

# **Restructuring the Board: How Stock Exchanges Can Succeed as For- Profit Firms**

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The conversion to for-profit structures, i.e. demutualization strategy, has been adopted by a large number of firms in order to face competition. The literature focuses generally on testing the impact of demutualization on firm financial performance, however, little interest has been addressed to corporate governance restructuring. In this paper, we analyze the changes in the composition of the board of directors of a sample of 14 demutualized stock exchanges to better understand the workings behind their successful conversion to for-profit firms. We find that, following demutualization, exchanges decreased their board size and appointed more directors politically connected, directors with diversified professional experience and directors with regulatory and international experience. We also document that this corporate governance restructuring contributed to improve exchange reputation.

**Keywords:** For-profit firm; stock exchanges; reputation; strategy; board of directors

**JEL classification:** G34; G15; L14

## 1. Introduction

The environment in which the stock exchanges operate has changed dramatically during the past 20 years. Globalization, financial integration and advances in technology have increased competition and affected how financial markets function. These changes have forced a growing number of stock exchanges to shift from mutually-owned not-for-profit organizations to for-profit, investor-owned firms by demutualizing to obtain the flexibility and financing needed for increased competition (Domowitz and Steil, 1999; Mendiola and O'Hara, 2003). The number of demutualized exchanges has dramatically increased during the last two decades. In 2015, more than 82 percent of stock exchanges in the world were for-profit companies, compared to only 37 percent in 1998 (WFE).

The conversion of stock exchanges into for-profit firms has mainly been successful, with an overall improvement in financial performance (Otchere, 2006; Otchere and Abou-Zied, 2008) and efficiency (Oldford and Otchere, 2011). But the conversion is also accompanied by changes in corporate governance and, while these changes could contribute to better understand exchanges successful conversion to for-profit firms, this dimension has been overlooked by the literature.

There are only a few papers examining governance strategies following demutualization and unfortunately they remain very general and descriptive. Hart and Moore (1996) show by using a theoretical model that a for-profit organization is more efficient than a members' cooperative exchange in an increasingly competitive environment. Aggarwall (2002) finds that the demutualization is usually accompanied by changes in boards of directors to better represent outside shareholders. Akhtar (2002) finds that many exchanges restructure their boards following demutualization by appointing more qualified and specialized directors, whereas Steil (2002) shows that demutualized exchanges are not all the same regarding governance

practices. For some of them, governance practices do not differ significantly from those of mutual exchanges. This paper performs a detailed empirical analysis of changes in exchanges board composition during their conversion to profit-firm. Additionally, we also investigate the impact of these changes on exchanges reputation and attractiveness, key elements in an increasingly competitive environment.

This article contributes to the literature in several ways. First, it contributes to the limited literature examining corporate boards in the stock exchange industry (e.g. Hart and Moore, 1996; Aggarwall, 2002) . Second, it is the first study to consider the corporate governance dimension of stock exchanges in detail when they convert to for-profit organizations. Our results may be applicable to companies in other sectors considering a similar conversion to for-profit status. Third, we examine different dimensions of board composition, in contrast with previous studies that tend to focus on size and independence (see Adams et al., 2010 and Johnson *et al.* 2013 for a survey). The value of investigating board composition beyond size and independence when examining the impact on firm outcomes has already been explored in the literature (Johnson *et al.* 2013; Hillman, 2015). Fourth, to the best of our knowledge, we are the first to examine the influence of board composition on firm reputation in the context of conversion to for-profit status.

We use a unique firm-level data set covering a 17-year period with detailed data on exchange corporate governance that enables us to conduct a fine-grained analysis of changes in corporate governance strategies following changes in organizational structure. Based on resource dependence theory (Pfeffer, 1972; Pfeffer and Salancik, 1978) we examine board composition by looking at demographic, human and social capital dimensions. Once we identify major and significant changes in board composition, we examine the impact of demutualization and related changes on the reputation of the exchanges.

We find that exchanges usually restructured their corporate governance after conversion to for-profit status. They reorganized their boards by reducing the representation of trading members and by diversifying, favoring competences better adapted to new market conditions. We also find that the restructuring of their boards are significant at the long term rather than at the short term. Finally, we show a positive relationship between demutualization and reputation. This positive relationship was even greater when demutualization was accompanied by board composition changes, especially fewer board trading members balanced by more directors with international profiles.

The paper is organized as follows: Section 2 develops our testable hypotheses. Section 3 describes methodology and data. Section 4 presents the empirical results and Section 5 concludes and offers recommendations for future research and practical implications.

## **2. Development of Hypotheses**

### **2.1 Restructuring Board Composition**

One stream of corporate governance literature assesses the role of boards in firm strategy, a key function (Adams et al., 2010) since they actively evaluate and vote on strategic options proposed by top management (Minichilli et al., 2009). Many empirical studies show that boards contribute to firm strategy (e.g. Schmidt and Bauer, 2006) and that board composition and operations can impact firm outcomes (Johnson *et al.* 2013).

Most research on board composition and firm decisions concentrates on easily measured characteristics such as board independence or size, but there is a growing literature on directors' experiences, skills, and other characteristics.

Director attributes can be classified into three categories: demographics, human capital and social capital (Johnson *et al.* 2013). The underlying theoretical frameworks of research on the impact of these attributes on firm outcomes are mostly resource dependence theory (Pfeffer,

1972; Pfeffer and Salancik, 1978) and agency theory (Jensen and Meckling, 1976), depending on the measure used in the analysis.

For example, regarding demographic and general attributes, based on the resource dependence theory, Dalton et al. (1999) find that board size help the firm deal with the external environment better. Based on agency theory, much research highlights the need to decrease the number of dependent directors (e.g. Dehaene *et al.* 2001). In the case of the stock exchanges, in mutual structure, trading members have ownership and control under the principle of one member-one vote. The mutual exchanges function like clubs since only members could access the trading platform based on payment of fees. In return, members enjoy a monopoly position in trading and, to avoid conflict and maximize their benefits, their number was limited (Sandler and Tschirhart, 1980). Mutual exchanges' members are likely to be resistant to changes (Akhtar, 2002; Domowitz and Steil, 1999), especially if the changes would lessen demand for their intermediation services. Following demutualization, exchanges may be inclined to decrease the proportion of these dependent directors to gain flexibility. The decrease in the presence of mutual exchanges' members in the board might facilitate stock exchanges managers the implementation of strategies that increase stock exchanges competitiveness but are in conflict with the interests of mutual exchanges' members, such as for example the introduction of new technologies, that significantly reduce trading costs to customers, but involves reduction in the demand for the intermediation services of members.

Other board demographic attributes analyzed by the literature beyond board independence and size include nationality (e.g. van Veen *et al.*, 2014), gender (e.g. Chen et al., 2016), age and tenure of directors (e.g. Rivas, 2012).

According to the above literature, demographic aspects of board members are linked to the environment and strategy of the firm. Given the major changes in the business environment in

which exchanges operate, and based on this literature and the empirical evidence, we pose a first general hypothesis:

**H1:** *Stock exchanges, following demutualization, restructure board composition to adapt to new for-profit goals and a more competitive business environment.*

### ***How Board Members' Social Capital Affects Firm Strategy***

Resource dependence theory argues that directors provide important resources to the firm that include connections to key stakeholders and the provision of know-how, advice and counsel. Director connections to stakeholders (directors' social capital) are expected to influence the advice and counsel they give to firms. Theorists argue that the presence of stakeholder directors on corporate boards is one of the most direct ways stakeholders can influence firm decisions (Luoma and Goodstein, 1999). We thus expect that stock exchanges change boards to gain directors with social capital that adds more value to the new for-profit environment after demutualization.

A stakeholder comprises any group or individual who can affect, or is affected by, corporate decisions (Freeman, 1984). We focus on four stakeholder groups: trading members, new investors (shareholders) after demutualization, customers, and governments. Akhtar (2002) maintains that when exchange ownership is separated from membership after conversion, it is not appropriate for trading members to have exclusive authority over exchange decisions. Reducing trading member representation on the board directly reduces their influence .

Customers represent critical resource holders (Rindova, 1999) and their presence on the board should reflect their needs and their desire to make strategic decisions in line with their concerns (Hill and Jones, 1992). When exchanges convert, they give a more prominent role to customer

orientation (Aggarwal, 2002; Steil, 2002). Hence, following demutualization, customers should be better represented on exchange boards.

Demutualization usually goes through two progressive stages. The first stage covers the conversion to a private limited status where a portion of capital is held by outside investors. The second stage consists of publicly listing the shares of the exchange (Aggarwal, 2002). The presence of outside investors ensures that decisions are taken in line with shareholder values rather than member interests (Mendiola and O'Hara, 2003; Steil, 2002). For that reason, outside investors are key stakeholders after demutualization and listing. They should join exchange boards after conversion to for-profit firms. Macey and O'Hara (2005), among others, argue that the new governance model needs to be accompanied by regulatory reforms. Accordingly, we expect that stock exchanges increase the number of members with connections to government and regulatory bodies after demutualization.

In sum, we expect that:

**H1-a** *Stock exchanges restructure board composition after conversion to for-profit firms by decreasing the proportion of trading members and including stakeholders that become more relevant in the new business environment such as customers, outside investors and directors politically connected to government and regulatory bodies.*

### ***How Board Members' Human Capital Affects Firm Strategy***

Studies on board human capital (experience and competences of directors) use resource dependence theory to examine board of directors' backgrounds (Pfeffer, 1973) and diversity. Diversity allows a board with different perspectives to take a broader view of strategic decisions (Kosnik, 1990), especially when the firm operates in a turbulent and competitive environment. Directors representing a broad range of expertise contribute to widening the



knowledge base of the board and reducing uncertainty, which may make decision-making more efficient (Rindova, 1999).

For stock exchanges, the most useful knowledge and skills in board of directors were previously linked to traditional areas such as stock brokerage, finance, banking and funds and investment management. However, demutualization pushes exchanges to maximize profits, to innovate and to diversify products to attract more investors, and competences other than the traditional ones in financial markets become especially relevant, including knowledge of information systems, financial product development and commercial experience (Holthouse, 2002).

In particular, we classify directors experience in: (1) traditional competences in financial markets (stock brokerage; finance; banking; and funds and investment management) and (2) new-environment related competences that we believe are particularly valuable for implementing strategies that maximize profits and better adapted to the more competitive environment (technical and information systems; product development; commercial, including marketing and sales; business administration; corporate communications; diverse business experience; regulatory and international). Experience in diverse businesses relates to the concept of “board capital breadth,” (Haynes and Hillman, 2010), which captures, among other measures of board diversity, work experience in different sectors. Haynes and Hillman find a positive relationship between board capital breadth and strategic change. We believe that board capital breath is valuable for exchanges when they change strategies after demutualization. Additionally, the functioning of a financial institution is inextricably linked to the regulatory climate. To promote favorable regulation, financial firms need directors with political and regulatory influence (Pfeffer, 1972).

Based on resource dependence theory, we hypothesize that:

**H1-b** *Stock exchanges increase the proportion of board members with competences better adapted to the new business environment (i.e. new-environment related competences) following their conversion to for-profit firms, namely technical and information systems; product development; commercial; business administration; corporate communications; diverse business experience; regulatory and international.*

## **2.2 How Demutualization and Board Changes Affect Reputation**

Reputation reflects the attractiveness and visibility of the firm and the quality of its products (Shapiro, 1983). It also informs the market on the exchange prospects (Alchian and Demsetz, 1972; Weigelt and Camerer, 1988). Few researchers investigate the link between corporate ownership form and reputation. Fergusson et al. (2000), for example, focus on the insurance industry and finds that firms with different ownership forms have different reputation levels.

Considering exchange industry, in a mutual structure, the roles of exchanges trading and ownership are combined. However, demutualization forces exchanges to separate trading from ownership functions (Fergusson et al., 2000). This difference is very important and considerably affects managerial decisions. In a mutual exchange, managers are incited to act in their own interest (Akhtar, 2002; Domowitz and Steil, 1999), whereas in demutualized exchanges, they are more profit oriented (Akhtar, 2002). In a competitive environment, stock exchanges are incited to change their strategy to better adapt to this new environment. These changes tend to include the adoption of sophisticated and more efficient trading systems and the introduction of new financial products to attract more firms and investors (Domowitz and Steil, 1999). We expect that these changes following demutualization will positively affect exchanges reputation. We thus pose the following hypotheses:

**H2a:** *Demutualization has a positive impact on exchange reputation*

There is limited research on the link between board characteristics and corporate reputation (Musteen et al. 2010). Signaling theory says that the actions of firms send signals to the market

about firm strategy, intentions and ability to create value (Rindova and Fombrun, 1999). Based on these signals, the market forms impressions of the firm (Weigelt and Camerer, 1988) that contribute to reputation (Basdeo et al., 2006). Musteen *et al.* (2010) add that board composition communicates useful information on firm strategy and represents important signals affecting corporate reputation. Their findings indicate that firms with a high proportion of outside directors and large boards enjoy a better reputation. Consistent with these studies, we expect that if we verify H1 (i.e. if exchanges restructure board composition to become closer to the ideal standard of governance), these changes should enhance exchange reputation.

*H2b: The positive impact of demutualization on exchanges reputation is moderated by changes in board composition*

### **3. Methodology and data**

#### **3.1 Methodology and Sample selection**

We focus on demutualized stock exchanges. According to the World Federation of Exchanges, in 2012 there were 28 demutualized equity stock exchanges. We withdraw from our sample exchanges that were involved in merging processes during our period of study, mainly, Nasdaq OMX Group and NYSE Euronext. We finally retain only exchanges with complete board data available during the whole period from 1995 to 2012. These variables were manually collected from exchange annual reports and supplemented with information from Bloomberg and Reuters databases. We finally retain 14 equity stock exchanges (see Table A.1 for details).

#### **3.2 Variables and summary statistics**

To test the first hypothesis, we compare board composition before and after demutualization. We consider different windows to obtain information regarding the timing of changes in board composition.

We examine four dimensions of board composition. The first dimension are general board characteristics widely discussed in the literature: board size (e.g. Jensen, 1993); number of board appointments (*Busyness*; e.g. Fich and Shivdasani, 2006) and the percentage of independent directors on the board (e.g. Bhagat and Black, 2002). The second dimension are demographic attributes: directors age (e.g. Ahn and Walker, 2007); gender, measured by the percentage of women in the board (e.g. Hillman et al., 2002) and nationality, measured by the percentage of foreign directors on the board (e.g. Carter et al., 2010). The third dimension is board social capital. We focus on four groups of stakeholders (also in percentage): trading members; new investors (shareholders) after demutualization (*Outside Investors*); customers, measured by the proportion of directors affiliated with companies listed on the exchanges and government, measured by the proportion of directors politically connected to government and regulatory bodies (*Politically Connected*; including directors with current or past positions in government or regulatory bodies).

The fourth dimension is board human capital. We examine directors' tenure (Fich and Shivdasani, 2006; Muth and Donaldson, 1998) and directors experience and background.

Table 1 provide descriptive statistics for board composition.

To test H2, we regress stock exchange reputation on a dummy for demutualization (*DEM*), demutualization interacted with the changes in the board of directors that were significant according to our analysis (*BOARDCOMP*), and other control variables that the literature on the competition among exchanges and on reputation suggests can affect the reputation of the exchanges. In particular, we control for size (measured by total assets in logs) since some empirical research finds that it can influence firm reputation (e.g. Fergusson et al. 2000) and age (in logs) since some studies show that firm age is a good indicator of firm credibility and ability to provide quality products and hence linked with its reputation (e.g. Anderson and

Formisano, 1988). We also use other controls extensively used such as financial performance (e.g. Deephouse and Carter, 2005), measured by return on assets (ROA), and country specificities that can also affect exchange reputation (e.g. Lo, 2013). In particular, we control for economic growth and inflationary level by using the annual GDP growth rate and the consumer price index (Cetorelli and Peristiani, 2012), and country regulatory environment by using World Bank's Worldwide Governance Indicators (WGIs; for more details, see Cetorelli and Peristiani, 2012).

Regarding reputation, in the literature, depending on the discipline, one can find both qualitative and quantitative measures (see Dowling, 2016). Most of them are reputation *perceptions* provided by the Fortune magazine and the Reputation Institute, but unfortunately these two annual studies do not include stock exchanges. In finance, some research uses market share as a proxy for reputation (e.g. Carter and Manaster, 1990; Megginson and Weiss, 1991). Following this literature, we use the number of listed companies (in logs) in the exchange as a proxy for exchange reputation, since this number is *a barometer* of the exchanges market share and health (Mendiola and O'Hara, 2003) and an indicator of exchange attractiveness to firms (Lo, 2013).

We use the following model specification:

$$\begin{aligned}
 REPUTATION_{it} = & \sigma + \beta_1 ROA_{it} + \beta_2 Size_{it} + \beta_3 GDPGrowth_{it} + \beta_4 Inflation_{it} \\
 & + \beta_5 Country Regime_{it} + \beta_6 Age_{it} + \beta_7 DEM_{it} + \beta_8 DEM_{it} * BOARDCOMP_{it} + u_{it} \quad (1)
 \end{aligned}$$

We use panel data (unbalanced) for the analysis. Subscripts i and t index stock exchange and time. Our basic model is a one-way fixed-effect, with an error component structure of the form:

$$u_{it} = d_i + \varepsilon_{it}$$

where  $d_i$  is the time-invariant stock exchange fixed-effect and  $\varepsilon_{it}$  the i.i.d. component. The stock exchange-fixed effect is meant to capture unobservable stock exchange characteristics such as managers' abilities.

Table 3 provides the means, standard deviations and zero-order correlations among regression variables. The correlations between the independent variables are not very high, meaning that multicollinearity is not a problem in our model.

## **4. Empirical Results**

### **4.1 Changes in board composition after demutualization**

Tables 4 and 5 compare sample statistics for board composition before and after demutualization. We consider the five years preceding conversion (Period 1) and three, five and seven years after conversion (Periods 2, 3 and 4). The analysis of different windows allows us to track the timing of changes, distinguish between short and long term effects and choose the best window of study to capture changes. The first surprising result is that some changes are significant only when considering Period 4, like the decrease in trading members, while they are weakly or not significant before that time. These results suggest that changes in board composition may take a relatively long time to be implemented. Following demutualization, most exchanges decreased the size of their boards, suggesting that demutualization helps to simplify their governance structure. We observe a significant increase in directors tenure, and that exchanges appoint older directors who sit on the boards of more companies after demutualization. The proportion of independent directors (about 22%) and women (about 11%) remains nearly unchanged. The proportion of foreign directors does not change significantly either. Previous studies on board internationalization find a tendency of directors to recruit new members not too different from themselves (Westphal and Zajac, 1995) suggesting homophily behavior (van Veen et al., 2014). Results are consistent with H1.

The exchanges decreased board representation of trading members after demutualization, but the change is significant only when considering Period 3 or 4, suggesting that the decrease is a lengthy process. At the same time, the exchanges incorporated new investors (exchange shareholders) in their boards (7,5% after demutualization). Exchanges increased significantly the proportion of politically connected directors (from about 14.22 % to 20 %). However, we find no evidence of significant change in the proportion of customers following conversion. Overall, results are consistent with H1a.

For directors' experience, there is evidence of significant changes in the proportion of directors with traditional competences in financial markets only in Period 4. We also find significant changes in the proportion of directors with new-environment related competences: business administration (from 17.41% to around 25%), international (from 15.29% to around 22%), and diverse businesses (from 6.69% to around 14%), all significant at the one percent level for Periods 3 and 4. The exchanges opted for a more international board, in line with the internationalization strategies adopted by most of the exchanges after demutualization. The internationalization of companies may lead to a higher demand for directors with knowledge of foreign markets (Carpenter *et al.* 2001). We also find a significant increase in the proportion of directors with regulatory experience (from 8.90% to 13.24% in Period 4). All these results provide evidence of important board recomposition following demutualization, consistent with H1-b.

#### **4.2 How Board Changes Affect Exchange Reputation**

Table 7 shows the results of panel data analysis for five different models. Model 1 tests for the effect of exchange demutualization strategy on reputation without taking into account the interaction with changes in exchange corporate governance. Model 2 considers the combined effects of demutualization with changes in general board characteristics. Model 3 considers the

combined effects of demutualization with changes in a board's social capital. Model 4 considers the combined effects of demutualization with changes in a board's human capital. The full model (Model 5) incorporates all the independent variables simultaneously.

One of the most remarkable results is the positive and highly significant coefficient for demutualization, consistent across all models, suggesting that demutualization contributes to enhance exchange reputation. This confirms and adds to the results by Fergusson et al. (2000) that there is a link between a firm's organizational form and its reputation in insurance industry. In the exchange industry, the demutualized structure seems to help exchanges become closer to an ideal standard of governance. The demutualized structure provides the exchanges with more flexibility to compete efficiently in the new business environment, which is highly valued by the market. Results are consistent with H2a.

Regarding the combined effects of demutualization with general board characteristics, we do not find significant effects on exchange reputation except in Model 5, with a negative and significant coefficient for director tenure ( $p < .05$ ). This result suggests that the increase in director tenure following demutualization harms reputation. Results show a non-significant relationship between the cross-effect of demutualization and the proportion of directors who are new investors (shareholders) and directors politically connected and exchange reputation. However, results show a negative and highly significant coefficient for the cross effect of demutualization with the proportion of directors who are trading members ( $p < .001$ ,  $p < .01$ , in Models 3 and 5, respectively). This finding suggests that the positive impact of demutualization on reputation is greater when combined with a decrease in the number of board trading members.

The results on the combined effects of demutualization with the observed increase in directors with new-environment-related competences indicate that only the increase in directors with



international experience enhanced reputation (positive coefficient significant at the 5% level in Models 4 and 5). It seems that markets consider this type of director highly valuable in the new business environment. In contrast, and contrary to what might be expected, results suggest that the increase in directors with other new-environment-related competences does not strengthen the positive impact of demutualization on reputation. Moreover, we obtain some unexpected significant negative signs for financial product development and diverse business. We also find that the combined effect of demutualization with fewer directors with brokerage experience (traditional competences) positively affects reputation, but this result is only significant in Model 4.

In sum up, the demutualization strategy sends signals to the market about the willingness of exchanges to better respond to the changing competitive environment (e.g. Domowitz and Steil, 1999; Otchere and Abou-Zied, 2008) and our results indicate that this enhances reputation. However, the changes in board composition following demutualization have different effects on reputation. Our findings show that, except for director tenure, there is no significant relationship between changes in board characteristics (Model 2) and reputation. The lack of significance in the relationship between board size and director age and exchange reputation may be due to the fact that the average age of directors and the size of the board were similar to the average of financial firms (e.g. Kesner, 1988) even prior to the conversion to for profit structure. This situation may make it more difficult for the market to perceive any positive effects from changes in board size and average age of directors. Our analyses show that having fewer board trading members following demutualization improves exchange reputation. This result is in line with the literature on reputation and corporate organizational form, which finds that one of the most important changes following the conversion to a for-profit firm is a decrease in the number of members in the board, which has a positive effect on the

demutualized firm (e.g. Hart and Moore, 1996; Domowitz and Steil, 1999). This change sends a positive signal to the market and contributes to enhance reputation.

Our findings also suggest that the market has complex perceptions about the value of changes in the human capital of board members following demutualization. The exchanges that decreased the number of directors with stock brokerage backgrounds and increased those with international experience have better reputation. To the market, these two changes are the most valuable. One explanation for these results and for the non-significance of the results on the rest of the new-environment-related competences may be that these are the most visible changes easy for the market to identify compared to other competences. In our view, the rest of the competences are more specific and more difficult to evaluate in the resume of a director.

Finally, to control for possible inertia in time of reputation and endogeneity of explanatory variables, we performed dynamic panel data analysis (unreported) by using Arellano and Bover's (1995) and Blundell and Bond's (1998) System GMM (Generalized Method of Moments). Despite losing observations with this method, the primary results remain unchanged. Additionally, to exclude the possibility that potential multicollinearity problems related to some interactions of demutualization with the composition of the board could affect our results, we performed a third analysis where we excluded from regressions variables with correlation coefficients significant and larger than 0.5 in the different models. The main results remained unchanged as well.

## **5. Policy implications, limitations, and conclusions**

We show that, to have a complete understanding of the main drivers behind a successful conversion from nonprofit to for-profit structure, the dynamics in the composition of both top management and boards must be taken into account, in contrast with most empirical research on strategic change that focuses on top management (e.g. Nakauchi and Wiersema, 2015;

Taplin, 2006). Our findings also emphasize the importance of considering changes in corporate governance strategy not only in the short term but also in the long term. As we show in this study, in the context of conversion to a for-profit firm, corporate governance restructuring took a relatively long time.

We find that different director attributes, including demographics, human capital and social capital, should be added to the mix for a more complete overview, in line with other research on the benefits of boardroom diversity. For example, Hillman (2015) suggests that the benefits of boardroom diversity arise not only from gender diversity, the focus of much work, but also from nationality, ethnic, functional and other types of diversity.

Our findings also show that the conversion to a for-profit firm positively impacts reputation to a greater degree for exchanges that most decreased the presence of trading members in the board and increased the number of directors with international profiles.

We offer some policy implications for practitioners. To successfully convert to a for-profit organization, financial institutions must rethink the composition of their corporate boards. Structuring a board with directors whose competences are better adapted to profit goals and strategies and with appropriate representation of the new key stakeholders is a basic condition for moving forward.

Our findings make some suggestions on how firms should communicate their strategy of conversion to for profit firm in order to enhance their reputation. Firms should put more effort on better communicating the changes in board human capital by emphasizing director competences. Effective communication is crucial to insure that a good strategy is also perceived as such by the market.

Our results may be useful for firms considering cross-listing their shares. As noted in the literature, firms should list on prominent stock exchanges with good reputation (e.g. Doidge et al., 2004; 2009). According to our findings, they should opt for demutualized exchanges engaged in better corporate governance practices.

Future research could compare changes in corporate governance policies following demutualization of stock exchanges with other financial institutions such as banks and insurance companies. Researchers could compare any differences in corporate governance strategies following conversion to for-profit status between publicly listed and non-publicly listed companies. For instance, is restructuring more intense at the board level in publicly listed or non-listed companies? Are there any differences in the board representation of different stakeholders?

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**Table 1- Descriptive Statistics of Board Composition**

	N	Mean	Std. Dev.	Min	Max
<b>Directors' Type</b>					
<b><u>Demographic</u></b>					
<i>Directors Age</i>	214	53.14	4.63	41.29	62.70
<i>Women (%)</i>	214	11.07	0.12	0.00	50.00
<i>Foreigners (%)</i>	214	6.70	0.08	0.00	27.78
<b><u>Social Capital</u></b>					
<i>Trading Members (%)</i>	214	38.76	0.24	0.00	100.00
<i>Outside Investors (%)</i>	214	4.81	0.11	0.00	50.00
<i>Customers (%)</i>	214	30.12	0.21	0.00	83.33
<i>Politically Connected (%)</i>	214	19.83	0.19	0.00	76.92
<b><u>Other :</u></b>					
<i>Board Size</i>	214	13.35	5.30	6.00	31.00
<i>Busyness</i>	214	2.67	1.72	0.17	10.54
<i>Independent (%)</i>	214	25.92	0.19	0.00	88.89
<i>Directors Tenure</i>	214	3.35	1.89	0.00	9.44
<b>Directors' Experience</b>					
<b><u>Traditional Competences</u></b>					
<i>DtorsStock Brokerage (%)</i>	214	35.05	0.246	0.00	100
<b><u>New Environment-related Competences</u></b>					
<i>DtorsInformation Systems(%)</i>	214	3.58	0.084	0.00	85.71
<i>DtorsFinancial Product Development (%)</i>	214	1.34	0.036	0.00	25.00
<i>DtorsCommercial(%)</i>	214	1.26	0.040	0.00	23.08
<i>DtorsBusiness Administration (%)</i>	214	23.78	0.215	0.00	85.71
<i>DtorsInternational Experience (%)</i>	214	21.58	0.167	0.00	64.29
<i>DtorsCorporate Communications (%)</i>	214	0.99	0.032	0.00	25.00
<i>DtorsDiverse Business (%)</i>	214	11.21	0.145	0.00	62.50
<i>DtorsRegulatory Experience (%)</i>	214	12.27	0.101	0.00	42.86

*This table presents descriptive statistics for a sample of 14 stock exchanges that demutualized during the period 1995-2012.*

**Table 3. Bivariate correlations**

Variables	Mean	St.Dev	1	2	3	4	5	6	7
1. <i>Reputation</i>	6.13	1.39							
2. <i>ROA</i>	9.62	9.20	-.18***						
3. <i>Size</i>	5.77	2.89	.79***	-.39***					
4. <i>GDPGrowth</i>	0.07	0.10	.04	.15**	.05				
5. <i>Inflation</i>	3.61	4.26	-.11	-.06	-.02	.15**			
6. <i>Country Regime</i>	0.60	0.88	.08	-.15**	.18**	-.17**	-.45***		
7. <i>Age</i>	4.35	1.06	.55***	-.11	.67***	-.03	-.15**	.23***	
8. <i>DEM</i>	0.64	0.48	.26***	.14**	.36***	.17**	-.23***	-.04	.40***

Pearson correlations. \* Significant at 10% \*\* Significant at 5% \*\*\* Significant at 1%

**Table 4- Differences in Board Composition – Directors’ type**

	Period 1	Period 2	Period 3	Period 4	Changes in means					
					Period 2 relative to Period 1		Period 3 relative to Period 1		Period 4 relative to Period 1	
					Mean	Difference	T-test p-value	Difference	T-test p-value	Difference
<b>Demographic:</b>										
<i>Directors Age</i>	50.50	52.51	53.17	53.98	2.01**	0.012	2.67***	0.000	3.48***	0.000
<i>Women (%)</i>	10.13	10.07	11.51	11.43	-0.06	0.981	1.38	0.547	1.31	0.532
<i>Foreigners (%)</i>	4.66	5.27	5.94	6.33	0.61	0.609	1.28	0.253	1.67	0.143
<b>Social Capital:</b>										
<i>Trading Members (%)</i>	47.04	43.16	40.09	38.33	-3.88	0.405	-6.95*	0.089	-8.71**	0.030
<i>Outside Investors (%)</i>	0.00	7.66	8.24	7.50	7.66***	0.000	8.24***	0.000	7.50***	0.000
<i>Customers (%)</i>	29.36	32.74	33.48	33.27	3.38	0.419	4.12	0.268	3.91	0.261
<i>Politically Connected (%)</i>	14.22	20.87	19.71	20.18	6.65*	0.052	5.49*	0.081	5.96*	0.058
<b>Other :</b>										
<i>Board Size</i>	14.92	12.64	12.75	12.78	-2.27*	0.075	-2.17**	0.040	-2.14**	0.024
<i>Busyness</i>	2.02	2.34	2.41	2.71	0.32	0.206	0.39*	0.100	0.69***	0.010
<i>Independent</i>	22.31	0.21	21.57	23.06	-0.02	0.603	-0.01	0.778	0.01	0.785
<i>Directors Tenure</i>	2.52	3.80	3.96	3.91	1.28***	0.000	1.44***	0.000	1.3***	0.000

*This table shows the mean values and the difference in means for a sample of 14 stock exchanges during the period 1995 to 2012. We consider four different windows for periods after the conversion. Period 1 covers from -5Y to -1Y. Period 2 covers from +1Y to +3Y. Period 3 covers from +1Y to +5Y and period 4 covers from +1Y to +7Y, where Y (Year) refers to the year of conversion of the stock exchange to for profit firm. Year -5 is the fifth year preceding the demutualization of the stock exchange, +7Y is the seventh year after, and so on. p-values are for the difference in means. \*, \*\* and \*\*\* means statistically significant at 10%, 5% and 1% level respectively.*

**Table 5- Differences in Board Composition - Directors' experience**

	Period 1	Period 2	Period 3	Period 4	Changes in means					
					Period 2 relative to Period 1		Period 3 relative to Period 1		Period 4 relative to Period 1	
					Mean	Difference	T-test p-value	Difference	T-test p-value	Difference
<b>Human Capital</b>										
<b>Traditional Competences</b>										
<i>DtorsStock Brokerage (%)</i>	41.56	38.43	35.62	34.25	-3.13	0.544	-5.93	0.196	-7.30*	0.084
<b>New Environment-related Competences</b>										
<i>DtorsInformation Systems (%)</i>	4.84	4.20	3.85	3.66	-0.64	0.781	-0.99	0.591	-1.17	0.468
<i>DtorsFinancial Product Development (%)</i>	0.726	2.13	1.94	1.91	1.40*	0.075	1.21*	0.076	1.18*	0.067
<i>DtorsCommercial (%)</i>	1.321	1.59	1.64	1.46	0.27	0.757	0.31	0.706	0.14	0.854
<i>DtorsBusiness Administration (%)</i>	17.4	24.27	25.35	26.65	6.85*	0.098	7.93**	0.031	9.23***	0.009
<i>DtorsInternational Experience (%)</i>	15.30	19.33	21.22	22.78	4.04	0.146	5.92**	0.024	7.48***	0.003
<i>DtorsCorporate Communications (%)</i>	0.73	0.86	1.75	1.40	0.13	0.758	1.02	0.126	0.67	0.258
<i>DtorsDiverse Business (%)</i>	6.70	11.47	13.28	14.75	4.77*	0.055	6.58***	0.007	8.06***	0.001
<i>DtorsRegulatory Experience (%)</i>	8.90	11.6	12.13	13.24	2.75	0.157	3.22*	0.058	4.34***	0.007

*This table shows the mean values and the difference in means for a sample of 14 stock exchanges during the period 1995 to 2012. We consider four different windows for periods after the conversion. Period 1 covers from -5Y to -1Y. Period 2 covers from +1Y to +3Y. Period 3 covers from +1Y to +5Y and period 4 covers from +1Y to +7Y, where Y (Year) refers to the year of conversion of the stock exchange to for profit firm. Year -5 is the fifth year preceding the demutualization of the stock exchange, +7Y is the seventh year after, and so on. p-values are for the difference in means. \*, \*\* and \*\*\* means statistically significant at 10%, 5% and 1% level respectively.*

**Table 7. Results of fixed effects regression analysis of exchange reputation**

Variable	Model 1 (control variables)	Model 2 (general board characteristics)	Model 3 (board social capital)	Model 4 (board human capital)	Model 5 (full model)
Intercept	2.438 (6.04)	2.407*** (5.85)	2.658*** (6.96)	2.692*** (6.82)	2.663*** (6.97)
Financial performance	0.000 (0.50)	0.001 (0.87)	0.000 (0.10)	0.000 (0.31)	0.000 (0.47)
Size	0.010 (0.66)	0.020 (1.20)	-0.031* (-1.84)	-0.015 (-0.87)	-0.026 (-1.32)
GDP growth	-0.139 (-1.00)	-0.131 (-0.93)	-0.152 (-1.15)	-0.119 (-0.91)	-0.146 (-1.14)
Inflation	-0.014** (-2.05)	-0.014** (-2.01)	-0.014** (-2.11)	-0.011* (-1.67)	-0.008 (-1.22)
Country Regime	0.391*** (3.99)	0.419*** (4.13)	0.410*** (4.34)	0.391*** (4.15)	0.375*** (3.78)
Age	0.747*** (7.21)	0.736*** (6.95)	0.744*** (7.64)	0.712*** (7.04)	0.734*** (7.47)
DEM	0.214*** (5.02)	0.210** (1.98)	0.436*** (6.14)	0.335*** (4.67)	0.278** (2.54)
DEM * Directors age		-0.001 (-0.68)			0.004 (1.49)
DEM * Directors tenure		-0.004 (-0.42)			-0.026** (-2.21)
DEM * Board size		0.009 (1.37)			0.003 (0.52)
DEM * Busyness		-0.006 (-0.48)			-0.009 (-0.69)
DEM * Trading Members			-0.496*** (-4.70)		-0.439*** (-3.19)
DEM * Politically Connected			-0.071 (-0.50)		0.098 (0.58)
DEM * Outside Investors			-0.083 (-0.56)		-0.173 (-1.01)
DEM * Diverse business experience				-0.241* (-1.62)	-0.389** (-2.45)
DEM * Stock brokerage experience				-0.278** (-2.21)	-0.066 (-0.46)
DEM * Financial product development experience				-0.942** (-2.11)	-1.043** (-2.36)
DEM * Business administration experience				-0.063 (-0.62)	-0.062 (-0.45)
DEM * Regulatory experience				0.007 (0.04)	-0.112 (-0.49)
DEM * International experience				0.296** (2.07)	0.307** (2.06)
R-squared	0.231	0.229	0.183	0.191	0.209
F test for no Fixed Effects	348.18	285.70	374.46	249.00	187.41
Pr > F	0.000	0.000	0.000	0.000	0.000

Sample size = 170. Standard errors are in parentheses. \*\*\* p < 0.01; \*\* p < 0.05; \* p < 0.10.

**Appendix A Table A.1- Sample overview**

<i>Stock exchange</i>	<i>Year of demutualization</i>	<i>Region</i>
Australian Stock Exchange	1998	Asia/Pacific
Deutsche Börse	2000	Europe
London Stock Exchange	2000	Europe
Hong Kong Exchanges and Clearing	2000	Asia/Pacific
Bolsa Mexicana de Valores	2001	America
Oslo Børs	2001	Europe
Philippine Stock Exchange	2001	Asia/Pacific
Tokyo Stock Exchange	2001	Asia/Pacific
SIX Swiss Exchange	2002	Europe
Bolsa de Valores de Lima	2003	America
Bursa Malaysia	2004	Asia/Pacific
Korea Exchange	2005	Asia/Pacific
Malta Stock Exchange	2007	Europe
Warsaw Stock Exchange	2010	Europe

The table presents the sample consisting of 14 stock exchanges, the year of their demutualization and the region where they are situated. We obtained the dates of demutualization from four sources: the World Federation of Exchanges (WFE), stock exchanges' official websites, stock exchanges annual reports and from the Sustainable Stock Exchanges Initiative website.