

# THE EFFECTS OF DEMUTUALIZATION ON EXPANSION OF STOCK MARKET GROWTH: EVIDENCES FROM INDIAN STOCK MARKET AND LESSON FOR PAKISTAN STOCK EXCHANGE (PSX)

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## Abstract

*The decision to transform an exchange's governance and ownership structure is influenced by globalized market trend which allows exchanges to gain from the benefits of internationalization and integration. This article examines the impact of demutualization on stock market indicators. Bombay Stock Exchange and National Stock Exchange of India were taken as statistical frame. Wilcoxon sign rank test, Pair sample T-test, and MANOVA were used as statistical techniques. Pre-Post research design was used and data (4 years before and 4years after the demutualization) were collected from the website of the world federation of the exchanges. The result of Wilcoxon sign rank test and Pair sample T-test indicates significant differences in stock index, market capitalization, value of share trading and the number of listed companies before and after the demutualization of Indian stock exchanges. Likewise, the results of MANOVA elucidates significant influence of demutualization on stock market indicators, and conclude that demutualization leveraged Indian stock exchanges to a great extant.*

**Keywords:** Demutualization; stakeholder theory; stock market, listed company; market capitalization; stock index; share trading

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### Introduction

The concept of demutualization is used with great frequency in the literature of stock market domain. Infact due to higher frequency with which the term is used by economists, business consultants and academicians, some have suggested “demutualization” of merely being the latest buzzword in Pakistan economy and stock market. In the backdrop to it, the literature suggests that demutualization—**defined by Akhtar (2002)** “*Demutualization, in the strict sense, refers to the change in the legal status of the exchange from a mutual association with one vote per member (and possibly consensus-based decision making), into a company limited by shares, with one vote per share (with majority-based decision making)*” is a robust sentiment for investor to actively participate in trading activities. Given the importance of demutualization, the question of how demutualization of exchanges affects investor participation (trading magnitude), stock index, market capitalization and listing trends of companies.

Typically stock exchanges were mutual association and NPOs i.e. Non-Profit Organizations (Tahir & Sial, 2013), These stock exchanges were usually regarded as the ‘club of brokers’ that provide propriety rights and decision making power to brokers , and the value of exchanges was enhanced by restricting its access to the general public (Akhtar, 2002). These measures tarnished the image of stock exchanges in the society. Advancement of information technology in stock market trading, cross-border listing due to globalization and Alternative Trading Systems (ATS) –has rendered the physical existence of stock exchange questionable. Demutualization of stock exchanges started in early 1990s, and the pioneer of this intervention was the Stockholm Stock Exchange that demutualized in 1993 (Tahir & Sial, 2013). In the similar vein, Indian stock exchanges started the process in early 2000, and eventually National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) were demutualized in 2003 and 2005 respectively. The process of demutualization continued, and presently it has burgeoned to over twenty three stock exchanges all over the world (World Fedration of Exchanegs , 2012).

Early literature of corporate governance concerning organizational performance is dominated by three main theories i.e. shareholder's theory, stakeholder theory and innovation theory (Andrew M., 2002). Similarly, organizations are also categorized on the basis of their objectives and ownership structure such as private, guarantee and public limited companies (Company Ordinance, 1984). Early literature about demutualization (e.g., Abou-Zied, 2005; Azzam, 2010; Morsy & Rwegasira, 2010, and Tahir & Sial, 2013) focused on shareholder's theory by comparing financial performance of stock exchange before and after demutualization i.e. from guarantee limited to public/private limited . Many others (e.g. Fama & Jense, 1983; Akhtar, 2002 ; Aggarwal & Dahiya, 2002; Sial et al., 2014, Sial, et al, 2015) focused on post demutualization problems and circumstances that led to demutaulization . This gap in economic and financial literature is understandable, given that linkage between capital growth and change in management and governance structure in emerging market is still a relatively new concept in research literature. Nonetheless, the lack of studies on demutualization/commercialization of exchanges and strengthening of capital market means that it may be capital market growth that attract exchanges to shift their status from mutual association to demutualization. To increase and develop comprehensive understanding about the role that growth of market in emerging economy from full-fledged local stock exchange plays vital role in exchanges propensity to demutualize beyond prior analysis, we respond to the call for more scholarly research (e.g., Sial et al., 2015) by developing a conceptualization of strategic change and capital market growth.

As a result, demutualization of stock exchange has remained debatable and open for further investigation. This paradigm change causes the emerging concepts such as cross-listing, alternative trading system and repository receipt. The current study focus on demutualization in terms of change in ownership structure, governance structure and organizational objectives of stock exchange. It focuses on the impact of demutualization on stock market growth in Indian stock exchanges. It also profers valuable recommendations for stock exchanges of other developing countries such as Pakistan. Using the insights gained by linking current model and Akhtar, 2002 theory, we advance the literature by exploring answers to three fundamental

research questions. First, can investor and companies choose to invest/list on exchanges that are demutualized exchanges? Second, what financial costs are associated with demutualization of exchanges? Third, what role do exchange's governance and organizational structure play to influence the decisions of investors and entities to list themselves on demutualized exchanges.

### **Literature Review**

It is an admitted fact that the current economy is a globalized knowledge-based economy which is based on three pillars such as cohesion, convergence and integration. A firm cannot prosper without focusing on these three pillars in the globalized competitive market (Fleckner, 2005). No one organization could progress without integration with market through understanding emerging issues of markets and by providing knowledge based products and services. Similarly, those organizations which are not cohesive with emerging issues in term of newness, innovation and value addition in products and services of market, it cannot survive in existing knowledge-based economy (Tahir & Sial, 2013). Likewise, if the organization has not flexibility and ability to converge the existing knowledge-based ideas and innovation then it cannot lead the market in term of innovative products and services. Similarly, stock exchange is a legal person that provides the floor as stock market to investors and brokers for their trading activities. Generally, stock exchange and stock market are considered similar places, which provide products and services in term of securities and bonds. In other words, a stock exchange provides market facility to its customers for trading and also acts as a regulatory body (Akhtar, 2002; Andrew, 2002). Typically, the stock exchanges were the mutual association- Not for Profit Organizations (NPOs), and were considered as "club of brokers" (Akhtar, 2002). The notion of NPOs is built around "services delivery" that benefits the larger society, and these organizations are recognised as vibrant actors of civil society (Hall, 2004). The key roles of stock exchanges include providing a platform for security trading, front line regulator and facilitator of financial growth and research. In this sense, mutual stock exchange is as acts like a member of civil society, and it provides services to its customer such as broker, individual investor and corporate investors (Akhtar, 2002). Akhtar (2002) argued that in the early day's stock exchanges offered services as monopoly operators

to its customers (brokers). In that governance structure, member of the club enjoyed rights of ownership of the stock exchanges per their percentage, and decision-making power (one member, one vote). At the start of 1990, majority of stock exchanges converted their status from nonprofit organizations (mutual association) to profit oriented organization-public limited companies (Aggarwal & Dahiya, 2002). This paradigm shift in which stock exchanges converted their business from nonprofit mutual associations to entrepreneurial business through raising funds by Initial public offering was called demutualization. It is the process through which any member-owned organization becomes a shareholder-owned company (Polman, 2002). In another sense, demutualization provide a way to increase financial resources through IPO, and thereby acquire advance technology for a sustainable business. The main reasons of demutualization comprise globalized market place that encouraged cross-border listing of stock exchanges (Tahir & Sial, 2013), rapid advancement in information technology (Akhtar, 2002) and portfolio flows (Abou-Zied, 2005).

Demutualization not only provides financial resources to the stock exchanges, but also reform the governance structure from one vote per member to one vote per share (Akhtar, 2002). Similarly, after demutualization decision making power of the stock exchanges shift from member of stock exchanges to board of directors of the stock exchanges, who are directly elected by the shareholders (Akhtar, 2002; Islam & Islam, 2011; Morsy, 2010 and Tahir & Sial, 2013). Along the similar lines, , exchanges have to earn on their own financial resources. This creates a constant pressure on the stock exchange to grow and expand their businesses for profitability. It works as a stimulus to improve liquidity in the market and introduce new products and services (Aggarwal & Dahiya, 2002 and Azzam, 2010).

Aggarwal (2002) indicated that conception of corporate governance is the biggest advantages of demutualization. It can be defined as a set of processes, customs, practices, policies and laws that directly influence the way an organization work and change working structure of stock exchanges. The literature has predomanatly supported the argument that demutualization greatly helps a stock exchange to improving its corporate governance (Fleckner, 2005; Steil, 2002, and Williamson, 1999). Demutualization brings sustainability to stock exchanges by reforming governance in

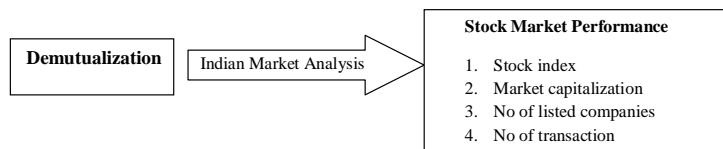
separating ownership rights from trading rights. It also augments the role of non-member stakeholders in stock exchange affairs and implicitly helps in defining the duties of management and board more clearly. Hence board of directors (BODs) is separated from management and does not interfere in each other's portfolio (Lahore Stock exchange, 2007).

Besides the enormous benefits of demutualization, it is critical and very important for a stock exchange to assure its efficiency (Aggarwal & Dahiya, 2002), integrity, quality and fairness of the stock market trading (Akhtar, 2002). It enhances the confidence of investor in trading activities and protection of interest of shareholder as well as investors (Lahore Stock exchange, 2007; Tahir & Sial, 2013). It is also imperative for sustainability and credibility of stock exchange to ensure rules governing primary and secondary market trading. Akhtar (2002) furthered that benefits of demutualization will be thwarted if it is not supported by ethical practices, investor protection and transparency in stock market. It is generally perceived that after demutualization the prime objective of stock exchange changes from service delivery to profit orientation that may lead to poor performance in stock market (Sial, Talib, Ashkanani, & Alam, 2015).

### Theoretical Framework

**Figure 1:**

*Theoretical framework of the study*



### Hypothesis

**H1:** Demutualization of exchanges enhances the trading magnitude by building confidence among investors through their participation in ownership, and governance structure.

**H2:** Demutualization of exchanges stabilizes stock index through eliminating insider trading and false bidding in market.

**H3:** Demutualization of exchanges increases number of listed companies on their forum by offering unique products, constantly upgrading technology infrastructure through partnerships with the world's leading technology companies.

**H4:** Demutualization of exchanges leads to increase in market capitalization of exchanges by uplifting their procedures in collaboration with international partners.

The stock market is commonly based on the two fundamental elements such as money and credit. The first element means all the transaction is done on the basis of the money or in cash and the second theme shows that if the money is not available in your business, then an entrepreneur can achieve the business idea through credit creation. (Andrew, 2002). Growth of stock market is determined by four main indicators: a) Stock Index; b) Share trading value; c) Market capitalization; and d) Number of listed companies.

- **Stock index:** A stock index or stock market index is a measurement of the value of a section of the stock market. It is computed from the prices of selected stocks (typically a weighted average).
- **Share Trading value:** It shows the market transaction magnitude in a stock exchange. The difference between market capitalization and value of share trading is that value of share trading exhibits only the ordinary share value magnitude (ordinary shares \* value of shares) and market capitalization shows the both ordinary and preference shares (total outstanding shares \* current value of shares).
- **Market Capitalization:** It is a very important indicator about the stock market growth. It shows the soundness and magnitude of any stock exchange.

- **No of listed Companies:**It show the strength and soundness of the stock exchanges. It also shows confidence of companies on the atmosphere of the stock exchanges.

### **Methodology**

This study espouses Pre-Post demutualization analysis of stock market growth indicators to find out the impact of demutualization on stock market growth in India. For this purpose, two Indian stock exchanges were selected, which are members of the world federation of the exchanges (world federation of exchanges, 2012). Demutualisation was depicted by a dummy variable i.e. 0= before demutualization and 1= after demutualization (Azzam, 2010). Stock market growth was measured by Stock index, Share Trading value, Market Capitalization and No of listed companies. Data (4 years before and 4years after demutualization) was collected from website of the world federation of the exchanges. Data normality was assessed through Skewness, Kurtosis and descriptive statistics. One-way MANOVA analysis was employed to measure the effect of demutualization on stock market growth (Joseph et al., 2012). Wilcoxon sign rank test and Pair sample T-test were used to find out the significant difference between before and after the demutualization stock market performance (George et.al, 2004).

### **Findings and Discussion**

#### *Descriptive statistic*

Data range, mean, stahdard deviation and normality of distribution is provided in Table 1 and 2. Descriptive statistics indicate a normal distribution in both stock exchanges (BSE and NSE), and fulfilled the assumption for running paprametric tests such as MANOVA and Pair sample T-test (Hair, et.al, 2012).



**Table 1:**  
*Descriptive statistic of Bombay SE*

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Stock Market Index_Before Demutualization	1005.82	2779.65	1832.14	874.74	0.16	-4.74
Stock Market Index_AfterDemutualization	3596.85	8592.43	6075.57	2138.08	0.04	-0.96
Market capitalization_Before Demutualization	130390.18	386321.10	265124.71	104920.98	-0.38	1.50
Market capitalization_AfterDemutualization	647204.77	1819100.51	1147926.03	527453.41	0.66	-1.52
value of the share trading_Before Demutualization	68538.60	118247.83	94133.77	20849.83	-0.19	0.08
value of the share trading_AfterDemutualization	214487.63	343775.81	280555.56	55195.28	-0.13	-0.81
Number of listed companies_Before Demutualization	4730.00	4746.50	4739.28	7.04	-0.75	0.34
Number of listed companies_AfterDemutualization	4796.00	4955.00	4889.75	68.39	-1.07	1.18

a. Name = Bombay stock exchanges

**Table 2:**

*Descriptive statistic of National Stock exchange of India*

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Stock Market Index_Before Demutualization	1059.05	1227.97	1126.84	72.88	1.18	1.50
Stock Market Index_AfterDemutualization	1804.39	5354.70	3228.34	1543.27	1.14	1.13
Market capitalization_Before Demutualization	112453.86	182673.61	151952.47	29980.77	-0.75	0.34
Market capitalization_AfterDemutualization	363276.02	1660096.89	828365.25	579832.67	1.52	2.27
value of the share trading_Before Demutualization	128534.60	159548.02	145108.97	12750.89	-0.49	1.50
value of the share trading_AfterDemutualization	260409.16	751333.02	437498.66	219946.28	1.47	2.04
Number of listed companies_Before Demutualization	916.00	1041.00	986.31	53.37	-0.75	0.34
Number of listed companies_AfterDemutualization	957.00	1330.00	1119.25	162.64	0.70	-0.54

a. Name = National stock exchange

### Demutualization and Stock Market index

Descriptive statistic of stock market index is shown in Table (1,2) and Figure (2) with a mean score before the demutualization (2779.65 and 1832.14) and after the demutualization (8592.40 and 6075.57) in BSE and NSE respectively. Table (3) indicates significant difference ( $P < 0.05$ ) between the mean score before and after demutualization. The result of the Wilcoxon sign rank test for stock market index Table (3) also shows that all 8 pairs of observations are at positive ranks (Mean score after demutualization > before demutualization). All result of stock market index such as descriptive statistics, pPaired sample T-test and Wilcoxon sign rank test shows significant and positive difference in mean score before and after demutualization. Similarly, the result of MANOVA given in Table (4, 5) also indicates that demutualization has significant impact on stock market index. The result of the Table (5) about R-square, and adjusted R-square .499 and .463 respectively indicates that 49% variance in stock market index was explained by demutualization, and it is significant at 99% confidence level. It shows that demutualization

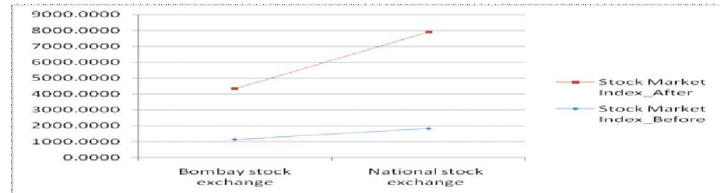
has a significant role in stock index improvement. It also specifies that demutualization not only effects the financial performance of Indian stock exchanges (Azzam, 2010; Tahir & Sial, 2013) but also improve the stock index (Saul et.al, 2014). It can be further deduced that change in ownership structure (Fama & Jense, 1983), governance structure (Lahore Stock exchange, 2007) and objective of stock exchanges (Akhtar, 2002) not only led to wealth maximization of its shareholder but also improve the efficiency of stock exchanges in term of ethical practices of market participants, investor protection, and transparency in market transactions (Akhtar, 2002; Aggarwal & Dahiya, 2002; Abou-Zied, 2005). Demutualization of stock exchanges enabled Pakistan's stock market to increase their indexes performances by expanding market outreach, attracting new investors, improving liquidity and enabling the stock exchanges to attract international strategic partners. For this purpose, KSE appointed a leading brokerage firm as a market maker in the KSE-30 Index based futures contracts. Securities and Exchange Commission of Pakistan has extended approval to LSE and ISE to commence Stock Index Futures trading based on KSE-30 Index. This will enable LSE and ISE members and investors to directly trade the KSE-30 Index and develop market makers in Lahore and Islamabad itself, thus enhancing overall liquidity in these futures contracts (KSE, 2015).

**Table 3:**  
*Result of Wilcoxon Sign Rank Test and Paired Sample T-Test*

	Mean Before	Mean After	Std.Deviation Before	Std.Deviation After	95% Confidence Interval of the Difference		T	Sig.	Sum of Rank	
					Lower	Upper			Positive	Negative
Index	1479.49	4651.95	687.27	2301.33	-5063.57	-1281.36	3.967	.005	0	8
Market Capitalization	208538.59	988145.64	93608.37	540829.69	-1248148.89	-311065.21	3.934	.006	0	8
Value of Share Trading	119621.37	359027.11	31597.57	170516.41	-379909.78	-98901.70	4.029	.005	0	8
Number of Listed Companies	2862.80	3004.50	2006.36	2018.72	-258.20	-25.21	2.876	.024	1	7

**Figure 2:**

*Stock Market index before and after the demutualization in BSE and NSE*



### Demutualization and Market Capitalization

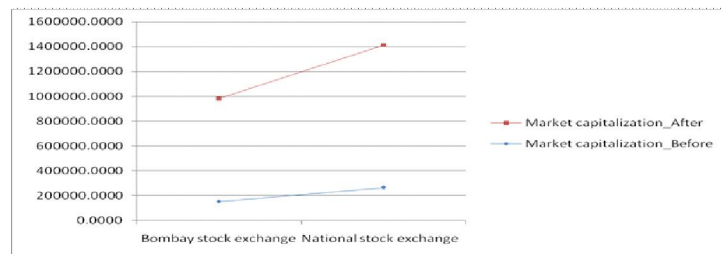
The results of market capitalization Table (1, 2) and Figure (3) exhibit comparison before and after demutualization of BSE and NSE. The total mean score of market capitalization before demutualization (151952.46 and 265124.70) and after the demutualization (828365.2 and 1147926.02) in BSE and NSE show significant difference ( $P < 0.05$ ) in Table (3). The result of the Wilcoxon Sign Rank test shows that all eight pairs of the observations after demutualization are greater than before demutualization. This indicates that both stock exchanges enhanced their market capitalization by attracting unlisted companies toward their forum. Similarly the result of MANOVA in Table (4, 5) also indicates that demutualization has significant impact on Market capitalization. The result of Table (5) i.e. R-square and adjusted R-square.528 and.487 indicate that 52% variance in Market capitalization was explained by demutualization and it is significant at 99% confidence level. The results of these statistical techniques deduce that after demutualization Indian stock exchanges enhanced their market size. This shows that change in ownership and governance structure of Indian stock exchanges leads towards better market capitalization. The stock exchanges after the demutualization focused on the second theory of the corporate governance, which take care of all stakeholders as well as shareholders. The BOD of stock exchange give more preference to its customers instead of their vested interest (Aggarwal & Dahiya, 2002). The main and potential customer of the stock exchanges is its listed companies (Andrew, 2002). It is assumed that if BOD's decisions are based on majority voting of shareholders, this will not only

control window dressing and inside trading for illegal profit, but also eliminate market abusing (Islam & Islam, 2011). After demutualization, Like Indian stock market, Pakistan's stock exchanges are providing a reliable, orderly, liquid and efficient digitized marketplace where investors meet directly to buy and sell listed companies' common stock and other securities (KSE, 2015). It enhanced the market capitalization from 27 % in 2014 which is valuable achieve in this regard.

**Table 4:**  
*Multivariate Tests*

	Value	F	Hypothesis df	Error df	Sig.
Pillai's Trace	.771	9.235	4.000	11.000	.002
Wilks' Lambda	.229	9.235	4.000	11.000	.002
Hotelling's Trace	3.358	9.235	4.000	11.000	.002
Roy's Largest Root	3.358	9.235	4.000	11.000	.002

**Figure 3:**  
*Market Capitalization before and after the demutualization in BSE and NSE*



### Value of the share trading and demutualization

The results of share trading are given in Table (1, 2) and Figure (4), which shows that mean before demutualization (145108.97 and 94133.77) and after demutualization (437498.66 and 280555.56) in BSE and NSE respectively. Significant difference ( $P < 0.05$ ) is found between the mean score before and after the demutualization. Also, the result of the Wilcoxon sign rank test in Table (3) shows that all 8 pairs of observations are at positive ranks (Mean score after the demutualization > before the demutualization). Similarly the result of MANOVA in Table (4, 5) also indicates that demutualization has significant impact on value of share trading, and R-square, and adjusted Rsquares.535 and.502 indicate that 53 % variance in stock

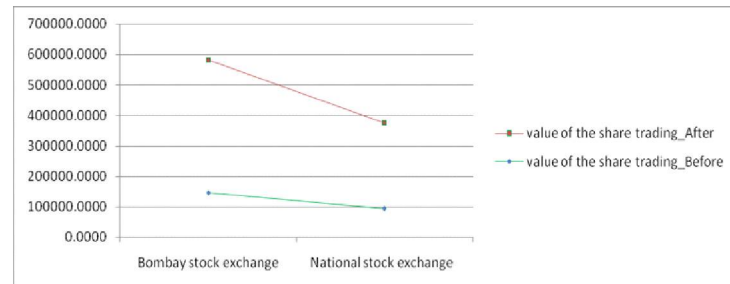
market index was explained by demutualization and it is significant at 99% confidence. The result of these tests shows that after demutualization the confidence of the investors in the stock exchanges trading has considerably increased (Akhtar, 2002), and it led to better share trading (Fama & Jense, 1983). After demutualization, there is stability in the stock market in term of value of share trading in Indian stock exchanges due to consistency in decisions concerning stock market trading. It demonstrates that demutualization leads stock exchange’s decisions making penal from member owned to shareholders owned (Akhtar, 2002; Morsy, 2010) Likewise, Indian exchanges, organizational structure of the Exchange was modified to achieve the objective of avoiding conflict of interest, the regulatory and commercial functions performed by the existing departments of the Exchange have been segregated (KSE, 2015). In this regard, SECP has approved a Plan for Segregation of Commercial & Regulatory Functions of Stock Exchanges. This Plan has elaborated the regulatory arrangements that the stock exchanges must have in place to ensure clear segregation of their regulatory and commercial functions.

**Table 5:**  
*Tests of Between-Variable Effects*

Source		Type III Sum of Squares	Mean Square	F	Sig.
Corrected Model	Stock Index	40258.119.079 <sup>a</sup>	40258.119.079	13.958	.002
	share trading	229260433987.881 <sup>b</sup>	229260433987.881	15.246	.002
	No of listed company	80319.103 <sup>c</sup>	80319.103	.020	.890
	Market Capitalization	2431148608703.283 <sup>d</sup>	2431148608703.280	16.140	.001

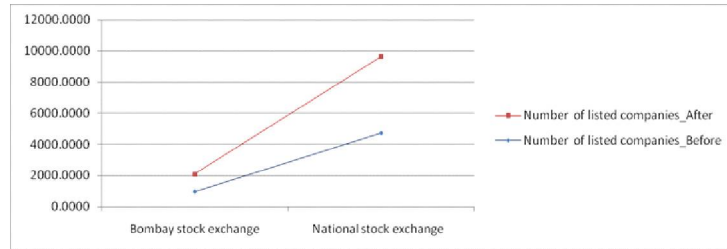
- a. R Squared = .499 (Adjusted R Squared = .463)
- b. R Squared = .521 (Adjusted R Squared = .487)
- c. R Squared = .001 (Adjusted R Squared = -.070)
- d. R Squared = .535 (Adjusted R Squared = .502)

**Figure 2:**  
**Stock Market index before and after the demutualization in BSE and NSE**



**Figure 5:**

*No of Listed Companies before and after the demutualization in BSE and NSE*



### Conclusion

The current study was conducted to find out the effects of demutualization of the stock exchanges on stock market indicators in the Indian stock exchanges. National stock exchange of India and Bombay stock exchange were demutualized in 2003 and 2005 respectively. A Pre-Post design research was applied in the current study. For this purpose, eight years data (four years before and after the demutualization) were gathered from the world federation of exchanges about stock market indicators of Indian stock exchanges. Stock market growth is measured through stock index, market capitalization, value of share trading and the number of listed companies. Paired sample T-test and the Wilcoxon sign rank test was employed to find the difference in stock market indicators before and after the demutualization. Similarly MANOVA was used to gauge the effect of demutualization on stock market growth. The result of Paired sample T-test and the Wilcoxon sign rank test shows that there is a significant difference in stock market indicators before and after the demutualization and this change is positive (Mean score after the demutualization > before the demutualization). Similarly Result of the MANOVA indicates that demutualization exerted a significant impact on stock market indicators such as stock index, market capitalization and value of share trading except number of listed companies. It allows to accept all hypothesis except H3. Previous literature about the demutualization such as (Azzam, 2010; Morsy & Rwegasira, 2010 and Tahir & Sial, 2013) show that stock exchanges improved the financial performance (wealth maximization of shareholders) after the

demutualization. The current study explores that stock exchanges not only improve their financial performance after demutualization but also accelerate the stock market indicators in Indian stock exchanges. It infers that strategic change in stock exchanges encourages new research about the future of the stock market and its listed companies through collaborative effort of academic and professional institutes (Polman, 2002; Sofia, 2010). Pakistan's Stock exchanges were incorporated as Company Limited by Guarantee. In the consequences of demutualization, these stood corporatized and demutualized as a public company limited by shares with effect from August 27, 2012. At present all stock exchanges of Pakistan converted from mutual association to public limited companies and merged in one identity Pakistan Stock Exchange (PSX) and it is contemplating to migrate its core trading platform to a new and much more flexible architecture which will enable the exchange to provide a host of services and applications for investors via expanding base of smart phones and other hand held devices at increasingly affordable costs. The results of the study quite help for Pakistani stock exchange regarding stock market expansion and stability.

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