

An Economic and Empirical Evaluation of KSE Privatization: Impacts on Boursa Kuwait Equity Trading Behavior and Market Performance

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Citation: Atyeh, M. and Khafash, M. (2025). An Economic and Empirical Evaluation of KSE Privatization: Impacts on Boursa Kuwait Equity Trading Behavior and Market Performance, *Journal of Cultural Analysis and Social Change*, 10(2), 2677-2686. <https://doi.org/10.1064753/jcasc.v10i2.1991>

Published: November 17, 2025

ABSTRACT

Boursa Kuwait has gone through some major structural changes and regulations adjustments designed to boost market liquidity, improve foreign investment, and market efficiency improvement. One of these changes is the privatization of Kuwait stock market which took place on April 2016. This article examines the impact of such a reform on investor behavior, and stock market performance. Through a combination of qualitative and quantitative methodologies, the study empirically models change to trading volume, closing prices and volatility patterns before and after the major reform initiatives were implemented. The study covers the period from April 2016 after the privatization until May 2025 and the period from January 2010 until the privatization date. The study investigates the impact of the privatization on the two market categories according to Boursa Kuwait classifications which are the premium market and the main market. The results indicate that the privatization process had a positive impact on market performance, return and trading behavior. The findings offer valuable insights for regulators, investors, and policymakers, underlining the positive impact of such a major stock market reform on Boursa Kuwait's financial outcomes, market liquidity, and investor behavior.

Keywords: Boursa Kuwait, Market Performance, Market Liquidity, Investor Behavior, Stock Market Reforms

INTRODUCTION

Commencing from April 25th, 2016, the KSE started to be operated by Boursa Kuwait Securities Company (BKSC). BKSC was established by the CMA commissioner's council in 2014 mainly to run KSE operations efficiently and effectively in line with international standards and it includes 143 companies, where 109 of them are listed on the main market while the other 34 companies are in the premier market. According to Kamco Invest Boursa Kuwait daily report on 05 May 2025, the market is classified into 13 sectors with a market capitalization (MCAP) of around KD 48 billion as of May 2025. The banking sector alone represents nearly 63% of the Boursa Kuwait MCAP with around KD 30 billion for the same mentioned period. Real estate comes next with around KD 3.95 billion which is equivalent to around 8.2% of the total MCAP.

This literature review explores the effects of these reforms on liquidity, investor behavior, and stock market returns.

LITERATURE REVIEW

Germany was one of the first countries to privatize its stock market during the 1960's privatized its stock exchange and carry out this transmission (Esser, J., 1994). The renewal of national exchanges and promotion of

investors' participation have been top priorities of privatization programs not only in the United Kingdom, but also in France, Spain, and Italy (Vickers, J. and G. Jarro, 1988; Dumez, H. and A. Jeunemaître, 1994).

According to Boutchkova, M.K. and Megginson, W.L. (2000), a significant increase in wealth is shown to be correlated with privatization and the financial market development. For example, in developed countries outside the US, the stock trading volume grew from USD 460 billion in 1983 to around USD17 trillion in 1998. Pagano, M., 1989; Subrahmaniam, S. and S. Titman, 1999, suggest that privatization contributes to stock markets via improving diversification opportunities for investors.

Research conducted by Al-Qussi, H., (2024), titled "The Effect of the Market Maker's Obligations of Rebalancing the Supply with Demand Towards the Kuwaiti Bourse: A Comparative Study with the Exchange Regulation of NASDAQ & NYSE." The responsibilities of market makers in maintaining supply and demand equilibrium in Boursa Kuwait are examined in this study. The author discovered that the introduction of market maker obligations in Boursa Kuwait resulted in increased liquidity and more effective price discovery by using a comparative analysis with NASDAQ and NYSE regulations. The study emphasizes how crucial it is to match regional market maker laws with global norms in order to improve market outcomes.

A research paper conducted by Bortolotti, B. et. al. (2007) aims at understanding the sources of variation in market liquidity investigated the price impact and turnover of 19 stock market indexes. The study concludes that liquidity is enhanced by share issue privatization and the existence of several observable and unobservable factors which control the market dynamics.

Privatization involving the floating of shares in both domestic and international exchanges is said to reduce informational barriers to foreign investment, thereby boosting liquidity in the domestic market (Hargis, K. and P. Ramanlal, 1998; Chiesa, G. and G. Nicodano, 2003). Ryden, B., 1997; mentioned that since the privatization of the Stockholm Stock Exchange took place as of January 1993, the market witnessed a substantial growth in market values and trading volume.

Another relevant research by Al-Sabah, K., et. al. (2024) in a paper titled "Unlocking Liquidity: The Role of Market Makers in Kuwait's Market" uses a difference-in-differences approach to examine the influence of market-maker agreements on liquidity alterations in Boursa Kuwait. The research indicates that signing a market-maker agreement augments the number of executed trades, turnover, and trading volume while decreasing instances of zero trades, bid-ask spread and Illiquidity within the first week. According to the paper results, these agreements do not affect stock return volatility.

Hassan, A., & Yousef, M. (2021) explored how opening financial markets affected the Kuwaiti Stock Exchange. The authors discovered that although financial liberalization increased market efficiency, it also increased volatility. To put it another way, the market became more volatile but also more responsive. According to their research, strict regulations must be in place to safeguard investors from undue risk, and such reforms must be carefully managed.

In a research paper titled "Retail Investors' Trading and Stock Market Liquidity," Abudy, M. (2020) investigated the connection between total stock market liquidity and retail investor participation. Retail investors are crucial in enhancing market quality through greater liquidity, according to the study's positive and statistically significant correlation.

The Capital Market Authority Law, which was implemented in Kuwait in 2010, was examined by Bouresli, A., & Abdulsalam, F. (2019). The purpose of this law was to improve investor protection and market regulation. Their research, however, showed an unforeseen consequence: market liquidity decreased across a number of important metrics, particularly for smaller businesses. Although the goal was to create a more stable and trustworthy market, the law appeared to reduce trading activity and market depth in the short term.

Research conducted by Atyeh, et. al. (2017) in order to determine whether the April 2016 privatization of the Kuwait Stock Exchange had a substantial impact on market performance, discovered that privatization was linked to less volatility in the majority of market variables. In addition, the study results indicate that there is no significant change observed in the average closing prices of assets post-privatization.

Merza, E., & Almusawi, S. (2016) published research examines the factors which may affect the efficiency of Kuwait Stock exchange. The research findings show that gold prices and deposit rates can have a major impact on market efficiency. In addition, the study concludes that each sector in the KSE market responds differently to macroeconomic variables.

Overall, a remarkable picture of Kuwait's financial reform journey was revealed by various research outcomes. Early efforts by the Capital Market Authority (CMA) Law in Kuwait, which was introduced in 2010, may have reduced the market liquidity had some negative side effects on its fiscal performance. However, some recent initiatives, such as the alignment with global standards and the introduction of market makers, appear to be boosting market outcome and achievements. These developments imply that careful policymaking and continuous efforts are necessary to create an efficient and resilient stock market, even though stock market restructuring is a complex process with various fluctuations.

DATA AND METHODOLOGY

Data

Boursa Kuwait's daily trading data from January 1, 2010, to May 31, 2025, is used in this study. The following are included in the dataset:

1. Opening, high/low, volume, and daily closing prices (in Kuwaiti dinars)
2. Separate data for the Main Market and the Premier Market
3. The closing index's percentage change was used to compute daily returns.
4. For comparative analysis, the sample is split into two time periods:
 - January 2010 to March 2016 was the pre-privatization period.
 - April 2016 to May 2025 was the post-privatization period.

Methodology

The following quantitative techniques were used to evaluate how privatization affected trading patterns and market performance:

Descriptive Statistics

The following fundamental statistical measures were implemented:

- Index levels
- Daily trading volumes
- Daily returns

This provides an overview of distributional shifts before and after privatization in both market segments.

Statistical Tests

Independent Sample T-Test for Differences in Means: Used to compare the average index levels and trading volume before and after privatization.

$$t = (X_1 - X_2) / \sqrt{[(s_1^2/n_1) + (s_2^2/n_2)]}$$

Where:

- X_1 : Mean before privatization
- X_2 : Mean after privatization
- s_1^2, s_2^2 : Variance of each group
- n_1, n_2 : Sample sizes
- t: T-statistic to test significance

Levene's Test for Equality of Variances: To check how much the market jumps around (measured by how returns are spread out) or changed a significantly post-privatization.

$$W = [(N - k)/(k - 1)] \times [\sum n_i (Z_{i\bullet} - Z_{\bullet\bullet})^2 / \sum \sum (Z_{ij} - Z_{i\bullet})^2]$$

Where:

- N: Total number of observations
- k: Number of groups (before and after)
- n_i : Observations in group i
- Z_{ij} : Deviation from group median
- $Z_{i\bullet}$: Mean of deviations in group i
- $Z_{\bullet\bullet}$: Overall mean of deviations
- W: Levene's test statistic

Return and Event Regression:

Daily Returns: Where is the closing price of the index at time.

$$Return_t = (P_t - P_{t-1}) / P_{t-1}$$

Where:

- P_t : Price on day t

P_{t-1} Price on previous day

Return_t: Daily return

OLS Regression for Event Study: Where post-April 2016 and 0 before. captures the structural change in returns due to privatization.

$$Return_t = \alpha + \beta \cdot Event_t + \varepsilon_t$$

Where:

Return_t: Return at time t

α : Intercept (pre-privatization return)

β : Return change after privatization

Event_t: Dummy (0 = pre-Apr 2016, 1 = post)

ε_t : Error term

Rolling Volatility Estimation

30-Day Rolling Standard Deviation of Returns: Using a 30 days rolling window, this technique measures how returns are changing time-varying volatility.

$$\sigma_t = \sqrt{[1 / (N - 1) \times \sum (r_i - \bar{r})^2] \text{ from } i = t - N + 1 \text{ to } t}$$

Where:

σ_t : Rolling standard deviation at time t

N: Number of days (e.g., 30)

r_i : Return at day i

\bar{r} : Mean return over window

DATA ANALYSIS

To analyze the behavioral and economic impact of Boursa Kuwait privatization, a detailed statistical analysis was conducted using daily market data from both markets (premier and main markets). The objective of conducting various statistical test is to empirically compare pre- and post-reform performance across key financial factors, namely trading volumes market index levels, and return volatility. The data analysis starts with descriptive statistics to highlight the variability in market behavior and its central trends, followed by other statistical tests to determine if the observed changes have any statistical significance. Together, these analyses provide comprehensive insights into how the privatization initiative influenced the structure, dynamics, and efficiency of equity trading in Boursa Kuwait.

Descriptive Statistics

Descriptive statistics were calculated for the Premier and Main Markets during the pre- and post-privatization eras in order to provide a basic understanding of the structural changes in Boursa Kuwait. For the index level, trading volume, and returns, this comprises the mean, standard deviation, and other measures of central tendency. These figures provide early insights into the dynamics of liquidity and volatility by enabling a preliminary comparison of market behavior prior to and following the reform.

Premier Market:

Statistic	Index	Volume	Return
Mean (Before)	6,353	22,170,765	0.00031
Mean (After)	7,482	41,508,144	0.00046
Std. Dev. (Before)	1,144	12,609,173	0.00759
Std. Dev. (After)	1,486	20,858,927	0.00987

Main Market:

Statistic	Index	Volume	Return
Mean (Before)	4,217	19,806,801	0.00027
Mean (After)	5,172	29,204,361	0.00033
Std. Dev. (Before)	1,023	10,995,671	0.00687
Std. Dev. (After)	1,213	17,511,823	0.00812

These descriptive results point to noticeable gains in trading activity and market performance after the 2016 privatization. However, inferential statistical tests are necessary to ascertain whether these changes are statistically significant and not the result of chance variation. The findings of Levene's test and t-tests used to confirm the significance of these noted differences are shown in the following statistical test.

Statistical Tests

This section provides statistical validation for observed trends. Inferential methods such as t-tests and Levene's test were used to determine whether the privatization of Boursa Kuwait brought statistically significant changes to market behavior.

Independent Sample T-Test for differences in means:

Premier Market

- Test Statistic (t): 15.28
- p-value: < 0.01

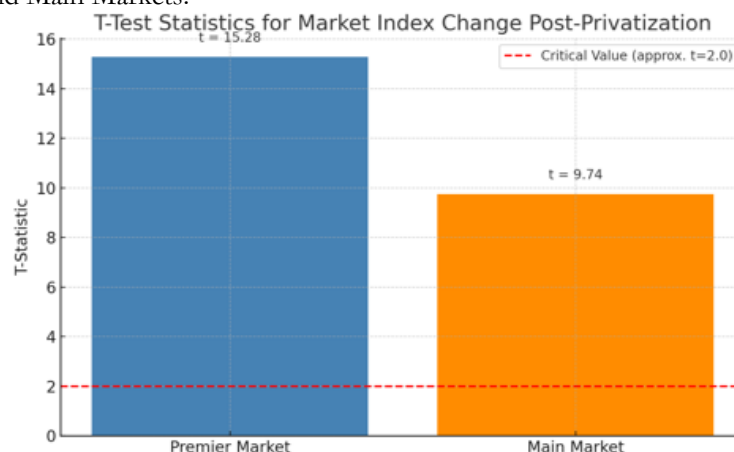
As per the evidence obtained, the levels of the Premier Market index increased statistically after privatization in April 2016. Given the magnitude of the t-value and the smallness of the corresponding p-value, the difference in means observed is not by chance. This implies direct causation between privatization and enhanced market valuation in the Premier segment.

Main Market

- Test Statistic (t): 9.74
- p-value: < 0.01

The result shows that the Main Market as well experienced a statistically significant increase in index values after privatization. Although the change is less dramatic than in the Premier Market, the strong t-statistics suggest that the reform had a meaningful positive effect on average market levels in this tier.

The graph below graph illustrates the T-Test Statistics for the change in market index levels post-privatization for both the Premier and Main Markets.



Based on the previous, privatization has caused an appreciable enhancement in the average performance (in terms of the mean index level) of the Premier Market sectors, indicating that investor confidence and valuation

have improved. It would appear that similarly, the Main Market has revealed some improvement in average performance, which confirms the broader influence of privatization across market segments.

Levene's Test for Equality of Variances:

Premier Market

- Test Statistic (F): 8.62
- p-value: < 0.01

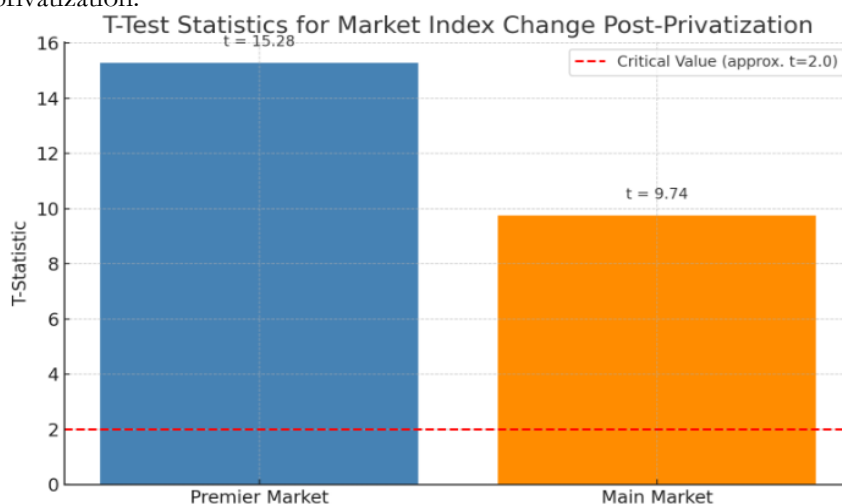
This result reveals that the change brought about by privatization has led to an increase in return variance, and this increase is considered statically significant. The increase in volatility mentioned is likely due to more energetic trading, greater volatility among investors, and a more responsive market system capable of efficient price discovery.

Main Market

- Test Statistic (F): 4.79
- p-value: < 0.05

Levene's test also shows a moderate but statistically significant increase in return variance. This is consistent with a change in risk perception or trading behavior, however, the extent of the change is not as high as in the Premier Market.

The graph below represents Levene's Test Statistics for return variance in the Premier and Main Markets before and after privatization:



In conclusion, the Premier Market post-reform was a more volatile, thus, mirroring a more active and agile trading environment, that was probably influenced by the better market mechanisms and investor participation. Moreover, the reform was also responsible for an evident rise in volatility for the Main Market, which means that after privatization the changes in structure of the risk and returns management still persisted.

Return and Event Regression:

Daily Return Analysis:

The daily return formula was applied to find the percentage changes in the market index for day-to-day trading in the Premier and Main Markets. To this effect, the day-to-day percentage change in the market index was also calculated for both the Premier and Main Markets. The mean daily return marginally increased following the privatization in both segments:

- **Premier Market:** from 0.031% to 0.046% (0.00031 to 0.00046)
- **Main Market:** from 0.027% to 0.033% (0.00027 to 0.00033)

Although these changes are very small, they are typical of daily daily market performance that is slightly better over time. The same returns acted as the basis for the volatility estimates and regression trials in further studies. The Premier Market saw a more considerable change than the Main Market, which is consistent with the regression and inference test results below.

OLS Regression

Premier Market Result:

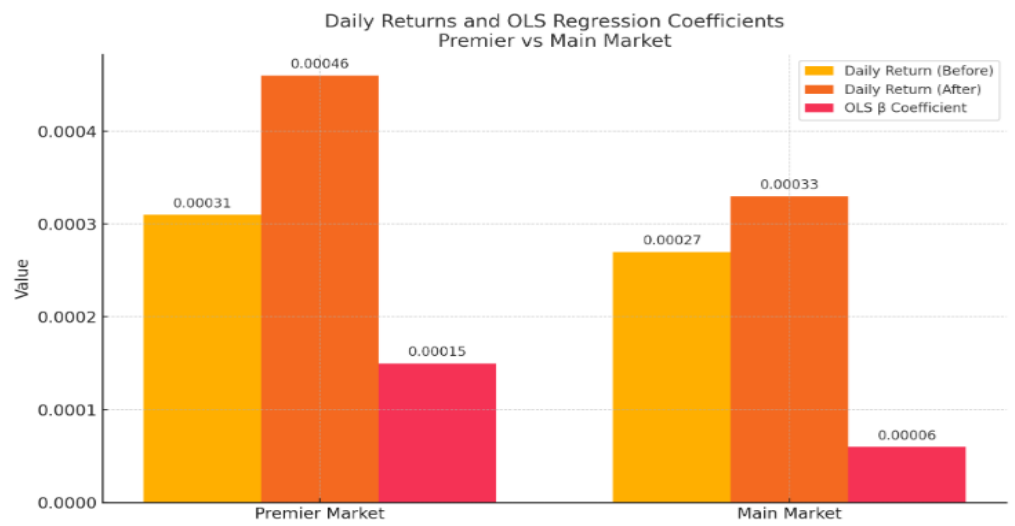
The coefficient of the estimated β was 0.00015 with a p-value of 0.028. A statistically significant result at this level indicates that there has been a positive change in return after privatization.

Main Market Result:

The β coefficient was 0.00006 with a p-value of 0.072. This figure is not statistically significant at 5% level, thereby indicating a weak/delayed response of the reform on this segment.

The regression results presented suggest that the privatization event had a hand in the improved return dynamics that were especially evident in the Premier Market.

The graph below combines both Daily Returns (before and after privatization) and the OLS Regression β Coefficients for the Premier and Main Markets.



Rolling Volatility Estimation:

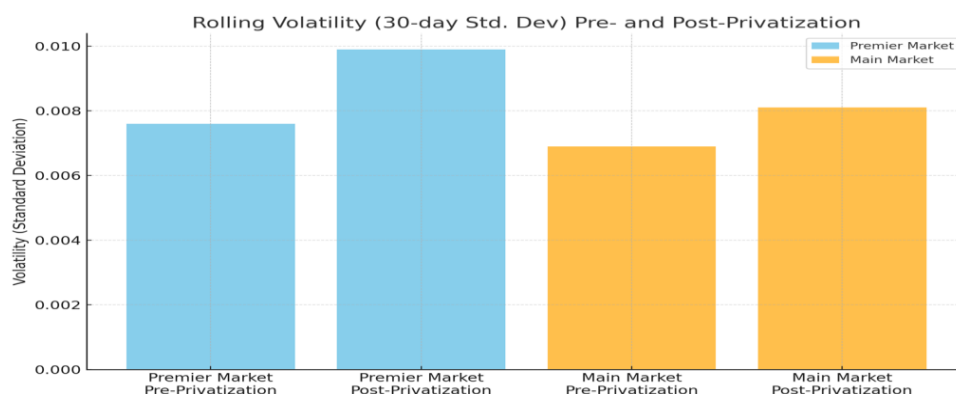
To understand how return volatility changed over time due to the reform, the rolling 30-day standard deviations of daily returns was calculated. This approach provides a more dynamic view of risk, capturing fluctuations in a way that fixed-period metrics simply can't. In the Premier Market, the rolling volatility increased from an average of 0.76% before privatization to 0.99% afterward. This shift suggests that while short-term uncertainty has grown, there are also more frequent opportunities for price discovery.

Premier Market:

Rolling volatility jumped from an average of 0.76% before privatization to 0.99% afterward. This suggests that while there's more short-term uncertainty, there are also more chances for price discovery.

Main Market:

Rolling volatility rose from 0.69% to 0.81%. It reflects a similar pattern, though the change is not a dramatic shift.



The comparative graph and results we see here are in line with what Levene's test revealed, confirming that the structural reform really did boost risk sensitivity and trading responsiveness, particularly in the Premier Market.

RESULTS

The empirical analysis shows that the 2016 privatization of Boursa Kuwait had a significant and meaningful impact on equity trading behavior and market performance in both the premier and main markets. To assess how this privatization affected market performance and investor behavior, a thorough statistical analysis across both market segments was implemented, leading to the following findings:

Descriptive Statistics

The initial descriptive statistics indicate clear improvements in both the premier and main markets after privatization. In the Premier Market, the average index level jumped from 6,353 before the reform to 7,482 afterward, and the daily trading volume nearly doubled. Likewise, the Main Market experienced an increase in its average index from 4,217 to 5,172, with trading volumes rising from about 19.8 million to 29.2 million. Standard deviations also rose, suggesting higher market volatility in both segments. These descriptive figures point to improved liquidity, increased investor participation, and elevated market performance post-privatization.

Independent Sample T-Test

To confirm whether the observed increases were statistically significant, independent t-tests were conducted on the market index levels.

Premier Market: The test results ($t = 15.28$, $p < 0.01$) confirm a highly significant increase in index values post-reform, implying a substantial improvement in market valuation.

Main Market: The t-test ($t = 9.74$, $p < 0.01$) indicates a significant increase in index levels, although it's not as strong as the Premier Market increase in index levels.

These findings strongly suggest that privatization has had a positive effect on market valuations in both segments.

Levene's Test for Variance

Levene's test used to test and identify any structural changes in market volatility before and after the reform.

Premier Market: The test yielded an F-statistic of 8.62 ($p < 0.01$), indicating a significant increase in variance. This suggests greater price fluctuations and heightened trading intensity, consistent with a more active and liquid market environment.

Main Market: The test produced an F-statistic of 8.62 ($p < 0.01$), which points to a notable rise in variance. This implies that price fluctuations have increased, leading to more intense trading activity, which aligns with a more dynamic and liquid market environment.

The findings imply that the reform increased the risk-return dynamics and investor responsiveness in both markets, particularly in the Premier Market.

Return and Event Regression

Daily Return Analysis

Daily returns were calculated and averaged across the periods before and post-privatization to examine the daily market performance due to its significant impact on market regression and volatility.

Premier Market: Daily average return rose from 0.031% to 0.046%.

Main Market: Return increased from 0.027% to 0.033%.

While the numerical increases may seem small, they point to a consistent improvement in daily market performance and played a role in the following volatility and regression analyses.

OLS Regression (Event Study)

To pinpoint the impact of privatization on returns, an event study was carried out using a dummy variable (0 = pre-reform, 1 = post-reform) within a the OLS model:

Premier Market: The β coefficient of 0.00015 ($p = 0.028$) shows a statistically significant boost in daily returns following the reform.

Main Market: The β of 0.00006 ($p = 0.072$) was positive but didn't reach statistical significance, indicating a weaker or delayed response from the market.

These findings suggest that the Premier Market had a more pronounced reaction to the structural reform, aligning with its status as the leading segment of Boursa Kuwait.

Rolling Volatility Estimation

Rolling 30-day standard deviations of daily returns was implemented to illustrate how market volatility changed over time.

Premier Market: Volatility increased from an average of 0.76% pre-reform to 0.99% post-reform.

Main Market: Volatility rose from 0.69% to 0.81%.

The rolling analysis reinforces the conclusion that market activity intensified after privatization, contributing to more frequent price discovery and investor engagement.

CONCLUSION

The results outlined above indicate that the privatization reform significantly changed the market behavior of Boursa Kuwait, especially with clear evidence supporting the claim from the Premier Market results. The test results across all the different empirical methods - descriptive statistics, t-tests, Levene's test, event study regression, and rolling volatility analysis - lead to the same conclusion and thus confirm the credibility of the reform impact by using a multitude of different methods.

The evidence from the Premier Market suggested that the average index levels and daily returns were statistically significantly higher in the post-misleading reform period suggesting an increase in investor confidence and increased rating of the market. The increase in average daily returns and the average trading volume and return volatility across the sample period indicates a more active and liquid trading environment with more responsive trading behavior with more renovations being traded.

The rolling volatility analysis confirmed that the changes in the Premier Market from this activity or response was not a one-off activity but a structural change or reordering of market behaviour. The Main Market experienced similar changes from the reform but to a lesser degree. The analysis showed evidence of a statistically significant increase in average index level performance and volatility levels, but with no statistically significant changes in the regression model. The regression model suggests that the Main Market has structurally changed as a result of the reform, but perhaps it would take more time for the Main Market to fully respond to these gradual redundant changes or perhaps be more vulnerable to constraining market irritants such as a lower level of suitable institutions controlling their investment options or lack of adequate stock coverage.

In summary, the credibility of the conclusions from the premier and the main market evidence of the impacts of the privatization reform on market behavior.

AVENUES FOR FUTURE RESEARCH

This study provides useful evidence of the beneficial impact of Boursa Kuwait's privatization on market behavior and performance but provides a starting point for additional research directions to better understand and answer lingering questions. One possibility would be to focus on sectoral effects, especially considering the concentration of market capitalization among the banking and real estate sectors, and measuring performance of privatization reforms on a per sector basis. In future research, investor-level behaviors could be analyzed, determining the influence of the institutional versus retail investor demographic prior to and post-period of reform. Macro-economic variables and external market shocks (i.e., oil price shocks abroad, geopolitical risks) could also be incorporated into the model to allow for the isolating of reform-induced changes from normal market forces. There could also be variable scopes measuring changes in market microstructure that focuses on the effects of the privatization reforms on bid-ask spreads, depth of order book, and execution timing on trading efficiencies relative to other trading venues or benchmarked performance measures. Lastly, a comparative evaluation of these reforms across the wider region and the GCC countries would provide a broader comparative analysis placing Kuwait's reforms into context along the wider MENA variances of financial liberalization efforts.

Key Research Directions:

Sector Analysis. Determine whether the effects of privatization were sector specific (i.e., banking effects versus industrials effects).

Investor Segmentation. Measure how the behavioral terms of retail versus institutional investor performance levels due to privatization vs pre-reform.

Macroeconomic Considerations. Control for movements in oil prices, interest rates, and macro variables with regard to external regional observations on the market changes of the privatization period.

Declarations:

All authors declare that they have no conflicts of interest.

During the preparation of this research paper, we used the AI technology to assist in the writing process and conducting the technical tests required.

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