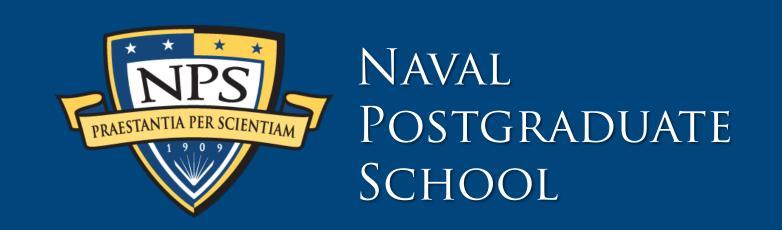
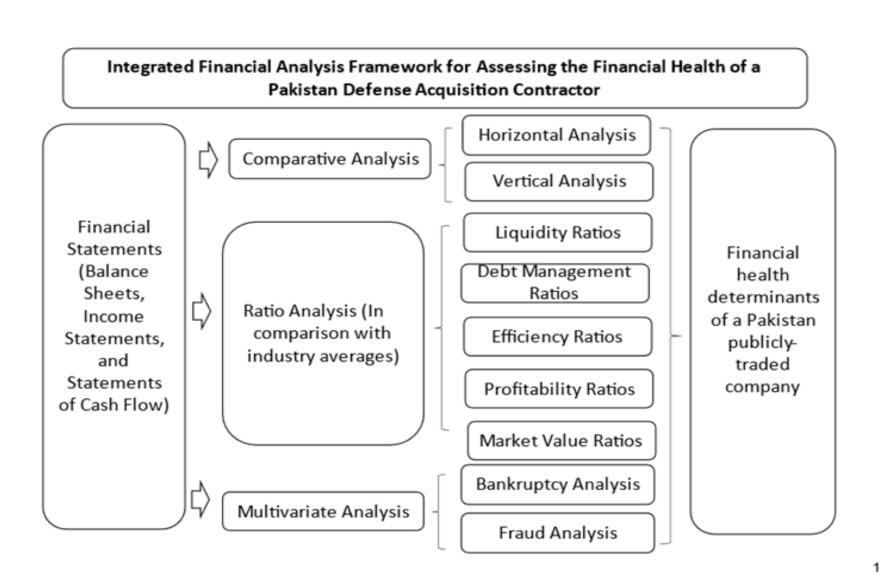
Data Analytics: An Integrated Financial Analysis Framework to Measure the Financial Health of Pakistan Defense Acquisition Contractors



Abstract

With the sixth-largest military in the world, the Pakistani armed services need a consistent and reliable supply of defense stores. The Ministry of Defense invests billions of Pakistani rupees for acquisition and procurement. Yet, the substandard deliveries and contractor default lead to inefficient use of financial resources and restrict the warfighter's capabilities. To reduce the possibility of awarding contracts to inefficient contractors, defense acquisition contracting officers may need to perform the contractor's financial health assessment. This study reveals that the financial health assessment framework as a compendium of existing policies and procedures is missing. The research compiles widely used financial analytic tools as an Integrated Financial Analysis Framework to assist Pakistani defense acquisition contracting officers in the financial health assessment of potential contractors. The developed framework is applied to sampled publicly traded companies from the Pakistan textile industry to evaluate their financial health.



INTEGRATED FINANCIAL ANALYSIS FRAMEWORK

Methods

- Literature review
- Identification of financial statement health indicators
- Utilization of commonly used financial analysis tools
- Developed Integrated Financial Analysis
 Framework to supplement existing policies and procedures
- Application on publicly traded companies in Pakistan

Results & Their Impact

- What financial statement ratios can be used to determine financial health?
- What financial health indicators can be determined from financial statements?
- What financial factors indicate contractors' inappropriate behavior to appear financially healthy?
- What financial indicators may signal red flags about possible bankruptcy?

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

ALTMAN'S BANKRUPTCY RATIO (Z-SCORE)

Financial Ratios	Indicators of Financial Health
Liquidity	Level of cash and cash equivalent, trade debts, inventory, short term borrowings, current liabilities
Debt Management	Level of total liabilities, total assets, and shareholder's equity.
Efficiency	Level of sales, cost of goods sold, inventory, and total assets.
Profitability	Level of net income, sales, and total assets
Market Value	Level of net income, average shares outstanding, market price of shares, and dividends paid

FINANCIAL HEALTH RATIOS AND INDICATORS

M-score = $-4.84 + 0.920(DSR) + 0.528(GMI)$
+ 0.404(AQI) + 0.892(SGI)
+ 0.115(DEPI) - 0.172(SGAI)
+ 4.679(Accruals) - 0.327(LEVI).

DR. BENEISH's FRAUD RATIO (M-SCORE)

Recommendations

- Maintain a database of potential contractors from their financial statements
- Maintain a database of industry averages
- Apply the Integrated Financial Analysis Framework to potential contractors
- Identify financial health determinants of potential contractors

