Debt Finance, Inventory Management and Economic Value of Energy Industry in Saudi Arabia: Empirical Investigation

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ABSTRACT

The purpose of this paper is to identify the relationships of debt finance and inventory management with firm economic value of energy industry in Saudi Arabia, from 2012 to 2019. The sample comprises of 32 firm-year observations throughout the 8 years’ time frame until 2019. Pearson’s correlation, Pooled OLS Regression are used in this study. The findings of this study indicate to a negative association between debt finance and firm economic value. Furthermore, a positive association is reported between inventory management and firm economic value. The results of this study are important for energy industry in Saudi Arabia in making decisions related to debt financing. In addition, energy industry can use the results of this study in controlling their inventory practices. Further, the results of this study can be used in future research to gain a deeper understanding of the issues of debt finance, inventory management and firm economic value.

Keywords: Debt Finance, Inventory Management, Economic Value, Energy Industry, Saudi Arabia

JEL Classifications: L25, G51, H68, O13, P18, P28, P48

1. INTRODUCTION

Debt is employed by companies as a means of financing their activities (Damadoran, 2001). Choosing to employ debt financing is regarded as a crucial financial decision for all companies. Every company wants to achieve the maximum possible return and choosing to take on debt can negatively affect profit. Companies employ debt for financing what they presume will be successful projects. If the projects succeed as hoped, the firm will get a good return on its investments and therefore be able not only to pay their debt but also to use the funds left over for further investment. However, should projects not succeed, company performance can be adversely impacted for a considerable period (Stiglitz and Weiss, 1981).

By the same way of token, it is widely agreed that the way in which inventory is managed can have a crucial influence on company profits, as good management can reduce the expense of retaining stock and make sure that production runs smoothly (Cheung et al, 2004; Shin, 2015). Economic value ratios operate as indicators of how well a company is performing financially and how effectively it is generating profits (Brigham and Erhardt, 2013). Bourne and Walter (2005) state that there is a direct correlation between inventory management and company performance. Inadequate management will inevitably result in a significant wastage related to the cost of storing inventory and greater risks of inventory being damaged or lost (Lwiki et al., 2013). For effective performance, companies must create the maximum possible revenue for the minimum possible cost (Mohamad et al., 2016). Managing inventory will directly influence outlay and therefore company profit and performance (return on investment) (Fullerton et al., 2003; Swamidass, 2007; Koumanakos, 2008; Steven and Britto, 2016; Lin et al., 2018). This means that inventory management and ROA are directly linked (Eroglu and Hofer, 2011; Sahari et al., 2012). Keeping the optimal level of inventory will lead to significant improvements in company financial performance (Abd Karim et al., 2018).
This paper aims to offer greater insight into the links between debt financing/inventory management and company performance related to Saudi Arabia’s energy businesses. As far as the researchers are aware, there is no empirical research available linking debt financing/inventory management and company performance. The energy industry has been chosen for examination as it is highly influential economically for the nation in which it employs labor and capital for its output. Saudi Arabia’s energy sector is crucial in helping to alleviate economic hardship and address social inequality in the country. Development goals mandate that the energy sector must be developed in a manner that ensures that it benefits wider society. In this way, it can alleviate the poverty gap that exists in developing countries (Rutin and Felice, 2013; Yergin and Gross, 2012). Saudi Arabia has taken steps to implement a market economy through regulation and other means. The outcomes of this research should be a useful reference for the nation’s politicians and regulators. On a wider level, it should be useful for all those involved in emerging Middle Eastern markets as many countries in the region have similar institutions and economic structures (La Porta and Lopez-de-silanes, 1999). It is likely that this research will raise new questions regarding debt financing and inventory management; numerous stakeholders will have an interest in seeing the influence that debt financing/inventory management has on a company’s profits.

The following sections of the paper are organized as follows. The literature is reviewed and the hypotheses are developed in Section 2. The data collection and research design is highlighted in Section 3. Section 4 displays the results and discussions. Conclusions and implications were discussed in the final section, Section 5.

2. LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

Debt represents the monies borrowed by a company from outside agencies. It is recognized that management is frequently concerned about the impact that debt will have on company value (Grossman and Hart, 1982). This may occur if executives do not exercise effective control over a firm’s activity. Excessive debt can damage a company’s reputation in the marketplace and thereby lead to a loss of custom. Companies take on debt to have sufficient funds for large projects with an assumption of success. Should these projects succeed and provide the desired results, a company will make significant profits and therefore will be able to pay off their debt and employ the remaining funds to reinvest. However, if such projects should fail, company performance may be negatively impacted for significant periods (Stiglitz and Weiss, 1981). Berezinets et al. (2017) noted that if organizations have higher debt levels, this may be an indicator that they are expanding through engagement with new initiatives. This is why the organization will have to borrow some capital to be used in funding these projects, (Berezinets et al., 2017; Black et al., 2006). Kinsman and Newman (1998) reported that high levels of debt are correlated with lower firm performance. Empirically, Fernandez-Temprano and Tejerina-Gaite (2020) Assenga et al. (2018), Mishra and Kapil (2018), Yasser et al. (2017), Plalniappan (2017), Kumar and Singh (2013), McConnell and Servaes (1995), Short and Keasey (1999), Weir et al. (2002), Haniffa and Hudaib (2006), Majumdar and Chhibber (1999), Gleason (2000), Cheng (2009), Johnny Jermias (2008). In the setting of Saudi Arabia, Aljifri and Moustafa (2007) find a negative association between firm performance and debts. Accordingly, the expected signs for the relationships of debt finance with firm economic value is negative.

**H$_{1a}$**: There is a negative relationship between debt finance and firm economic value-ROE.

**H$_{1b}$**: There is a negative relationship between debt finance and firm economic value-ROA.

Inventory is an essential part of business and it requires effective management by senior executives, no matter what the company size (ElSayed and Wahba, 2013; Abd Karim et al., 2018). Inventory management covers every aspect of the maintenance and management of inventory, including raw materials, products during manufacture, and the finished article. Companies holding inventory must make sure they maintain the correct level of stock, as over or under stocking can lead to wastage during manufacturing (Chase et al., 2006; Heizer and Render, 2014; Ahmad and Zabri, 2018; Kotler, 2002; Abd Karim et al., 2018).

A primary reason for the importance of inventory is that storage and handling of inventory can be a costly and complicated process. This is especially true with modern systems (Dennis and Meredith, 2000). If inventory is not managed efficiently, delays may ensue and the company may not be able to satisfy the requirements of consumers (Baron et al., 2010; Ahmad and Zabri, 2018). It is essential that companies should have rigorous systems established for managing inventory and make sure that such systems are subject to continuous monitoring and management by suitably qualified employees (Coyle et al., 2003; Mohamad et al., 2016).

The chief aim of managing inventory is making sure that the ideal level of stock is maintained to accord with the demands of customers and the manufacturing processes (Mohamad et al., 2016; Toomey, 2000). In any firm producing products, inventory management is essential as problems with inventory can cause loss of sales or additional cost. Managing inventory effectively maintains a robust supply chain and can help a company to take a lead over its rivals. Inventory management may have a crucial effect on company profits, as it can lead to reductions in storage costs and assist in the smooth flow of production (Cheung et al., 2004; Shin et al., 2015). Economic value ratios offer indicators of how a company is performing financially and how effectively it is creating profits (Brigham and Ehrhardt, 2013).

Bourne and Walter (2005) state that inventory management directly influences how a firm performs. Poor management of inventory will cause significant wastage in terms of the costs of storing inventory and greater risks of goods being damaged or lost (Lwiki et al., 2013). For effective performance, companies must create the greatest possible level of revenue for the least outlay (Mohamad et al., 2016). Inventory management directly influences cost and therefore the profits and asset returns of a company (Fullerton et al., 2003; Swamidass, 2007;
Koumanakos, 2008; Steven and Britto, 2016; Lin et al., 2018). This creates a direct linkage of inventory management and ROA (Eroglu and Hofer, 2011; Sahari et al., 2012). The maintenance of the ideal level of inventory can lead to significant improvements in a company’s financial performance (Abd Karim et al., 2018).

Little clear evidence is available directly supporting the correlation between company performance and inventory management (Vastag and Whybark, 2005; Cannon, 2008; Keramidou et al., 2012; Obermaier and Donhauser, 2012; Folinas and Shen, 2014). A certain amount of empirical research has been undertaken to investigate this correlation, and what there is has found the two elements to be positively related (Jonsson and Mattsson, 2008; Capkun et al., 2009; Gaur and Kesavan, 2009; Pong and Mitchell, 2012; Sahari et al., 2012; Ahmad and Zabri, 2018; Lin et al., 2018). Researchers have demonstrated that the lower a company’s inventory ratio is the greater likelihood of their having high levels of sales, improved ROI, and remaining competitive. Overall, based on the above empirical evidences reported by the extant literature, the following hypotheses are suggested:

Hₙ: There is a positive relationship between inventory management and firm economic value-ROA.

Hₙ: There is a positive relationship between inventory management and firm economic value-ROE.

3. DATA COLLECTION AND RESEARCH DESIGN

3.1. Sample Selection and Data Collection

The sample of this study consists of energy listed companies on Saudi Stock Exchange (Tadawul) for the years ranging from 2012 to 2019. We conduct a cross-sectional review of financial reports of the sample companies as depicted in Table 1.

3.2. Regression Model and Definition of Variables

Ordinary-Least Square OLS regression is used to estimate the associations of debt finance and inventory management with firm economic value of energy listed companies in Saudi Arabia for the period ranging from 2012 to 2019. The utilizing of the OLS regression is because the dependent variable in this study is a continuous measure. The functional equation of the OLS model is as follows:

\[ \text{FEV-ROE} = \beta_0 + \beta_1 \text{DFA} + \beta_2 \text{IM} + e \]  
\[ \text{FEV-ROA} = \beta_0 + \beta_1 \text{DFO} + \beta_2 \text{IM} + e \]  
\[ \text{FEV-ROE} = \beta_0 + \beta_1 \text{DFA} + \beta_2 \text{IM} + e \]  
\[ \text{FEV-ROA} = \beta_0 + \beta_1 \text{DFO} + \beta_2 \text{IM} + e \]

Where the independent variables are:

- Test variable
- DFA = total debts divided by total assets
- DFO = total debts divided by total owner’s equity
- IM = sales/inventory
- e = error

4. RESULTS AND DISCUSSIONS

4.1. Summary Statistics

Table 2 predicts the mean, standard deviation, minimum and maximum of each variable in the sample data set.

Table 2; panel A shows that the mean of the debt finance DFA is 0.486, and the range is between 0.01 and 0.86 and a standard deviation of 0.299. Further, the average of the debt finance DFO is 1.805 and it ranges from 0.01 to 6.37 and a standard deviation 1.961. The mean of the inventory management IM is 38.479 and it ranges from 10.01 to 88.63 and a standard deviation of 32.058. In addition, Table 2; panel B illustrates that the mean of firm economic value FEV-ROA, the dependent variable, is .0417 and it ranges from 0.000 to 0.11 with a standard deviation of 0.0336. As for the firm economic value FEV-ROE, the average is .091 and it ranges from .000 to 0.33 with a standard deviation of 0.082.

4.2. Correlation Matrix

Tables 3 and 4 display the Pearson correlations among the hypothesized variables. The coefficients of correlation are small and the highest correlation was between DFO and IM (-.427), indicating that the sample has no multicollinearity, since none of the correlation is equal or above 0.80 or 0.90. All variables have a correlation of equal or less than -.427 (Myers, 1990).

As for the Variance Inflation Factor (VIF), Tables 5 and 6 report the results as follows:

Table 2: Descriptive statistics

| Test variable     | Mean   | Std. Deviation | Minimum | Maximum |
|-------------------|--------|----------------|---------|---------|
| DFA               | 0.486  | 0.299          | 0.01    | 0.86    |
| DFO               | 1.805  | 1.961          | 0.01    | 6.37    |
| IM                | 38.479 | 32.058         | 10.01   | 88.63   |
| FEV-ROA           | 0.0417 | 0.0336         | 0.000   | 0.11    |
| FEV-ROE           | 0.091  | 0.082          | 0.000   | 0.33    |
Tables 5 and 6 illustrate that the largest VIF value is 1.223, implying that the sample has no multicollinearity, since none of the VIF values is up to 10 (Hair et al., 2006).

### 4.3. Regression Results and Discussions

Ordinary-Least Square (OLS) was used to evaluate the level of associations of debt finance and inventory management with firm economic value. As shown by Tables 7 and 8, the $R^2$s for the Models 1a and 1b are .836 and .740, respectively. This implies that Model 1a has explained 83.6% and Model 1b has explained 74% of the total variance in the firm economic value.

#### Table 3: Pearson correlation analysis results

|       | DFA  | IM  |
|-------|------|-----|
| DFA   | 1    | −0.380 |
| IM    | −0.380 | 1   |

**Significant at 1% level (2-tailed). *Significant at 5% level (2-tailed)**

#### Table 4: Pearson correlation analysis results

|       | DFA  | IM  |
|-------|------|-----|
| DFA   | 1    | −0.427 |
| IM    | −0.427 | 1   |

**Significant at 1% level (2-tailed). *Significant at 5% level (2-tailed)**

#### Table 5: Variance inflation factor ‑ ROA models

| Variables | Tolerance | VIF |
|-----------|-----------|-----|
| DFA       | 0.818     | 1.223 |
| IM        | 0.818     | 1.223 |

#### Table 6: Variance inflation factor ‑ ROE models

| Variables | Tolerance | VIF |
|-----------|-----------|-----|
| DFA       | 0.855     | 1.169 |
| IM        | 0.855     | 1.169 |

#### Table 7: Model Summary – Model 1a

| Model | R    | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|------|----------|-------------------|---------------------------|
| 1     | 0.914 | 0.836    | 0.821             | 4.303                     |

#### Table 8: Model Summary – Model 1b

| Model | R    | R Square | Adjusted R Square | Standard error of the Estimate |
|-------|------|----------|-------------------|------------------------------|
| 1     | 0.860 | 0.740    | 0.716             | 5.417                       |

#### Table 9: ANOVA Analysis – Model 1a

| Model     | Sum of Squares | df | Mean Square | F    | Sig. |
|-----------|----------------|----|-------------|------|------|
| Regression| 1984.809       | 2  | 992.405     | 53.600 | 0.000 |
| Residual  | 388.816        | 21 | 18.515      |       |      |
| Total     | 2373.625       | 23 |             |       |      |

#### Table 10: ANOVA Analysis – Model 1b

| Model     | Sum of Squares | df | Mean Square | F    | Sig. |
|-----------|----------------|----|-------------|------|------|
| Regression| 1757.452       | 2  | 878.726     | 29.948 | 0.000 |
| Residual  | 616.173        | 21 | 29.342      |       |      |
| Total     | 2373.625       | 23 |             |       |      |

#### Table 11: Pooled OLS regression – Model 1a (ROA)

| Variables | Expected sign | Coeff. | t     | p-value | Tolerance | VIF |
|-----------|---------------|--------|-------|---------|-----------|-----|
| (Constant)|               | 2.551  | 0.061 |         |           |     |
| Test variable |            |        |       |         |           |     |
| DFA       | −             | −0.628 | −6.574| 0.000   | 0.855     | 1.169 |
| IM        | +             | 0.463  | 4.899 | 0.000   | 0.855     | 1.169 |

Tables 9 and 10 depict that the F-values for the Models 1a and 1b are statistically significant at the 1% level which means that the overall models can be interpreted.

Tables 11, 12, 17 and 18 illustrate the Pooled OLS regression results. Tables 11 and 12 show that there is a significantly negative association between DFA and FEV-ROA ($\beta = −0.628$, $t = −6.574$, $P = 0.000$, one-tailed significance) in the Model 1a, and the same direction of association is reported between DFO and FEV-ROA ($\beta = −0.543$, $t = −4.419$, $P = 0.000$, one-tailed significance) in the Model 1b. These findings are consistent with Kinsman and Newman (1998), Fernandez-Temprano and Tejerina-Gaite (2020) Assenga et al. (2018), Mishra and Kapil (2018), Yasser et al. (2017), Plalniappan (2017), Kumar and Singh (2013), McConnell and Servaes (1995), Short and Keasey (1999), Weir et al. (2002), Haniffa and Hudaib (2006), Majumdar and Chhibber (1999), Gleason (2000), Cheng (2009), Johnny Jermias (2008), and Aljifri and Moustafa (2007). Thus, hypothesis $H_{1a}$ is accepted.

Tables 11 and 12 show that there is a significantly positive association between IM and FEV-ROA ($\beta = 0.463$, $t = 4.899$, $P = 0.000$, one-tailed significance) in the Model 1a, and the same direction of association is reported between IM and FEV-ROA ($\beta = 0.474$, $t = 3.858$, $P = 0.001$, one-tailed significance) in the Model 1b. These findings are consistent with several extant research (Jonsson and Mattsson, 2008; Capkun et al., 2009; Gaur and Kesavan, 2009; Pong and Mitchell, 2012; Sahari et al., 2012; Ahmad and Zabri, 2018; Lin et al., 2018). Therefore, hypothesis $H_{2a}$ is accepted.

As shown by Tables 13 and 14, the $R^2$s for the Models 2a and 2b are 0.628 and 0.559, respectively. This implies that Model 2a has
explained 62.8% and Model 1b has explained 55.9% of the total variance in the firm economic value.

Tables 15 and 16 depict that the F-values for the Models 2a and 2b are statistically significant at the 1% level which means that the overall models can be interpreted.

Tables 17 and 18 show that there is a significantly negative association between DFA and FEV-ROE (β = - .445, t = - 3.092, P = .002, one-tailed significance) in the Model 2a, and the same direction of association is reported between DFO and FEV-ROE (β = - .350, t = - 2.187, P = .040, one-tailed significance) in the Model 2b. These findings are consistent with Kinsman and Newman (1998), Fernandez-Temprano and Tejerina-Gaite (2020), Assenga et al. (2018), Mishra and Kapil (2018), Yasser et al. (2017), Plalniappan (2017), Kumar and Singh (2013), McConnell and Servaes (1995), Short and Keasey (1999), Weir et al. (2002), Haniffa and Hudaib (2006), Majumdar and Chhibber (1999), Gleason (2000), Cheng (2009), Johnny Jermias (2008), and Aljifri and Moustafa (2007). Thus, hypothesis H_{1b} is accepted.

Tables 17 and 18 show that there is a significantly positive association between IM and FEV-ROE (β = 0.508, t = 3.535, p = 0.002, one-tailed significance) in the Model 2a, and the same direction of association is reported between IM and FEV-ROE (β = 0.528, t = 3.295, p = 0.003, one-tailed significance) in the Model 2b. These findings are consistent with several extant research (Jonsson and Mattsson, 2008; Capkun et al., 2009; Gaur and Kesavan, 2009; Pong and Mitchell, 2012; Sahari et al., 2012; Ahmad and Zabri, 2018; Lin et al., 2018). Therefore, hypothesis H_{2b} is accepted.

### Table 12: Pooled OLS regression – Model 1b (ROA)

| Variables | Expected sign | Coeff. | t | p-value | Tolerance | VIF |
|-----------|---------------|--------|---|---------|-----------|-----|
| (Constant)|               | 2.551  | 0.061 |
| Test variable |           |        |     |         |           |     |
| DFO       | -             | -0.543 | -4.419 | 0.000   | 0.818    | 1.223 |
| IM        | +             | 0.474  | 3.858  | 0.001   | 0.818    | 1.223 |

### Table 13: Model Summary – Model 2a

| Model | R   | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-----|----------|-------------------|---------------------------|
| 1     | 0.793 | 0.628    | 0.593             | 5.854                     |

### Table 14: Model Summary – Model 2b

| Model | R   | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-----|----------|-------------------|---------------------------|
| 1     | 0.748 | 0.559    | 0.517             | 6.373                     |

### Table 15: ANOVA Analysis – Model 2a

| Model | Sum of Squares | df | Mean Square | F       | Sig. |
|-------|----------------|----|-------------|---------|------|
| Regression | 1216.291 | 2  | 608.146     | 17.746  | 0.000 |
| Residual   | 719.667 | 21 | 34.270      |         |      |
| Total      | 1935.958 | 23 |             |         |      |

### Table 16: ANOVA Analysis – Model 2b

| Model | Sum of Squares | df | Mean Square | F       | Sig. |
|-------|----------------|----|-------------|---------|------|
| Regression | 1083.071 | 2  | 541.536     | 13.334  | 0.000 |
| Residual   | 852.887 | 21 | 40.614      |         |      |
| Total      | 1935.958 | 23 |             |         |      |

### Table 17: Pooled OLS regression – Model 2a (ROE)

| Variables | Expected sign | Coeff. | t | p-value | Tolerance | VIF |
|-----------|---------------|--------|---|---------|-----------|-----|
| (Constant)|               | 12.977 |   | 0.000   |           |     |
| Test variable |           |        |     |         |           |     |
| DFA       | -             | -0.445 | -3.092 | 0.002   | 0.855    | 1.169 |
| IM        | +             | 0.508  | 3.535  | 0.002   | 0.855    | 1.169 |

### Table 18: Pooled OLS regression – Model 2b (ROE)

| Variables | Expected sign | Coeff. | t | p-value | Tolerance | VIF |
|-----------|---------------|--------|---|---------|-----------|-----|
| (Constant)|               | 14.666 |   | 0.000   |           |     |
| Test variable |           |        |     |         |           |     |
| DFO       | -             | -0.350 | -2.187 | 0.040   | 0.818    | 1.223 |
| IM        | +             | 0.528  | 3.295  | 0.003   | 0.818    | 1.223 |
5. CONCLUSIONS AND IMPLICATIONS

This paper has examined the influence of debt financing and inventory management on company economic value for Saudi Arabia’s energy companies between 2012 and 2019. The selected sample for this research comprises 32 firm-year observations. Employing Pooled OLS Regression, this research has demonstrated that debt financing has a negative impact on company profits. Additionally, it has also demonstrated that there is a positive correlation between company economic value and inventory management.

This research makes it clear that Saudi Arabia’s energy companies must have an awareness about the influence that debt financing can have on their profits. They may have to consider the positives and negatives of equity financing. Furthermore, these companies must make their inventory control systems more robust as more effective inventory management leads to greater profit. A number of factors influencing debt financing/inventory management could be researched in future, e.g. corporate governance (ownership structures, quality of audits, audit committee, and Board of Directors). This research model could be reproduced for other GCC nations and in other Middle Eastern (Arab) markets to check for validity. This research can offer financial analysts, investors, auditors, banks, account/audit regulators, companies, stock markets, researchers, and academics fresh understanding of the correlations of debt financing/inventory management and company profits.

REFERENCES

Adams, R.B., Mehran, H. (2005), Firm Value, Board Structure and its Determinants in the Banking Industry. Moscow: EFA 2005 Moscow Meetings.
AlNasser, Z. (2019), The effect of royal family members on the board on firm performance in Saudi Arabia. Journal of Accounting in Emerging Economies, Forthcoming, 10(6), 2042-1168.
Al-Abbas, M.A. (2008), Do Saudi Companies Underestimate us in the Application of Governance? Aleqtisadia Magazine. Available from: http://www.aleqt.com/2008/02/29/article_11668.save.
Alexander, J.A., Fennell, M.L., Halpern, M.T. (1993), Leadership instability in hospitals: The influence of board-CEO relations and organizational growth and decline. Administrative Science Quarterly, 38(1), 74-99.
Al-Ghamdi, S.A. (2012), Investigation into Earnings Management Practices and the Role of Corporate Governance and External Audit in Emerging Markets: Empirical Evidence from Saudi Listed Companies, Doctoral Dissertation. England: Durham University.
Al-Hamidy, A. (2010), The global financial crisis: Impact on Saudi Arabia. This Volume BIS Papers, 54, 347-357.
Al-Hussain, A.H. (2007), Corporate Governance Structure Efficiency and Bank Performance in Saudi Arabia, Doctoral Dissertation. University of Phoenix.
Aljiffri, K., Moustafa, M. (2007), The impact of corporate governance mechanisms on the performance of UAE firms: An empirical analysis. Journal of Economic and Administrative Sciences, 23(2), 71-93.
Al-Moataz, E., Basfar, A. (2010), The role of audit committees in corporate governance: An empirical investigation on Saudi corporations. Journal of King Abdulaziz University: Economics and Administration, 24(2), 193-239.
Assenga, M.P., Aly, D., Hussainey, K. (2018), The impact of board characteristics on the financial performance of Tanzanian firms. Corporate Governance: The International Journal of Business in Society, 18(6), 1089-1106.
Aydin, N., Sayim, M., Yalama, A. (2007), Foreign ownership and firm performance: Evidence from Turkey. International Research Journal of Finance and Economics, 11(1), 103-111.
Bereznets, I., Iliya, Y., Cherkasskaya, A. (2017), Board structure, board committees and corporate performance in Russia. Managerial Finance, 43(10), 1073-1092.
Bhatt, R.R., Bhattacharya, S. (2017), Family firms, board structure and firm performance: Evidence from top Indian firms. International Journal of Law and Management, 59(5), 699-717.
Black, B.S., Jang, H., Kim, W. (2006), Does corporate governance predict firms’ market values? Evidence from Korea. The Journal of Law, Economics, and Organization, 22(2), 366-413.
Boone, A.L., Field, L.C., Karpoff, J.M., Raheja, C.G. (2007), The determinants of corporate board size and composition: An empirical analysis. Journal of Financial Economics, 85(1), 66-101.
Brick, I.E., Chidambaram, N.K. (2010), Board meetings, committee structure, and firm value. Journal of Corporate Finance, 16(4), 533-553.
Brown-Liburd, H., Cohen, J., Zamora, V.L. (2011), The Effect of Corporate Social Responsibility Investment, Assurance, and Perceived Fairness on Investors’ Judgments. USA: Milgard School of Business.
Cheng, M.T. (2009), Relative effects of debt and equity on corporate operating performance: A quantile regression study. International Journal of Management, 26(1), 142.
Coles, J., Daniel, N., Naveen, L. (2008), Boards: Does one size fit all? Journal of Financial Economics, 87(2), 329-356.
Cubbin, J., Leech, D. (1983), The effect of shareholding dispersion on the degree of control in British companies: Theory and measurement. The Economic Journal, 93(370), 351-369.
Dalton, C., Dalton, D. (2005), Boards of directors: Utilizing empirical evidence in developing practical prescriptions. British Journal of Management, 16(1), 91-97.
Dalton, D., Daily, C., Johnson, J., Ellstrand, A. (1999), Number of directors and financial performance: A meta-analysis. Academy of Management Journal, 42(6), 674-686.
Damodaran, A. (2016), Damodaran on Valuation: Security Analysis from Investment and Corporate Finance. Vol. 324. United States: John Wiley & Sons.
Eisenberg, T., Sundgren, S., Wells, M. (1998), Larger board size and decreasing firm value in small firms. Journal of Financial Economics, 48(4), 35-54.
Fama, E.F., Jensen, M.C. (1983), Agency problems and residual claims. Journal of Law and Economics, 26, 327-349.
Fernández-Temprano, M.A., Tejerina-Gaite, F. (2020), Types of director, board diversity and firm performance. Corporate Governance, 20(2), 324-342.
Gleason, K.C., Mathur, L.K., Mathur, I. (2000), The interrelationship between culture, capital structure, and performance: Evidence from European retailers. Journal of Business Research, 50(2), 185-191.
Goodstein, J., Gautam, K., Boeker, W. (1994), The effects of board size and diversity on strategic change. Strategic Management Journal, 15(3), 241-250.
Grossman, S.J., Hart, O.D. (1982), Corporate financial structure and managerial incentives. In: The Economics of Information and Uncertainty. United States: University of Chicago Press. p107-140.
Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., Tatham, R.L. (2006), Multivariate Data Analysis. Vol. 6. Upper Saddle River, NJ: Pearson Prentice Hall.
Haniffa, R., Hudaib, M. (2006), Corporate governance structure and performance of Malaysian listed companies. Journal of Business Finance and Accounting, 33(7-8), 1034-1062.

Hannan, M.T., Freeman, J. (1989), Organizational Ecology. Cambridge, Massachusetts: Harvard University Press.

Hawkamah, The Institute for Corporate Governance and IFC, International Finance Corporation. (2008), Corporate Governance Survey of Listed Companies and Banks Across the Middle East and North Africa. Available from: http://www.hawkamah.org.

Helmich, D. (1977), Executive succession in the corporate organization: A current integration. The Academy of Management Review, 2(2), 252-266.

Hurdle, G.J. (1974), Leverage, risk, market structure and economic value. The Review of Economics and Statistics, 56(4), 478-485.

Jensen, M.C. (1993), The modern industrial revolution, exit, and the failure of internal control systems. The Journal of Finance, 48(3), 831-880.

Jensen, M., Meckling, W. (1976), Theory of the firm: Managerial behavior, agency costs, and capital structure. Journal of Financial Economics, 3(4), 305-360.

Jermias, J. (2008), The relative influence of competitive intensity and business strategy on the relationship between financial leverage and performance. The British Accounting Review, 40(1), 71-86.

Kao, M.F., Hodgkinson, L., Jaafar, A. (2019), Ownership structure, board of directors and firm performance: Evidence from Taiwan. Corporate Governance: The International Journal of Business in Society, 19(1), 189-216.

Karamanou, I., Vafeas, N. (2005), The association between corporate boards, audit committees, and management earnings forecasts: An empirical analysis. Journal of Accounting Research, 43(3), 453-486.

Kawaura, A. (2004), Deregulation and governance: Plight of Japanese banks in the 1990s. Applied Economics, 36(5), 479-484.

Kinsman, M.D., Newman, J.A. (1998), Debt Associated with Lower Firm Performance Finding Calls for Review of Rise in Debt Use. California: Graziadio Business Report.

Kumar, J. (2004), Does ownership structure influence firm value? Evidence from India. The Journal of Entrepreneurial Finance and Business Ventures, 9(2), 61-93.

Kumar, N., Singh, J.P. (2013), Effect of board size and promoter ownership on firm value: Some empirical findings from India. Corporate Governance: The International Journal of Business in Society, 13(1), 1472.

Kyereboah-Coleman, A., Biekpe, N. (2005), The relationship between board size, board composition CEO duality and firm performance experience from Ghana. Corporate Ownership and Control, 4(2), 1-19.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R. (1999), Corporate ownership around the world. Journal of Finance, 54(2), 471-517.

Larmou, S., Vafeas, N. (2008), The relation between board size and firm performance in firms with a history of poor operating performance. Journal of Management and Governance, 14(1), 61-85.

Letendre, L. (2004), The dynamics of the boardroom. Academy of Management Perspectives, 18(1), 101-104.

Lipton, M., Lorsch, J. (1992), A modest proposal for improved corporate governance. Business Lawer, 48(1), 59-77.

Majumdar, S.K., Chhibber, P. (1999), Capital structure and performance: Evidence from a transition economy on an aspect of corporate governance. Public Choice, 98(3-4), 287-305.

McConnell, J.J., Servaes, H. (1990), Additional evidence on equity ownership and corporate value. Journal of Financial Economics, 27(2), 595-612.

Mishra, R., Kapil, S. (2017), Effect of ownership structure and board structure on firm value: Evidence from India. Corporate Governance: The International Journal of Business in Society, 17(4), 700-726.

Muller-Kahle, M.I., Wang, L., Wu, J. (2014), Board structure: An empirical study of firms in Anglo-American governance environments. Managerial Finance, 40(7), 681-699.

Palaniappan, G. (2017), Determinants of corporate financial performance relating to board characteristics of corporate governance in Indian manufacturing industry: An empirical study. European Journal of Management and Business Economics, 26(1), 67-85.

Pearce, J.A., Zahra, S.A. (1992), Board composition from a strategic contingency perspective. Journal of Management Studies, 29(4), 411-438.

Pfeffer, J. (1972), Size and composition of corporate board of directors: The organization and its environment. Administrative Science Quarterly, 17, 218-229.

Pfeffer, J.S., Salancik, G. (1978), The External Control of Organizations: A Resource Dependence Perspective. New York: Stanford University Press.

Porwal, H., Kumar, S. (2003), Ethical culture in corporate accounting. Akauntan Nasional, 16, 18-23.

Rodriguez-Fernandez, M., Fernandez-Alonso, S., Rodriguez-Rodriguez, J. (2014), Board characteristics and firm performance in Spain. Corporate Governance, 14(4), 485-503.

Ruti, P.M., De Felice, M. (2013), Climate and energy production-a climate services perspective. In: Climate Vulnerability: Understanding and Addressing Threats to Essential Resources. Netherlands: Elsevier Inc.

Sheikh, A.N., Wang, Z. (2012), Effects of corporate governance on capital structure: Empirical evidence from Pakistan. Corporate Governance: The International Journal of Business in Society, 12(5), 629-641.

Short, H., Keasey, K. (1999), Managerial ownership and the performance of firms: Evidence from the UK. Journal of Corporate Finance, 5(1), 79-101.

Stiglitz, J.E., Weiss, A. (1981), Credit rationing in markets with imperfect information. The American Economic Review, 71(3), 393-410.

Teng, L.L., Aun, L.K., Fook, O.S. (2011), Corporate governance assessment in company board structure. African Journal of Business Management, 5(4), 1175-1183.

Vafeas, N. (1999), Board meeting frequency and firm performance. Journal of Financial Economics, 53(1), 113-142.

Weir, C., Laing, D., McKnight, P.J. (2002), Internal and external governance mechanisms: Their impact on the performance of large UK public companies. Journal of Business Finance and Accounting, 29(5-6), 579-611.

Yasser, Q.R., Mamun, A.A., Rodrigs, M. (2017), Impact of board structure on firm performance: Evidence from an emerging economy. Journal of Asia Business Studies, 11(2), 210-228.

Yergin, D., Gross, S. (2012), Energy for Economic Growth: Energy Vision Update 2012, Industry Agenda. Switzerland: World Economic Forum.

Yermack, D. (1996), Higher market valuation of companies with a small board of directors. Journal of Financial Economics, 40(2), 185-211.

Zahra, S.A., Pearce J.A. (1989), Boards of directors and corporate financial performance: A review and integrative model. Journal of Management, 15, 291-334.