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**AGE AND GENDER DIVERSITY OF THE BOARD AND SOLVENCY OF  
COMPANIES IN ENERGY SECTOR IN MALAYSIA.**

By



**LIM BOON YEE**



**Thesis Submitted to**

**School of Business Management,**

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**in Partial Fulfilment of the Requirement for the Master of Sciences (Management)**



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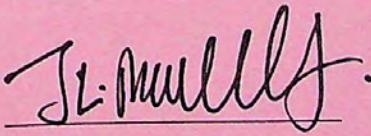
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## ABSTRACT

This study investigates at how board diversity, specifically age and gender influence the solvency of Malaysia public listed companies in energy sector. The primary goal is to examine whether diversity in board composition affects a company's financial health. Using secondary data collected from the annual reports of 33 public listed companies in energy sector in year 2023, the study used multiple regression analysis to test three hypotheses about the average age of board members, the percentage of female representation, and the combined effect of both diversity dimensions on solvency, as measured using the debt-to-asset ratio. The theoretical foundation of this study is resource dependency theory, which states that diverse boards can give a larger range of knowledge, resources, and viewpoints that improve organizational outcomes. The study found no statistically significant association between age or gender diversity and company solvency when the diversity factor stands alone. However, when diversity factor of age and gender are combined, there is statistically significant association with company solvency. These findings suggest that in Malaysia's energy sector, demographic board diversity alone may not have a direct or immediate influence on financial health. The study contributes to the discourse on corporate governance However, the study adds to ongoing governance conversations by underlining the importance of considering other potential mediators or industry-specific issues such as education and background. Future research should look into various types of diversity, use longitudinal data, and make cross-industry comparisons to gain a better understanding of board dynamics and financial performance.

**Keywords:** Board diversity, Age diversity, Gender diversity, Solvency, Debt-to-asset ratio, resource dependency theory, corporate governance, Energy sector.

## ABSTRAK

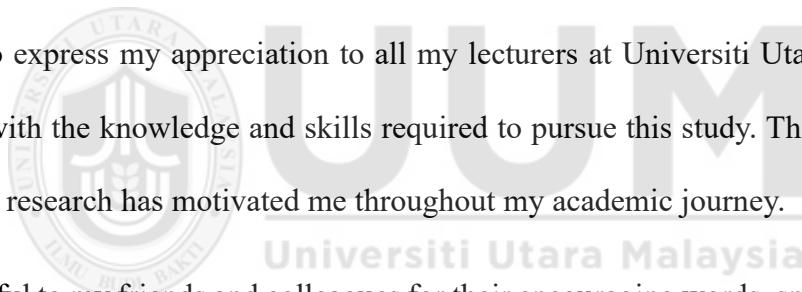
Kajian ini menyiasat bagaimana kepelbagaian lembaga pengarah, khususnya umur dan jantina, mempengaruhi solvabiliti syarikat tersenarai awam Malaysia dalam sektor tenaga. Matlamat utama adalah untuk mengkaji sama ada kepelbagaian dalam komposisi lembaga memberi kesan kepada kesihatan kewangan sesebuah syarikat. Dengan menggunakan data sekunder yang dikumpul daripada laporan tahunan 33 syarikat tersenarai awam dalam sektor tenaga pada tahun 2023, kajian ini menggunakan analisis regresi berganda untuk menguji tiga hipotesis berkaitan umur purata ahli lembaga, peratusan wakil wanita, dan kesan gabungan kedua-dua dimensi kepelbagaian terhadap solvabiliti, yang diukur menggunakan nisbah hutang kepada aset. Asas teori kajian ini adalah teori kebergantungan sumber (resource dependency theory), yang menyatakan bahawa lembaga yang pelbagai dapat memberikan rangkaian pengetahuan, sumber, dan pandangan yang lebih luas untuk meningkatkan hasil organisasi. Kajian ini mendapati tiada kaitan signifikan secara statistik antara kepelbagaian umur atau jantina dengan solvabiliti syarikat apabila faktor kepelbagaian berdiri sendiri. Walau bagaimanapun, apabila faktor kepelbagaian umur dan jantina digabungkan, terdapat kaitan signifikan secara statistik dengan solvabiliti syarikat. Penemuan ini mencadangkan bahawa dalam sektor tenaga Malaysia, kepelbagaian demografi lembaga sahaja mungkin tidak mempunyai pengaruh langsung atau segera terhadap kesihatan kewangan. Kajian ini menyumbang kepada perbincangan mengenai tadbir urus korporat. Namun, kajian ini menambah perbincangan tadbir urus yang sedang berjalan dengan menekankan kepentingan mempertimbangkan faktor perantara lain atau isu khusus industri seperti latar belakang pendidikan dan pengalaman. Kajian masa depan disarankan untuk meneliti pelbagai jenis kepelbagaian, menggunakan data longitudinal, dan membuat perbandingan merentas industri untuk memperoleh pemahaman yang lebih baik mengenai dinamik lembaga dan prestasi kewangan.

**Kata kunci:** Kepelbagaian lembaga pengarah, Kepelbagaian umur, Kepelbagaian jantina, Solvensi, Nisbah hutang kepada aset, Teori kebergantungan sumber, Tadbir urus korporat, Sektor tenaga.

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# CHAPTER 1

## BACKGROUND OF RESEARCH

### 1.0 Introduction

Gender diversity related research has been receiving a lot attentions in recent years. Many countries in the world including Malaysia have been revising the law to mandate the corporation to increase the number of female board member on the corporate board due to the under representation of female board member on board. As a result, research pertaining to boardroom diversity has been rising after the law has been enacted (Jadhav, 2019). Hence, this study has been designed to examine the association between the gender and age diversity of the board and the solvency of public listed companies in the energy sector.

### 1.1 Background of Study

In the present research by Brahma (2021), gender diversity shows a positive association to the firm's financial performance using two ratios namely the Tobin's Q and ROA. The impact of gender diversity on board became more obvious while two or more female board member are sitting in the corporate board. The impact is less significant in firms where the female board representation is lower (SanjuktaBrahma, 2021).

Female board member with in certain age, executive position and level of education does having positive influence on their performance. (SanjuktaBrahma, 2021). Female board member received higher education degree such as MBA degree will generally perform better as a result of greater knowledge and intellectual capability. These groups of female board member have greater ability to make good business decision for the company due to their high cognitive ability. Increasing female board member into the corporate board brings several benefits such as it will help to lead positive and sustainable change to the company, compliance

## 5.5 Conclusion

The objective of this study was to look into the association between board diversity, specifically age and gender, and solvency in Malaysian public-listed energy firms. The study tested three primary hypotheses using parametric statistical methods on a sample of 33 companies. The findings demonstrated that neither board age diversity nor gender diversity, alone or in combination, had a statistically significant influence on solvency, as measured by the debt-to-asset ratio.

The findings show that in the energy sector, the age and gender mix of boards alone may not have a direct impact on a company's solvency but when two diversity factors are combined, it shows a direct impact on the company's solvency. In the study, the average age of female board members is significantly related to a company's solvency, where younger female directors are associated with a lower debt-to-asset ratio, thereby improving solvency and reducing financial risk. This suggests that younger board members may bring more contemporary perspectives, adaptability, and openness to innovative financing strategies that rely less on debt. This is consistent with Muthia (2024), who stated that experienced board members can boost governance effectiveness and long-term performance. In contrast, the percentage of female directors on the board did not appear to have a direct impact on solvency. This finding is consistent with Garcia-Blandon (2024), who observed no significant change in solvency indicators after increasing female representation through policy implementation.

In conclusion, while the analysis only found significant evidence associating age and gender diversity to solvency when two diversity factors are combined, it does contribute to the expanding body of literature asking for more detailed, sector-specific research. Future study could use a broader collection of financial metrics, longitudinal data, or qualitative insights to better understand how diversity affects organizational resilience and performance.

## Reference

Alexa A. Perryman, G. D. (2016). Journal of Business Research. *Do gender differences persist? An examination of gender diversity on firm performance, risk, and executive compensation.*, 69(2), 579–586.  
<https://doi.org/https://doi.org/10.1016/j.jbusres.2015.05.013>

Ali, P. &. (2021). Understanding and interpreting regression analysis. *Evidence-Based Nursing*, 24(4), 116-118. <https://doi.org/http://dx.doi.org/10.1136/ebnurs-2021-103425>

Anh Huu Nguyen, D. T. (2020). Corporate Governance and Agency Cost: Empirical. *Journal of Risk and Financial Management*, 13(5), 103.  
<https://doi.org/https://doi.org/10.3390/jrfm13050103>

Arenas-Torres, F. B.-U.-T. (2021). Diversity of the Board of Directors and Financial Performance of the Firms. *Sustainability*, 13(21), 11687.  
<https://doi.org/https://doi.org/10.3390/su132111687>

Arora, A. (2022). Gender diversity in boardroom and its impact on firm performance. *Journal of Management and Governance*, 26(3), 735-755.  
<https://doi.org/https://link.springer.com/article/10.1007/s10997-021-09573-x>

Avram, C. &. (2022). Normality assessment, few paradigms and use cases. *Revista Romana de Medicina de Laborator*, 30(3), 251-260.  
<https://doi.org/http://dx.doi.org/10.2478/rrlm-2022-0030>

Azzam, A. A. (2022). Board gender diversity and innovation activities: Evidence from R&D investments in the UK. *Cogent Business & Management*, 9(1), 2154056.  
<https://doi.org/https://doi.org/10.1080/23311975.2022.2154056>

B.V., P. (2023). *The value of age diversity: Companies with age diverse boards are less risky and more resilient*. PricewaterhouseCoopers B.V.

Biduri, S. M. (2023). Does Board Gender Diversity Affect Accounting Conservatism and Financial Performance? *AKRUAL: Jurnal Akuntansi*, 14(2), 203-218.  
<https://doi.org/https://doi.org/10.26740/jaj.v14n2.p203-218>

BIMB Securities Research. (4 April, 2025). *Gender diversity in corporate leadership – Women representation on boards*. Retrieved from i3investor:  
<https://chatgpt.com/c/68984e4b-8a78-8326-818e-3b7bf8efbcba>

Bursa Malaysia. (02 June, 2023). *BURSA MALAYSIA APPLAUDS PROGRESSIVE PLCs FOR EMBRACING BOARD GENDER DIVERSITY AND CENSURES PLCs WITH ALL-MALE BOARDS*. Retrieved from Bursa Malaysia:  
[https://www.bursamalaysia.com/bm/about\\_bursa/media\\_centre/bursa-malaysia-applauds-progressive-plcs-for-embracing-board-gender-diversity-and-censures-plcs-with-all-male-boards?utm\\_source=chatgpt.com](https://www.bursamalaysia.com/bm/about_bursa/media_centre/bursa-malaysia-applauds-progressive-plcs-for-embracing-board-gender-diversity-and-censures-plcs-with-all-male-boards?utm_source=chatgpt.com)

Bursa Malaysia. (10 August, 2025). *Listing on Bursa Malaysia*. Retrieved from Bursa Malaysia: [https://www.bursamalaysia.com/listing/get\\_listed/listing\\_criteria](https://www.bursamalaysia.com/listing/get_listed/listing_criteria)

Corporate Finance Institute (CFI) Team. (23 February, 2025). *Solvency Ratio*. Retrieved from Corporate Finance Institute (CFI):  
<https://corporatefinanceinstitute.com/resources/commercial-lending/solvency-ratio/>

Corporate Finance Institute. (8 February, 2025). *Solvency*. Retrieved from Corporate Finance Institute: <https://corporatefinanceinstitute.com/resources/commercial-lending/solvency/>

D.C. Hambrick, P. M. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193-206.  
<https://doi.org/https://doi.org/10.2307/258434>

Darmadi, S. (2011). Board diversity and firm performance: the Indonesian evidence. *Corporate ownership and control Journal*, 8(2-4), 450-466.  
<https://doi.org/https://doi.org/10.22495/cocv8i2c4p4>

David A. Carter, B. J. (2003). Corporate Governance, Board Diversity, and Firm Value. *The Financial Review*, 38(1), 33-53. <https://doi.org/https://doi.org/10.1111/1540-6288.00034>

del Mar Fuentes-Fuentes, M. Q.-G.-L.-C. (2023). Gender diversity, inclusive innovation and firm performance. *Sustainable Development*, 31(5), 3622-3638.  
<https://doi.org/https://doi.org/10.1002/sd.2615>

Elmoursy, H. B. (2025). The Influence of Board Diversity on Capital Structure Decisions: Examining Financial Risk Management Across Different Market Conditions in UK-Listed Firms. *Journal of Risk and Financial Management*, 18(4), 202.  
<https://doi.org/http://dx.doi.org/10.3390/jrfm18040202>

EmadEldeen, R. E. (2021). The effect of the board diversity on firm performance: An empirical study on the UK. *Corporate Ownership & Control*, 18(3), 337-347.  
<https://doi.org/http://dx.doi.org/10.22495/cocv18i3siart8>

Fernández-Temprano, M. A.-G. (2020). Types of director, board diversity and firm performance. *The International Journal of Business in Society*, 20(2), 324-342.  
<https://doi.org/http://dx.doi.org/10.1108/CG-03-2019-0096>

Fernando, J. (06 March, 2024). *Debt-to-Equity (D/E) Ratio Formula and How to Interpret It.*

Retrieved from Investopedia:

<https://www.investopedia.com/terms/d/debtequityratio.asp#:~:text=What%20Is%20the%20Debt%20to,liabilities%20by%20its%20shareholder%20equity.>

Ferrero-Ferrero, I. F.-I.-T. (2015). Age Diversity: An Empirical Study in the Board of Directors. *Cybernetics and Systems*, 46(3-4), 249-270.

<https://doi.org/http://dx.doi.org/10.1080/01969722.2015.1012894>

Fulk, G. (2023). Descriptive statistics, an important first step. *Journal of Neurologic Physical Therapy*, 47(2), 63. <https://doi.org/https://doi.org/10.1097/npt.0000000000000434>

Garcia-Blandon, J. A.-B. (2024). Board gender diversity and firm solvency: Evidence from Scandinavia. *European Management Review*, 21(1), 251-259.

<https://doi.org/http://dx.doi.org/10.1111/emre.12570>

Gardazi, S. S. (2020). Board of directors attributes and sustainability performance in the energy industry. *The Journal of Asian Finance, Economics and Business*, 7(12), 317-328. <https://doi.org/http://dx.doi.org/10.13106/jafeb.2020.vol7.no12.317>

Gardiner, E. (2024). What's age got to do with it? The effect of board member age diversity: a systematic review. *Management Review Quarterly*, 74(1), 65–92.

<https://doi.org/https://doi.org/10.1007/s11301-022-00294-5>

Gennaro Bernile, V. B. (2018). Board diversity, firm risk, and corporate policies. *Journal of Financial Economics*, 127(3), 588-612.

<https://doi.org/https://doi.org/10.1016/j.jfineco.2017.12.009>

Ghanad, A. (2023). An Overview of Quantitative Research Methods. *INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND ANALYSIS*, 6(8), 3794-3803. [https://doi.org/https://doi.org/10.47191/ijmra/v6-i8-52](https://doi.org/10.47191/ijmra/v6-i8-52)

Ghasemi, A. &. (2012). Normality Tests for Statistical Analysis: A Guide for Non-Statisticians. *International journal of endocrinology and metabolism*, 10(2), 486-489. <https://doi.org/http://dx.doi.org/10.5812/ijem.3505>

Giannetti, M. &. (2023). Public attention to gender equality and board gender diversity. *Journal of Financial and Quantitative Analysis*, 58(2), 485-511. <https://doi.org/https://doi.org/10.1017/S0022109022000400>

Guizani, M. &. (2023). Does gender diversity on boards reduce the likelihood of financial distress? Evidence from Malaysia. *Asia-Pacific Journal of Business Administration*, 15(2), 287-306. <https://doi.org/http://dx.doi.org/10.1108/APJBA-06-2021-0277>

Habshah Midi, S. S. (2010). Collinearity diagnostics of binary logistic regression model. *Journal of interdisciplinary mathematics*, 13(3), 253-267. <https://doi.org/http://dx.doi.org/10.1080/09720502.2010.10700699>

Haldane Blessing, G. S. (2023). Impact of Liquidity and Solvency Ratios on Financial Performance: A Comprehensive Analysis. *Indonesia Auditing Research Journal*, 12(3), 102-115. <https://doi.org/https://doi.org/10.35335/arj.v12i3.208>

Hargrave, M. (07 June, 2024). *Debt-to-Capital Ratio: Definition, Formula, and Example*. Retrieved from Investopedia: <https://www.investopedia.com/terms/d/debt-to-capitalratio.asp>

Hazaea, S. A.-M. (2023). The impact of board gender diversity on financial performance: a systematic review and agenda for future research. *Corporate Governance: The*

*international journal of business in society*,, 23(7), 1716-1747.

<https://doi.org/http://dx.doi.org/10.1108/CG-07-2022-0302>

HH Dedunu, P. A. (2020). IMPACT OF BOARD DIVERSITY ON FIRM PERFORMANCE: EVIDENCE FROM SRI LANKA. *International Journal of Management, Innovation & Entrepreneurial Research*, 6(1), 23-31 .

<https://doi.org/https://doi.org/10.18510/ijmier.2020.614>

Hillebrink, T. &. (2023). The Contingent Effects of Age and Gender Diversity on Corporate Risk Appetite. <https://doi.org/http://dx.doi.org/10.13140/RG.2.2.23306.44482>

Ibendahl, G. (2016). Using Solvency Ratios to Predict Future Profitability. *Journal of ASFMRA*, 195-201. <https://doi.org/10.22004/ag.econ.236666>

IEA. (06 March, 2020). *Gender diversity in energy: What we know and what we don't know*. Retrieved from International Energy Agency:

<https://www.iea.org/commentaries/gender-diversity-in-energy-what-we-know-and-what-we-dont-know>

Institute of Corporate Directors of Malaysia. (2021). *The Malaysia Board Diversity Study & Index*. Kuala Lumpur: Institute of Corporate Directors Malaysia, Willis Towers Watson (WTW).

Jabari, H. N. (2021). Gender diversity and financial performance of Islamic banks. *Journal of financial reporting and accounting*, 19(3), 412-433.

<https://doi.org/http://dx.doi.org/10.1108/JFRA-03-2020-0061>

Jadhav, S. R. (2019). Gender diversity in boardrooms – A literature review. *Cogent Economics & Finance*, 7.

<https://doi.org/https://doi.org/10.1080/23322039.2019.1644703>

Janahi, M. M. (2023). Age diversity and the monitoring role of corporate boards: Evidence from banks. *human relations*, 76(10), 1599-1633. <https://doi.org/https://doi.org.eserv.uum.edu.my/10.1177/00187267221108729>

Janse, R. J. (2021). Conducting correlation analysis: important limitations and pitfalls. *Clinical Kidney Journal*, 14(11), 2332-2337.

<https://doi.org/http://dx.doi.org/10.1093/ckj/sfab085>

Jeffrey Pfeffer, G. S. (1978). *External Control of Organizations—Resource Dependence Perspective*. Harper & Row, New York: Routledge.

Johnston, M. P. (2014). Secondary Data Analysis: A Method of which the Time Has Come. *Qualitative and Quantitative Methods in Libraries*, 3(3), 619 –626.

Kaur, P. S. (2018). Descriptive statistics. *International Journal of Academic Medicine*, 4(1), 60-63. [https://doi.org/10.4103/IJAM.IJAM\\_7\\_18](https://doi.org/10.4103/IJAM.IJAM_7_18)

Kyriazos, T. &. (2023). Dealing with Multicollinearity in Factor Analysis: The Problem, Detections, and Solutions . *Open Journal of Statistics*, 13(3), 404-424.

<https://doi.org/http://dx.doi.org/10.4236/ojs.2023.133020>

Li, Y. G. (2021). Leveraging Age Diversity for Organizational Performance: An Intellectual Capital Perspective. *Journal of Applied Psychology*, 106(1), 71–91.

<https://doi.org/https://doi.org/10.1037/apl0000497>

Li, Y. G. (2021). Leveraging age diversity for organizational performance: An intellectual capital perspective. *Journal of applied psychology*, 106(1), 71-91.

<https://doi.org/https://doi.org/10.1037/apl0000497>

Lund Research Ltd. (12 March, 2025). *Total population sampling*. Retrieved from Laerd Dissertation: <https://dissertation.laerd.com/total-population-sampling.php>

Maier, F. &. (2022). Board characteristics and the insolvency risk of non-financial firms. *Journal of Risk and Financial Management*, 15(7), 303. <https://doi.org/http://dx.doi.org/10.3390/jrfm15070303>

Marshall, G. &. (2011). An introduction to inferential statistics: A review and practical guide. *Radiography*, 17(1), e1-e6. <https://doi.org/https://doi.org/10.1016/j.radi.2009.12.006>

Mehmood, R. A. (2019). The Impact of Corporate Diversification and Financial Structure on Firm Performance: Evidence from South Asian Countries. *Journal of Risk and Financial Management*, 12(1), 49. <https://doi.org/https://doi.org/10.3390/jrfm12010049>

Monks, R. a. (2004). *Corporate Governance*, 5th ed. Boston: Blackwell Publishing.

Muscat, O. D. (22 May, 2024). *The state of gender representation in the UK energy industry—and what to do about it*. Retrieved from Bain & Company: <https://www.bain.com/insights/the-state-of-gender-representation-in-the-uk-energy-industry/>

Muthia, F. P. (2024). Gender diversity and financial distress: evidence from non-financial companies in Indonesia. *Jurnal Riset Bisnis dan Manajemen*, 17(1), 121-128. <https://doi.org/http://dx.doi.org/10.23969/jrbm.v17i1.12082>

Nandias Alfiana Rosi, N. H. (2020). THE INFLUENCE OF RETURN ON ASSETS, DEBT TO ASSETS RATIO AND CURRENT RATIO ON FINANCIAL DISTRESS. *E-Jurnal Ekonomi dan Bisnis Universitas Udayana*, 9(10), 995-1018. <https://doi.org/http://dx.doi.org/10.46799/jsa.v4i4.843>

Nyimbili, F. &. (2024). Types of purposive sampling techniques with their examples and application in qualitative research studies. *British Journal of Multidisciplinary and*

*Advanced Studies*, 5(1), 90-99.

<https://doi.org/http://dx.doi.org/10.37745/bjmas.2022.0419>

Omair, A. (2025). Sample size estimation and sampling techniques for selecting a representative sample. *Journal of Health specialties*, 2(4), 142.

<https://doi.org/http://dx.doi.org/10.4103/1658-600X.142783>

Provasi, R. &. (2021). Gender diversity and corporate performance: Emphasis on sustainability performance. *Corporate Social Responsibility and Environmental Management*, 28(1), 127-137. <https://doi.org/http://dx.doi.org/10.1002/csr.2037>

PwC Malaysia. (15 January, 2025). *Malaysian boards need to evolve more rapidly to ensure continued business viability*. Retrieved from

[https://www.pwc.com/my/en/media/press-releases/2025/20250115-pwc-malaysia-corporate-directors-survey.html?utm\\_source=chatgpt.com](https://www.pwc.com/my/en/media/press-releases/2025/20250115-pwc-malaysia-corporate-directors-survey.html?utm_source=chatgpt.com)

PwC Netherlands. (9 March, 2023). *A hidden key to corporate resilience: Age diversity*.

Retrieved from PwC: [https://www.pwc.com/gx/en/issues/c-suite-insights/the-leadership-agenda/a-hidden-key-to-corporate-resilience-age-diversity.html?utm\\_source=chatgpt.com](https://www.pwc.com/gx/en/issues/c-suite-insights/the-leadership-agenda/a-hidden-key-to-corporate-resilience-age-diversity.html?utm_source=chatgpt.com)

Qian, M. (2016). *Women's Leadership and Corporate Performance*. ASIAN DEVELOPMENT BANK.

Rafaqat, S. R. (2022). The Impact of Workforce Diversity on Organizational Performance: A Review. *Journal of Economics and Behavioral Studies*, 14(2), 39-50.

[https://doi.org/http://dx.doi.org/10.22610/jebs.v14i2\(J\).3301](https://doi.org/http://dx.doi.org/10.22610/jebs.v14i2(J).3301)

Ram Kumar Mishra, S. J. (2013). *Diversity and the Effective Corporate Board*. Academic Press. <https://doi.org/https://doi.org/10.1016/C2012-0-06237-0>

Renee B. Adamsa, D. F. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 2(94), 291-309.

<https://doi.org/https://doi.org/10.1016/j.jfineco.2008.10.007>

Ronald C. Anderson, D. M. (2011). The Economics of Director Heterogeneity. *Financial Management*, 40(1), 5-38. <https://doi.org/https://doi.org/10.1111/j.1755-053X.2010.01133.x>

SanjuktaBrahma, C. &. (2021). Board gender diversity and firm performance : The UK evidence. *Int J Fin Econ*, 26, 5704–5719.

<https://doi.org/https://doi.org/10.1002/ijfe.2089>

Senthilnathan, S. (2019). USEFULNESS OF CORRELATION ANALYSIS . *SSRN Electronic Journal*, 2-9. <https://doi.org/https://doi.org/10.2139/ssrn.3416918>

Serfling, M. A. (2014). CEO Age and the Riskiness of Corporate Policies. *Journal of Corporate Finance*, 25, 251-273.

<https://doi.org/https://doi.org/10.1016/j.jcorpfin.2013.12.013>

Shams Pathan, R. F. (2013). Does board structure in banks really affect their performance? *Journal of Banking & Finance*, 37(5), 1573–1589.

<https://doi.org/https://doi.org/10.1016/j.jbankfin.2012.12.016>

Sharma, A. C. (2024). Board gender diversity and debt utilization: Evidence from the global microfinance industry. *Borsa Istanbul Review*, 24(3), 530–548.

<https://doi.org/https://doi.org/10.1016/j.bir.2024.02.012>

Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3(7), 749-752.

Spakur Dagsson, E. L. (2011). *How age diversity on the Board of Directors affects Firm Performance*. Blekinge Institute of Technology School of Management .

Sykes, A. O. (1993). An Introduction to Regression Analysis An Introduction to Regression Analysis . *Coase-Sandor Institute for Law & Economics Working Paper No. 20*.

The Securities Commission Malaysia (SC). (21 January, 2018 ). *Positive Progress Made on Gender Diversity*. Retrieved from The Securities Commission Malaysia (SC):  
<https://www.sc.com.my/resources/media/media-release/positive-progress-made-on-gender-diversity#:~:text=In%20the%20Malaysian%20Code%20on,women%20directors%20on%20their%20board>.

Tsagris, M. &. (2021). Normality test: Is it really necessary? *American journal of orthodontics and dentofacial orthopedics*, 159(4), 548-549.  
<https://doi.org/http://dx.doi.org/10.1016/j.ajodo.2021.01.003>

Veronica Ngozi Ekundayo, L. O. (2023). *Addressing Corporate Scandals and Transgressions Through Governance and Social Responsibility*. Nigeria: IGI Global Scientific Publishing. <https://doi.org/10.4018/978-1-6684-7885-1>

Walliman, N. (2021). *Research methods: The basics*. Routledge.  
<https://doi.org/https://doi.org/10.4324/9781003141693>

WallStreetPrep. (16 April, 2024). *Debt to Equity Ratio (D/E)*. Retrieved from WallStreetPrep:  
<https://www.wallstreetprep.com/knowledge/debt-to-equity-ratio/>

Wegge, J. R. (2008). Age and Gender Diversity as Determinants of Performance and Health in a Public Organization: The Role of Task Complexity and Group Size. *Journal of*

*Applied Psychology*, 93(6), 1301-1313.

<https://doi.org/https://doi.org/10.1037/a0012680>

Wu, X. &. (2023). Does age diversity benefit team outcomes, if so, when and how? A moderated mediation model. *Current Psychology*, 42(27), 23874–23890.

<https://doi.org/http://dx.doi.org/10.1007/s12144-022-03527-8>

Yandi Suprapto, I. N. (2023). Does Board Gender Diversity Affect Financial Distress. *Jurnal Manajemen, Strategi Bisnis, dan Kewirausahaan*, 17(2), 109-122.

<https://doi.org/http://dx.doi.org/10.24843/MATRIK:JMBK.2023.v17.i02.p01>



## Appendices

### Appendix A: List of public listed energy companies

Company
Yinson Holdings Berhad
SAPURA ENERGY BERHAD
BOILERMECH HOLDINGS BERHAD
ENRA GROUP BERHAD
SOLARVEST HOLDINGS BERHAD
CYPARK RESOURCES BERHAD
DIALOG GROUP BERHAD
ALAM MARITIM RESOURCES BERHAD
BARAKAH OFFSHORE PETROLEUM BERHAD
SAMAIDEN GROUP BERHAD
RESERVOIR LINK ENERGY BHD
Hibiscus Petroleum Berhad
CARIMIN PETROLEUM BERHAD
UZMA BERHAD
SCOMI ENERGY SERVICES BHD
PROPEL GLOBAL BERHAD
TRIVE PROPERTY GROUP BERHAD
RENEUCO BERHAD
MALAYSIA MARINE AND HEAVY ENGINEERING HOLDING BERHAD
ILB GROUP BERHAD
DELEUM BERHAD
DAYANG ENTERPRISE HOLDINGS BERHAD
WASCO BERHAD
PETRON MALAYSIA REFINING & MARKETING BHD
HENGYUAN REFINING COMPANY BERHAD
PERDANA PETROLEUM BERHAD
COASTAL CONTRACTS BHD
VELESTO ENERGY BERHAD
BUMI ARMADA BERHAD
KINERGY ADVANCEMENT BERHAD
T7 GLOBAL BERHAD
ICON OFFSHORE BERHAD
PETRA ENERGY BERHAD