Business Analytics and Data Visualisation

Business Report - Semester 2, 2023

Around the world, policymakers and regulators are pursuing strategies to enhance the presence of women on corporate boards. In various European countries, this drive has taken different forms, with some adopting gender quotas and others employing networking and mentoring programs to expedite women's advancement in leadership positions. For instance, Norway and Spain currently enforce mandatory gender quotas, requiring a minimum of 40% female board ng penalties for nonrepresentation, whill compliance. In cont in place, but it has witnessed a signific ving as directors on corporate boards. Recent findings from) illustrate this trend. The percentage of fe ted on the Australian Securities Exchange ars, rising from 8.3% in 2009 to 28.2% in SX firms, this figure has climbed to 35% as been a noteworthy with a 15% increase increase in the numb in 2022. Nevertheles anies among the Top 300 ASX firms that The psychology liter lly express a reduced inclination to embrace risks when compared to men. This phenomenon is, in part, attributable to women having higher levels of loss aversion. Consequently, the AICD wants to investigate the advantages associated with gender-diverse boards so that they can provide recommendations to Australian regulatory bodies in this regard.

You, as an analyst of market research division of the AICD, need to report to the AICD board of directors to see whether female participation in company boards is associated with lower risk. You choose the company cost of debt (CoD) as a measure of firm risk. The CoD refers to the interest payment obligation linked to borrowed funds. In simpler terms, it represents the interest

¹ https://aicd.companydirectors.com.au/advocacy/board-diversity/statistics

² https://www.governanceinstitute.com.au/news-media/media-releases/2023/apr/2023-board-diversity-index/

rate owed by a company for any financial obligations, such as loans and bonds. The extent of the cost of debt is determined by the creditworthiness of the borrower (i.e. company), with higher costs indicating a higher perceived risk associated with the company.

You begin the analysis by selecting the Top 500 companies listed on the ASX as at the end of

the 2022 financial year (i.e. 30 June 2022). These ASX-listed companies are categorised based on their industry sectors, and there are a total of 11 industry sectors in the Australian market. They include Consumer Discretionary, Consumer Staples, Energy, Financials, Health Care, Industrials, Information Technology, Materials, Real Estate, Communication Services, and Utilities. For the purpose of your analysis, you have chosen to focus on three specific industry groups: Energy, Health Care, and Consumer Staples. Each individual company is classified under one of these industr 00 companies within each of these three is A board of director der-diversity board," whereas a board of non-gender diversity board." The data Excel file named "ECOM5005 BR 2 Column A: Firm IL To describe to Firm 300. Column B: Cost of The cost of d iterest expense scaled by total inter zero if the company does not hav rotai interest expense

Column C: Industry group

- There are 3 industry groups in the sample. They are Energy, Health Care and Consumer Staples
 - 0 1 = if a company belongs to the Energy industry sector
 - \circ 2 = if a company belongs to the Health Care industry sector
 - \circ 3 = if a company belongs to the Consumer Staples industry sector

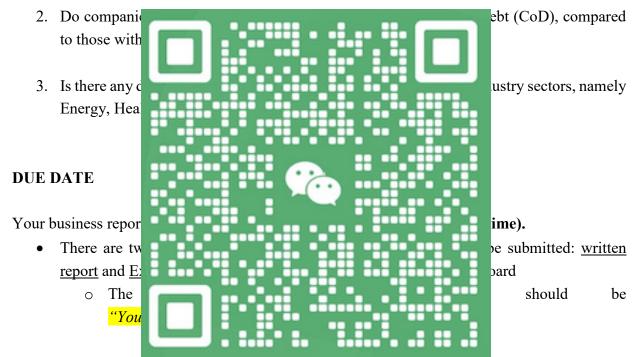
Total interest — bearing debt

Column D: Gender-diversity board

- Indicate if the company board of directors has any female director.
 - \circ 1 = there is at least one female director on the board (gender diversity board)
 - \circ 0 = there is no female representation on the board (non-gender diversity board)

You need to address the following questions as part of your written report to the ASIC Board of Directors.

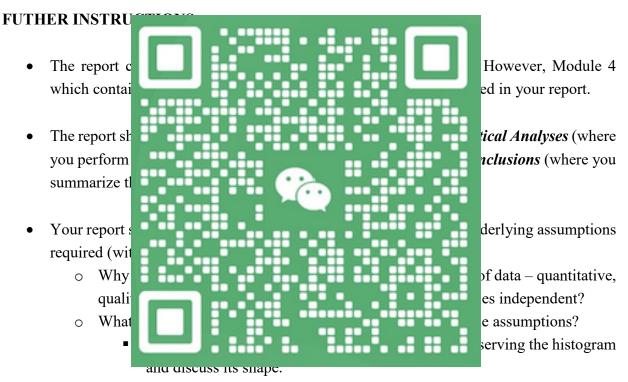
1. Does the representation of female directors on the board of directors depend on industry sectors?



- The <u>written report</u> is the Turnitin assignment, designed to prevent plagiarism. Further information about Turnitin can be found on the university website: https://academicintegrity.curtin.edu.au/students/Turnitin student.cfm
 - O There should be <u>no assignment coversheet</u> for the written report. You should put *your name*, *student ID* and *email address* in the <u>header</u> of the written report.
 - When submit to Blackboard, you should convert your written report to *pdf file*, and the name of your report should be "YourStudentID LastName report.pdf"
- The location of Blackboard submission points for the written report and Excel workings is "Assessments \ Assessments 2: Business Report [40%]"

If business reports are not submitted by the due date,

- a deduction of 5% of the *total marks allocated* (i.e. 5% of 40 = 2 marks) for the business report will be deducted from the assessment mark if the reports are submitted *within the first 24 hours* of the due date,
- *for each additional 24-hour period*, an additional penalty of **10%** (i.e. 10% of 40 = 4 marks) of the *total marks allocated* for the business report will be deducted from the assessment mark, and
- **zero** mark will be recorded *after seven (7) days* from the due date.

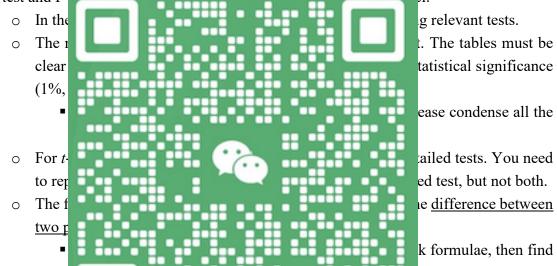


- If the histogram does not show normal distribution for the sample, you keep doing the test with the underlying assumptions, but need to discuss this as one of your limitations in the overall conclusion.
- The parameter of interests and populations must be clearly defined.
- Checking normal distributions by observing histograms
 - Histograms are obtained from Excel

- Excel automatically produce the histogram with gap (default at 150%). You need to reduce the gap to 0% (right click to the histogram, then choose Format Data Series, then reduce the Gap Width to 0%)
 - Students can see the following video recording for creating a histogram in Excel

https://echo360.net.au/media/b0ab790e-b6af-4383-a770-29f9ca35d0c8/public

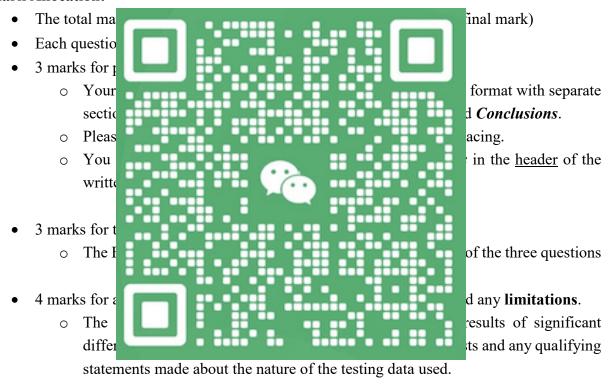
- For each of the tests, you need to perform at 3 significance levels (1%, 5% and 10%) and the decision to reject or accept the null hypothesis must refer to all 3 significance levels.
- This is a **computing** assignment. You are expected to use Excel to perform relevant tests (t-test and F-



- The report (ot exceed 12 pages; marks will be deducted for exceeding the limit. Pages must be correctly numbered throughout.
- For each question above, perform separate statistical tests to answer the questions. This assignment should be presented in a **professional** manner and you need to demonstrate that **considerable thought** has gone into the analysis of data.
- The marking criteria for each of the question should be as follows:
 - Technique identification: why should you use a certain technique?
 - Define the populations and parameters of interest

- Checking the conditions of the chosen technique: If a certain condition is not met, you keep doing the test as usual but need to discuss the limitation in the *Conclusions* part
- Following 6 steps in the hypothesis testing procedure
 - Describe the procedure to obtain the relevant tests
 - Present Excel results in table
 - Clearly mention the test statistic, rejection region
- Decision to reject or accept the null hypothesis must be referred to all 3 significance levels, that is, 1%, 5% and 10%.

Mark Allocation:



o Limitations of the tests should be discussed.