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Changing Paradigms in Stock Exchanges' Governance

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Abstract

There is a bourgeoning strand of academic literature dealing with the matter of corporate governance in the exchange industry. Large part of that literature investigates the reasons why exchanges modify their legal status. In particular, it tries to find a viable economic explanation to the demutualization of exchanges and the subsequent listing of major exchanges. The corporatization of exchanges would mirror the attempt to balance the vested interests of brokerage firms and outside shareholders, locals and international intermediaries, listed firms and platform users. The exchange industry has been rapidly evolving, especially during the last decade. Alongside with increasing consolidation, the exchange industry is experiencing a particular path of development moving toward a deepening of links between platforms. Such a development is a by-product of institutionalization of ownership and links platforms at an ownership level. What we are seeing are few large institutional investors holding large stakes in major exchanges exerting, the facto, a joint influence in the biggest players. We may call it as a form of soft consolidation or clustering. It becomes, therefore, interesting to delve into the implications and criticalities connected to the growing up of clusters of exchanges.

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1 Literature Review

Exchanges' governance is one of the main topics in stock exchanges' related literature. Although a great variety of contributions engages with the explanation of exchanges' incentives to modify their governance arrangements, there is a lack of research studying the implications of recent developments in the exchange industry's structure.
Traditionally, securities exchanges were run as mutual organizations owned by the intermediaries admitted to use the trading facilities on a membership basis. As members,

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they performed the function of intermediating investor's transactions. Their prevailing interest was to run marketplaces aimed to permit their customers to benefit of convenient trading platforms.

The governance structure of exchanges has, been, however, rapidly evolving alongside with the vested interests of main stakeholders. The relevant steps were the demutualization and subsequent (self) listing of major exchanges. Seminal works on exchanges' governance focused on the incentives for stock exchanges to change the legal status and the conflicts of interest which are implied.

While one would be tempted to put the need of rising new capital as the main reason for demutualization, it has been pointed out that the process underlay (Steil, 2002) more strategic reasons and, namely, those of exchanges facing increasing competition. Moreover, demutualization qualifies as a typical feature of those exchanges located in countries with higher levels of economic freedom and facing greater competition (Brito Ramos; 2006). Serifsoy e Tyrell (2006) further investigate the link between governance and efficiency. They shown how a mutual exchange, facing competition from a for-profit, outsider-owned platform, can only survive by adopting a similar governance structure.

As known, mutual exchanges survived so far they were shielded from international competition and acted as natural monopolies within their national boundaries. As exchanges were insulate from external competition, the members were able to block any reform attempting to dis-intermediate trading on securities exchanges. The mutual structure, therefore, was coherent with a natural-monopoly setting and designed to permit exchanges to extract monopoly rents (Pirrong, 1999). The relevant conflicting interests in mutual organizations were those opposing the users of the exchange's services and, namely, listed companies and brokerage firms. To the extent that members seek to maximize their own utility they may impair the ability of the exchange to serve at best its stakeholders, namely listed companies and investors.

The degree of heterogeneity among trading members, by contrast, was quite limited and, therefore, their interests quite aligned. With increasing competition among financial centers, national boundaries blurred together with restrictions to foreign listing for issuers (Macey and O'Hara, 1999). Investors found easier access to foreign markets as well. The drivers of competition were, initially, the massive technological developments that started to affect exchange trading. It is well recognized that automation of trading, alongside with increased competition, are important drivers leading toward exchange demutualization (Domowitz and Steil; 1999). Such technological advances reduced the costs of accessing exchange's services and put under pressure the intermediation function of traditional members, eventually causing the falling of monopolies by eliminating geographical barriers and fostering innovation. On the evolutionary path, electronic platforms rapidly replaced the traditional floors, leading to the rise of new competitors (Electronic Communication Networks which in recent years succeeded in capturing large flows of orders).

Fierce competition in the exchange industry contributed to diminishing the role of financial intermediaries (Mishkin and Strahan, 1999; Allen, Mc Andrews and Strahan, 2002), together with impacting exchanges' competitive strategies to a large extent.

Demutualization of exchanges and outside ownership contributed to widen the array of vested interests, posing relevant concerns as the incentives they face. In the meanwhile, it has relevant implications as for the relative efficiency of demutualized exchanges compared with traditional mutual organizations.

Incentives are strictly related with the role of exchanges as self-regulatory organizations and the appetite toward risks. A major concern with demutualization was a supposed inconsistency with self-regulatory responsibilities. In particular it was questioned whether a for profit organization would have the right incentives to properly regulate listing, trading, settlement and exercising an appropriate surveillance on market behavior. There is widespread consensus that demutualization and listing are not less consistent with regulatory duties than mutual structures (Steil, 2002). Another concern was the supposed incentive for a for-profit exchange to engage in too risky activities that may threaten the viability of business on an ongoing basis causing damages to members and the economy as a whole.

Various published contributions analyse the effects in terms of welfare of various governance models. One of the features of prevailing contributions in this field is to make the case for a contraposition between outside ownership and member ownership. Hart and Moore (1996) reach the conclusion that both the mutual model and the outside ownership model are inefficient; nevertheless, the more intense the competition and the greater the degree of inconsistency of the members, the more the outside ownership emerges as relatively more efficient. The Hart and Moore's model, however just focuses on voting rules ignoring the specific governance arrangements designed to support bargains between members.

Actually, what differentiates a demutualized governance structure is a different allocation of the residual rights of control compared to a mutual organization and the distribution of surplus. However, corporatization doesn't necessarily imply significant transformations in the ownership base. Evidences show that exchanges continued to be largely controlled by intermediaries-members even after demutualization, resembling the governing mechanisms of the old paradigm.

It is with the (*self*) *listing* of securities exchanges that outside ownership began to radically change their incentive structure, introducing new forms of conflicting interest between different stakeholders. The reasons leading exchanges to self list are quite the same that forced the abandoning of the mutual structure. There is general consensus that self listing responded to the need to endow the stock exchanges with the most suitable instruments (precisely the public company model) for dealing with the growing international competition (Fleckner, 2006).

On the one hand, the need to attract greater liquidity, which is the most significant attribute in todays competitive environment, lead exchanges to open up the shareholder base to outsiders (institutional investors), toning down the influence of local brokers and the adverse effects of potential conflicting interests within securities exchanges. On the other hand, public ownership was conceived as a mean for supporting mergers and alliances among exchanges and facilitating the assessment of relative values. Major deals, by the way, were settled (at least in part) through exchange of shares.

The listing of exchanges has several implications with respect to both shareholders and the structure of the industry. Assuming a shareholder perspective, evidences (Mendiola and O'Hara, 2004) show that exchange Ipo's are beneficial to shareholders. Assuming an industrial organization perspective, the implications are quite complex and challenging. The structure of the industry and the competitive environment sharply influence the behaviour of the exchanges and, ultimately, the distribution of value (and, namely, cooperative strategies versus non-cooperative strategies).

The consolidation process, which speeded up during the last ten years, led to the formation of large conglomerate exchanges operating on a cross-border scale. Exchange listing, together with mergers and alliances, favours the intensification of networks among major players. Of particular significance is the growing interest of institutional investors in investing into stock exchanges' shares. Moreover, evidence shows that major exchanges have a few common shareholders.

These developments cast significant concerns as for the equilibrium which would be attained in the new industry setting. Increasing convergence in the exchange industry, in fact, is expected to have a relevant impact on network economies. Consolidation might magnify the functioning of networks by increasing liquidity and the quality of price discovery (Economides; 1993). However, the unfolding of network externalities is dependent on compatibility and co-ordination among the entities constituting the network. Such attributes are expected to foster competition since they imply the adoption of common platforms and standards (compatibility) granting equal access to users (Economides and Flyer, 1997). Notwithstanding, to the extent that it leads to the formation of clusters of exchanges subject to common control, integration might turn to reinforce oligopoly power hampering competition. In such a case, the nature of competition itself changes since controlling shareholders are concerned of external, rather than internal competition. It mean that they might have an incentive to strategically manage access rights at each node of the cluster. It means that those exchanges (nodes) which are less exposed to competitive forces might subsidize the others where the elasticity of demand to external prices is greater.

The work is organized as follows. Section 2 provides an overview of prevailing ownership structures at major exchanges. Section 3 describe the main topics of corporate governance of securities exchanges, primarily focusing on listed exchanges. Section 4 widens the problem of corporate governance at industry level. Section 5 concludes.

2 Securities Exchanges and Changing Ownership Structures

Prominent research on stock exchanges' corporate governance deals with the significant changes that occurred in the legal status of major exchanges across the world. The World Federation of Securities Exchanges (Wfe) collect and publish yearly data on the securities industries' structure. Hereafter, we build on Wfe data in order to provide a first insight into the changes in legal statuses of major exchanges.

Nowadays, a great majority of exchanges operating in high income economies and a few located in low-middle income economies are public listed companies. Table 1 reports the evolution of governance structures of exchanges belonging to the Wfe.

Table 1: Exchanges legal statuses, an overview

Legal status	2007	2008	2009	2010	2011
Public listed companies	21	19	19	22	23
Demutualised exchanges with transferable ownership	11	8	9	9	8
Private limited company mainly owned by members	7	7	8	7	8
Association or mutual	4	4	4	3	4
Other legal status	8	7	8	9	9

Source: Wfe, Cost and revenue survey (various years).

According to Wfe classification, fifteen listed exchanges are operation in high income economies while the others (eight exchanges) are operating in low-middle income economies. Breaking down by region, eleven listed exchanges are incorporated in the Americas while the others are equally distributed in the Asia-Pacific and the EAME (Europe, Africa and Middle East Region).

According to Wfe's data, mutual exchanges or associations constitute a marginal class in the international landscape. As we can observe, a wide majority of securities exchanges has been incorporated (public listed companies, demutualized exchanges and private limited companies), although there are, arguably, substantial differences among them. Some 44% of Wfe's members are listed exchanges and comprise the largest players in the world in terms of turnover, Ipo's and capital raised (in particular, the biggest American exchanges and the Lseg). Many exchanges went public starting from 2005 while others later on during the financial crisis. Nowadays, listed exchanges are largely predominant in terms of revenues and trading values. However, it is to note that listed exchanges seemingly fare worse than other legal statuses in terms of economic performances (only demutualized exchanges fare worse that listed ones). Table 2 shows the break down of aggregate Wfe exchanges' revenues by legal status together the profit margin and the return on equity.

Table 2: Revenues, Profit margin and Roe by legal status

Legal status	Revenues	Profit margin	Roe
Public listed companies	78.9%	35%	13%
Demutualised exchanges with transferable ownership	7%	32%	10%
Private limited company mainly owned by members	3.5%	35%	16%
Association or mutual	7%	49%	13%
Other legal status	3.6%	67%	23%

Source: Wfe, Cost and revenue survey, 2011.

Lower economic performance for listed exchanges might seem somewhat puzzling. We might explain the abovementioned patterns at light of increasing competition (in particular from Electronic Communication Networks) which, arguably, is at most concerning for large exchanges. Moreover, during the last years the consolidation process speeded up, mainly involving listed exchanges. M&A related expenses might have exerted some impact on profitability.

The classification adopted by the Wfe, however, suffers of a certain degree of uncertainty. *De facto*, it may be difficult to distinguish between demutualized exchanges and privately limited companies. With the exception of listed exchanges, in fact, other incorporated exchanges have quite similar ownership structures characterized by low levels of dispersion in the shareholder base. Moreover, listed exchanges themselves not necessarily have a dispersed ownership structure.

Assuming a corporate governance perspective the listing of securities exchanges poses a wide array of questions related with managerial incentives and minority shareholders protection, which has been widely investigated by the standard literature on governance.

The central question is whether innovations in the exchanges' ownership structure following the listing put to the forefront the typical agency problems of publicly traded firms, leaving aside the traditional governance matters of exchanges (i.e., the relations among users-owners, non-owners members and other outside shareholders, the potential conflicts between local and international members).

We'll try to answer to this question in the following sections. Right now, we provide some basic figures on listed exchanges' ownership in order to give more concreteness to the discussion. In turn, this would be helpful for defining the exact nature of incentives in the securities industry. Table 3 below summarizes the distribution of institutional ownership across major listed exchanges. It reports, in particular, the mean and median value of institutional ownership at major exchanges, the 95th percentile and the outliers (the number of institutional owners with a stake above such percentile). A measure of concentration is also reported as expressed by the aggregate stake of the top 10 owners.

Table 3: Listed exchanges and institutional owners

	Nasdaq	Nyse Euronext	Lseg	BME	DB	TMX	CME	CBOE	ICE
Institutional ownership	95.9%	73.1%	74.9%	17.9%	43%	31.3%	73.7%	54%	93.9%
Of which: mutual funds	31.1%	32.8%	21.9%	17.1%	36.5%	30.6%	29.3%	28.7%	46.5%
Mean	0,37%	0,28%	0,33%	0,08%	0,17%	0,18%	0,28%	0,21%	0,37%
Median	0,09%	0,07%	0,04%	0,02%	0,03%	0,02%	0,08%	0,03%	0,08%
95% perc.	1,16%	1,10%	1,09%	0,4%	0,82%	1,27%	1,05%	0,93%	1,51%
Outlier	13	13	13	10	12	9	13	13	13
% Outlier	58,5%	37,8%	51,2%	8,3%	23,8%	15,6%	32,1%	35,3%	49,6%
Top 10 owners	54.6%	34.3%	43.9%	8.3%	21.9%	16.9%	28.4%	31.9%	44.1%

Source: Our elaborations on SNL Financial

The figures above elicit some interesting considerations regarding the shareholder base of major listed exchanges, which we may summarize as follows:

a) The most relevant feature of listed exchanges is the institutionalization of ownership. Although with different magnitude across exchanges, such a phenomena marks a relevant difference with respect to demutualized but not listed exchanges, which, in most of the cases, continue to be dominated by platform users. In almost all the cases, a significant portion of institutional investors are mutual funds. By the way, relevant stakes in hands of mutual funds are expected to have implications as regards the relationships with other stakeholders and, namely, the platform users. Mutual funds, in fact, have a direct interest in the efficiency of trading platforms, favoring an alignment of vested interests.
b) Right now the ownership structure is quite disperse and fragmented resembling the features of typical public companies, as it emerges observing the median value of stakes at each exchange. Despite a widespread ownership, the distribution unveils the presence of a few major shareholders holding relevant stakes. Arguably, they should be regarded as having the power to control the exchange and determine the corporate strategies.

Looking in more detail to the ownership structure of listed exchanges there emerge both some similarities and certain divergences. Almost all listed exchanges present a widespread participation of institutional ownership. European exchanges (with the exception of the London Stock Exchange Group) and Tmx, however, have a lower incidence of institutional ownership compared with Lseg and American exchanges (in particular, Nasdaq Omx Group and Ice are almost totally owned by institutional investors). Seemingly, the more the international presence of exchanges, the more the attractiveness for institutional owners. However, it is to bear in mind that not all the listed exchanges have a widespread ownership base. Except the largest listed exchanges, there are other listed exchanges which are owned by a narrower shareholder base. For example, the Warsaw Stock Exchange is controlled by the Polish government calling into question the similarities with other listed exchanges in terms of vested interests[3].

The distribution of institutional ownership is, at least to some extent, different. The distribution appears to have a longer right tale for Nasdaq Omx and Ice (and, to a lesser extent, NyseEuronext and the London Stock Exchange Group), as it emerges observing the 95th percentile. Concentration is also greater at the abovementioned exchanges as suggested by the stakes in hands of top 10 owners. We may, therefore, identify a core of relevant shareholders holding relevant stakes. The means above the median values and the stakes in hands of the outliers are explicative. In some exchanges, the outlier shareholders control around or more than 50%. Narrowing the analysis, at least for the American exchanges we may find a few shareholders (five or for) controlling near to 20% of stakes. On grounds of the relations between shareholders, than, very low median shareholdings combined with the presence of a large controlling shareholder potentially imply relevant agency problems, involving major shareholders and minorities.

The massive entry of institutional investors in their capital base marks a new step in the evolutionary process of securities exchanges' governance. The process appears of particular interest at least for two reasons. First of all, it reflects a speeding up in the process of separation between ownership and control. Then, and most important, it marks a significant difference picture with respect to the traditional member-owner paradigm. More precisely, what is emerging, at least at major exchanges, is a separation between the right of using trading platforms and ownership rights, which may entail a refocusing of the entire structure of incentives.

Cross-ownership is, then, a relevant feature in today's exchange industry. Examining the ownership structures we can find tight links across major listed exchanges, in particular the North-American ones. Figures, in fact, show that such exchanges are under control of a common nucleus of relevant institutional shareholders. In particular, Chicago board Options exchange, Chicago Mercantile Exchange, Intercontinental Exchange and Nyse Euronext Group have four common shareholders with aggregate holdings ranging from 15% to more than 19%[4].

The figures above are quite interesting because may entail some form of coordination between major exchanges although, formally, representing distinct juridical entities. In particular they turn to be more relevant when considered at light of the consolidation process which is reshaping the morphology of the industry. It could be argued that the resulting ownership structure would resemble a sort of implicit mergers between

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[3]More precisely, the Polish government hold a 38% stake in the Warsaw Stock Exchange and is entrusted with 51% of the voting rights. Despite being a listed exchange, the prevailing vested interests are, arguably, those related to a well functioning market place.

[4]The main common shareholders are Vangard Group Inc., State Street Global Advisors Inc., T. Rowe Price Associates Inc. and BlackRock Fund Advisors. They hold roughly a 18% stake in the Chicago Board Options Exchange, a 15% stake in the CME Group alongside with a 19.4% and a 17.6% stake in the ICE and NyseEuronext respectively.

exchanges. In turn, this would imply that a few institutional investors would be able to control flows of listings and investments channeled through the capital markets.
Clustering is, however, expanding and involves major western and Arab exchanges. Here, the convergence involves two large international exchanges (Lseg and Nasdaq) and a few regional exchange (the Arab ones). It is, by the way, a by-product of the pre-crisis wave of consolidation in the exchange industry, with a strong interest of Arab exchanges in taking over control on main western financial centres. For example, the Dubai Exchange launched a bid on London Stock Exchange. The aforementioned developments led to an impressive transformation in the morphology of the industry, with western and Arab financial centres holding large reciprocal stakes one in each other and fit entrenchments in the respective boards. On the western side, the exchanges involved are the London Stock Exchange Group and Nasdaq Omx. On the Arab side, coordinating power is on hands of the Borse Dubai, a holding company under the control of the Investment Corporation of Dubai (ICD)[5]. With the aim of constituting a market place for international securities, Borse Dubai and Nasdaq Omx signed a partnership which lead to the Difix exchange, now Nasdaq Dubai.
Increasing convergence among exchanges on a cross-border scale (and across macro-areas) bears relevant concerns as for the perspectives of the exchange industry. While weakening the influence of brokerage firms on securities exchanges it raises the question of who, ultimately, controls and exercise power over trading platforms. There is no doubt in fact that growing links between exchanges and other platforms and, in particular, the affirmation of corporate chains turn out in substantially reallocating and spreading the control rights over the exchanges' franchisees. While impacting on value creation matters, it certainly will have relevant implications as for the exercise of supervisory and regulatory powers. Actually, it would become difficult to ascertain who, actually, decides upon the strategic policies of exchanges. Moreover, increasing complexity in ownership architectures substantially interfere with exchanges in their vest of self regulatory organizations entrusted with the regulation (and supervision) of the markets they manage. In such a perspective, it bears implications as for overall reputational capital of platform operators.

3 Listed Exchanges: the System of Corporate Governance

Studies on corporate governance constitute an established field of research. Prominent researchers have long investigated the structure of incentives facing public companies and the conflicting interests opposing management and stakeholders. Since the largest securities exchanges nowadays operate as listed companies, we might argue for adopting a traditional corporate governance approach for studying exchanges' governance.
Public companies entail the well known agency problems related to the failure of managers to serve at best minority shareholders (Berle and Means, 1932). In most countries, however, public traded firms, far from being widely held, present, actually, a

[5]ICD is the Sovereign Fund of Dubai, which holds relevant stakes on both Lseg (21%) and Nasdaq Omx (16%). The Borse Dubai controls (with a stake of roughly 80%), on the other hand, the Dubai Financial Market (DFM), one of the main exchanges in the UAE who is participated by the Nasaq Omx itself.

few controlling shareholders who have the power to designate and monitor managers (La Porta, Lopez-de-Silanes and Shleifer, 1999). Were a group of few controlling shareholders to emerge, relevant agency problems oppose controlling shareholders to minorities and other stakeholders (Shleifer and Vishny, 1997).

Publicly traded exchanges are obviously expected to comply with the typical governance rules and arrangements of listed companies, aimed to assure full transparency and disclosure on relevant corporate matters to shareholders. As a sound principle of governance, listed exchanges are required to assure the independence of the board of directors and operate to effectively solve potential conflicting interests. The governance arrangements of major listed exchanges resemble those of public companies, with various committees entrusted with specific function (remuneration, corporate strategies).

Notwithstanding, there are good reasons to maintain that governance implications of listed exchanges are quite more complex than those of public companies, at least for two reasons. On the one hand, exchanges are entrusted with regulatory functions. Therefore, they are deemed to comply with rules and arrangements as *Self Regulatory Organizations (SRO's)*. On the other hand, the vested interests of institutional owners are quite heterogeneous. They arguably have a multifaceted utility function where value creation may come to combine or conflict with other objectives.

As SRO's running a thoroughly regulated and supervised business, exchanges continuously interact with regulators and supervisors. Actually, since there is a public interest in fair and well functioning capital markets, supervisors are among the most relevant stakeholders of securities exchanges. Self listing, therefore, should not interfere with their accountability for high level rules and regulations. There is, however, a tight relation between the status of listed exchanges as SRO's and their nature of public companies accountable for value creation. At the heart of such a relation lies the reputational capital which, while obviously concerning supervisors, is of paramount relevance for assuring the viability of the business and the attitude of the exchange to create value.

The ownership structure has relevant implications for stock exchanges' corporate governance as well. Two points deserve to be outlined. The first pertains to the vested interests entailed by the enlargement of the shareholders base. The second has to do with the intensifying network of relations among major groups.

While the demutualization don't change exchanges' ownership structures in a substantial way (demutualized exchanges continue to be largely owned by members), the listing of exchanges lead to the institutionalization of ownership and the affirmation of minority shareholders. These developments, in turn, lead to the affirmation of new vested interests and the enlargement of the catalogue of potential conflicting interests as well.

Arguably, the listing of exchanges may turn to substantially transform the nature of agency problems related to the ownership structure. In our view, the conflicting interests potentially opposing user-owners and outside owners do not constitute the main concern in todays exchanges' governance. Posing it in other terms, we do not think the incentive of outside owners to expropriate users to be as challenging as one might be tempted to think. Institutional owners (which, to a large extent, are mutual funds) are themselves involved in trading activity; they have, therefore, a clear incentive in running efficient trading platforms.

Rather, major concerns might be hindered by the multifaceted utility function of institutional shareholders. They might act as strategic investors with the aim of leading the change in the exchange industry or pursuing specific interests in contiguous businesses. On the one hand, their position may drive a wedge with the interests of minority shareholders which, arguably, strive for value maximization. These issues comes to the forefront with reference to the expansion policies that exchanges are pursuing. While large institutional ownership would promote effective monitoring, nevertheless there remains the risk that certain strategic options are conceived by the management as a mean of consuming perquisites. Their strategic vision might be inspired by other interests (i.e., prestige, the ambition to expand control over global capital flows).

Widening the perspective, on the other hand, their strategic view might have a relevant impact on the relationship with the external environment. We refer, in particular, to the functioning of the so called exit network on which we'll turn in the next section. Consolidation in the securities industry and, in particular, certain organizational structures (namely, vertical silos) might turn to lock the customer into a long term relationship impairing its ability to access the most efficient platforms.

Moreover, the phenomena of common shareholdings, poses the problem of operations with (or between) *related parties* which is one of the most interesting governance issues in the modern exchange industry. Obviously, such operations might be beneficial to all parties (exchanges and customers) in several respects, for example favoring technology transfers, the adoption of common standards or facilitating trading to their respective members. Notwithstanding they requires adequate transparency and oversight.

From the previous discussion follows that exchanges are expected to maximize shareholder value and the utility of all those stakeholders which, at various levels, are interested in the efficient functioning of capital markets (issuers, traders, investors, policymakers).

At the heart of the overall system of corporate governance stands the sustainability of the business (Figure 1). The sustainability of exchanges' business assures an effective and efficient channeling of savings to investment opportunities, preventing disruptions in the financial system. In that, it bridges the functioning of the exchanges as a listed company and the public interest in a fair functioning of the capital market.

The sustainability aim, in turn, is driven by the joint influence of both the corporate philosophy and values (which are expression of the competencies and sensibilities of the board) and the general objectives of regulators and supervisory authorities.

Corporate philosophy is a multi-dimensional concept; it attains to the model of growth, the strive of the management to promote fair ad well functioning markets and, more generally, its attitude toward risk. In that, corporate philosophy is function of the specific strategic choices of the exchange in terms of capital investments (mainly devoted to improve platforms), mergers and other alliances with other platform operators, self-regulatory and monitoring standards.

The corporate value refer to the attitude of the exchange in its relations with all the relevant stakeholders (shareholders, issuers, market operators) and goes far behind the compliance duties owed to the supervisors and the market according to rules and regulations. Rather, it comprises the commitment to a market friendly conduct of business in terms of high-level monitoring and admission standards and the proper communication of such philosophy to the market.

The broad corporate philosophy and values are influenced by both the external environment (competitive pressures, structure of the financial system, economic cycle) and regulators. The latter, in particular, play a twofold role. First of all they might impact the corporate philosophy and general objectives by promoting an attitude of relevant persons within the exchange toward an efficient management of the exchange (i.e., a

philosophy which combines private and public objectives). On the other hand, regulation and supervision are key functions in protecting all relevant stakeholders and the market as a whole.
Pursuing the sustainability of the business given the corporate philosophy and values, requires to manage three competitive levers, which define the strategic engagement of the exchange, and three focus areas. The competitive levers pertain to sustainable growth, sustainable value and prime capabilities and skills. The aim of achieving sustainable value influences decisions taken to achieve a sustained (and sustainable) commercial growth and to endow the firm with the best human and physical capital. The focus areas, on the other hand, pertain to product and service development (on which depends the sustainable growth), investments in IT systems and human skills and corporate governance. Sustainability, therefore, requires an engaging approach which is inclusive of all relevant stakeholders.

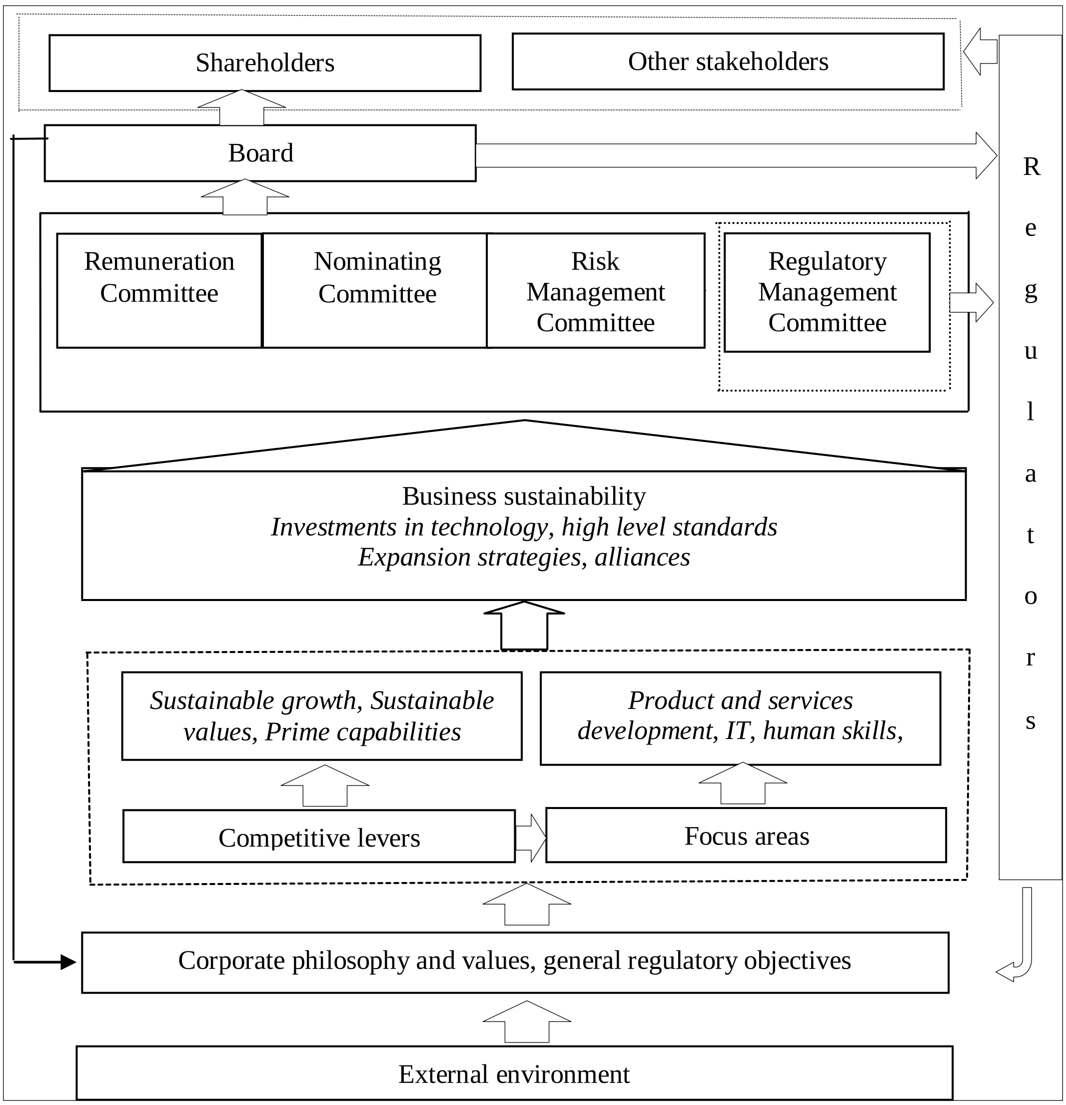

Figure 1: Corporate governance for securities exchanges

Within this framework, it is responsibility of the board to spread corporate philosophy and value across each level of the firm. In turn, the aim of running a sustainable business should drive the decision making process of each corporate committee. By integrating the general objective of sustainability into each committee, the system of corporate governance realizes the coordination of the specific functions and their joint commitment to value-oriented, rule-compliant corporate policies.

4 Industry Level Governance: Relevant Issues

The transformations who interested the exchange industry in the last years give rise to a particular structure of the industry where national or regional exchanges with a relatively closed ownership structure coexist with large groups with cross-border extension. Within regional exchanges there is substantial coincidence between the company and the local markets. By contrast, within conglomerate groups this proximity vanishes. In the latter case, controlling shareholders have a far reaching power over a wide array of business activities spanning different geographical areas. In most cases they share control over major trading platforms composing, therefore, a network of related although legally autonomous platform operators.

As a practical matter, the holding model elicit the question whether the advantages of flexibly managing the consolidation process or simply alliance among trading platforms outweigh the potential drawbacks in terms of poor corporate governance or inefficient supervision. The topic should be considered at light of the *contractual governance* arrangements and *non-contractual governance* arrangements.

Contractual governance refers to all those mechanisms formally established to govern relations between different stakeholders, promote a managerial style coherent with best practices, improve efficient internal control systems and design a coherent system of incentives. Securities exchanges around the world (in particular listed ones) have come up with designing complex systems of corporate governance. Internal controls and risk management are particularly developed and entrusted to specific committees reporting to the top management. While constituting a relevant piece of the entire corporate governance architecture contractual governance is far from exhausting the complex stream of influences emanating from the environment. Actually, when pursuing expansion strategies and furthering the integration process within international capital markets the exchange increasingly exposes to external influences.

Non-contractual governance becomes, therefore, of paramount importance in orienting the management of securities exchanges. While it is sure that almost all firms are subject to external influences, conglomerate exchanges are particularly concerned by the external environment for technological reasons (remote trading) and as a result of the increasing links at ownership level with multiple platforms. To define the concept, non-contractual governance refers to the effects deployed by the so-called *network embeddedness (*Rooks G., Raub W., Tazelaar F., 2006) which is related with the ability of platform users to resort to other providers (exchanges or post-trading entities) which provide a better service (i.e., better prices, lower costs, high quality monitoring standards or higher transparency). Provided that such *exit network* functions well, it would act as a powerful mechanism for regulating industrial relations and promoting fair competitive practices.

The features of corporate governance, therefore, are, in the modern exchange industry, governing networks and relations between exchanges rather than just simply composing conflicting interests within the exchange. It follows that the concept of stakeholder is much more wider than the exchange members, embracing now the market at a whole.

From a theoretical point of view, the proper functioning of an exit network mechanism would cast relevant questions on how to conceive corporate governance within the exchange industry. In particular, the value of reputational capital and the threats coming from the exit network would themselves act in a way to prevent opportunistic behaviours by the exchange. At this regard, Lee (1988) argues the irrelevance of governance arrangements whenever the exchange is deemed to face a massive competition. Obviously, the issue is strictly related with the regulation of the exchange industry and the influences that regulation has on competition and behaviours. In literature has been argued (Fishel and Grossman; 1984) that there is a strict relation between the quality of regulation and the trading volumes that the exchange is able to attract. It would, therefore, follow that the functioning of the exit network is something exogenous to the exchange and is attributable to the incentives emanating from regulators. Arguably, the proper function of competition and the effectiveness of market discipline hardly develops spontaneously and depend on the strategic behaviour of exchange's management. It is at this level that non-contractual governance comes to melt with contractual governance.

Within platform industries the relevant conditions for the exit network to properly work claims for complementarities which may be conceived in two forms:

a) technical complementarities, implying the adoption of common platforms or, otherwise, the full interoperability of different platforms alongside with the homogenization of standards and protocols;
b) economic complementarities, implying a strategic coordination between different platform operators favouring cross-memberships, cross-listings and smooth post-trading procedures.

Prevailing ownership structures and increasing links among exchanges do play a relevant impact on incentives to develop complementarities. In that, strategic choices of large institutional shareholders leading to clustering among exchanges imply that focusing on governance at corporate level might be misleading. In particular, it would not suffice to properly address potential distortions in the distribution of access rights.

Rather, such transformations bear, at a first instance, obvious governance implications, at an industry wide and macroeconomic level. At industry level, governance arrangements have to do with overall control over international capital flows. The expansion of the cluster, apart leading it to exert a relevant influence over international capital flows has obvious macroeconomic implications as the strategic interaction between the exchanges involved. It may sharply impact the cost of rising capital for issuers and the overall trading costs for brokers, dealers and final investors. An a macroeconomic level, moreover, there are implications for the distribution (and management) of risks across the entire financial system.

Clustering is the most recent phenomenon casting concerns with respect either to industrial and macroeconomic perspectives. It responds, arguably, to the needs of large institutional shareholders, directly interested in the functioning of the exchange industry, to reinforce control:

a) Over global liquidity pools, arguably at light of recent tendencies in exchange regulation;
b) Over the competitive dynamics within the exchange industry, eventually influencing the course of competitive forces.

With reference to the first point, we recall, at light of the network theory, that liquidity is the key value driver for exchanges. Clusters may result in a way to counteract centripetal tendencies due to increasing competition among platforms. In that, clustering may be interpreted at light of regulatory reforms. For example, the US interlinking system established and promoted by the NMS regulation potentially implies a great mobility of flows among exchanges. By controlling major exchanges shareholders may be better able to retain control of liquidity flows in their moves.

Turning on pint sub b), coalitions of shareholders in multiple exchanges may have relevant implications on how competition and coordination combines. Theoretically, with interlinks expanding and becoming even stronger, the exchange and industry level may come to overlap. Arguably, the aforementioned developments will act in a way that would result in substantially changing the nature of competition. More precisely, competition is expected to develop between large conglomerates (or clusters), while within each conglomerate would prevail a model of cooperation.

At a managerial level, the cluster model poses interesting challenges as for the strategic behaviour within the group and its interrelations with stakeholders' behaviour, mainly traders and issuers. Value creation becomes even more challenging as it depends on a new equilibrium entailed by the strategic coordination at an industry-wide level. The distribution of value, on the other end, may cast relevant concerns as well. Eventually, it may be affected by the contraposition of the interests of a very few shareholders and those of a the international capital market. Provided that such links come up to lock the control of the cluster, the utility function of the main shareholders would entail the joint-maximization of profits of all the constituents of the group, realizing a kind of implicit merger. Profit maximization becomes relevant at conglomerate or cluster level, with implications as for the pricing policies and the manifestation of cross-network effects.

Whether the controlling shareholder is able to seize value or not depends on the level of competition at each node of the cluster.

The joint profit-maximization at cluster level leads to coordination in setting exchanges' fees (both for listing and trading business) across the platforms involved. More precisely, the cluster is able to internalise cross network effects. Each exchange becomes a node of the cluster and sets its listing and trading fees given the decisions of other exchanges in the node. We, therefore, may assume that the conjectural variations in prices equals to zero. In such a stetting conjectural variations becomes relevant for those nodes that, eventually, are exposed to external competition. These nodes might be forced to adopt aggressive pricing policies, while the nodes not suffering of fierce external competition might behave as they have some form of market power. For traders and listed companies there emerges a multiple-choice problem. They can alternatively choose not to move from the elective exchange, to move to another exchange of the cluster or to move away from the cluster. The emerging equilibrium depends on the strength of external competitive forces (i.e. the competitive threats that platforms outside the cluster are able to exert). Arguably, the interactions between global platforms and users may develop as follows:

a) When common shareholdings gives rise to a cluster covering a wide macro-area (for instance, the US and the European Union), it would, eventually, gain a monopolistic power over capital flows within that area and over incoming flows (i.e. the listings coming from another economic space and the order flow coming from international traders);

b) Otherwise, the links at ownership level may involve exchanges or other trading platforms located in different jurisdictions or economic areas despite not gaining a monopolistic power over capital flows on each area.

Looking at the current morphology of the exchange industry, we may identify both models of clustering. The American macro-area tend to develop around a cluster of exchanges (namely, Nyse Euronext, Nadaq Omx and the three large derivative markets) which insist on the same economic space. The model *sub b)*, on the other end, is emerging with reference to the links between western exchanges and Arab markets. These links are a by-product of the battle for the control on the London Stock Exchange Group and involve the Lseg itself, the Nasdaq Omx Group and the Dubai market place.

The implications entailed in each of the abovementioned cases are, arguably, quite challenging and may have relevance for regulators and supervisors in relation to either the reputational standards which the exchanges commit to and the effective functioning of competition. Although operating as separate legal entities, exchanges or other platforms with relevant common shareholders may act in a way to undermine fair competition within the industry. Where common shareholders were able to exploit a relevant coordinating power they would realize a sort of implicit merger. So far, regulators and antitrust authorities have been widely concerned with explicit mergers among securities exchanges. Certain deals (we recall the planned merger between Deutsche Börse and Nyse Euronext have been blocked for antitrust reasons.

Theoretically, the cluster model might stifle either price competition or product innovations which may benefit customers. Arguably, major concerns would be entailed by clustering among the same macro-area. In such a case both issuers and trading firms might not be able to improve their welfare by listing or trading on another trading platform. By contrast, clustering across macro areas would result in bridging different capital markets which may help promoting increasing links among contiguous economies while preserving competition within each area.

However, the cluster model might not hamper the formation of a free capital market. Collusion on tariffs can be detected and sanctioned applying the normal antitrust tools. Moreover, to the extent that international competition works efficiently the threats coming from outside the cluster would sustain the role of market discipline. In today's exchange landscape improvements in information technology caused barriers on the trading side to fall[6]. As for issuers, evidences point to an effective functioning of competition in international listings. This is particularly true for large stocks or companies seeking a dual listing outside their national jurisdiction. The evidence on this point refers to the trends of Ipo's in both the Us and the London-based capital market. Following the adoption of the Sarbanes and Oxley act in the Us, statistical books registered a fall of listings on American exchanges and an increase of Ipo's on the Lseg.

Within this framework, however, the focus of corporate governance is expected to leverage to a greater extent on the compliance function. This is expected to become the function realising the coordination between the microeconomic level of governance and the macroeconomic implications through the functioning of market discipline. In that, the effective functioning of market discipline as a result of the competitive struggle among

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[6]Regulation contributed to this out come as well by ruling out the concentration of trading and promoting increasing convergence at post trading level which is going to align costs of cross-border trades to those of domestic trades.

major international capital markets would provide an incentive for strict compliance with regulations and, more generally, for establishing and maintaining prime monitoring standards. The incentives for product innovation are, then, an interesting matter to analyse. Given that large exchanges operate as conglomerate organizations, an effective coordination driven by common shareholders may lead to leverage on respective excellences in certain product lines and design joint commercial offerings. Should competition be strong enough throughout the cluster, there would be an alignment of interests between issuers and trader on the one side and the controlling shareholder on the other with the latter being constrained in seizing value.

5 Conclusions

Demutualisation and listing of major exchanges contributed, especially during the last decade, to rapidly change the governance paradigms of securities exchanges. Outside ownership changed the objective function of exchanges. The strive for maximizing shareholder value affected exchanges' competitive strategies in an impressive manner, strengthening consolidation in the industry. The convergence between trading and post-trading platforms across the world spurred the affirmation of a deep network of links at ownership level which resembles the features of what we may call a *cluster model*.

We argued that clustering in the exchange industry has paramount implications for corporate governance. The central idea is that such developments entail a shift in the way exchange governance has been so far conceived. Governance, now, is not a mere matter of composing a variety of vested interests within the exchange (microeconomic approach). Rather, the focus should be placed on non-contractual governance arrangements regulating incentives and relations among exchanges at industry level. Accordingly, the most challenging feature of governance is governing access rights and fostering the function of efficient exit-network mechanisms.

Governance of networks bears relevant implications in terms of value creation since it can alter the entire structure of incentives and the competitive jostle among the cluster. Further research, in this field, is related to the impact of the described patterns at a macroeconomic level, in particular as regards the control over capital flaws across economic macro-areas.

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