

## Operating revenue changes in a demutualized stock exchange

Mohamed Hesham Abdel-Hafez

*Arab Academy for Science and Technology and Maritime Transport  
Cairo, Egypt*

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### Keywords

Demutualization, Stock Exchanges, Revenues, Panel data model and regression.

### Abstract

*Stock exchanges were traditionally run as cooperative venues. The globalization, the development of technology, and the increase of competition among stock exchanges forced these venues to change their structure and adopt a new one-demutualization- that can be a lifeline in facing these environmental changes in regards to stock exchanges. This new trend enables the exchange to expand their activities and supply the market with new products and services, therefore enhancing the value of the exchange itself. The main sources of revenue for traditional exchanges have been listing fees, transaction fees, membership fees and the sale of information services such as market data, quotations, and trade data. Due to the environmental changes the stock exchanges' services are now executed electronically, and in turn, this has led to an increase in the competition among exchanges. Furthermore, this increased competition has led to the re-adjustment of the regulation structure which gradually erodes the sources of revenues provided by the conventional stock exchanges. The paper divided the research plan into two sections. The first section is to highlight the concept of demutualization process; the phases of demutualization, the factors that push the stock exchanges to demutualize and the benefits of demutualization. The second section was based on statistical comparative analysis of the stock exchanges' revenues prior and after demutualization. The researcher used the regression analysis tool on seven demutualized stock exchanges during the period from 1997-2012. The paper aims to prove that demutualization has a positive effect on the revenues of the stock exchange, thus it enhances the value of the exchange.*

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### 1. Introduction

Stock exchanges were traditionally run as cooperative-mutual venues. The globalization, the development of technology, and the increase of competition among stock exchanges forced these venues to change their structure and adopt a new one-demutualization- that can be a lifeline in facing these changes to the business climate in regards to stock exchanges. Aggarwal (2002) concluded that the traditional exchanges were lacking in the financial flexibility to compete with the new competitor exchanges as the traditional venues had never experienced competition.

This new trend opened the door for outside investors to participate and inject the exchanges with the necessary source of funding (capital) to enable the exchange to expand their activities and supply the market with new products and services, therefore enhancing the value of the exchange itself.

As Hughes (2002) showed, most corporations are organized with their share capital in three main separate groups (the owners, principal decision makers, and its customers). In this organizational form, the voting right principal is one share -one vote, with a board of directors elected by the share-holders, and as result, new capital can be raised from a variety of sources.

Traditional exchanges, otherwise known as mutual exchanges have a cooperative structure where its members-brokers and dealers- own or control the venue and all the voting rights granted by ownership. By definition, the demutualization process is converting mutually-

non profit- owned organizations into investor-owned/for profit- corporations. Demutualized exchanges are limited companies owned by shareholders/outside investors, where the separation of trading rights and ownership has taken place in order to diminish the agency problem. In this manner, the shareholders will not need to manage the trading operations; instead they will be managed by an elected board of directors (Aggarwal, 2002). DiNoia (1998) suggested that, in the case of a customer-owned exchange where it sells its shares to outside investors, its objective will be directed to maximizing profit rather than focusing on maximizing the members' private interests if exchange ownership remains vested in its members.

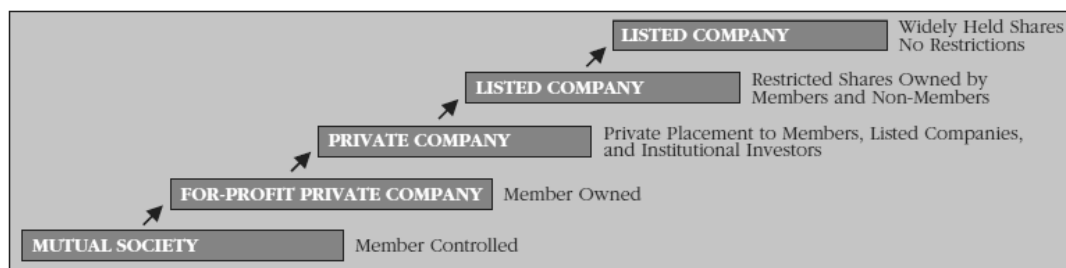
In agreement with DiNoia (1998), Akhtar (2002) explained that the demutualization significance comes from changing the venue's objective from providing services for the benefit of its members/brokers into an entity whose main objective is maximizing the value of equity shares by generating profit from providing services to all participants- brokers and investors. Mutual exchanges face many problems, but demutualization can solve these by providing new sources of capital, increasing the exchange's flexibility and efficiency, and keeping its costs under control.

As stated by Scullion (2001) in order to gain from all these benefits:

*"Demutualization is not simply turning into a for profit entity owned by members. A truly demutualized exchange would be better placed if it were able to unlock its hidden value for all stakeholders in order to maximize its potential market capitalization and shareholder value"*

The European and the American markets attracted more order and trading volume, increasing the amount and number of commissions, thus generating higher revenues and making the investors' positions more liquid. This is evidenced by the Deutsche Borse's expansion of its products and activities to include the derivatives, clearance and settlement and information technology. Added to that, the actions were taken by NASDAQ in providing QQQ and the exchange traded fund (ETF). However, it is widely believed that liquidity is the key. Overhauling the trading system and redressing the regulatory functions will not impact the investor's order flow positively until a state exists where assets can easily be converted into cash. Aggarwal (2002) confirmed that this will attract order flow, generate more trading volume, enhance and increase the trading commissions as a revenue source, and eventually improve the liquidity for the investors.

FIGURE 1 ■ THE PROCESS OF EXCHANGE DEMUTUALIZATION



As shown in figure (1), the demutualization process goes through multiple phases. The first stage starts with the conversion from the mutual-nonprofit- structure morphing into a for-profit organization. The members thereby become the legal owners of the exchange. During the first stage, the exchange starts by raising the capital it needs to become a private company. This is done through private placement to members, listed companies, and institutional investors. After that, the exchange has two options: to become one of two types of listed companies--either

listed with restrictions (held between members and non-members) or listed and unrestricted (also available to the public).

The NASDAQ and the Toronto Stock Exchange, for example, were private companies both of which intended to become public companies through an initial public offering. It wasn't until the exchange removed all the restrictions and became a public-owned company (listed but unrestricted), that the transition was complete. The Australian Stock Exchange in 1998 became a public-owned company and its shares were listed and traded on its own exchange. The London Stock Exchange did same after being demutualized in 2000.

The WFE (2007) reported that almost 90% of the world exchanges were running as mutual companies in the mid-1990s. The World Federation of Exchanges (WFE) announced that a majority of the listed stock exchanges are reformatting themselves to become investor-owned venues. By 2000, 63% of the world stock exchanges were restructuring themselves as demutualized companies and as a result of this, in 2006, the number of stock exchanges in the old mutual form dropped to a mere 13%.

Increased globalization also increases the competition between the stock exchanges as the stock exchanges no longer hold sole power. The demutualization structure of the stock exchanges will balance the interests of all market participants and will increase the residual value of the new owners/shareholders rather than maintaining the current flow of revenue to the exchange members, Aggrwal (2002).

The evolution in technology affects several business sectors, specifically the trading process among stock exchanges. Historically, stock exchanges were a physical location called a trading floor or trading room where the traders met at specific times and the brokers used "visual and verbal interactions" to match the buying and selling of orders, Steil (2002). As Lee (1998) pointed that more brokers were motivated to join the exchange in order to experience premium price discovery. On the other hand, Steil (2002) argued that this was not possible due to the high initial and annual fees applied to access the trading floor.

When the time came to change the trading floor system in the United States of America, it was received with mixed emotions. An article published in the financial times, June, 2002 stated that "management recognizes the inherent logic in electronic trading as a means of keeping costs down, yet still must satisfy the wishes of its members, who have paid handsome fees to trade in the pits and who fear that any move towards electronic trading will drive the to extinction".

In Europe, all the exchanges optimized operational freedom by applying some version of continuous electronic auction, where the buying and selling orders are matched and executed in an automatic manner. This gave the European stock exchanges more operational freedom, Altaf (2009). Macey and O'Hara (2004) claimed that the advances in technology allowed the Alternative Trading System (ATS) and Electronic Communication Networks (ECNs), to rise and become the new competitors; confronting stock exchanges and enforcing the need to install expensive trading platforms.

"Alternative Trading System", (ATS), is a trading system that can electronically match the potential buyers and sellers of securities, thereby eliminating the traditional broker's role in trading. ATSs include call markets, matching systems, crossing networks, and Electronic Communications Networks (ECNs). ATSs are similar to stock exchanges. The system replaces the old trading floor, allowing two subscribers to meet directly on the "ATS" which is maintained by a third party who serves a limited regulatory function by applying requirements on each subscriber.

A formal definition of ECN as provided by SEC is: "*any electronic system that widely disseminates to third parties orders entered into it by an exchange market maker or over-the-counter ("OTC") market maker, and permits such orders to be executed in whole or in part*".

In addition, McIntyre (1999) confirmed that the rising use of ATS and ECNs is a result of the technology revolution and meets the investment community's needs for trading without the presence of brokers along with their needs for speed, cost efficiency, and accessibility which currently cannot be offered by a traditional trading floor.

Now that the demutualization process has been explained, the benefits and advantages of adopting stock exchanges of such a process can be summarized and clarified. Hughes and Zargar (2006) presented the advantages of demutualized stock exchanges as governance restructures primarily separating ownership rights and trading rights. Demutualized exchanges become more flexible as the role of non-member-stockholders increases and makes the exchange able to respond more efficiently to changes in the business climate. In order for the exchange to evolve, the roles of the exchange participants also must change. As the elected board of directors is free to create policy, make strategic plans, and supervise management, this new freedom results in unconstrained, transparent decision-making. Akhtar (2002) stated that technology elevated to the importance of the separation of ownership from membership at the exchange. This separation leads to effective corporate governance, if and only these two conditions are met. One, the exchange is allowed to sell the stocks belonging to the exchange itself, to outside investors. The second condition is met when the decision making process shifts from being based on the members' right to being based on the new corporate structure.

In a recent study Robb (2006) showed that Australia became a unique case when the government passed laws regarding the conversion of cooperatives. These laws not only accelerated the conversion process in Australia, but also expedited the demutualization process, gave access to needed capital and made the exchange a true competitor in the market. Demutualization will provide the source of funds needed to create a technological infrastructure and provide additional products and services, otherwise unobtainable. This technology infrastructure, along with new products and services, plus access to market information, formerly only available to brokers, will attract new investors. The transparency of demutualized exchanges also increases the confidence of domestic and international investors.

## 2. A Brief Survey of Literature

Stock exchanges have many sources of income, as Lee (2002) clarified that the main sources of revenue for traditional exchanges have been listing fees, transaction fees, membership fees, clearing and settlement fees, the charge for provisions and the sale of information services such as market data, quotations, and trade data. Otchere (2006) mentioned that due to demutualization, these revenue sources are changing. Globalization gives the exchanges' listed companies the opportunity to be listed not only locally, but also internationally. The marginal cost for adding new members is close to zero. The result is exchanges are forced to reduce their listing fees. Aggrawal (2002) explained another phenomenon resulting when that membership fees began to decline is that the exchanges' members-brokers can trade in multiple exchanges.

The technological improvements have changed the mode of operation for exchanges completely. Now investors have the option of trading in more than one exchange with reduced the trading costs as the national boundaries of trading time and geographical location have been eliminated along with the downsizing of the members' intermediary roles Galper (1999).

This has a negative impact as Domowitz and Steil (1999) stated: "members may resist innovations that reduce demand for their interaction services, even if such innovations would increase the value of the exchange". De Sá (2009) acknowledges the benefits of technology

development toward exchanges through many authors with different overviews. The technology revolution forced the stock markets to change the rules of the exchanges. Technology development benefited traders because all barriers were removed and opened the way for the listed companies to list electronically in many venues with increased trading volume and liquidity. Aggarwal (2002) stated that technology development eases the access to the market data needed by participants which diminishes the cost paid by participants, lowering revenues for the exchange. In contrast, Mishkin and Strahan 1999, and in line with Allen, McAndrews, and Strahan 2002 claimed technology has a negative effect by decreasing the transaction fees.

So the brokers were against demutualization as technology improvements made it possible for other users to buy and sell without going through a broker, resulting in lower fees to the brokers. This put the brokers in conflict with large international banks and other members involved who united and threatened to leave the exchange if the brokers refused to obey and vote for the new trend of technology De Sá (2009).

### 3. Data and variables

We collect annual data-main operating revenues- for seven stock exchanges that were demutualized at different points of time, for the period from 1997 to 2012. A list of selected demutualized stock exchanges is provided in Appendix A. The data collected from the annual reports of the selected sample are available in their official websites. The paper employs U.S. dollar currency data.

#### 3.1. Dependent variable

Our dependent variable is demutualization.

#### 3.2. Independent variables

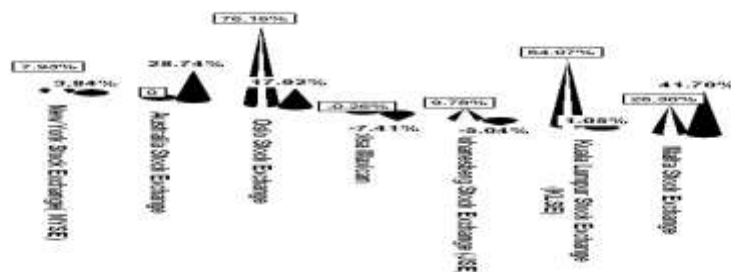
The independent variables are trading fees, listing fees, membership fees and market data.

### Descriptive Statistics

The tables below show the change rate of each variable (listing fees, market data, trading fees and membership fees) for the selected stock exchanges before and after demutualization as follows:

Stock Exchange Name	Prior	After	Change %
New York Stock Exchange (NYSE)	7.93%	3.84%	-4.09%
Australia Stock Exchange	0	28.74%	28.74%
Oslo Stock Exchange	76.16%	17.92%	-58.25%
Bolsa Mexicana	-0.26%	-7.41%	-7.15%
Johannesburg Stock Exchange (JSE)	9.78%	-5.04%	-14.82%
Kuala Lumpur Stock Exchange (KLSE)	64.07%	1.05%	-63.02%
Malta Stock Exchange	26.30%	41.70%	15.40%

Table (1) Changes rate of Listing Fees

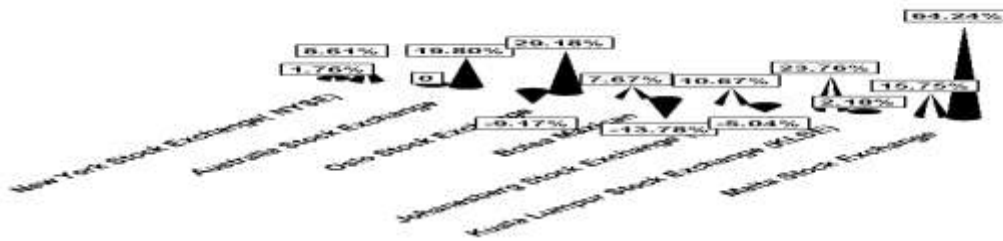


**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Prior	7	-.26	76.16	26.2829	31.41147
After	7	-7.41	41.70	11.5429	18.48197
Valid N (listwise)	7				

**Table (2) Changes rate of Market Data Fees**

Stock Exchange Name	Prior	After	Change %
New York Stock Exchange( NYSE)	1.76%	8.61%	6.85%
Australia Stock Exchange	0	19.80%	19.80%
Oslo Stock Exchange	-9.17%	29.18%	38.35%
Bolsa Maxican	7.67%	-13.78%	-21.45%
Johanesberg Stock Exchange (JSE)	10.67%	-5.04%	-15.71%
Kuala Lumpur Stock Exchange (KLSE)	23.76%	2.18%	-21.59%
Malta Stock Exchange	15.75%	64.24%	48.49%

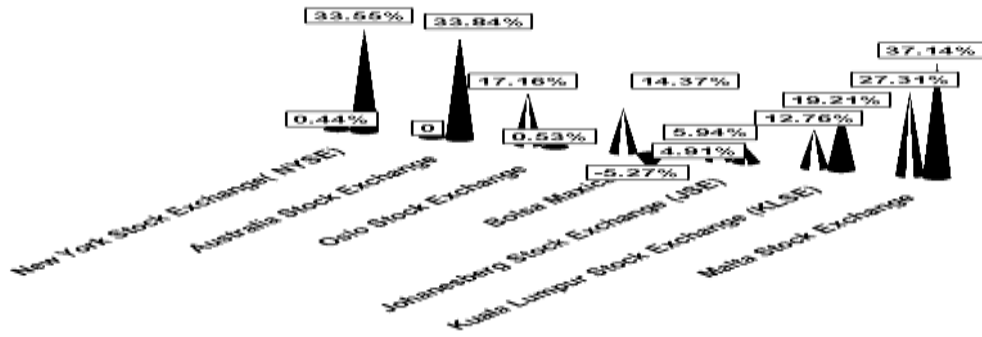


**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
prior	7	-9.17	23.76	7.2057	10.87051
After	7	-13.78	64.24	15.0271	26.08882
Valid N (listwise)	7				

**Table (3) Changes rate of Trading Fees**

Stock Exchange Name	Pre	After	Change %
New York Stock Exchange( NYSE)	0.44%	33.55%	33.11%
Australia Stock Exchange	0	33.84%	33.84%
Oslo Stock Exchange	17.16%	0.53%	-16.63%
Bolsa Maxican	14.37%	-5.27%	-19.64%
Johannesburg Stock Exchange (JSE)	5.94%	4.91%	-1.03%
Kuala Lumpur Stock Exchange (KLSE)	12.76%	19.21%	6.45%
Malta Stock Exchange	27.31%	37.14%	9.83%

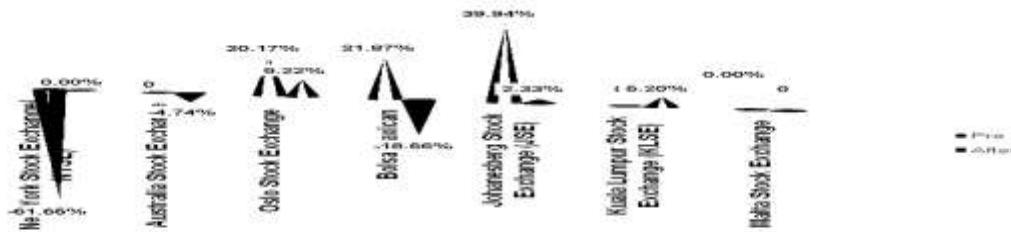


**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Prior	7	.00	27.31	11.1400	9.80133
After	7	-5.27	37.14	17.7014	17.69147
Valid N (listwise)	7				

**Table (4) Changes rate of Membership Fees**

Stock Exchange Name	Prior	After	Change %
New York Stock Exchange( NYSE)	-61.65%	0.00%	61.65%
Australia Stock Exchange	0	-4.74%	-4.74%
Oslo Stock Exchange	20.17%	9.22%	-10.95%
Bolsa Maxican	21.87%	-18.56%	-40.43%
Johannesburg Stock Exchange (JSE)	39.94%	2.33%	-37.61%
Kuala Lumpur Stock Exchange (KLSE)	0	5.20%	5.20%
Malta Stock Exchange	0.00%	0	0.00%



**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Prior	7	-61.65	39.94	2.9043	32.20250
After	7	-18.56	9.22	-.9357	8.92832
Valid N (listwise)	7				

Through the data analysis shown in the previous tables we found that:

- The largest positive change rate in listing fees was in Australia stock exchange and the largest negative change rate was in Kuala Lumpur stock exchange.
- The largest positive change rate in market data was in Malta stock exchange and the largest negative change rate was in Johannesburg stock exchange.
- The largest positive change rate in trading fees was in New York stock exchange and the largest negative change rate was in Mexican stock exchange.
- The largest positive change rate in membership fees was in New York stock exchange and the largest negative change rate was in Johannesburg stock exchange.

### Hypotheses Test

In this section we test the relationship between the independent variables and dependent variable. We also estimate a panel data model with unbalanced data. The hypotheses of this analysis are as follows:

#### 1. Listing fees- Demutualization

**H0:** There is no significant difference between the Demutualization and Listing fees

**H1:** There is a significant difference between the Demutualization and Listing fees

#### 2. Market data- Demutualization

**H0:** There is no significant difference between the Demutualization and Market Data

**H1:** There is a significant difference between the Demutualization and Market Data

#### 3. Trading fees-Demutualization

**H0:** There is no significant difference between the Demutualization and Trading fees

**H1:** There is a significant difference between the Demutualization and Trading fees

#### 4. Membership fees-Demutualization

**H0:** There is no significant difference between the Demutualization and Membership fees

**H1:** There is a significant difference between the Demutualization and Membership fees

Table (5)

Variables	Mean Before Demutualization	Mean After Demutualization	Wilcoxon Test		P. Value
			Negative Mean Rank	Positive Mean Rank	
Listing fees	26.2829	11.5429	3.8	4.5	0.398**
Market Data	7.2057	15.0271	3.67	4.25	0.612**
Trading fees	11.14	17.7014	3.33	4.5	0.049**
Membership fees	2.9043	-0.9357	3.25	4	0.600**

This table reports the means of testing variables before and after demutualization for seven demutualized stock exchanges from 1997 to 2012, testing hypothesis of no significant difference (Wilcoxon test) before and after demutualization and P-value test for normality at 95% confidence level.

Reviewing the previous results, we accept the null hypotheses for the listing fees, market data fees and membership fees as the p-value is greater than 5% level of confidence (0.398 (39.8%), 0.612 (61.2%), 0.600 (60%) respectively. For the trading fees variable; we accept the alternative hypothesis, as the p-value was 0.049 (4.9%) lower than 5% level of confidence.



## Regression Equation

### Coefficients <sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.811	4.917		4.029	.155
	X	.355	.185	.097	1.919	.036

a. Dependent Variable: Y

$$Y = a + B_1X_1$$

**Y = Demutualization**

**X<sub>1</sub> = Trading fees**

**B<sub>1</sub> = Coefficient (0.355)**

**a = Constant (19.811)**

## Conclusion

We use a sample of seven demutualized stock exchanges for the period from 1 997 to 2012 to show the effect of the demutualization of stock exchanges on its main sources of revenues. We found that demutualization has only a positive effect on one of the sources-trading fees. Demutualization is positively affecting the trading volume, attracting more order flows and increases the trading commissions which eventually enhance the stock exchange value and improving the investor's liquidity position. On the other hand, there is no direct effect of demutualization on the change of the other sources; listing fees, market data fees and membership fees.

## Appendix (A)

Stock Exchange Name	Covering Period	Demutualization Year
New York Stock Exchange( NYSE)	2003-2012	2006
Australia Stock Exchange	1997-2012	1998
Oslo Stock Exchange	1999-2012	2001
Bolsa Maxican	2005-21012	2008
Johannesburg Stock Exchange (JSE)	2001-2012	2005
Kuala Lumpur Stock Exchange (KLSE)	1999-2012	2004
Malta Stock Exchange	2002-2012	2007

## References

- Aggarwal, R. (2002), "Demutualization and Corporate Governance of Stock Exchanges", Journal of Applied Corporate Finance, Vol. 15, No. 1.
- Akhtar, S. (2002), "Demutualization of Stock Exchanges-Problems, Solutions and Case Studies"
- Allen, F., J. McAndrews and P. Strahan (2002), " E-Finance: An Introduction", Journal of Financial Services Research, Vol.22 (1), 5-27.
- Altaf, S. (2009), "Demutualization of Stock Exchanges; A Case Study: London Stock Exchange and Hong Kong Stock Exchange", University of SKOVDE- School of technology and society

- De Sa', J. (2009), "Corporate Governance-Demutualization of Stock Exchanges; An Analysis of its Benefits.
- Di Noia, C. (1998), " Customer Controlled Firms: The Case of Stock Exchanges, Working paper, Wharton School R.L. White Center for Financial Research.
- Domowitz, I., Steil, B., "Automation, trading Costs and the structure of the securities trading industry. Brookings-Wharton papers on financial services, 33-81.
- Galper, J. (1999), "Three business models for the stock exchange industry", a working paper, International Federation of stock exchanges.
- Hughes Pamela S. (2002), "Background Information on Demutualization" in Akhtar, Shamshad (2002), "Demutualization of Stock Exchanges-Problems, Solutions and Case Studies"
- Hughes, Pamela and Zargar, Ehsan. May 2006. "Exchange Demutualization." Blake, Cassels and Graydon LLP; available on-line: [www.balkes.com](http://www.balkes.com)
- Lee, R. (1998), "What is an Exchange? The Automation, Management and Regulation of Financial Markets", Oxford University Press.
- Lee, R. (2002), "The Future of Securities Exchanges", Brookings-Wharton Papers on Financial Services.
- Macey, J and M. O'Hara (2004), "From Markets to Venues: Securities Regulation in an Evolving World", pp. 11 (NYSE, May 2003).
- McIntyre, H. (1999), "ECN and ATS...The Electronic Future", [http://www.Soforum.com/Libarray/ccn\\_ats.shtml#INTR](http://www.Soforum.com/Libarray/ccn_ats.shtml#INTR)
- Mishkin, F.S. and P.Strahan(1999), "What will Technology do to Financial Structure?", working paper, Brookings-Wharton papers on financial services, 249-277.
- Ochtere, I. (2006), "Stock Exchange Self Listing and Value Effects", Journal of Corporate Finance, PP.926-953.
- Robb, J.A. and Cromble, A.N.(2006a), " Defeating a Demutualization: a Case Study. <http://nz.coop/research.html> , PP.1-16.
- Scullion, M. (2001), "The Compaq Handbook of World Stock, Derivatives and Commodity Exchanges. Chapt. Demutualization: The Challenges Facing Global Exchanges.
- Steil, B. (2002), " Change in the Ownership and Governance of Securities Exchanges: Cases and Consequences", The Wharton School- University of Pennsylvania.
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