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## Abstract

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## Board Diversity and Firm Value: Evidence From Nepalese Financial Institutions

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*The purpose of this paper is to provide empirical evidence on the relationship of board diversity of corporate board with the value of financial institutions in Nepal. The sample comprises 38 financial institutions listed in NEPSE with 380 firm-years observation for the period 2011/12 to 2020/21. Balance panel datasets were employed to investigate using multiple regression models to examine the relationship between board diversity (female and minority directors) and firm value measured by Tobin's Q and MBR. The result shows a significant positive relationship between firm value and the presence of both female and minority directors. Moreover, the evidence supports that the presence of female directors in the boardroom effect more in the firm market value than as compare to the minority directors. Furthermore, the study concludes that control variables like board size, presence of independent director and firm size have positive significant effect on firm value, but leverage has significant but negative relation with the firm market value of financial intuitions in Nepal. The study result has the practical implication for government, policy makers and regulating authorities in formation of diverse board that can increase the firm value and performance. It also provides additional insight to the corporate governance literature and helps to fill the gap on board diversity and firm value in Nepalese financial institutions.*

BOARD COMPOSITION IS a topic of vital importance within corporate governance studies, especially in the context of global financial crisis and scandals because it affects the efficiency of the board, how the board accomplishes its roles, and, subsequently, firm financial performance (Abatecola et al., 2013;

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2014). Traditionally, research has focused on the proportion of insiders on boards (Agrawal & Knoeber, 1996), the tenure of directors and managers (Hermalin & Weisbach, 1991), the stock ownership of board members (Weisbach, 1988), and board size (Kini et al., 1995), and the type of reward system used (Rose, 2007). However, in recent years, studies such as Campbell & Mínguez-Vera (2008), Mensi-Klarbach, 2014; & Ntim, (2015) have initiated to discover whether board diversity improves board competence and subsequently firm market value and financial performance.

Among board characteristics, board demographic diversity has become an important research issue within corporate governance (Roa & Tilt, 2015). "Board diversity" may be defined as the variety inherent in a board's composition." This variation can be measured on several dimensions, such as gender, age, ethnicity, nationality, academic background, business skill, and organizational membership (Campbell & Mínguez-Vera, 2008). While attention is increasingly paid to the caste and ethnicity of corporate directors in the US, nationality seems to have become an important dimension of board diversity in Europe (Oxelheim & Randoy, 2003) According to Struggles (2011), almost one in four directors on European boards is foreign, reflecting the demand for international skills. Researchers studying diverse groups have found that diversity improves decision-making. Diverse boards increase creativity, consider a wider range of options, and make companies more innovative (Miller & Triana, 2009; Nielsen & Huse, 2010).

The role of women on boards as director is also receiving increasing attention. Previous research on gender differences suggests that although there are no overall differences in effectiveness between women and men, there are gender differences in behaviors and skills in some situations (Yukl, 2002). These differences in leadership styles can have important implications for board effectiveness (Nielsen & Huse, 2010). Gender and ethnic diversity are active policy-making topics in many countries, while some national governments have set quotas or simply provided diversity guidelines. However, it is not clear how or whether these measures will achieve the desired results. Theory from the fields of economics, organizational behavior, and social psychology provides some understanding of the nature of the relationship between board diversity and financial performance (Carter et al., 2010).

The board of directors plays a key role in setting the vision, mission, values, and setting strategy that improves organizational performance (Carroll & Buchholtz, 2014; Liao et al., 2015). These roles are influenced by board demographics such as gender, tenure, age, and education (Johnson et al., 2013; & Post & Byron, 2015). Therefore, it is important to investigate how demographic diversity in the boardroom affects corporate performance. Additionally, in recent years, several countries, including Nepal, have enacted policies and mandatory laws to improve board diversity. This has sparked a debate about demographic diversity among practitioners, regulators, and academics (Hillman, 2015; & Mahadeo et al., 2012).

There have been intense research studies in board diversity as an important dimension of corporate governance to measure the impact on the firm's value and performance in developed markets in the US, Europe and other developed Asian continent and their findings are very interesting and contradicting. However, there is a lack of comprehensive literature in analyzing the

relationship between board structure i.e., in terms of board diversity and firm value in the Nepalese context. Most of the studies in the Nepalese context are only concerned with corporate governance dimensions like board size, board activity, independent directors, and so on. Therefore, this study adds further insights to the corporate governance literature and provides more insight into the extent to which the participation of women and minority directors on boards affects the value of companies in the financial sector. The rest of the paper is organized as follows. The second section provides an overview of the literature and hypothesis development, the third section describes the methodology and model, the fourth section presents the results and discussion, and the final section concludes the paper with implications and limitations.

## **Literature Review and Hypotheses**

Resource dependence theory suggests that diversity has the potential to improve the information that boards provide to management because different directors have unique information. Differences in gender and nationality may provide a unique set of information that executives can use to make better decisions (Carter et al., 2010). On the contrary, social psychological theory suggests that decision-making may be slower and conflict more intense among diverse leaders. Therefore, many researchers view diversity as a "double-edged sword" (Milliken & Martins, 1996). In particular, while diversity can improve group processes for some tasks and lead to high-quality solutions, it also often reduces cohesion. In this regard, academic research has failed to demonstrate a clear relationship between board diversity and effective board performance, especially in banks (Caprio et al., 2007).

Empirical studies such as (Carter et al., 2003; Adler, 2010; Ntim, 2013; Nguyen et al., 2015; & Perryman et al., 2016) have been carried out to examine the relationship between board diversity and firm value and performance in developed countries like the US, Canada, France, Germany, UK and in emerging countries like India, China, Indonesia, South Africa, Brazil, Korea etc. These studies have resulted in repeated mysteries regarding the connection between Board diversity and financial performance and firm value. The results of some studies are inconclusive and interesting. (Ntim, 2013; Agyemang-Mintah, & Schadewitz 2019).

Gyapong et al. (2016) reported that both board gender and ethnic diversity have a positive and significant impact on firm value. The study argued that having three or more female directors on a board is expected to increase shareholder value and that Tobin's Q serves as a measure of financial performance. Another study by Nguyen et al. (2015) used Tobin's Q to show that board gender diversity appears to have a positive impact on firm performance. Similarly, Campbell and Minguez-Vera (2008) in Spain and Hutchinson et al. (2014) in Australia highlight the positive impact of female directors on financial performance and highlight a positive relationship. Similarly, Erhardt et al. (2003) study in the USA revealed that the presence of female and minority directors in board rooms has a statistically significant and positive relationship with firm value. Ntim's (2013) study on the South African stock market found that board diversity was statistically significant and positively related to firm value (Tobin's Q). Perryman et al. (2016) show that companies with greater gender diversity in leadership take fewer risks and achieve higher performance. Similarly, a study by Faff et al. (2011) argued that companies balance risk tolerance by

having a combination of female and male members on the board of directors when making decisions. Similarly, Garcia-Meca et al. (2014) argued that while gender diversity improves bank performance, national diversity hinders it. The study found that board diversity has a smaller impact on bank performance as regulations and investor protections weaken.

In contrast, other studies (Shrader et al. 1997; Smith et al. 2006; Adams and Ferreira 2009 & Darmadi, 2011) have found that board diversity and reported that there is a negative relationship with financial performance. A study by Darmadi (2011) showed that the presence of women in the boardroom hurts company performance measured by Tobin Q. Shrader et al. (1997) showed that there is a negative relationship between the proportion of women on the board of directors and the financial value of the firm. Adams and Ferreira's (2009) study found that the average effect of gender diversity on firm performance is negative because firms are less resilient to takeovers. Similarly, Ahern and Dittmar (2012) study over the period from 2001 to 2009 Norwegian firms reported proportion of females in board rooms leads to a substantial decline in the firm value. Board diversity and firm performance also showed a non-significant relationship in some other studies. For example, a study by Marimuthu and Kolandaisamy (2009) showed that there is no significant relationship between gender diversity and firm performance. Similarly, Rose (2007) found no significant relationship between corporate value and women's representation on the boards of Danish-listed organizations. Similarly, Zahra and Stanton (1988) report no significant relationship between board diversity and firm value. Another study by Carter et al. (2010) failed to demonstrate a significant relationship between corporate board gender and ethnic diversity and financial performance using data from the S&P 500 index. Similarly, Zahra and Stanton (1998) used a sample of 95 publicly traded US organizations and found no significant relationship between board diversity and firm market value.

In the context of Nepal, the study by Rijal and GC (2010) found a positive association between the number of executive directors on the board and debt level but insignificant in the case of board size and CEO tenure. Similarly, Pradhan (2015) reports that there is a significant relationship between corporate governance and ROA and ROE of commercial banks. A study by Acharya (2016) found that there is no significant relationship between corporate governance index and firm value and governance only has a positive impact on financial performance. Bartaula (2009) documented that corporate governance variables are found significantly associated with both Tobin's Q and market share per value. Rajbahak et al. (2014) reported that board size, firm size, and firm growth have a positive and significant impact on return on assets but an insignificant impact on return on equity.

There are several theoretical arguments regarding the relationship between female board representation and firm performance. However, based on mixed and sometimes contradictory findings in the literature to date, there is still no consensus on the relationship between women's presence in the boardroom and corporate performance. These mixed results are not unexpected, as the relationship between board diversity and firm financial performance is theoretically and empirically complex (Carter et al., 2008). Although, prior studies suggest a positive link between different measures of board diversity and firm value, most have been unable to conclusively indicate that board diversity impacts positively on firm value.

Despite the growing discussion on board diversity as an important aspect of corporate governance, to the best of the authors' knowledge, the impact of board diversity (i.e. the presence of women and minority groups) on corporate valuations is limited. No studies have been conducted to investigate the impact in Nepal's financial sector. Because of this, this study examines the extent to which board diversity within the board rooms of the Nepalese financial institutions contributes to the firm values. Specifically, this study hypothesizes that:

**H<sub>1</sub>: There is a positive relationship between board members' diversity and firm value based on both minority and gender.**

### **Board size and firm value**

Similarly, Garcia-Meca et al. (2014) study finds that board size has a positive relationship with the firm market value. Coles et al. (2008) indeed find evidence that larger and diversified firms that rely more on debt financing, derive greater firm value from having larger boards. Charles et. al (2018) study examined BGD and firm performance by using a quantile regression approach and reported that board size has a positive impact firm's performance. Based on the above evidence, the study develops the following sub-hypothesis:

**H<sub>1A</sub>: Board size has a positive relation relationship with firm value.**

### **Independent director and firm value**

Terjesen et al. (2015) study reported board interdependence structure has a positive and statistically significant effect on firm's value, but no significant evidence regarding the relationship between the use of debt and firm's value. Similarly, Kuzey (2016) study examined the effect of board gender diversity on firm performance and reported that the percentage of independent board directors has a positive impact on firm performance. Based on the above finding, the study develops the following sub-hypothesis:

**H<sub>1B</sub>: Independent directors have a positive relationship with firm value.**

### **Firm size and firm value**

Rancati (2017) investigated the relationship between gender diversity and firm performance using of 918 companies listed in Italian stock Exchange for the period 2011-2014. The study argued firm size has a positive and significant effect on Tobin's Q. Likewise, Gyapong et.al (2016) study of sample 245 South African listed firms for 2008 to 2013 reported firm size has a positive effect on firm value. Based on it, the study formulates the following sub-hypothesis:

**H<sub>1C</sub>: Firm size has a significant positive relationship with firm value.**

### **Leverage and firm value**

Leverage also has a significant effect on firm value. Conyon and He (2017) reported that leverage has a negative and statistically significant impact on firm value. Similarly, Kuzey (2016) study examined the effect of board gender diversity on firm performance using a sample of 149 nonfinancial firms reported that leverage has a negative impact on firm performance. So, based on the above evidences, the study sets the following sub-hypothesis:

**H<sub>1D</sub>: Leverage has a significant negative relationship with firm value.****ROA and firm value**

Empirical evidence suggested by ROA also has a significant impact on the firm value. Carter et al. (2003) study implies that ROA has a positive and significant effect on the firm value measured by Tobin's Q. Jubilee et al. (2018) study of ten banking institutions listed in Bursa Malaysia with data observation from 2007 to 2016 documented ROA has a positive and statistically significant impact on Tobin's Q. Based on above findings, the study sets the following sub-hypothesis:

**H<sub>1E</sub>: ROA has a significant positive relationship with firm value.****Methodology**

To investigate the potential effect of board diversity on firm value the study has adopted a causal research design. The study mainly relies on secondary data. The data for firm-specific variables is obtained from financial reports published by NRB, NEPSE, and the websites of sample financial institutions. The study covers a range from the year 2011/12 to 2020/21. Balance panel data set from the 38 financial institutions were extracted for 10 years with 380 firm-years observations. First raw data are collected and then processed to make them usable in the process of analysis.

First, all the listed financial institutions in NEPSE were stratified into subgroups as commercial banks, development banks, finance companies, microfinance companies & insurance companies as per the size, capital employed, and financial services. Financial institutions from each stratum were selected using disproportionate stratified sampling from each stratum. Sample firms selected include 11 commercial banks, 10 insurance companies, 6 development banks, 6 finance companies, and 5 from micro finance companies with a total of 38 sample firms. SPSS version 20 was used for data analysis where descriptive statistics, correlation analysis, and multiple regression analysis were used to estimate the relation between board diversity and firm value. Concerning our estimation procedure, the study regresses a measure of firm value against measures of the board diversity along with control variables as follows:

$$\text{Firm Value} = \alpha_0 + \beta_1 \text{Board Diversity}_{it} + \sigma_{=1}^n \beta_i \text{Control}_{it} + \varepsilon_{it}$$

The study uses Tobin's Q and market-to-book ratio (MBR) as the outcome variables that represent the measure of firm value. To reduce the influence of outlier firms with very high Tobin's Q and MBR, the study uses the natural logarithm of Tobin's Q (ln Q) and MBR (ln MBR) as dependent variables (Ararat et al., 2016). Board Diversity which includes gender and minority is the main independent variable. The study uses both a dummy variable indicating the presence of women and minorities on the board and the percentage of women and minorities on the board as measures of the board of director diversity. The study also includes several control variables that have been previously studied. Here, control refers to the variables that include board size (natural logarithm of the number of directors), presence of independent directors, firm size (e.g., natural logarithm of total assets), return on assets (ROA), and leverage. In light of the above main model, further models for the estimation of independent variables with control variables are presented below.

$$\ln Q_{it} = \alpha + \beta_1 \text{Female}_{it} + \beta_2 \ln \text{Bsize}_{it} + \beta_3 \text{ID}_{it} + \beta_4 \text{Lev}_{it} + \beta_5 \ln \text{size}_{it} + \beta_6 \text{ROA}_{it} + \varepsilon_{it} \text{-----} (1)$$

$$\ln Q_{it} = \alpha + \beta_1 \text{Minority}_{it} + \beta_2 \ln \text{Bsize}_{it} + \beta_3 \text{ID}_{it} + \beta_4 \text{Lev}_{it} + \beta_5 \ln \text{size}_{it} + \beta_6 \text{ROA}_{it} + \varepsilon_{it} \text{-----} (2)$$

$$\ln Q_{it} = \alpha + \beta_1 \text{Female}_{it} + \beta_2 \text{Minority}_{it} + \beta_3 \ln \text{Bsize}_{it} + \beta_4 \text{ID}_{it} + \beta_5 \text{Lev}_{it} + \beta_6 \ln \text{size}_{it} + \beta_7 \text{ROA}_{it} + \varepsilon_{it} \text{-----} (3)$$

$$\ln \text{MBR}_{it} = \alpha + \beta_1 \text{Female}_{it} + \beta_2 \ln \text{Bsize}_{it} + \beta_3 \text{ID}_{it} + \beta_4 \text{Lev}_{it} + \beta_5 \ln \text{size}_{it} + \beta_6 \text{ROA}_{it} + \varepsilon_{it} \text{-----} (4)$$

$$\ln \text{MBR}_{it} = \alpha + \beta_1 \text{Minority}_{it} + \beta_2 \ln \text{Bsize}_{it} + \beta_3 \text{ID}_{it} + \beta_4 \text{Lev}_{it} + \beta_5 \ln \text{size}_{it} + \beta_6 \text{ROA}_{it} + \varepsilon_{it} \text{-----} (5)$$

$$\ln \text{MBR}_{it} = \alpha + \beta_1 \text{Female}_{it} + \beta_2 \text{Minority}_{it} + \beta_3 \ln \text{Bsize}_{it} + \beta_4 \text{ID}_{it} + \beta_5 \text{Lev}_{it} + \beta_6 \ln \text{size}_{it} + \beta_7 \text{ROA}_{it} + \varepsilon_{it} \text{-----} (6)$$

The study focuses on analyzing the impact of board diversity with control variables on the firm value. Board diversity as the main independent variable and firm value as the dependent variable. The operational definition of these variables with their proxies is given in Table 1.

**Table 1**

*Definition of Variables*

**Dependent Variable**

|           |  |
|-----------|--|
| Tobin's Q | Tobin's Q is the sum of the market value of equity and the book value of debt divided by its total assets. The natural logarithm of Tobin's Q (lnQ) is used as the outcome variable. |
| MBR       | MBR is the ratio of market capitalization to net book value. The natural logarithm of MBR (lnMBR) is used as the outcome variable.   |

**Independent Variables**

|          |   |
|----------|---|
| Female   | Both the percentage of women in the boardroom and the dummy variable indicating the presence of women on the board equals 1 otherwise 0.  |
| Minority | Minority director is another independent variable that incorporates adibas i-janjati, Madhesi, Dalit and Foreigner. Both the percentage of minorities in the boardroom and the dummy variable indicates the presence of minorities on the board which equals 1 otherwise 0. |

**Control Variables**

|            |  |
|------------|--|
| Size       | Total asset is the proxy of firm size. Here, a natural logarithm of total book value of Assets (ln size) is used in the study.       |
| Board size | Board size is the total number of directors on corporate board. Here, a natural log of Board size (ln Bsize) is used in the study.   |
| Ind D      | In D refers to the presence of outsiders in the boardroom which is the ratio of independent directors/outsiders to total board size. |
| Leverage   | Leverage is the ratio of Total liabilities to Total Assets.  |
| ROA        | ROA is the ratio of Net Profit After Tax to Total Assets.  |

## Result and Discussion

**Table 2**

*Descriptive Statistics*

*This table shows descriptive statistics-mean, median, standard deviation, minimum and maximum values- of the 38 sample firms for the period 2011/12 through 2020/21. TQ is the sum of the market value of firm's stock and the book value of debt divided by the book value of its total assets, MBR refers to the ratio of market capitalization to net book value, Minority and Female refers to the minority and female directors in the boardroom, Minority% and Female% represent the percentage of minority and female directors to total board size, B size refers to the number of directors present in the boardroom, T. asset(m) refers to the total asset of firm used as the proxy of firm size, IND refers the number of independent directors present in the boardroom, ROA is the ratio of net profit after tax to total book value of assets and LEV represent to the leverage which is the ratio of total debt to total assets*

| <b>Variables</b> | <b>Minimum</b> | <b>Maximum</b> | <b>Mean</b> | <b>S. D</b> |
|------------------|----------------|----------------|-------------|-------------|
| TQ               | 0.8557         | 6.6906         | 1.5778      | 0.8424      |
| MBR              | 1.0000         | 27.0000        | 4.7000      | 4.5890      |
| Minority         | 0.0000         | 6.0000         | 1.6776      | 1.6233      |
| Female           | 0.0000         | 3.0000         | 0.4046      | 0.6325      |
| Minority (%)     | 0.0000         | 0.8333         | 0.2396      | 0.2315      |
| Female (%)       | 0.0000         | 0.4000         | 0.0585      | 0.0915      |
| BSize            | 4.0000         | 10.0000        | 6.9276      | 1.1524      |
| T Asset (in M)   | 437.52         | 201138.82      | 29413.12    | 40771.67    |
| IND              | 0.0000         | 1.0000         | 0.5428      | 0.4990      |
| ROA              | -0.2082        | 0.1918         | 0.0290      | 0.0337      |
| LEV              | 0.3143         | 0.9590         | 0.8267      | 0.1317      |

Table 2 reveals that Tobin's Q ranges from 0.8557 to 6.6906 with a mean value and standard deviation of 1.5778 and 0.8428 respectively. In terms of MBR, the value ranges from 1 to 27 with an average of 4.7 percent. This wide range of values of MBR indicates that firms included in the sample vary significantly in terms of their Market value. Similarly, female directors range from 0 to a maximum 3 directors with an average of 5.85% of the total board size whereas, minority directors range from 0 to 6 persons with a mean of 23.9% of the total board size. The firms also differ in terms of their Total Assets, ROA, and Leverage. Total assets fall within the range of minimum Rs 437.52m to maximum Rs 201,138.83m, ROA within -20.82% to 19.18% and Leverage within 31.43% to 95.9% with a mean value of Rs 29,413.12, 2.9% and 82.27% respectively.

### Relationship among Variables

**Table 3**

*Correlation Results*

*This table shows the bivariate Pearson Correlation Coefficients between different pairs of variables used in the study. In Q and ln MBR are as defined in the Table 3. Here natural logarithm of both variables is used. MIN refers to the percentage of Minority directors in the boardroom,*

*FEM* refers to the percentage of female directors in the boardroom, *IND* represent the percentage of independent directors present in board room, *ROA* represent the ratio of net profit after tax to total book value of assets, *LEV* refers to the ratio of total debt to total book value of assets, *lnBS* represent the natural logarithm of total board size, *lnSIZE* refers to the proxy of firm size which is the natural logarithm of Total assets. The data are from 38 sample firms for the period 2011/12 through 2020/21. Asterisk '\*\*\*', '\*\*' & '\*' indicates that correlation is significant at 1 percent, 5 percent and 10 percent respectively.

|               | <i>lnQ</i> | <i>lnMBR</i> | <i>MIN</i> | <i>FEM</i> | <i>IND</i> | <i>ROA</i> | <i>LEV</i> | <i>lnBS</i> | <i>lnSIZE</i> |
|---------------|------------|--------------|------------|------------|------------|------------|------------|-------------|---------------|
| <i>lnQ</i>    | 1          |              |            |            |            |            |            |             |               |
| <i>lnMBR</i>  | .772***    | 1            |            |            |            |            |            |             |               |
| <i>MIN</i>    | .097*      | .216***      | 1          |            |            |            |            |             |               |
| <i>FEM</i>    | .117**     | .144**       | -.002      | 1          |            |            |            |             |               |
| <i>IND</i>    | .305***    | .278***      | .141**     | -.001      | 1          |            |            |             |               |
| <i>ROA</i>    | .455***    | .125**       | .009       | -.061      | .187***    | 1          |            |             |               |
| <i>LEV</i>    | -.486***   | .054         | .100       | .033       | -.163***   | -.701***   | 1          |             |               |
| <i>lnBS</i>   | .174***    | .109*        | -.006      | -.104      | .162***    | .128**     | -.069      | 1           |               |
| <i>lnSIZE</i> | .114**     | .279***      | .217***    | .060       | .180***    | .357***    | .569***    | -.134**     | 1             |

As Table 3 shows, the correlations among different pairs of explanatory variables are also relatively lower and many of them are statistically significant. All the explanatory variables are significantly correlated with *ln Q* at 1 percent significant level except *lnsize* at 5 percent level, whereas, the minority has positive and statistically significant at 10 percent level. Similarly, the presence of female directors, independent directors, and *ROA* is positive and statistically significant at 1 percent level which reveals that an increase in female directors, independent directors, and *ROA* leads to an increase in firm market value and vice-versa.

Whereas, leverage is negative and statistically significant at 1 level with dependent variable *ln Q* as a proxy of firm value that shows that a rise in leverage leads to a decline in the firm value and vice-versa. Similarly, *lnMBR* has a positive relationship with all the explanatory variables which specifies that an increase in all the explanatory variables leads to also increase in *lnMBR* as a proxy of firm value. Among them, minority directors, independent directors, and firm size have positive and statistically significant at 1 percent level whereas female directors and *ROA* also have positive & statistically significant at 5 percent level and *lnBsize* significant at 10 percent level. However, leverage has a positive relationship with *lnMBR* but is not statistically significant.

#### **Table 4**

*Regression result of Board diversity on Firm Value measured by Tobin's Q*

*The results are based on balanced panel data of 38 firms with 380 firm-years observation for the period 2011/12 to 2020/21 by using linear regression model. Dependent variable is firm value measured by Tobin's Q denoted by *lnQit*, and independent variables are the presence of female and minority directors in boardroom as dummy variable denoted by 1 otherwise 0 (model 1a, 2a, & 3a) and the proportion of female and minority directors(model 1b, 2b, & 3b), along with board size (*lnBsizeit*), presence of independent directors (*IDit*), leverage (*levit*), firm size (*lnSizeit*)*

and Return on assets (ROAit) Figures in parentheses are *t*-values and asterisk, (\*\*\*) , (\*\*) & (\*) indicates that the results are significant at 1, 5 & 10 percent respectively. Also reported are the *F*-statistics, coefficient of determination (*R*<sup>2</sup>), and standard error of estimates (*SSE*).

| Explanatory variables | Dependent variable <i>ln Q</i> |                     |                     |                       |                       |                       |
|-----------------------|--------------------------------|---------------------|---------------------|-----------------------|-----------------------|-----------------------|
|                       | Model                          |                     |                     |                       |                       |                       |
|                       | 1a                             | 1b                  | 2a                  | 2b                    | 3a.                   | 3b.                   |
| Female (1/0)          | 0.119***<br>(3.102)            | -                   | -                   | -                     | 0.121***<br>(2.123)   | -                     |
| Female%               | -                              | 0.618***<br>(3.114) | -                   | -                     | -                     | 0.621***<br>(3.143)   |
| Minority (1/0)        | -                              | -                   | 0.082**<br>(2.020)  | -                     | 0.085**<br>(3.168)    | -                     |
| Minority%             | -                              | -                   | -                   | 0.142*<br>(1.742)     | -                     | 0.144*<br>(1.799)     |
| <i>lnBsize</i>        | 0.269***<br>(2.655)            | 0.286***<br>(2.813) | 0.230**<br>(2.239)  | 0.258**<br>(2.523)    | 0.242**<br>(2.382)    | 0.287***<br>(2.837)   |
| IND                   | 0.114***<br>(2.856)            | 0.113***<br>(2.849) | 0.114***<br>(2.857) | 0.108***<br>(2.671)   | 0.114***<br>(2.877)   | 0.107***<br>(2.678)   |
| LEV                   | -1.30***<br>(-5.776)           | -                   | -                   | -1.327***<br>(-5.819) | -1.367***<br>(-6.049) | -1.308***<br>(-5.818) |
| <i>lnSize</i>         | 0.046**<br>(3.061)             | 0.044***<br>(2.955) | 0.045***<br>(2.984) | 0.042***<br>(2.753)   | 0.045***<br>(3.015)   | 0.04***<br>(2.672)    |
| ROA                   | 2.007***<br>(2.639)            | 2.051***<br>(1.162) | 1.795**<br>(2.329)  | 1.818**<br>(2.356)    | 1.854**<br>(2.442)    | 1.925**<br>(2.529)    |
| Constant              | 0.339<br>(1.284)               | 0.308<br>(1.162)    | 0.462<br>(0.731)    | 0.429<br>(1.612)      | 0.4<br>(1.515)        | 0.334<br>(1.267)      |
| R <sup>2</sup>        | 0.358                          | 0.358               | 0.346               | 0.343                 | 0.367                 | 0.365                 |
| SEE                   | 0.3138                         | 0.3138              | 0.3167              | 0.317                 | 0.312                 | 0.312                 |
| F                     | 27.552***                      | 27.571***           | 26.161***           | 25.898***             | 24.540***             | 24.273***             |

Table 4 depict regression results of presence of female and minority directors in boardroom along with control variables on firm value measured by *ln Q*. To capture the relationship between the presence of female directors and minority directors, the study used two variables: a dummy variable coded as 1 if there is at least one female director and minority director [model 1a, 2a & 3a] and zero otherwise, and the percentage of female and minority directors on the board size [1b, 2b, & 3b]. The estimated coefficients for several models on the dependent variables in *ln Q* are statistically significant.

The estimated beta coefficients of *lnBsize* are positive and statistically significant at 1 percent level [1a, 1b & 3b] and 5 percent level for remaining models for board size which specifies that larger the board size, larger will be the firm's value. So, the H1a hypothesis i.e., Board size

have statistically positive relationship with firm value is supported by this result. Similarly, this result is consistent with Charles et al. (2018), Chauhan & Dey (2017), & Garcia-Meca et al. (2014), findings but inconsistent with Carter et al. (2003), Gyapong et al. (2015) and Yermack (1996) findings.

Similarly, beta coefficients IND are positive and statistically significant at 1 percent level which reports that a higher presence of independent director leads to higher firm value and vice-versa. This result also supports H1b hypothesis of the study i.e., independent directors have a statistically positive relationship with firm value. This result contradicts Conyon & He (2017), Fuzi et al. (2016), and Kuzey(2016) study but supports Abdullah and Ismail (2013) ), Leung et al. (2014), and Terjesen et al. (2015) study. The estimated beta coefficients of leverage have an inverse relationship with firm value and are statistically significant at 1 percent in all the applied models. As expected, the result supports the H1d. This finding is consistent with Charles et al. (2018), Conyon & He (2017), and Khosa (2017) study but inconsistent with Dezso and Ross (2012) & Kagzi and Guha (2018) study.

Likewise, the beta coefficient of firm size is positive, and statistically significant at 1 percent which indicates the higher the firm size higher will be the firm value which supports the finding of Gyapong et al. (2016), Jubilee et al. (2018), Rancati (2017) & but contradict with Agyemang-Mintah and Schadewitz (2019)), Charles et al. (2018) & Chauhan & Dey (2017) study. As expected, this result also supports the hypothesis H1c i.e., Firm size has a significant positive relationship with firm value. Similarly, the beta coefficient of ROA is positive and statistically significant in 5 percent level that supports the hypothesis H1e.i.e., ROE has significant positive relationship with firm value. These finding are consistent with Carter et al. (2010), Eberhart (2012) & Jubilee et al. (2018) study. Profitability gives investors important signals about expected future performance and company value. Therefore, improved profitability can be interpreted as an indicator for investors to formulate their investment strategies and contributes to increasing the market value of companies (Alghifari et al. 2013).

The estimates for the relationship between firm value and presence of female directors in boardroom in model 1a & 1b both has positive and statistically significant at 1 percent that indicates that the presence of female in boardroom increases the firm value. This result is consistent with Agyemang-Mintah & Schadewitz (2019), Carter et al. (2003), Gyapong et al. (2016) and Jubilee et al. (2018) study but inconsistent with Abdullah and Ismail (2013), Ahern and Dittmar (2012) & Darmadi (2011) study. These results provide strong evidence of a relationship between firm value and the presence of female directors.

Similarly, the estimate for the relationship between firm value and the presence of minority directors in the board in models 2a & 2b also indicate positive and statistically significant at 5 percent and 10 percent respectively which indicate the increase in minority directors in the boardroom helps to increase in the firm value and the result is consistent with the Carter et al. (2003) and Ntim (2013) study. So, this result also provides strong evidence of the positive relationship between firm value and the presence of minority directors. The study also measures the combined effects of the presence of both female and minority directors in boardroom with firm value (model

3a & 3b). The coefficient of both female and minority are positive and statistically significant which supports that the presence of both female and minority directors contributes to the market value of the firm. Further, the value of the beta coefficient clearly indicates that the presence of female directors in the boardroom contributes more than minority directors to the market value of the firm though the presence of a lower number of females in the boardroom as compared to the minority directors (see table 2). This finding supports the Erhardt et al. (2003) and Ntim (2013) study but fails to support Carter et al. (2010) study. Hence, the result of the combined effect of female and minority directors in the boardroom supports the main hypothesis of the study (H1). This means an increase in female and minority directors can increase in firm value when they are allowed to work with their male counterparts, it will significantly influence on the firm value.

**Table 5**

*Regression result of Board diversity on Firm Value measured by MBR*

*The results are based on balanced panel data of 38 firms with 380 firm-years observation for the period 2011/12 to 2020/21 by using a linear regression model. Dependent variable is firm value measured by Market to Book ratio denoted by  $\ln MBR_{it}$ , and independent variables are the presence of female and minority directors in the boardroom as dummy variable denoted by 1 otherwise 0 (models 4a, 5a, & 6a) and proportion of female and minority directors(model 4b, 5b, & 6b), along with board size ( $\ln Bsize_{it}$ ), presence of independent directors ( $ID_{it}$ ), leverage ( $lev_{it}$ ), firm size ( $\ln Size_{it}$ ) and Return on assets ( $ROA_{it}$ ) Figures in parentheses are t-values and asterisk, (\*\*\*) , (\*\*) & (\*) indicates that the results are significant at 1, 5 & 10 percent respectively. Also reported are the F-statistics, coefficient of determination ( $R^2$ ) and standard error of estimates (SSE).*

| Explanatory variables | Dependent variable $\ln MBR$ |                    |                     |                     |                     |                     |
|-----------------------|------------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|
|                       | Model                        |                    |                     |                     |                     |                     |
|                       | 4a                           | 4b                 | 5a                  | 5b                  | 6a.                 | 6b.                 |
| Female (1/0)          | 0.259**<br>(2.796)           | -                  | -                   | -                   | 0.263***<br>(2.857) | -                   |
| Female%               | -                            | 1.38***<br>(2.882) | -                   | -                   | -                   | 1.391***<br>(2.926) |
| Minority (1/0)        | -                            | -                  | 0.192*<br>(1.965)   | -                   | 0.198**<br>(2.053)  | -                   |
| Minority%             | -                            | -                  | -                   | 0.446**<br>(2.281)  | -                   | 0.451**<br>(2.338)  |
| $\ln Bsize$           | 0.447*<br>(1.829)            | 0.486**<br>(1.981) | 0.359<br>(1.449)    | 0.425*<br>(1.731)   | 0.384<br>(1.565)    | 0.490**<br>(2.014)  |
| IND                   | 0.30***<br>(3.124)           | 0.30***<br>(3.119) | 0.203***<br>(3.128) | 0.281***<br>(2.902) | 0.30***<br>(3.145)  | 0.279**<br>(2.908)  |
| LEV                   | 0.671<br>(1.233)             | 0.710<br>(1.306)   | 0.515<br>(0.932)    | 0.589<br>(1.077)    | 0.514<br>(0.942)    | 0.631<br>(1.168)    |
| $\ln Size$            | 0.154***<br>(4.256)          | 0.15***<br>(2.955) | 0.152***<br>(4.179) | 0.142***<br>(3.871) | 0.151***<br>(4.217) | 0.138***<br>(3.806) |

|                |                     |                     |                     |                     |                     |                     |
|----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| ROA            | 6.545***<br>(3.564) | 6.649***<br>(3.620) | 6.059***<br>(3.264) | 6.014***<br>(3.248) | 6.190***<br>(3.373) | 6.254***<br>(3.417) |
| Constant       | -2.090<br>(-3.280)  | -2.163<br>(-3.386)  | -1.811<br>(-2.815)  | -1.811<br>(-1.866)  | -1.947<br>(-3.054)  | -2.078<br>(-3.273)  |
| R <sup>2</sup> | 0.20                | 0.201               | 0.19                | 0.193               | 0.211               | 0.216               |
| SEE            | 0.7579              | 0.7574              | 0.7629              | 0.7613              | 0.7539              | 0.7517              |
| F              | 12.379***           | 12.478***           | 11.575***           | 11.848***           | 11.327***           | 11.637***           |

Table 5 exhibits result of presence of female directors, minority directors along with control variables on firm value measured by market to book ratio (*lnMBR*). To capture the relationship between the presence of female directors and minority directors, the study used two variables: a dummy variable coded as 1 if there is at least one female director and minority director [model 4a, 5a & 6a] and zero otherwise, and the percentage of female and minority directors on the boardroom [4b, 5b, & 6b]. The estimated coefficients for several models on the dependent variable *ln MBR* are statistically significant except in leverage.

The regression coefficients of board size are positive and statistically significant in all models except models 5a & 6a. This finding indicates that a greater number of directors in the board leads to higher firm market valuation which supports the findings of Charles et al. (2018), Coles et al. (2008), and Nguyen et al. (2014) but contradicts Andres and Vallelado (2008), Carter et al. (2003) and Gyapong et al. (2015) study. Whereas, the beta coefficient of independent directors is positive and statistically significant in 1 percent of level in all most all the models. These results indicate that the presence of independent directors in boardroom increase the value of the firm and vice-versa. Hence, these results also support the hypothesis H1a and H1b. Similarly, the estimated regression result shows the beta coefficients of leverage have a positive relationship with firm value but not statistically significant in any models. Surprisingly, this result does not support the expected hypothesis (H1d).

Whereas, the regression coefficient of firm size has a positive relationship with firm value measured by MBR and is statistically significant at 1 percent in all the models. This finding indicates the greater the firm size higher the market value of firm that supports the finding of Gyapong et al. (2016) and Rancati (2017) study but contradicts Ararat et al. (2015), Dezso and Ross (2012) study. Similarly, the regression coefficient of ROA also observed positive and statistically significant at 1 percent level with the market valuation of the firms in all the models indicating that higher the ROA leads to higher value of firm and vice-versa. The result is consistent with Carter et al. (2003), Eberhart (2012) & Jubilee et al. (2018) study but inconsistent with Gupta et al. (2009) result. Hence both the results support hypothesis (H1c & H1e).

The regression estimates for the relationship between firm value and the presence of female directors in the boardroom in model [4a & 4b] both have positive and statistically significance at 5 percent level which indicates that the presence of female directors in the boardroom

leads an increase in the firm value. Similarly, the coefficient for the minority directors and firm value in both models [5a. & 5b] are positive and statistically significant at 10 percent level. Likewise, the regression results of combined effects of female and minority directors in the boardroom with firm value in model [6a. & 6b.] indicate positive and statistically significant at 1 percent and 5 percent respectively which also provides strong evidence that presence of female and minority directors in the boardrooms lead to increase the market value of firm. Hence, hypothesis H1 i.e., there is a significant relationship between board diversity and firm value based on of both gender and minority is accepted and the finding is consistent with Ararat et al. (2015) & Ntim (2013) study but inconsistent with Carter et al. (2010).

### **Conclusion, Implication and Research Limitations**

In recent years, many corporate scandals and failures have occurred due to the lack of effective corporate governance mechanisms. Therefore, board diversity has received significant attention from policymakers, regulators, governments, and shareholders because of its implications for good corporate governance. Previous research has shown inconclusive and contradictory results regarding whether board diversity (particularly the presence of women on boards) has an economic impact on firm value. So, this study purpose to inspect the relationship between board diversity and the firm value of financial institutions of Nepal. It examines the presence of female and minority directors along with instrumental variables like board size, independent directors, Leverage, firm size, and ROA on firm market value.

The study is based on balance panel data of 38 financial institutions from 2012 to 2021. The study concludes that there is a positive significant effect of board diversity in terms of female and minority directors on the firm value. This result revealed that more presence of female and minority directors in the board room helps to increase the firm value in Nepalese financial institutions. Hence, these findings are consistent with agency and resources dependency theories which suggest a diverse board members improve board oversight and bring more diverse ideas, new perspectives, experience, and business knowledge to the board's decision-making process, ultimately improving the company's financial performance and value (Agyemang-Mintah, & Schadewitz, 2019).

Moreover, the evidence supports that the presence of female directors in the boardroom affects more in the firm market value than as compared to the minority directors. Similarly, the study also concludes that board size, independent directors, firm size and, ROA have a positive impact on the firm value whereas Leverage has a negative and significant impact on the firm value.

Board diversity is a major concern in the corporate world. The government of Nepal has introduced a requirement for at least one woman and one independent director for every seven board members in the banking sector. This study provided empirical evidence on business practices and implications for policymakers. Not only does such a policy make sense from a societal perspective, investing in board diversity appears to be an effective business strategy with promising and sustainable returns in the form of increased shareholder value. It also looks like the appointment of women to corporate boards should not be done symbolically, but with the motive

that their presence increases the value of the company. The presence of female and minority directors on a company's board of directors should not be seen as a mere token; the focus should be on how they can contribute to the board's performance. Another practical implication of this study is to help developing countries like Nepal which is considering as pursuing board gender diversity reforms.

Just like any other study, this one also has its limitations. This study first focuses on board diversity as the presence of women and minority directors in the boardroom, which represents one aspect of board diversity. Therefore, future researchers can investigate the impact of other board diversity characteristics, such as director age, academic qualification, experience (tenure), language, and cultural diversity, on firm performance and value. Second, future researchers can conduct cross-country studies and compare their results, especially in emerging economies. And third different methodological dimensions such as case studies, surveys or experimental studies may be helpful for detailed understanding of the issues related to board diversity with financial performance and firm value.

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