranteed by the government might impose costs to tax payers (Benston, 1999).

In the securities market, negative externalities were proved fatal by the 2008 GFC. The crisis has made the securities regulators perceive the need to turn the pre-GFC "largely micro-prudential" supervision (Hanson, Kashyap, & Stein, 2011) into a framework that closely links macro- and micro-prudential supervisory activities. Investment bankers and hedge funds in the securities market were recognized as "more and more systemically important because of securitization trends" (Helleiner, 2011).

In order to address the negative externalities that may cause by market intermediaries, especially hedge funds, investment bankers, and the newly emerged crowding funds, the insights of Network Theory need to be embraced. In addition, the risk-based approach should be used for micro-prudential supervision of market intermediaries in a way to ensure their financial soundness and harmonization of macro and micro-prudential supervisory activities.

6. CONCLUSIONS

It is concluded that securities regulators, especially the ones in emerging markets should observe the investors they protect and the markets they regulate with five essential characteristics: 1) investors are not rational; 2) markets are not always efficient; 3) price in securities markets is easily distorted by herd behavior; 4) the more securities market develops with sophisticated financial products, the likelier it performs with the booms and busts cycles; 5) the securities market needs to be perceived as a sophisticated network inside other complex networks. An SMS philosophy that efficiently adapts to market developments and is resilient to financial crises should be based on the Keynesian regulation, intertwine insights from behavioural finance, financial market instability, financial network theory, and agency theory, focusing on the specific source of the market failures and addressing these failures by relevant regulatory interventions.

This study has some limitations: cross-sectional quantitative research data might not dynamically reflect the ongoing and changing context of post-GFC SMS reform. Although the limitation was partly settled by the qualitative research with a wider time frame, it might confine the generalisability of the quantitative research and hence the qualitative research because the later was conducted to address the implications and research issues arising from the previous method. Notwithstanding the limitations, this research generates findings and evidence to answer the research questions about the impacts of the 2008 GFC on SMS philosophy, enabling the researchers to come up with meaningful implications for securities markets and to provide recommendations for policymaking.

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