
# The Effect of Ownership Structure on Financial Performance of Bangladeshi Listed Pharmaceutical Companies

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**Abstract**

The objective of this study is to examine the effect of ownership structure on the financial performance of Bangladeshi listed pharmaceutical companies over 14-year from 2007 to 2020. Ownership structure is represented by ownership concentration and institutional shareholdings, while ROA, ROE, and Tobin's Q (TOBIN'S Q) are used as proxies of financial performance. Employing a fixed and random effect regression model, this paper examines the association of ownership structure with firms' financial performance. Based on accounting performance measures (ROA and ROE), this study finds that institutional shareholdings have significant positive impacts on firms' financial performance. In the case of the market performance measure (Tobin's Q), ownership structure has no significant relationship with firm financial performance. In an emerging market like Bangladesh, this study will add value to prevailing knowledge on ownership structure and firm performance. Thus, investors should be prudent in choosing firms with a concentration of founding families. Rather, they should prefer firms with institutional ownership.

Keywords: Ownership structure, Ownership concentration, Institutional shareholdings, Firm performance, Bangladesh.

## 1.0 Introduction

Since the 1990s, corporate governance (CG) has become a dominant research field connected with the financial crises and a series of corporate collapses in diverse parts of developed and developing countries (Saidat, 2018; Johnson, Boone, Breach, and Friedman, 2000). Lack of sound CG has been identified as a major cause of the global financial crisis, such as in Enron, a US-based energy, commodities, and services company; WorldCom, a US-based telecommunications company; Lehman Brothers Holdings Inc., a US-based global financial service firm (Beker, 2021); A Portuguese bank named Banco Espirito Santo (BES), which is based in Lisbon, failed in 2014 (Gomes, 2017); and Dick Smith Holdings Limited, an Australian retail store collapsed in 2016 (UKEssays, 2018). Unless there are various corporate failures or scandals, CG is not even regarded as a significant issue in many countries, except the United States and some European countries (Kao, Hodgkinson, and Jaafar, 2019). The concept of CG in the subcontinent came into focus only after the Asian financial crisis happened due to the poor performance of companies in the subcontinent (Berglof & Von Thadden, 1999). The ownership structure is considered a very important CG mechanism in corporations. Many research studies in developed economies use ownership structure as a clarifying variable of CG to evaluate its impact on performance, such as Paniagua, Rivelles and Sapena (2018), Ducassy and Montandrau (2015), and Mangena, Tauringana and Chamisa (2012). A firm's ownership structure consists of investors, international corporations, financial institutions, mutual funds, sponsor directors, and so on. This influence of ownership configuration on firm performance can be described using agency theory (Ahmed & Hadi, 2017). They also stated that agency problems can affect a firm's performance. Bangladesh is an emerging market in the world with accelerating economic development. The Last two decades in the country have seen considerable progress in CG indicators. Although global CG indicators and best practices indicate that good CG should remain a top priority to develop an understanding of the corporate sector. But reality and events, concern about the state of CG in Bangladesh and are not regarded as good enough, even though CG is a prerequisite for sustainable growth and the smooth functioning of corporate entities, capital markets, and the economy. This paper aims to investigate whether there is any association between ownership structure and the performance of pharmaceutical companies that are listed in the Dhaka Stock Exchange, Bangladesh. This work of research will be able to give a very close watch on the context of Bangladesh because ownership concentration in pharmaceutical companies in Bangladesh is a common phenomenon. Most of the top management positions are held by them. That is why knowledge of the concentration of ownership structures and their impact on firm performance is essential. This paper will also help in defining the magnitude and success of CG practices in the country.

## 2.0 Statement of the problem and justification

In the business world, CG has become a growing issue of organizational management for a company's sustainable financial performance and growth, and it has contributed to making it the main business discipline in the management of corporations (Farhat, 2014). The connection between CG tools and performance was an unresolved and undecided issue of academic debate, and whether CG has any weight on a company's financial performance is a concern in the literature (Maher & Andersson, 2002). Kajola (2008) argues that the financial scandals worldwide and the recent capital markets collapse of giant corporations in the United States, Southeast Asia, Europe, Nigeria, and even around the world have shaken investor confidence and encouraged transparency and accountability in existing CG practices. Even the capital market of Bangladesh has had two major crashes to mention, one in 1996 and the other in 2011, which in turn created some bad effects on the total capital market of the country. This disaster is believed to have occurred due to the greed of some influential corporate houses and a few other market participants (Islam & Ahmed, 2015).

The present study considers the pharmaceutical sector for some reasons. Pharmaceutical products are essential for all countries worldwide (Chowdhury, 2014). Bangladesh's pharmaceutical sector is greatly developed worldwide and is still contributing ominously to the growth of the economy. Since the declaration of the Drug Control Ordinance in 1982, the growth of this industry has been evident (Rahman, 2012). The growing trend of the Bangladesh economy

gets the attention of developed nations as it has been maintaining high economic growth for the last couple of years, touching a magnitude of 8.2 percent in 2019 (World Bank Report, 2019), the highest in the history of the economy of Bangladesh. The collapses of some manufacturing companies, such as Hall Mark, Bismillah Group, Modern Food Ltd., and Adamjee Jute Mills Ltd., have raised a big question about the financial status of the manufacturing firms in Bangladesh and reduced the confidence of investors (Rashid, 2017).

Numerous studies have shown that inadequate governance methods, excessive executive pay, lax accountability, bad earnings management, dishonest asset revaluation, and creative accounting have all contributed to poor corporate performance. Following a string of corporate crises, the majority of CG literature is now available in industrialized nations, including the US, UK, Australia, Germany, and Japan. There is a dearth of literature on the above in the pharmaceutical industry, using the Bangladesh setting. Given the uniqueness of the Bangladeshi corporate environment and the limitations of previous studies, this study aims to fill some key gaps in the corporate governance literature in the Bangladeshi context. Finally, the motive of this study is to determine and understand how Bangladeshi pharmaceutical companies' financial performance is impacted by their ownership structure.

## 3.0 Objectives of the study

This study aims to observe whether any correlation exists between ownership structure and firms' financial performance using panel data from DSE listed pharmaceutical corporations in Bangladesh. The objectives include:

a. explore the impact of ownership concentration on the financial performance of DSE-listed pharmaceutical companies in Bangladesh;

b. explore the impact of institutional shareholdings on the financial performance of DSE-listed pharmaceutical companies in Bangladesh.

## 4.0 Literature review and hypothesis development

One of the most significant philosophies of the modern corporation is that control is separate from ownership (Yan, 2000). The ownership structure mirrors the choices made by those who currently or in the future own shares (Lauterbach & Vaninsky, 1999). Modern corporations should be managed by professional executives who own a small fraction of the shares. The current study examines the influence of ownership structure on financial performance by using 126-panel data based on DSE-listed pharmaceutical companies over the period 2007–2020. Investors, international organizations, financial institutions, block-holders, mutual funds, family memberships, and managers construct a company's ownership (Piesse, Filatotchev, and Lien, 2007). It is typically assumed that ownership structure represents a form of governance linked to conflicts of interest between owners as principals and managers as agents, which has an impact on the effectiveness of the organization (Fama and Jensen, 1983; Claessens et al., 2000). There should be no methodical liaison between variations in ownership structure and the same in company performance, regardless of whether the ownership structure is concentrated or dispersed (Lauterbach & Vaninsky, 1999). When a company's ownership is scattered among many non-controlling shareholders, those shareholders are less able to influence how the company is run by individuals who have actual control over the company's operations (Lima & Hossain, 2018). Agency theory is employed to demonstrate how ownership structure affects a firm's performance (Ahmed & Hadi, 2017). According to agency theory, shareholders with slight stakes in firms are unable to properly oversee managerial activity. The ownership structure in particular is a motivating factor that minimizes the agency costs connected to split ownership and management, which can further preserve the firm's property rights (Barbosa & Louri, 2002).

However, it is anticipated that stronger monitoring functions will result from a higher concentration of ownership and increase firm performance (Kao, Hodgkinson, and Jaafar, 2018). The majority and minority shareholders may, however, have competing interests as a result of increasingly concentrated ownership (Din, Khan, Khan, and Khan, 2021). According to Ahmed and Hadi (2017), agency problems can have a bearing on a company's performance and can be caused by a variety of internal and external factors. The board of directors, concentrated rights, CEO duality, size of the audit committee, and executive compensation are examples of internal controls.

### 4.1. Ownership Concentration and firm financial performance

Ownership concentration (OWNCON) refers to an internal governance system that can influence and control management to guard the safety of owners (Madhani, 2016). The substantial rise of INSS has led to the creation of a large and dominant constituency that plays an important role in CG (Hasan, Hossain and Rahman, 2014). It is an internal CG mechanism that empowers dominant shareholders to participate in the corporate board to improve their observing ability and reduce agency conflicts (Jensen & Mackling, 1976). OWNCON is one of the key elements that can minimize the severity of various agency problems (Saidat, 2018). Increasing ownership equity encourages managers to monitor and control shareholders, increasing the focus on growing financial income (Holderness, 2003). However, when a corporation's ownership is concentrated, its largest shareholders will be crucial to overseeing its administration (Zhuang, 1999). Concentrated ownership can lessen conflicts of interest between managers and shareholders because giant shareholders are better able to keep an eye on management (Shleifer and Vishny, 1986). However, the power enjoyed by these majority shareholders can deteriorate the interests of other shareholders. The excessive use of force by controlling shareholders to benefit themselves may be costly to smaller shareholders (Shleifer and Vishny, 1997). The results of numerous studies looking for a link between ownership and performance are conflicting. In Jordan, industrial and service enterprises discovered a favorable link between managerial ownership and financial performance (Marashdeh, 2014).

Several authors have found an affirmative correlation between ownership concentration and financial performance, such as Kao, Hodgkinson, and Jaafar (2019), Maniruzzaman and Hossain (2019), Saidat (2018), Ducassy and Montandrau (2015), Gaur, Bathula, and Singh (2015), and Leung and Cheng (2013). A negative relationship was evident in some previous studies, like Wang and Shailer (2015), Haniffa and Hudaib (2006), Mak and Kusnadi (2005), and Cronqvist and Nilsson (2003). Besides, some empirical research found no evidence of a relation between ownership concentration and firm financial performance, namely Hasan, Rahman, and Hossain (2014), Phung and Hoang (2013), and Alimehmeti and Paletta (2012). In the context of Bangladesh, Hossain and Rahman (2013) conducted a study and stated, firms in Bangladesh have concentrated ownership and are organized by large shareholder groups like corporate groups or the government. Highly concentrated management ownership reduces agency conflicts, which enhances firm performance for Bangladeshi companies, claim Lima and Hossain (2018).

The following hypothesis is developed from the above literature review discussion:

H1: There is an association between ownership concentration and the firms' financial performance.

### 4.2. Institutional shareholdings and firms' financial performance

The primary obligation of corporate managers is to maximize firm performance and shareholders' wealth (Jahid, Rashid, Hossain, Haryono, and Jatmiko, 2020). Institutional shareholdings (INSS) is one of the crucial outside CG processes that influences firm's performance (Saidat, 2018) even though institutions have a variety of investment objectives and decision-making chances, and the capacity for detecting manager manipulation and enhance firm performance (Shleifer and Vishny, 1997). Shares of a company owned by institutional investors with fiduciary responsibilities like banks, mutual funds, insurance corporations, and pension funds, are referred to as institutional ownership (Hamdan & Al-Sartawi, 2013). Additionally, they also claimed that institutional investors are more inclined than individual investors to choose stocks of well-governed corporations because they require less oversight, have higher stock market liquidity, and perform fiduciary duties more effectively. Bebchuck and Fried (2003) argued, from a viewpoint of agency theory, as the equity owners, institutional shareholders have shifted themselves from bearing the cause of agency problem to have the solution. The belief is that, they belong to the best position to keep an eye on manager behavior and align corporate goals with shareholders. According to the standpoint of resource dependence theory, institutional investors have a favorable impact on company performance (Arouri, Hossain, and Muttakin, 2014).Bushee, Carter, and Gerakos (2014), observed that institutional investors play a key role in promoting good CG. Studies by Lin and Fu (2017), Tahir (2015), Misangyi

and Acharya (2014), Susanti and Mildawati (2014), and Kao, Hodgkinson, and Jaafar, (2019) all studied the relationship between institutional shareholdings and firms' performance and discovered an affirmative relationship. According to the research done by Din, Khan, Khan, and Khan in 2021, institutional ownership has a significant positive impact on ROE and MBR, suggesting that institutional investors have had a significant impact on the financial performance of manufacturing companies listed on the Pakistan Stock Exchange (PSX) from 2003 to 2012.

Further studies exposed that INSS had a favorable weight on a variety of performance indicators, including Cornett et al. (2007), who found ROA to influence; Chen, Blenman, and Chen (2008), who found ROE, Al-Amarneh (2014), who found ROA and operating efficiency ratio. Additionally, several empirical studies indicated an adverse relationship between firm financial performance and institutional shareholdings (Fazlzadeh, Hendi, and Mahboubi, 2011; Mura, 2007). Last but not the least, studies by Cronqvist and Nilsson (2003), and Duggal and Millar (1999) do not discover a substantial affiliation amid institutional shareholdings and firms' financial performance.

The following hypothesis is developed from the above literature review discussion:

H2: There is an association between institutional shareholdings and firm financial performance.

## 5.0 Research design and methodology

To find out the link between ownership structure and financial performance for Bangladeshi pharmaceutical companies in DSE, this section covers data sources, company selection, the development of the empirical model, and estimation tests. The study has set a period of fourteen years, bridging from 2007 to 2020, taking into account data availability and firm listing years. Nine (9) companies are chosen from a group of 15 based on the DSE listing age and availability data. These nine companies became listed with the DSE before the promulgation of CG guidelines in 2006. The study was carried out by the researcher using secondary data. The DSE and BSEC websites and publications, the websites of the sample companies, the audited yearly reports of the sample companies, and the DSE handbook of listed companies have all been used to gather data on CG instruments and firms' financial performance. The financial statements of the companies have been examined to obtain Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q in order to analyze the firms' financial performance. Financial statements and other sources have been used to get information on ownership structures. The ratio analysis method was used to evaluate the financial performance of the sample companies. IBM Statistical Package for Social Sciences (SPSS) version 20 software, Stata MP 13 (64-bit), and MS Excel 2013 were used to analyze the derived data. The study has used both descriptive and inferential statistical approaches. The study has used inferential statistics, including tests of normality, multi-collinearity, correlation matrix, cross-sectional dependence test, slope heterogeneity, and unit root test, to test the validity of the statements about the population parameters. The study has also used multiple linear regressions, namely OLS regression, fixed effect model, and random effect model to analyze the relationships between ownership structure (ownership concentration, institutional shareholding) and financial performance measured by ROA, ROE, and Tobin's Q of listed pharmaceutical companies in Bangladesh. The study also employed the Hausman test for defining whether a fixed effect model or a random effect model was the best estimating technique.

## 6.0 Variables construction and explanation

Three sets of variables have been considered for the research study. Those are dependent, independent, and control variables.

### 6.1 Variables construction

**6.1.1 Dependent Variables:** This research examined how ownership structure affects the firm's performance from two perspectives such as accounting performance and market performance. As indicators of accounting-based financial performance, return on assets (ROA) and return on equity (ROE) are utilized. In contrast, Tobin's Q is regarded as a gauge of market-based financial performance.

**6.1.2 Independent Variables:** One of the most vital and frequently highlighted characteristics of corporate governance is ownership structure. This analysis employs institutional shareholding and

ownership concentration as two types of ownership structures based on the readily available data for the sample pharmaceutical companies.

**6.1.3 Control Variables:** To ascertain the exact effect of ownership structure on company performance, numerous control variables, including firm age, firm size, and financial leverage, were also employed in this study in addition to the ownership structure variables.

**Table - 1: Variables explanation**

| Variables | Indicators | Measure |
|---|---|---|
| Independent Variables | Ownership Concentration (OWNCON) | The portion of common stock held by sponsor directors. |
| | Institutional Shareholdings (INSS) | The portion of the equity shares held by the financial institutions. |
| Control Variables | Firm Size (FSIZE) | The natural logarithm of total asset |
| | Firm Age (FAGE) | The natural logarithm of the number of years since the firm was listed. |
| | Financial Leverage (FLEV) | Total liabilities to shareholder equity. |
| Dependent Variables | Return on Assets (ROA) | ROA is calculated as net operating income divided by average total assets of the company. |
| | Return on Equity (ROE) | ROE is calculated as net operating income divided by average shareholders' equity of the company. |
| | Tobin's Q | Tobin's Q is obtained by dividing equity market value by equity book value (Hayes, 2021; Ali, Mahmud, and Lima, 2016). |

## 7.0 Empirical model and estimation techniques

**Model 1**: $\mathrm{ROA}_{it} = \alpha + \beta_1 \mathrm{OWNCON}_{it} + \beta_2 \mathrm{INSS}_{it} + \beta_3 \mathrm{FSIZE}_{it} + \beta_4 \mathrm{FAGE}_{it} + \beta_5 \mathrm{FLEV}_{it} + \varepsilon_{it}$

**Model 2:** $\mathrm{ROE}_{it} = \alpha + \beta_1 \mathrm{OWNCON}_{it} + \beta_2 \mathrm{INSS}_{it} + \beta_3 \mathrm{FSIZE}_{it} + \beta_4 \mathrm{FAGE}_{it} + \beta_5 \mathrm{FLEV}_{it} + \varepsilon_{it}$

**Model 3:** $\mathrm{TOBIN'S\ Q}_{it} = \alpha + \beta_1 \mathrm{OWNCON}_{it} + \beta_2 \mathrm{INSS}_{it} + \beta_3 \mathrm{FSIZE}_{it} + \beta_4 \mathrm{FAGE}_{it} + \beta_5 \mathrm{FLEV}_{it} + \varepsilon_{it}$

Where,

ROA is equal to Return on Asset, ROE equal to Return on Equity, OWNCON is equal to Ownership concentration, INSS equal to Institutional shareholding, FSIZE is equal to Firm size, FAGE is equal to Firm age, FLEV is equal to Financial Leverage, β1, β2, β3, β4, β5, are the coefficients, i represents the number of companies, t shows time, α represent a constant, and ε is the error term.

## 8.0 Empirical Results and Analysis

### 8.1 Descriptive Statistics

The mean and median OWNCON are 42.81% and 47.43%, respectively, according to descriptive data table 2, and the standard deviation is 13.98. The table also displays that the largest and smallest levels of OWNCON are, respectively, 66.31% and 10.91%. The mean OWNCON of British, Czech, and Polish businesses is 5%, 41%, and 21%, respectively, according to Lskavyan and Spatareanu (2008). According to Bloom and Van Reenen's (2007) report, only 10% of the sample companies, in the case of US-listed companies, have ownership concentration. Additionally, a comparison of current descriptive statistics with prior literature reveals that Bangladesh has a higher average OWNCON in pharmaceutical companies than advanced economies. The high level of OWNCON demonstrates that a few large shareholders control management, and there is no competition for control (Claessens et al., 2000).

The descriptive statistics also expose that the mean and median of INSS are 16.52% and 14.74%, sequentially, and the standard deviation is 9.36. The maximum and minimum INSS are 37.79% and 2.86 %, sequentially. According to descriptive statistics on INSS in companies, these INSS ratios are lower than those in other countries, meaning that institutional investors are less prevalent overall and have less impact on companies.

**Table 2: Summary of descriptive statistics**

| | OWNCON (%) | INSS (%) | FSIZE (Million) | FAGE (No. of years) | FLEV (Ratio) | ROA (%) | ROE (%) | Tobin's Q (Ratio) |
|---|---|---|---|---|---|---|---|---|
| Mean | 42.81 | 16.51 | 11054.67 | 25.94 | 1.553 | 09.51 | 16.11 | 4.942 |
| Median | 47.43 | 14.74 | 2894.70 | 25 | .932 | 09.82 | 15.80 | 4.085 |
| S. D | 13.98 | 9.36 | 15245.59 | 7.693 | 1.644 | .0577 | .0949 | 4.748 |
| Skewness | -.685 | .585 | 1.757 | .223 | 1.657 | .142 | .825 | 2.193 |
| Kurtosis | .188 | -.485 | 3.012 | -.571 | 1.829 | -.640 | 2.073 | 6.008 |
| Minimum | 10.91 | 2.86 | 69.72 | 11 | .0600 | 0.09 | 0.22 | .130 |
| Maximum | 66.31 | 37.79 | 74350.8 | 44 | 6.454 | 24.13 | 53.10 | 27.03 |

**Source:** Researcher's calculations

### 8.2 Correlation Matrix

According to the correlation matrix table, ROA and ROE do not significantly affect Tobin's Q at 1% significance levels, but firm size does. Firm age shows substantial affirmative correlations with ROE at a 5% significance level, but ROA and Tobin's Q have no significant association. It is expected that corporate managers ought to set the capital structure in a way that could reduce the cost of capital and thus exploit firm performance (Dey, Hossain, and Rahman, 2018). However, it is observed that financial leverage has no significant effects on ROA and ROE but has a substantial affirmative link with Tobin's Q at a 1% significance level. OWNCON positively correlates with Tobin's Q at 1% significance levels and OWNCON has an insignificant relationship with ROA and ROE. At the same time, INSS has no significant association with Tobin's Q but a substantial positive relationship with ROA and ROE at a 5% significance level.

**Table - 3: Correlation Matrix**

| | ROA | ROE | Tobin's Q | FSIZE | FAGE | FLEV | OWNCON | INSS |
|---|---|---|---|---|---|---|---|---|
| ROA | 1.00 | | | | | | | |
| ROE | 0.83*** | 1.00 | | | | | | |
| Tobin's Q | 0.059 | 0.26*** | 1.00 | | | | | |
| FSIZE | 0.068 | -0.15* | -0.48*** | 1.00 | | | | |
| FAGE | 0.16* | 0.17* | 0.021 | 0.31*** | 1.00 | | | |
| FLEV | -0.33*** | -0.0091 | 0.65*** | -0.51*** | -0.030 | 1.00 | | |
| OWNCON | 0.055 | 0.19** | 0.42*** | -0.40*** | -0.21** | 0.45*** | 1.00 | |
| INSS | 0.0619 | 0.101 | -0.14 | 0.25*** | 0.22** | -0.015 | -0.13 | 1.00 |

**Source:** Researcher's calculations

### 8.3 Tests of normality

Skewness and kurtosis values must be less than the absolute value of 2.0 to satisfy the statistical presupposition of normality. It is presumed that a continuous distribution is non-normal if either the skewness or kurtosis statistic is greater than 2.0 in absolute value (George & Mallery, 2010). Based on the aforementioned descriptive statistics (Table-2), the data presented are distributed normally in terms of standard skewness and kurtosis.

### 8.4 Multicollinearity test

Results of the econometric model for ROA, ROE, and Tobin's Q concerning independent variables are free from multi-collinearity and the data are also reliable, as shown in Table 4 where the VIF value for each of the independent values is less than 10 and greater than 1, and the tolerance level is over 0.1.

The relationships among the explanatory variables are also displayed in a correlation matrix table. Table-3 shows that the independent variables are not very correlated, as all coefficients are less than 0.6. Thus, no multi-collinearity problems are found among the independent variables.

**Table - 4: Collinearity statistics**

| Independent variable | VIF | Tolerance (1/ VIF) |
|---|---|---|
| OWNCON | 2.470 | .405 |
| INSS | 1.724 | .580 |
| FSIZE | 3.090 | .324 |
| FAGE | 2.645 | .378 |
| FLEV | 2.819 | .355 |
| Mean VIF | 2.64 | |

**Source:** Researcher's calculations

### 8.5 Cross-sectional dependence (CD) test, CIPS unit root test

The study first tested cross-sectional independence for each variable before determining stationarity. The study employed the Pesaran CD test in the STATA software, which depends on Pesaran (2004). The test results of horizontal cross-sectional dependence for pharmaceutical companies listed on the DSE are displayed in Table 5 using Pesaran CD (2004). Null hypothesis of sectional independence, CD ~ N (0, 1) p values are almost close to nil. Cross-sectional dependence statistics, along with associated p-values, sturdily reject the null hypothesis for cross-section independence. The study indicates that cross-correlations are substantial, suggesting a cross-sectional correlation among the variables. It demonstrates that we made the right decision while selecting our estimation method. With the exception of ROE and INSS, the test result thus shows that cross-sectional dependence exists for the majority of model variables.

It is crucial to consider in data analysis whether a data series is stationary, meaning that it does not have a unit root, or not stationary, meaning that have a unit root. After estimating 2004 Pesaran's CD test, 2007 Pesaran's unit root test is employed. The results of the CIPS unit root test are displayed in Table -5. The CIPS unit root test findings clarify that the data series is not stationary at levels except ROA and ROE. All variables became stationary after the first differentiation.

**Table - 5: Results of CD and CIPS unit root test.**

| CD Test | | | CIPS Unit Root Test | |
|---|---|---|---|---|
| **Variable** | **Statistics** | **p-value** | **Level** | **1st Difference** |
| OWNCON | 2.09 | 0.036 | -1.473 | -2.648** |
| INSS | -0.84 | 0.402 | -1.068 | -3.187*** |
| FSIZE | 19.09 | 0.000 | -1.270 | -3.713*** |
| FAGE | 22.44 | 0.000 | -1.970 | -2.560** |
| FLEV | 2.60 | 0.009 | -1.816 | -3.446*** |
| ROA | -1.57 | 0.100 | -2.391** | |
| ROE | -0.70 | 0.486 | -2.512** | |
| Tobin's Q | 3.32 | 0.001 | -1.899 | -3.735*** |

**Source:** Researcher's calculations

### 8.6. Slope heterogeneity

In this work, researchers present slope heterogeneity studies over cross-sectional components that are intended to be similar to Pesaran and Yamagata's (2008) experiments. In terms of statistics, heterogeneity refers to variations in populations, data, surveys, samples, sample size, or results. The delta test is initially run in a cross-

sectional unit to see whether there is homogeneity or heterogeneity (Pesaran & Yamagata, 2008). The table-6 slope heterogeneity test results show that the delta p-value for model 1 is 0.0.015, which indicates $p < 0.05$. The null hypothesis (H0) is rejected. The alternative hypothesis (H1) is accepted. Consequently, this model allows for heterogeneous slopes. The table-6 slope heterogeneity test results show that the delta p-value for models 2 and 3 is 0.269 and 0.618, it indicates $p > 0.05$. As a result, the study accepts the null hypothesis (H0), and rejects the alternative hypothesis (H1). Hence, the panel data is homogeneous for models 2 and 3.

**Table 6: Results of slope heterogeneity test.**

| | Model-1 | | Model-2 | | Model-3 | |
|---|---|---|---|---|---|---|
| **Test** | **Test Stat.** | **p-value** | **Test Stat.** | **p-value** | **Test Stat.** | **p-value** |
| Delta | 2.442 | 0.015 | 1.106 | 0.269 | 0.499 | 0.618 |
| Delta adj. | 3.594 | 0.000 | 1.627 | 0.104 | 0.734 | 0.463 |

**Source:** Researcher's Calculations

### 8.7. Regression model results

The influence of ownership structure (ownership concentration and institutional shareholding) on financial performance tools, namely ROA, ROE, and Tobin's Q. is seen in the following Table 7. Looking at the Chi-square values of the Hausman test in Table-7, the probability values of chi-square statistics are bigger than 5% (P-value > 0.05), meaning that the study accepts the null hypothesis and rejects the alternative. Therefore, the random-effect model is preferable to the fixed-effect model based on the hypothesis results of the Hausman test, which are connected to ROA, and Tobin's Q. On the other side, looking at the Chi-square values of the Hausman test in Table-7 the value of the chi-square statistic is less than 5% (P-value < 0.05), which means that the study rejects the null hypothesis and accepts the alternative. Therefore, the fixed-effect model is more appropriate than the random-effect model, according to the hypothesis results of the Hausman test, which are related to ROE.

The study's findings based on accounting measures of ROA and ROE indicate a statistically significant negative correlation between ownership concentration and firms' financial performance at 1% significance level, and no significant correlation between ownership concentration and market measures (TOBIN'S Q). A negative association was noted in some earlier investigations, including those by Wang and Shailer (2015), Haniffa and Hudaib (2006), Cronqvist and Nilsson (2003) and Mak and Kusnadi (2005). On the other hand, some earlier research, including those by Maniruzzaman and Hossain (2019), Saidat, (2018), Ducassy and Montandrau (2015), Gaur, Bathula, and Singh (2015), and Leung and Cheng (2013), indicated a favorable relationship amid ownership concentration and financial performance. Prior to some empirical research, there was no evidence of a relationship between ownership concentration and firm financial performance, such as that of Phung and Hoang (2013), and Alimehmeti and Paletta (2012). According to Jensen and Meckling (1976), who based their argument on the agency theory, high concentration may simultaneously push key shareholders to put their comforts first since agency problems between shareholders and management may arise. The findings suggest that if ownership is split, company performance will rise. With a concentrated ownership structure, prominent shareholders have the capacity to make decisions that will benefit them but not the company.

On the other hand, this study revealed (see Table 7) that INSS has significant positive impacts on accounting-based measures (ROA and ROE) and insignificant effects on market performance (TOBIN'S Q). This positive correlation result is consistent with some prior studies, like Lin and Fu (2017), Tahir (2015), Misangyi and Acharya (2014), and Susanti and Mildawati (2014). Conversely, some prior studies revealed that there is no substantial relationship, such as Navissi and Naiker (2006) and Loderer and Martin (1997). The research results support the idea that INSS is essential for plummeting agency conflicts between managers and shareholders. Results show that institutional shareholders can use their controlling rights to improve the performance of companies.

Firm size has a significant negative impact on financial performance as assessed by ROA, ROE, and Tobin's Q with regard to the control variable of DSE-listed Bangladeshi pharmaceutical companies. On the other hand, the age of the firm and financial leverage have significant impacts on financial performance (ROE and Tobin's Q.)

but an insignificant impact on performance measured by the ROA of DSE-listed pharmaceutical companies in Bangladesh. So firm age and financial leverage are the most vital control variables that help estimate corporate governance's consequences on firms' financial performance.

**Table 7: Regression model results**

| | Model-1(ROA) | Model-2 (ROE) | Model-3(Tobin's Q) |
|---|---|---|---|
| | **Random-effect** | **Fixed-effect** | **Random-effect** |
| OWNCON | -1.535*** | -0.983*** | -0.343 |
| | (0.000) | (0.003) | (0.258) |
| INSS | 2.208*** | 1.784*** | -0.222 |
| | (0.006) | (0.008) | (0.729) |
| FSIZE | -0.537*** | -0.696*** | -0.249** |
| | (0.000) | (0.000) | (0.019) |
| FAGE | -0.054 | 1.175*** | 0.506** |
| | (0.910) | (0.007) | (0.018) |
| FLEV | -0.003 | .318*** | 0.295*** |
| | (0.968) | (0.000) | (0.000) |
| R2 | 0.3088 | 0.4423 | 0.2321 |
| F-test | 46.35 | 17.77 | 35.82 |
| Prob > F | 0.0000 | 0.0000 | 0.0000 |
| **Hausman Specification Test** | | | |
| Chi 2 | | | |
| Prob>chi2 | 4.89 | 30.42 | 0.48 |
| | 0.4298 | 0.0001 | 0.9928 |

**Source:** Researcher's Calculations

***, **, and * represents at the 1%, 5%, and 10% significance level respectively.

## 9.0 Key findings of the study

The study has achieved the findings as follows.

The study exposes that the mean OWNCON is 42.81%, with maximum and minimum percentages of ownership being 66.31% and 10.91%, respectively. The mean OWNCON of British, Czech, and Polish businesses is 5%, 41%, and 21%, respectively, according to Lskavyan and Spatareanu (2008). According to Bloom and Van Reenen's (2007) report, only 10% of the sample companies, in the case of US-listed companies, have ownership concentration. Additionally, a comparison of current descriptive statistics with prior literature reveals that Bangladesh has a higher average OWNCON in pharmaceutical companies than advanced economies.

The study revealed that the mean and median of INSS are 16.52% and 14.74%, with the maximum and minimum institutional shareholdings at 37.79% and 2.86%, respectively. The research conducted by Cahyaningsih et al., (2021) and found institutional ownership reaches a minimum of 21% and a maximum of 87% with an average of 56%. Another study conducted by Ojeka et al. (2016) showed an average institutional shareholding of 55.45% with a minimum of 14.5% and a maximum of 90%. Furthermore, a comparison of current descriptive statistics with prior literature reveals that Bangladesh has a lower average INNS in pharmaceutical companies than developing economies.

Based on accounting measures, namely ROA and ROE, there exists a statistically significant negative relationship between ownership concentration and firm financial performance. The regression results showed that INSS

has significant positive impacts on accounting performance measures (ROA and ROE). In the case of the market performance measure (Tobin's Q), ownership structure has no significant relationship with firm financial performance.

## 10.0 Conclusions and recommendations

This paper aimed to examine whether there is any correlation between ownership structure and the financial performance of pharmaceutical companies in Bangladesh by using panel data from DSE-listed companies. This study has been competent in answering all the research objectives. The target population of this research was 15(fifteen) Bangladeshi pharmaceutical companies listed on the DSE. Out of 15 (fifteen), 9 (nine) have been selected as a sample because those companies became listed on the DSE before 2007. The study used secondary data collected from yearly reports from 2007 to 2020. Descriptive Statistics have provided an understanding of the nature of the data before running the regression model. The study has also relied on inferential statistics to test the validity of the statements on the population parameters. Using a fixed and random effect regression model to examine the relationship between CG variables and firm financial performance. From the perspective of ownership structure, it is found that OWNCON based on accounting measures of ROA and ROE has statistically significant negative impacts on financial performance but does not affect the market measure of Tobin's Q, of pharmaceutical companies in Bangladesh. Moreover, the mean value suggests that the proportion of concentrated ownership is higher in pharmaceutical companies in Bangladesh than in developed countries. The implication of this study is that firm performance increases when ownership is not concentrated. In the concentrated ownership structure, the top shareholders contain the decision-making power. They make decisions that will be beneficial for them but not for the firm. As a result, large shareholders benefit from the wealth of minor shareholders. The study also finds INSS having significant positive impacts on the accounting performance measures of ROA and ROE and immaterial impacts on the market measure of Tobin's Q. The study confirms that INSS is vital to decreasing agency conflicts between managers and shareholders. INSS has a significant relationship with accounting performance measures, but the percentage of INSS in total shareholding is very low. It is a concerning matter, so we must consider increasing this proportion and carefully selecting their representatives on company boards. Therefore, in this reality, investors should pay close attention to the company's ownership and the concentration of ownership when buying their shares and investing in companies whose ownership is diffuse. In addition, only two corporate governance-related variables have been examined in this study. We expect that future researchers will be willing to explore the issues emphasized by this study and try to implement the evolving CG model and expand the possibilities that have opened up in this research.

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