Journal of Positive School Psychology http://journalppw.com
2022, Vol. 6, No. 8, 9368-9374

Assessing And Evaluating Financial Performance Of Textile Companies Using Dupont Model: Evidence From Pakistan

Farhat Ullah Khan[1], Khalid Rehman[2], Adnan Khan[2], Muhammad Asad Ullah[3], Fawad Khan[4], Mehboob Alam[5]

[1]Assistant Professor, Institute of Business Administration, Gomal University, Dera Ismail Khan-29050-Pakistan
[2]Lecturer, Institute of Business Administration, Gomal University, Dera Ismail Khan-29050-Pakistan
[3]PhD Scholar, Institute of Business Administration, Gomal University, Dera Ismail Khan-29050-Pakistan
[4]Department of Public Administration, Gomal University, Dera Ismail Khan-29050-Pakistan
[5]MPhil Scholar, Institute of Business Administration, Gomal University, Dera Ismail Khan-29050-Pakistan
Email: farhatullahpk@gmail.com

Abstract

The purpose of this study is to analyze and evaluate the financial performance of textile enterprises that are engaged in Pakistan by using an improved version of the Dupont model. The rate of return on equity (ROE) is used as the primary metric for determining how well a company is doing financially within this framework. The return on equity is further broken down into its component elements in order to analyze how each of these factors affects ROE. These component parts include the net profit margin (NPM), the assets turnover (AT), and the equity multiplier (EM). NPM and EM have a large and positive impact on ROE, as shown by the findings of the study, which made use of multiple linear regression analysis; nevertheless, AT has a negative and insignificant effect on ROE of the 74 textile enterprises in Pakistan.

Keywords: Dupont model, Return on Equity, Net Profit Margin, Assets turnover, Equity multiplier.

Introduction

Financial performance of a firm is a subjective indicator of its ability to earn revenue and is frequently employed as a broad indicator to assess its overall financial health. The vital source of evaluating financial performance is annually published financial statements. These statements include key financial indicators which are then used by investors, analysts, shareholder, creditors, management, and other key stakeholders for evaluating the competitive positions of business firms within and across industries. Profitability is considered as one of the main and significant indicators of financial performance and is the fundamental objective of all entrepreneurial endeavors. Monitoring and analyzing past and present profitability are critical for the success and survival of business enterprises in the future (Mushafiq et al., 2021). A very lucrative company can provide its owners with a sizable return on their investment. One of the most significant objectives for business managers is to increase profitability. Managers are always looking for ways to boost profitability within the company. To assess the profitability of a business, several key profitability ratios are used. Gross profit margin, net profit margin, basic earning power ratio, return on assets, and return on equity are a few of these. In addition, one of the widely used measure of firm's profitability is the Dupont equation. It uses return on equity as a profitability measure and disintegrates it into net profit margin (profitability), assets turn over (efficiency) and equity multiplier (financial leverage). This decomposition method has proved to be a very useful technique in analyzing

return on equity of business firms (Joseli et al., 2021). The simplicity and natural attractiveness of the DuPont approach have led to its decades-long utility. It is based on measurements that can be easily retrieved from financial records for general purposes, making it accessible to analysts, present and future investors, and academic researchers. It may also be used by management as a planning and control tool, and several businesses have done so. The DuPont model may be used for more complex analyses despite its apparent simplicity. Profit margin may be dissected into its component parts, such as operating margin, tax rate, and interest expense, to better understand their relative importance. Several modifications have been made to the model, including: the incorporation of working capital activity ratios (such as accounts receivable turnover and inventory turnover), fixed asset turnover, historical cost measurements, and asset age; the rewriting of the EQM as 1 plus the debt/equity ratio; and the incorporation of the choice of equity in an effort to find a model of optimal debt. The DuPont model's strength is its simplicity, yet its limits stem from this very strength. The ratios are calculated from historical accounting data and are thus subject to the usual limitations of that type of information, such as sensitivity to estimation errors, the impact of management accounting decisions, and the possibility of manipulation. The approach solely evaluates the efficiency with which balance sheet assets are being used. That means it can't account for the value of intangible assets like human capital, brand awareness, or consumer loyalty, for example. In the end, it is a measure of the past, not the future, and does not take into account the potential for development of enterprises or their anticipated cash flows (Weidman et al., 2019).

Problem statement

Pakistan's textile industry has a massive economic influence, accounting for 60% of the country's exports, 10% of GDP, employing 40 % of labor force and representing 46% market share of overall non-financial sector of Pakistan. To survive in today's highly competitive global climate, the textile business must strive to enhance productivity which could lead to augment profitability and thereby maximize shareholder's wealth. This could be done by regularly assessing and evaluating financial performance of textile sector to ensure its leading role in enhancing country's exports and employment generation. Hence, this study is initiated to study the main factors that play a significant role in enhancing the profitability of textile sector of Pakistan (Hameed et al., 2021).

Objective of the study

The purpose of this research is to analyze the financial performance of textile companies in Pakistan using the Dupont method, with a focus on the impact of net profit margin, asset turnover, and return on equity.

Literature Review

There is a wide variety of financial performance models available in the literature to describe and evaluate the performance of a company. The Dupont equation is one of the well-known methods. It has been successfully used for more than a century demonstrating its practicability (Waworuntu et al., 2014). In 1919, an electrical engineer at Dupont Company, F. Donaldson Brown initially proposed this model. Brown discovered that there is a mathematical connection between net profit margins and assets turnover. He observed that the product of these ratios is equivalent to the return on assets (Mansoor, 2019). This initial iteration of the model was named original Dupont model. At that point in time, the overarching goal of all the planning and control systems was to achieve higher rate of return on assets. However, the major purpose of financial management switched from increasing Return on assets (ROA) to maximizing owners' wealth or return on equity

(ROE) after 1970. This change occurred following the stock market crash of the late 1960s. Consequently, the original Du Pont model was significantly revised and third component namely equity multiplier (EM) was added to the model (Bauman, 2014). The revised model was thus called extended or modified DuPont equation.

The modified model was predicated on the idea that optimizing the profit margin, increasing sales activity within a given level of resources (asset turnover), and making efficient use of debt to acquire resources (Equity multiplier) could all contribute to increasing ROE, the measure of shareholder return. The modified version of this is well-known analytical method in the field of corporate finance (Barbier, 2020). It is used to investigate the impact of net profit margin (NPM), assets turnover (AT), and equity multiplier (EM) on the return on equity (ROE). The relationship between three elements (NPM, AT, and EM) and ROE have been tested by several researchers across various industries around the world including insurance, manufacturing, hospitals, stock markets, furniture, technology sectors and others. AÇIKGÖZ and KILIÇ (2021) used multiple linear regression to assess the impact of NPM, AT, and EM on ROE of Turkish technology enterprises. The study found all the three components of Dupont equation to have significant positive impact on ROE. Oriskóová and Pakšiová (2018) highlighted that the DuPont equation is useful tool for financial analysis. The study examined the effect of net profit, asset turnover, and equity multiplier on the return on equity of companies from engineering sector of Slovakia. The most significant effect to return on equity has component asset turnover, profit margin and the least significant impact has equity multiplier. Burja and Mărginean (2014) explored positive relationship of net income, return on sales, return on assets and assets turnover with return on equity of Romanian furniture industry. Mubeen et al. (2014) examined the effect of net profit margin, asset turnover, and equity multiplier on the return on equity in the context Dupont model. They took a sample of 51 companies from KSE-100 index from n Fuel and Energy Sector, Chemicals Sector, Cement Sector, Engineering Sector, Textiles Sector and Transport and Communication Sector of Pakistan. The ANOVA and regression results demonstrated that assets turnover was the most influential component in determining return on equity. Whereas equity multiplier had low effect and net profit margin exhibited no effect on ROE. Raza et al. (2013) explored ROE of insurance industry in the South Asian regions including Pakistan, India, Sri Lanka, and Bangladesh. They found that ROA and financial leverage had positive and substantial influence on the profitability of insurance firms included in the sample. Kharatyan et al. (2016) stated that companies with a high ROE have a competitive advantage over their rivals, leading to larger investor returns. It seems vital to study ROE drivers, especially financial indicators that can affect it. The analysis uses 90 non-financial NASDAQ-100 companies. The least squares method was utilized to find ROE drivers. ROE is affected by the extended DuPont model's components. Also included are price-to-earnings, price-to-book, and current ratios. So, the study uses eight ratios/indicators known to affect ROE. According to research, tax burden, interest burden, operating margin, asset turnover, and financial leverage impact ROE. However, asset turnover remains the most influential ROE factor.

Methodology

Research approach

In the current study, the financial performance of textile enterprises is evaluated and analyzed based on the theory of extended Dupont technique. This technique uses return on equity as a proxy for financial performance while net profit margin, assets turnover, and equity multiplier are

used as predictors. All these variables are measured quantitatively, and thus quantitative research approach is an appropriate for data gathering. Moreover, a deductive research strategy is adopted to test whether the three predictors can significantly explain the changes in financial performance in accordance with previous literature or new findings emerge as a result of this study. To evaluate data quantitatively, you must understand variable relationships using descriptive or inferential statistics. Population inferences and parameter estimates are easier with descriptive statistics. Hypotheses must be tested using quantitative data. Deductive reasoning allows researchers to move from general to specific. Deduction from broad viewpoints helps the researcher build a theoretical framework (hypothesis) and test it, leading to a specific conclusion (Sobh & Perry, 2006).

Research Philosophy

The research methodology includes a crucial decision about the best research philosophy. The word philosophy describes how knowledge is developed and how it is formed. Guba and Lincoln (1982) argued that philosophy is the "fundamental belief system or world view that leads the inquiry," The philosophical approach gives the researcher the ability to choose which method to use and why. Since the study used quantitative research approach based on existing theory, therefore, positivism philosophy is favored. When a researcher is more focused on the facts or reality related to the study subject at hand, then adopting a positivist research philosophy approach is appropriate (Saunders et al., 2009).

Variables and hypothesis

The current study encompasses one dependent (financial performance proxied by return on equity) variable and three independent variables (net profit margin, assets turnover, and equity multiplier). The interrelationship among these variables is based on previous literature survey and are hypothesis as follows:

H1: Net profit margin (profitability) has positive and significant effect on financial performance.

H2: Assets turnover (efficiency) effects financial performance positively and significantly.

H3: Equity multiplier (leverage) has positive and significant impact on financial performance.

The computation of variables and their expected signs are provided in table 1.

Table 1: Variables definition, computation and expected signs

Variable	Mathematical Computation	Expected sign
	Dependent	
Return on Equity (ROE)	Net income after taxes ÷ Average equity	-
Independent variables		
Net Profit Margin (NPM)	Net profit after taxes ÷ Average Sales	Positive
Assets Turnover (AT)	Net income after taxes ÷ Average total assets	Positive
Equity Multiplier (EM)	average Total Assets ÷ average equity	Positive

Econometric equation

The econometric model to express relationship between dependent and independent variables are shown in equation 1 below:

$$ROE_i = \beta o + \beta_1 (NPM)_i + \beta_2 (AT)_i + \beta_3 (EM)_i + \varepsilon_i \quad (1)$$

Sample and time horizon

All the companies in the textile industry of Pakistan during the year 2019 were considered as a population for this study. There were total of 127 companies out of which 74 companies were sampled using simple random sampling technique.

Data Collection

Data on the sampled companies was collected by Quantitative data collection techniques using secondary sources. The data on variables used in the study was obtained from official website (www.sbp.org.pk) of State Bank of Pakistan (SBP).

Data analysis

The data on study variables was analyzed by descriptive statistical procedure and multiple linear regression using statistical software of STATA version 13.

Empirical Findings of data analysis

The statistical analysis is split into three sections. The first section presents the summary statistics of ROE, NPM, AT and EM provided in table 2. The second section the findings of multiple regression to check the direction and significance of three independent variables on dependent variables.

Table 2: Summary Statistics

Variable	N,	Mean,	S.D.	Min,	Max,
ROE	74	9.958	6.741	2.117	18.137
NPM	74	1.393	6.175	-14.015	8.052
ATO	74	1.085	.492	.081	1.903
EM	74	2.492	.881	1.088	4.222

Table 3: Results of multiple Linear regression

Predictors	Coef,.	St.Err,.	t-stat	p-value,	[95% Conf,	Interval]	Sig
NPM	0.577	0.129	4.48	0.000	.320	.834	***
ATO	-0.279	1.674	-0.17	0.868	-3.618	3.06	
EM	1.978	0.710	2.79	0.007	.562	3.394	***
Constant	4.528	2.496	1.81	0.074	-.450	9.506	*

Mean ROE	9.958	SD ROE.	6.741
R-squared	0.385	No. of observations	74
F-test	7.636	Prob of F-stat	0.000

*** p<.01, ** p<.05, * p<.1

Source: Authors' computation

The regression results in table 3 shows that NPM has a positive coefficient (β=0.577) which implies that a unit increase in NPM (profitability) leads to 0.577 units increase in ROE. The coefficient was also seen statistically significant with p-value < 0.01. The coefficient of AT was negative (-0.279) meaning that one unit increase in AT would decrease ROE by 0.279 units. However, the negative effect of AT was statistically insignificant as the p-value > 0.01. The positive coefficient of EM (β=1.978) was observed to significant (p-value =0.007). It shows that a unit increase in EM could lead to 1.978 increase in ROE. However, the overall variations of about 39 percent were caused by the predictors in regression model (R-squared= .385). Similarly, overall model fitness was also significant (F-test= 7.636, p<0.01) Therefore, it can be inferred that the multiple regression model used in the study is better than null model with no predictors.

Discussion and Conclusion

The purpose of the study was to assess the impact of three elements (NPM, AT, and EM) of Dupont model on the return on equity (ROE) of textile companies of Pakistan. The findings of the study indicated that net profit margin (NPM) and equity multiplier (EM) positively and significantly impacted ROE and these findings are in line with AÇIKGÖZ and KILIÇ (2021). However, asset turnover (AT) was found to have insignificant negative impact on ROE in contrast to findings of Raza (2017). Therefore, it can be concluded that NPM and EM have significant influence in enhancing return available to owners or shareholders of the textile companies of Pakistan. The study findings indicated that sampled companies could not translate their assets efficiently in generating income as shown by negative coefficient of asset turnover (AT). The findings of study are limited to 74 textile companies only whereas the researchers and relevant stakeholders could gain more insights by including more relevant variables, large sample and time period as well as diverse companies, sectors.

References

1. AÇIKGÖZ, T., & KILIÇ, G. (2021). Investigation of Financial Performance and Market Value of Technology Firms With Dupont-Regression Analysis. Journal of Accounting & Finance(90).
2. Barbier, P. J. A. (2020). Financial return on equity (FROE): A new extended dupont approach. Academy of Accounting and Financial Studies Journal, 24(2), 1-8.
3. Bauman, M. P. (2014). Forecasting operating profitability with DuPont analysis: Further evidence. Review of Accounting and Finance.
4. Burja, V., & Mărginean, R. (2014). The study of factors that may influence the performance by the Dupont analysis in the furniture industry. Procedia Economics and Finance, 16, 213-223.
5. Guba, E. G., & Lincoln, Y. S. (1982). Epistemological and methodological bases of naturalistic inquiry. Ectj, 30(4), 233-252.
6. Hameed, A., Hussain, A., Marri, M. Y. K., & Bhatti, M. A. (2021). Liquidity management and profitability of Textile sector of Pakistan. iRASD Journal of Management, 3(2). https://doi.org/10.52131/jom.2021.0302.0029
7. Joseli, W., Delgado, L., Romero Nuñez, L. I., & Arana, P. J. (2021). Financial Return on Equity (FROE) as a new extended DuPont analysis, applied to industrial companies in Chile.
8. Kharatyan, D., Nunes, A., & Lopes, J. (2016). Financial ratios and indicators that determine return on equity. XVII–Encuentro AECA.

9. Mansoor, H. (2019). Determinants of profitability: A comparative study of Textile and Cement sector of Pakistan. Information Management and Business Review, 11(4 (I)), 13-26.
10. Mubeen, M., Iqbal, A., & Hussain, A. (2014). Determinant of return on assets and return on equity and its industry wise effects: evidence from KSE (Karachi Stock Exchange). Research Journal of Finance and Accounting, 5(15), 148-157.
11. Mushafiq, M., Sindhu, M. I., & Sohail, M. K. (2021). Financial performance under influence of credit risk in non-financial firms: evidence from Pakistan. Journal of Economic and Administrative Sciences(ahead-of-print).
12. Oriskóová, D., & Pakšiová, R. (2018). Dupont Analysis of Companies in the Slovak Republic Engineering Industry. IDIMT 2018: Interdisciplianary Information Management Talks, 383-390.
13. Raza, S. A., Jawaid, S. T., & Adnan, M. (2013). A dupont analysis on insurance sector of south Asian region.
14. Saunders, M., Lewis, P., & Thornhill, A. (2009). Research methods for business students. Pearson education.
15. Sobh, R., & Perry, C. (2006). Research design and data analysis in realism research. European Journal of marketing.
16. Waworuntu, S. R., Wantah, M. D., & Rusmanto, T. (2014). CSR and financial performance analysis: evidence from top ASEAN listed companies. Procedia-Social and Behavioral Sciences, 164, 493-500.
17. Weidman, S. M., McFarland, D. J., Meric, G., & Meric, I. (2019). Determinants of return-on-equity in USA, German and Japanese manufacturing firms. Managerial Finance.