

DuPont Analysis of Return on Common Stockholder's Equity in Pharmaceutical Industry of Bangladesh

Md. Nurul Kabir Biplob¹, Md. Monzur Hossain² and Shah Alam³

¹ Begum Rokeya University, Rangpur, Bangladesh

Received: 7 December 2017 Accepted: 31 December 2017 Published: 15 January 2018

Abstract

The paper is based on performance evaluation of pharmaceutical companies in Bangladesh through measuring Return on Common Stockholder's Equity (ROCE) by using Du Pont analysis. It means to evaluate how well a company performs. The main purpose is achieved by using five ways Du Pont decomposition. The main data is collected from the annual financial reports of Beximco, Square, Renata, GlaxoSmithKline, Far chemicals, Beacon, ACI, IBNSINA, ACI Formulations, Orion pharmaceutical companies from 2011 to 2015. Different financial ratios are evaluated such as Asset turnover ratio, EBIT margin, tax burden, interest burden, Equity multiplier/Financial leverage etc. and by comparing those results finally measure the best performance among those companies. The mathematical calculation was developed for Du Pont analysis among selected pharmaceutical companies from 2011-2015. It is most important method for measuring ROCE of companies. Du Pont analysis evaluates how well a company is operating and how profit is earned relative to sales, total assets etc. Overall analyses measure and declare the best one among selected pharmaceutical companies.

Index terms— pharmaceutical companies, asset turnover ratio, DuPont Analysis, equity multiplier, EBIT

1 Introduction

Performance evaluation of a company is usually related to how well a company can use its assets and how well a company can generate profit by utilizing its assets. Du Pont analysis is one of the important tools for performance evaluation of any company. For determining the financial position of a company and to know how well the company performs its activities as well as the profitability and asset utilizing capacity of the company Du Pont analysis plays an important role.

Du Pont analysis easily measures return of equity related to the company for performance evaluation. It analyzes the company's profitability and asset utilization. It measures overall performance and efficiency of a company. This method used to analyze companies past financial performance and it also predict future trend of financial position.

Ten pharmaceutical companies in Bangladesh are selected for this purpose. The historical backgrounds of these companies are given below. a) Background Square Pharmaceuticals Ltd., the flagship company, is holding the strong leadership position in the pharmaceutical industry of Bangladesh since 1985 and is now on its way to becoming a high performance global player. From the inception in 1958, it has today burgeoned into one of the top line conglomerates in Bangladesh. SQUARE Pharmaceuticals Limited is the largest pharmaceutical company in Bangladesh and it has been continuously in the 1st position among all national and multinational companies since 1985. It was established in 1958, converted into a public limited company in 1991 and listed with stock exchanges in 1995. The turnover of Square Pharma was Taka 30.28 Billion (US\$ 385.22 million) with about 18.64% market share having a growth rate of about 25.36% (April 2014-March 2015). (As cited at <http://www.squarepharma.com.bd/about-us.php>) Beximco Pharmaceuticals Ltd (Beximco Pharma) is a leading manufacturer and exporter of medicines in Bangladesh. Incorporated in the late 70s, Beximco Pharma

3 D) LIMITATIONS OF STUDY

44 began as a distributor, importing products from global MNCs like Bayer, Germany and Upjohn, USA and
45 selling them in the local market, which were later manufactured and distributed under licensing arrangement.
46 Since then, the journey continued, and today, Beximco Pharma is one of the largest exporters of medicines in
47 Bangladesh, winning National Export Trophy (Gold) a record five times. The company continues to adhere to
48 the global standards and its manufacturing facilities have been already certified by the regulatory authorities
49 of USA, Europe, Australia, Canada, Latin America and South Africa. Over the last three decades Beximco
50 Pharma has grown from strength to strength but the simple principle on which it was founded remains the same:
51 producing high quality generics and making them affordable. Ensuring access to quality medicines is the powerful
52 aspiration that motivates more than 3,000 employees of the company, and each of them is guided by the same
53 moral and GlaxoSmithKline -one of the world's leading research-based pharmaceutical and healthcare companies
54 of Bangladesh-is committed to improving the quality of human life by enabling people to do more, feel better
55 and live longer. GlaxoSmithKline plc (GSK), incorporated on December 6, 1999, is a healthcare company. The
56 Company is engaged in the creation and discovery, development, manufacture and marketing of pharmaceutical
57 products, including vaccines, over-the-counter (OTC) medicines and health-related consumer products. GSK's
58 principal pharmaceutical products include medicines in various therapeutic areas, such as respiratory, anti-virals,
59 central nervous system, cardiovascular and urogenital, metabolic, antibacterials, dermatology, rare diseases,
60 immunoinflammation, vaccines and human immunodeficiency virus (HIV). The Company's segments include
61 Pharmaceuticals, Pharmaceuticals R&D, Vaccines and Consumer Healthcare. (As cited at <http://www.gsk.com/en-gb/contact-us/worldwide/bangladesh/>)

63 The IBN SINA Pharmaceutical Industry Ltd. (IPI) is leading pharmaceutical company in Bangladesh. The
64 company was founded in the year 1983. The manufacturing facilities located at Gazipur, 56 Kilometer away
65 from the center of the capital city Dhaka, in a campus of about 15 acres of land. The manufacturing plant
66 has been established with modern state of the art technology and equipped with high standard machineries
67 for the production and quality checking of various dosage form of several therapeutic classes. (As cited at
68 <http://bd.kompass.com/c/ibn-sinapharmaceutical-industry-ltd/bd00199/>) ACI formulation Limited (ACI FL) is
69 a subsidiary of ACI limited, located at Gazipur in the out skirt of Dhaka. ACI FL manufactures majority of the
70 products of ACI Strategic Business Limited except for the Pharmaceutical Division. The factory is equipped with
71 the state of the art facilities for product formulations and process innovation. These include modern computerized
72 equipment like HPLC and GLC. The product range manufactured at ACI FL include Crop Protection Chemicals
73 like Insecticides, herbicides and fungicides in granular, powder and liquid, mosquito pesticides in the forms of
74 aerosols, vaporizers and coils house hold chemicals like toilet cleaners and hand wash.

75 (As cited at <https://www.aci-bd.com/subsidiaries.php>) Since 1983 FAR Chemical's headquarters, develop-
76 ment labs and production facility have been located in Palm Bay, Florida. FAR Chemical produces pharma-
77 ceutical reagents and intermediates. A variety of organic catalysts are synthesized for polymer manufacturers.
78 Cyanate ester pre-polymers are supplied to the structural composite industry. FAR Chemical furnishes the
79 electronics market with materials used as strippers, etchants, polishing compounds and additives for high density
80 data transmission wires. (As cited as <https://www.linkedin.com/company/far-research-inc.dba-far-chemical-inc.>)

81 Orion Pharma a member of Orion Group was founded as a pharmaceutical manufacturing company in 1965.
82 With the mission to serve the ailing humanity around the globe orion pharma started its operation nearly four
83 decades ago, and after a great run of success the company today has proliferated out into one of the leading
84 pharmaceutical companies in Bangladesh. The purpose of this study is a performance evaluation of ten
85 pharmaceutical companies in Bangladesh through measuring ROCE by Du Pont analysis. The study analyzes
86 the financial conditions of selected ten pharmaceutical companies in Bangladesh.

2 c) Research Questions

88 ? What is the condition of the company related to tax burden? ? What is the condition of the company
89 related to interest burden? ? What is the condition of the company related to EBIT margin? ? What is the
90 condition of the company related to asset turnover? ? What is the condition of the company related to equity
91 multiplier/financial leverage? ? Which company has the best performance among the selected pharmaceutical
92 companies?

3 d) Limitations of Study

94 There are some limitations of the Study. Du Pont analysis is used for performance evaluation of pharmaceutical
95 companies. When conducting the There are some drawbacks of Du Pont decomposition also. Such as-1. The
96 DuPont identity is an accounting identity. The model relies on accounting data, which can be altered by companies
97 to hide short-term weaknesses (even though this is unethical). 2. DuPont decomposition does not include the
98 cost of capital. 3. How much increase of debt will determine the negative or positive return to shareholders is
99 not recognized by this disaggregation.

100 II.

101 4 Literature Review

102 Gopinathan Thachappilly (2009), he states in this article about different types of financial ratios for measuring
103 performance. It helps the investor to decide whether he should invest in the company or not. The article is used
104 to evaluate performance of a company through different types of ratios such as performance ratio, liquidity ratio,
105 profitability ratio etc.

106 Penman (2001), he states that increasing leverage can increase ROE of a company but if the discount rate
107 is increased there will occur no change in the value of the equity. ??iesz (1999), he states that determining
108 the reason of failure of small firms is troublesome. Du Pont analysis can be used in this regard to evaluate the
109 performance of the company and also dictating the reason of failure. In this case asset turnover, profit margin,
110 financial leverage etc. are considered. These factors show that poor planning and controlling are the reasons
111 of failure. ??oliman (2007), he states that increase in asset turnover ratio indicates that the firm is generating
112 revenue increasingly by utilizing its assets and this indicates the efficiency of the company.

113 Collins (2010), this article states the Du Pont model to calculate optimal debt of the company which helps to
114 choose between equity or leverage structure of the company.

115 James , this article states about evaluating profit performance of a company through profitability ratio analysis.
116 The income statement and balance sheet are used to evaluate performance through ratio analysis. Income
117 statement and balance sheet shows profitability and net financial condition of the company. This article shows
118 how the profit is generating within the company and how the assets are research some problems have been
119 faced. For evaluating performance have to choose a method that is appropriate. However data should be correct,
120 otherwise calculation may be baffling. Sometimes the items to analyze could not find appropriately as a result
121 there may have some lacking in comparing among those companies.

122 5 Global Journal of Management and Business Research

123 Volume XVIII Issue I Version I Year ()C pharmaceutical companies of Bangladesh.

124 utilized to generate revenue. He states that Income statement shows the profitability of the company and
125 balance sheet shows the net value of the assets and liabilities.

126 Maria Zain (2008), this article states that the return on asset is an important indicator to dictate how well
127 the assets are used to generate revenue. The higher return on asset indicates the company is utilizing its assets
128 appropriately whereas the lower percentage indicates asset utilization of the company is not good enough to
129 generate revenue. Return on asset is calculated by dividing the net profit by total assets. He also states that
130 profit margin ratio which is derived by dividing the net profit by net sales. Profit margin ratio also called
131 operating performance ratio.

132 Jo Nelgadde (2010), he states about asset management ratio. The accounts receivable and working capital
133 figures are used to determine company's performance.

134 Lucia Jenkins (2009), he states that the fixed cost and variable cost are the important financial item to know
135 the financial performance of the company. Fixed costs are those costs which are remain unchanged and are
136 always same regardless of how much items are sold. On the other hand, variable costs are subject to change in
137 terms of sales and other related factors. Examples of fixed costs include salary, rent, advertisement, depreciation,
138 insurance etc. and examples of variable costs include direct labor, direct material, commission, shipping costs
139 etc.

140 Herciuetal(2011), he states that it can be often found that the most profitable companies may not always be
141 the most attractive company in the eye of an investor. The components of Du Pont model such as profit margin,
142 asset turnover, equity multiplier etc. are used to realize the fact. ??oyd et al.(2007),this article tells that there is
143 no significance between size of the asset and profitability of the company for dropping return of equity and the
144 profitability, liquidity and solvency of a company can be managed.

145 Vintila, Gheoghe, Pocan and Anghel (12), this article states about the key items that directly or indirectly
146 affect the performance and profitability of a company. Du Pont analysis is an important method to recognize
147 profitability of a company.

148 CameliaBurja(2) states, profitability is the form of operating efficiency that includes economic and financial
149 aspects of a company that helps to make appropriate decisions.

150 Kalluci (2011), he dictates that the volatility of profit margin and financial leverage can be the reason of
151 changing ROE of a company. The increase of those components can make the ROE higher as well as the decrease
152 of those components can be the reason of lower ROE of a company.

153 6 III.

154 7 Methodology

155 The methodology chapter represents how the data should be collected, analyzed and used for the purpose of the
156 thesis. It also describes about the Du Pont decomposition and the formula for measuring ROCE. Quantitative
157 approach is used for the thesis as majority of data is collected from the quantitative approach.

8 a) Data Collection

158

159 The data of this paper is mainly collected from the annual financial reports of Beximco, Square, Renata,
160 GlaxoSmithKline, Orion, Far chemicals, ACI, Beacon, ACI Formulations, IBNSINA pharmaceutical company
161 from 2011 to 2015. When measuring the ratio analysis for any company, annual financial reports must be used.
162 Two main financial statements of annual reports have been used for Du Pont analysis of pharmaceutical company
163 such as; balance sheet and income statement.

9 b) Data Analysis

164

165 Du Pont analysis model is used in this regard for performance evaluation of pharmaceutical company. It indicates
166 the different steps such as Identifying balance sheet and income statement and by using Du Pont analysis
167 comparison among companies and declaring the best one among those companies.

168

169 First step, make a choice of annual financial report. The annual financial report presents a company's financial
170 position, operating performance, capital structure, and cash flow for an accounting period. Annual reports of
171 selected pharmaceutical companies from 2011 to 2015 are used for measuring ROE of a company.

171

172 Second step, balance sheet and income statement are identified from the annual financial report. Some data
173 are used from balance sheet and income statement for analysis of different types of ratios such as asset turnover
174 ratios, Equity margin, EBIT margin etc. Analysis of profitability includes income statement of those companies.

174

175 Third step, identification of suitable ratio for performance evaluation and the ratios include asset turnover
176 ratio, profitability ratio, financial leverage ratio etc. These ratios are very important to know how well a company
177 generates its assets, revenue, expenses and profit or loss etc.

177

178 Forth step, some figures are used from income statement and balance sheet of those companies for performing
179 Du Pont analysis. Scientific calculator is used for determining the result.

179

180 Fifth step, Using the result of Du Pont analysis such as EBIT margin, asset turnover and profitability compare
among selected pharmaceutical companies and identify why one company is better than other

10 Global Journal of Management and Business Research

181

182 Volume XVIII Issue I Version I Year () C companies and also discuss why some companies are not in good
183 position comparing with others.

184

185 Finally declaration of the best one among those pharmaceutical companies by using different kinds of ratios
186 under Du Pont analysis and by knowing the result can easily compare of those companies.

186

187 c) The DuPont Ratio Decomposition Du Pont analysis is a model that is used to assess the factors that affects
188 a company's financial performance. Donaldson Brown is the first who thought about Du Pont analysis around
189 the period of 1920s. First time it is applied for general motors.

189

190 Du Pont analysis is very important as it calculates ROE which is an important key ratio which indicates the
191 rate at which owner's wealth is increasing.

191

192 There are two way of Du Pont decomposition that includes three way decomposition and five way
193 decomposition. Three way decomposition covers the areas of net profit margin, asset turnover and financial
leverage. The meaning of each of these components is described below.

11 d) Three-Step DuPont Model

194

195 The three-step DuPont model is calculated as follows: $ROE = \text{Net profit margin} \times \text{asset turnover} \times \text{equity}$
196 multiplier Where:

197

198 Net profit margin = net income/sales; Asset turnover = sales/average total assets; and Equity multiplier or
199 financial leverage = average total assets/average common stock equity.

199

200 The three-step Du Pont model captures management's effectiveness at generating profits (net profit margin),
managing assets (asset turnover) and identifying an optimal amount of leverage (equity multiplier).

12 e) Five step Du Pont model

201

202 The three-step DuPont Model has some drawbacks. It provides us with insights that drives a company's return on
203 equity. In three step Du Pont model a company can boost its ROE by improving its profitability, by using assets
204 more efficiently, or by taking additional leverage. However, companies that boost ROE by taking additional
205 leverage may eventually reach a point where the cost of debt will diminish profit margin and decrease asset
206 turnover.

207

208 This "shortcoming" with the three-step model led to the development of an expanded, five-step model of Du
Pont analysis, the extended model considers company's interest burden and also tax burden.

209

The extended five-step Du Pont decomposition breaks return on equity down into five components:

210

? Tax burden = net income/earnings before tax (EBT); ? Interest burden=Earnings before tax
211 (EBT)/Earnings before interest and tax (EBIT); ? EBIT margin=Earnings before interest and tax (EBIT)/sales;
212 ? Asset turnover=EBIT margin/average total assets; and ? Financial leverage ratio (equity multiplier) = average
213 total assets/average common stock equity. Multiplying all five ratios together gives return on equity.

214

IV.

215 **13 Results and Analysis**

216 The average of five years results of five ways Du Pont analysis of ten selected pharmaceutical companies is
217 summarized below: ¹ ²

¹© 2018 Global Journals

²© 2018 Global Journals 1

and health care services through 50 brands and 51 presentations of various formulations. With the mission to serve the ailing humanity around the globe, Orion Pharma has proliferated into one of the leading pharmaceutical manufacturing and marketing general drugs. Orion Pharma manufactures and markets a wide array of dosage forms including tablet, capsule, syrup, suspension, injection, dry powder for syrup/suspension, cream/ointments in different therapeutic groups like anticancer, antibiotics, anti-diabetics, anxiolytics, diuretics, cardiovascular drugs etc. (As cited at <http://www.orion-group.net/concern/19/40/orion-pharma-ltd>) Beacon Pharmaceuticals Limited is the number one oncology company and one of the leading pharmaceutical companies of Bangladesh. The Company started its operation in 2006. Now Beacon is one of the top oncology Manufacturing plant of Beacon has the finest infrastructure.

() meeting the local demand, Beacon exports its medicines to many countries of Asia, Africa, Europe and Latin America. (As cited at <https://www.beaconpharma.com.bd/>) b) Purpose and Research Question

Figure 1:

Name of the Companies	Tax Burden	Interest Burden	EBIT Margin	Asset Turnover	Financial Leverage	ROCE	Year	Volume	XVIII Issue	I Version I	()	Global Journal of Management and Business Research
Square Renata	0.75	1.07 0.82	0.21	0.89 0.78	1.26 0.19	1.90						
GlaxoSmithK-line	0.73	0.94 0.83	0.26	0.59 0.75	0.23 7.65	0.92						
ACI	0.77	0.98 1.05	0.29	1.98 1.00	0.31 0.27	1.70						
IBNSINA	0.76	0.74 1.03	0.12	0.77 0.70	0.13 2.38	0.56						
ORION	0.76	0.25 0.86	0.05	0.30 0.38	1.74 0.08	1.07						
Formulations	0.83		0.27		0.20 1.6	0.019						
Far chemicals	0.74		0.11		1.37 0.07							
Beacon	1.00		0.25									
Beximco	0.69		0.23									
	0.73		0.23									

[Note: Cquestions.]

Figure 2:

218 DuPont Analysis of Return on Common Stockholder's Equity in Pharmaceutical Industry of Bangladesh
219 GlaxoSmithKline has tax burden of 0.77 and interest burden of 0.94. Whereas it has EBIT margin of 0.29. The
220 asset turnover ratio of this company is 0.59 and it has financial leverage of 7.65. The average ROCE of this
221 company is 0.92.

222 ACI has tax burden of 0.76 and interest burden of 0.83. Whereas it has EBIT margin of 0.12. The asset turnover
223 ratio of this company is 0.75 and it has financial leverage of 2.31. The average ROCE of this company is 0.27.

224 IBNSINA has tax burden of 0.76 and interest burden of 0.98. Whereas it has EBIT margin of 0.05. The asset
225 turnover ratio of this company is 1.98 and it has financial leverage of 1.70. The average ROCE of this company
226 is 0.13.

227 ORION has tax burden of 0.83 and interest burden of 1.05. Whereas it has EBIT margin of 0.27. The asset
228 turnover ratio of this company is 1.00 and it has financial leverage of 2.38. The average ROCE of this company
229 is 0.56.

230 ACI Formulations has tax burden of 0.74 and interest burden of 0.74. Whereas it has EBIT margin of 0.11. The
231 asset turnover ratio of this company is 0.77 and it has financial leverage of 1.74. The average ROCE of this
232 company is 0.08.

233 Far chemicals has tax burden of 1.00 and interest burden of 1.03. Whereas it has EBIT margin of 0.25. The asset
234 turnover ratio of this company is 0.70 and it has financial leverage of 1.07. The average ROCE of this company
235 is 0.20.

236 Beacon has tax burden of 0.69 and interest burden of 0.25. Whereas it has EBIT margin of 0.23. The asset
237 turnover ratio of this company is 0.30 and it has financial leverage of 1.6. The average ROCE of this company is
238 0.019.

239 Beximco has tax burden of 0.73 and interest burden of 0.86. Whereas it has EBIT margin of 0.23. The asset
240 turnover ratio of this company is 0.38 and it has financial leverage of 1.37. The average ROCE of this company
241 is 0.07.

242 As ROCE, EBIT margin, Financial leverage of GlaxoSmithKline pharmaceutical company is good enough
243 comparing with other pharmaceutical companies and its tax burden, interest burden and asset turnover are
244 also comparatively good than other pharmaceutical companies then it can be evolved that GlaxoSmithKline
245 pharmaceutical company has the best performance than the other pharmaceutical companies.

246 V.

247 .1 Conclusion

248 [Darmika ()], R Darmika . 2008. 15 p. .

249 [Clausen ()] 'Accounting 101-Financial Statement Analysis in Accounting: Liquidity Ratio Analysis Balance
250 Sheet Assets and Liabilities'. James Clausen . *Journal of financial statement* 2009.

251 [Nelgadde ()] 'Accounts Receivable Analysis: A Guide to Analyzing Trade Debtors for Small Business Owners'.
252 Jo Nelgadde . *Journal of accounts receivable analysis*. Nelgadde, 2010. 2009. (Inventory Analysis: A Guide to
253 Analyzing Inventory for Small Business Owners. Journal of inventory analysis)

254 [Alaghi et al. ()] 'Bank-specific, industry specific and macroeconomic determinants of bank profitability'. K
255 Alaghi , P P Athanasoglou , N B Sophocles , M D Delis . *International Financial Markets, Institutions*
256 *and Money* 2010. 2008. 5 (1) p. . (African Journal of Business Management)

257 [Athanasoglou et al. (ed.) (1998)] *Bank-Specific, Industry-Specific and Macroeconomic Determinants of Bank*
258 *Profitability. Bank of Greece Working Paper*, P P Athanasoglou , S N Brissimis , M D Delis . Blumenthal, R.
259 G. (ed.) 2005. 1998. January, 1998. p. . (Tis the gift to be simple: Why the 80-year-old Du Pont model still
260 has fans. CFO Magazine)

261 [Clausen ()] 'Basic Accounting 101-Asset Turnover Ratio: Inventory, Cash, Equipment and Accounts Receivable
262 Analysis'. James Clausen . *Journal of asset turnover ratio*, 2009.

263 [DuPont Analysis of Return on Common Stockholder's Equity in Pharmaceutical Industry of Bangladesh]
264 *DuPont Analysis of Return on Common Stockholder's Equity in Pharmaceutical Industry of Bangladesh*,

265 [Little et al. ()] 'Evaluating the effect of recession on retail firms' strategy using DuPont method'. P L Little , W
266 J Mortimer , M A Keene , L R Henderson . *Journal of Financial and Quantitative analysis* 2009. 38 (1) p. .

267 [Herciu et al. ()] M Herciu , L Belascu , C Ogrea . *DuPont Analysis of the 20 Most Profitable Companies in*
268 *the World. International Conference on Business and Economics Research*, 2011. 2011. 1 p. .

269 [Zain ()] *How to Use Profitability Ratios: Different Types of Calculations that Determine a Firm's Profits* ",
270 Maria Zain . 2008. (Journal of profitability ratio analysis 55)

271 [Weygandt et al. ()] 'Intermediate Accounting: Return on equity ratio'. J J Weygandt , D E Kieso , & D ,
272 Warfield Terry . *Bearcat Company* 2001. 1 p. 830. (10th ed.)

273 [Marshall et al. ()] *Managerial Accounting and Cost-Volume-Profit Relationships. Accounting: What the numbers*
274 *mean (6thed.)*, D Marshall , W Mcmanus , D Viele . 2003. New York.

275 [Mihaela and Claudia ()] H Mihaela , O Claudia , Lucian , B . *A Du Pont Analysis of the 20 Most Profitable*
276 *Companies in the World. International Conference on Business and Economics Research*, 2011. 1 p. .

- 277 [Palepu and Healy ()] K Palepu , P Healy . *Business analysis and valuation: Using financial statements*, (Mason,
278 OH) 2008. Thomson Southwestern. (Fourth edition)
- 279 [Thachappilly ()] ‘Profitability Ratios Measure Margins and Returns: Profit Ratios Work with Gross, Operating,
280 Pretax and Net Profits’. Gopinathan Thachappilly . *Journal of profitability ratio measure margin and return*,
281 2009.
- 282 [Nissim and Penman ()] ‘Ratio analysis and valuation: From research to practice’. D Nissim , S Penman
283 . 10.1023/A:1011338221623. <http://dx.doi.org/10.1023/A:1011338221623> *Review of accounting*
284 *studies* 2001. 6 p. .
- 285 [Liesz ()] ‘Really modified Du Pont analysis: five ways to improve return one quity’. T J Liesz . *The Economics*
286 *review* 2004. 81 (3) p. .
- 287 [Richardson et al. ()] ‘The implications of firm growth and accounting distortions for accruals and profitability’.
288 S Richardson , R Sloan , M Soliman , I Tuna . *The Accounting Review* 2006. 81 p. .
- 289 [Soliman ()] ‘The use of Du Pont analysis by market participants’. M Soliman . *The Accounting Review* 2008. 83
290 (3) p. .
- 291 [Mark ()] ‘The Use of DuPont Analysis by Market Participants’. T S Mark . *The Accounting Review* 2008. 83
292 (3) p. .
- 293 [Burson ()] ‘Tools you can use for improved ratio analysis’. R Burson . 12/07/98. *San Diego Business Journal*
294 1998. 19 p. .
- 295 [Soliman ()] *Using industry-adjusted DuPont analysis to predict future profitability and returns*, M Soliman .
296 10.2308/accr.2008.83.3.823. <http://dx.doi.org/10.2308/accr.2008.83.3.823> 2004. University of
297 Michigan (Ph.D. dissertation)
- 298 [Weygandt and Kieso ()] J J Weygandt , D E Kieso , WG . *Accounting Principles*, (New York, Chichester,
299 Brisbane, Toronto, Singapore) 1996. John Wiley & Sons, Inc. p. p. 800. (4th ed.)