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OPERATING AND FINANCING FACTORS ON THE RETURN OF INVESTMENT OF PHARMACEUTICAL COMPANIES

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Abstract: *This study analyzes the contribution of return on asset (ROA) and financial leverage gain to the return on equity (ROE) of a group of the largest pharmaceutical companies. Based on the analysis, factors influencing the company's performance are deduced. The data demonstrate that large return on sale (ROS) may not necessarily translate to strong ROE. On the other hand, operating ROA correlates with ROE relatively well, with operating ROA lacking ROE by a factor of financial leverage gain. The study also shows that companies in this study group use different methods to manage their operation and finance, resulting in the corresponding ROE. Based on the analysis, it is concluded that a company can improve their ROE by two ways. First is to maximize operating ROA. Secondly, the company can increase financial leverage to enhance ROE.*

Keywords*: Operating ROA, Financial leverage gain, ROE, Pharmaceutical companies*

1. INTRODUCTION

The performance of a company is usually evaluated by the analysis of return of investment such as the return on sale (ROS), return on asset (ROA), return on equity (ROE), liquidity ratios and cash flow. These parameters can demonstrate the profitability and management efficiency of different aspects of the company. Among them, return on equity (ROE) is the more comprehensive indicator of how well the company uses the investors' money to generate returns and is reflected on the share price. While the correlation of ROS to ROE is not always straightforward, ROE can be related to ROA by multiplying a factor of financial leverage. However, the traditional method of calculating ROA can be misleading because the company's assets include both operating and financial assets and the income can be from both operating activities and financial activities. Hence, it is important to distinguish the operation and financing components in ROE calculation. Furthermore, a clear understanding of the effect of operating and financial factors on ROE can help the financial officer identify the strength and weakness of the company's performance and make necessary adjustments.

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2. THE STUDY

This study uses a new method to calculate the operating ROA and financial leverage gain of a group of the largest pharmaceutical companies in the world for two recent years. The goal of this analysis is to separate operation and financing components in ROE calculation which facilitates the analysis of the influencing factors on the company's performance. Figure (i) shows the return of investment of the studied companies for the two-year period by the traditional calculation methods as shown by Equation 1-3. The data indicate that the ROS and the ROE do not always correspond to each other, in other words, large ROS may not necessarily translate to strong ROE or vice versa. ROA correlates with ROE relatively well, with ROA lacking ROE by a factor of financial leverage. This relationship is expressed in Equation 4. However, the traditional ROA values shown in Figure (i) combine both operating and financial assets and income, and therefore do not reveal the details of the company's performance. Figure (ii) depicts the new relationship of operating ROA and ROE after distinguishing the operating and financial assets and activities. The operating ROA is calculated by Equation 6. The new data show the similar trend as the ones in Figure (ii), however, the gap between operating ROA and ROE narrows as a result of the adjustment made in the new calculation. Additionally, companies in this study group possess different ratios of operating ROA to financial leverage. This implies that the companies may utilize different strategies in business management. Some emphasize on optimizing the operation; others are savvier in their finance. In Year 1, Company 1, 8 and 10 have a strong operating ROA that contributes to the high ROE. Company 4, 7 and 12 have a lower operating ROA that corresponds to the lower ROE. In the same year, many companies in this group gain financially by a low single digit percentage while several others (Company 2, 8, and 10) have higher financial gains which help increase their ROE. Company 9 has a negative financial leverage gain for that year. In Year 2, Company 1 and 8 continue to have a higher ROA, while the ROA of Company 4, 7, 12 remains lower. Company 10's ROA turns negative in Year 2.

According to Equation 6, Operating ROA is inversely proportional to operating working capital and net long-term assets. Figure (iii) and (iv) show the normalized operating working capital and net long-term assets of the studied companies for the two corresponding years. In Year 1, the operating working capital and net long-term assets of Company 1, 8, 10 are significantly lower than the other companies, resulting in higher operating ROA. The net long-term assets of Company 4, 7, 12 are relatively higher than the others which may have caused their operating ROA to decrease. The operating working capital of Company 12 is also higher, which have a descending effect on the operating ROA. These patterns continue in Year 2.

On the other hand, the company can take advantage of financial tools available to increase the ROE. This can be achieved by lowing borrowing cost, appropriately increasing debt useful for business expansion, and reducing excessive cash and

short-term investment as demonstrated by Equation 5. The values of spread in Equation 5 is not disclosed publicly and are assumed similar among the all the companies. Figure (v) shows that Company 9 possesses more cash than the other companies in both years which may be attributed to the relatively lower ROE. Figure (vi) illustrated that the relatively higher debt level of Company 2, 8, 10 and 11 actually help increase the ROE of these companies. The ROE of Company 10 is negative for Year 2 mainly because it had an operation loss. It is worth mentioning that an important consideration for utilizing debt financing is not to underestimate the risk of default. Companies that are good at debt financing usually have predictable operating cash flow and strong debt ratios so as to minimize the default risk.

3. CONCLUSION

This study concludes that a company can improve the ROE by two ways. First is to maximize the operating ROA, which can be achieved by increasing income using less working capital and long term asset. Second is to increase financial leverage again. However, it is also known that the shareholders' short-term interest does not always align with the company's long term objectives and employees' job satisfaction. For example, it takes more than 10 years and 1 billion dollar to develop a new drug today. Companies investing in research and development often stay the course for a long haul even they lose money periodically. Further, companies that has high employee turnover will gain little loyalty and dedication from the staff. Some of the companies that have lower ROE are actually very successful with great reputations. Hence there should be a balance among all the factors involved in the company's overall performance.

Reference

Palepu and Healy, Business Analysis and Valuation: Using Financial Statements, TEXT & CASES, 4th edition, South-Western Publishing, 2007.

Annual Reports of the Respective Pharmaceutical Companies.

Appendix

ROS = Net Income / Sales (Eq. 1)

ROA = (Net Income + Interest Expense) / Total Assets (Eq. 2)

ROE = (Net Income – Preferred Dividends) / Shareholders' Equity (Eq. 3)

ROE = ROA x Financial leverage (Eq. 4)

ROE = Operating ROA +Spread × (Interest-bearing debt – Cash – Short-term investment) / Equity (Eq. 5)

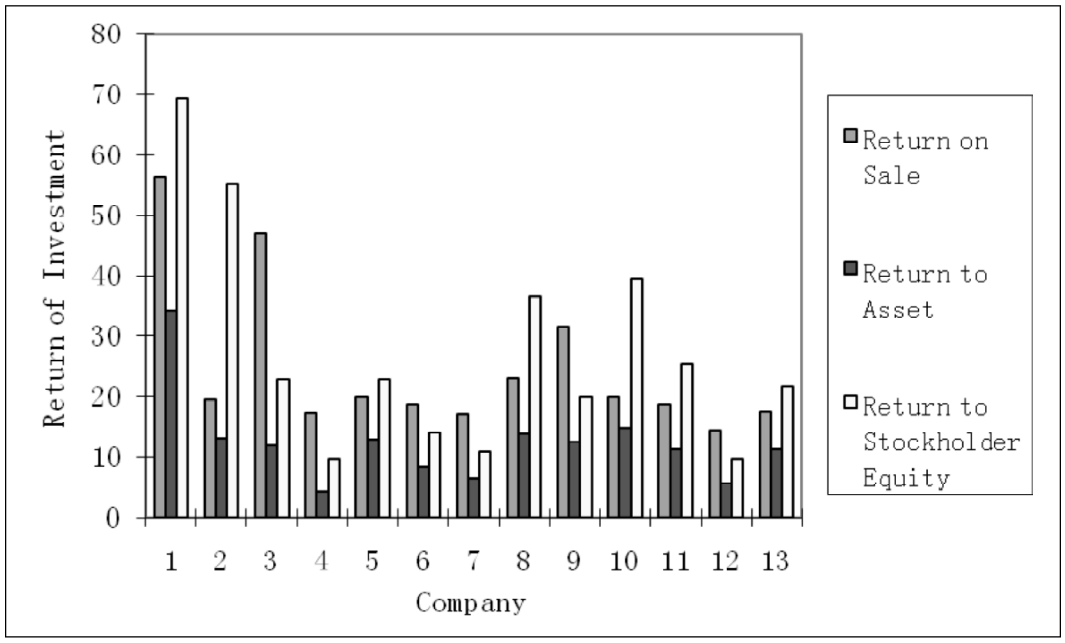
Operating ROA = Net operating profit after tax / (Operating working capital + Net long-term assets) (Eq. 6)

Cash ratio = (Cash + Short-term investment) / Current liabilities (Eq. 7)

Debt Ratio = Debt / Total asset (or Debt / Equity) (Eq. 8)

Figure (i): Traditional Return on Investment of the Studied Companies

(a) Year 1:



(b) Year 2:

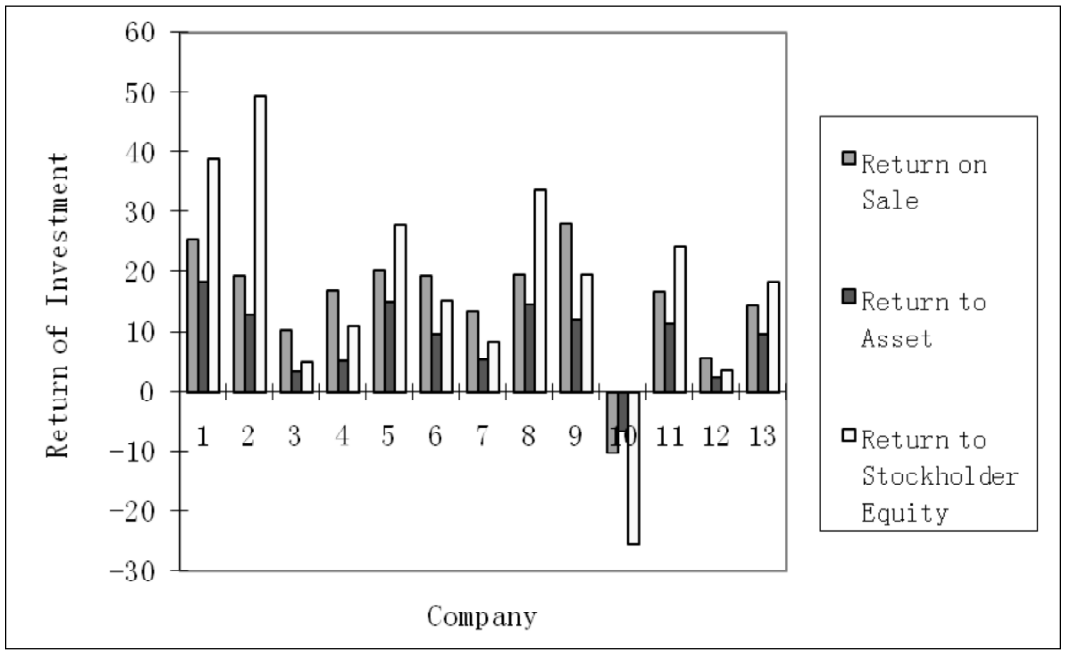
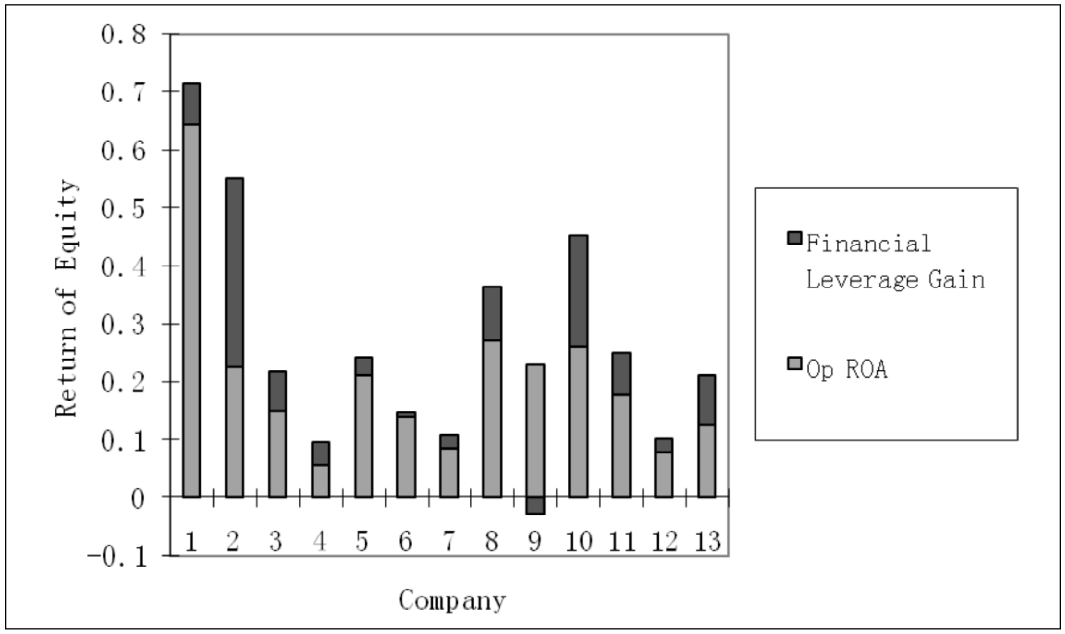


Figure (ii): Return on equity (ROE), operating return on asset (ROA) and financial leverage gain of the studied companies calculated by the new method

(a) Year 1:



(b) Year 2:

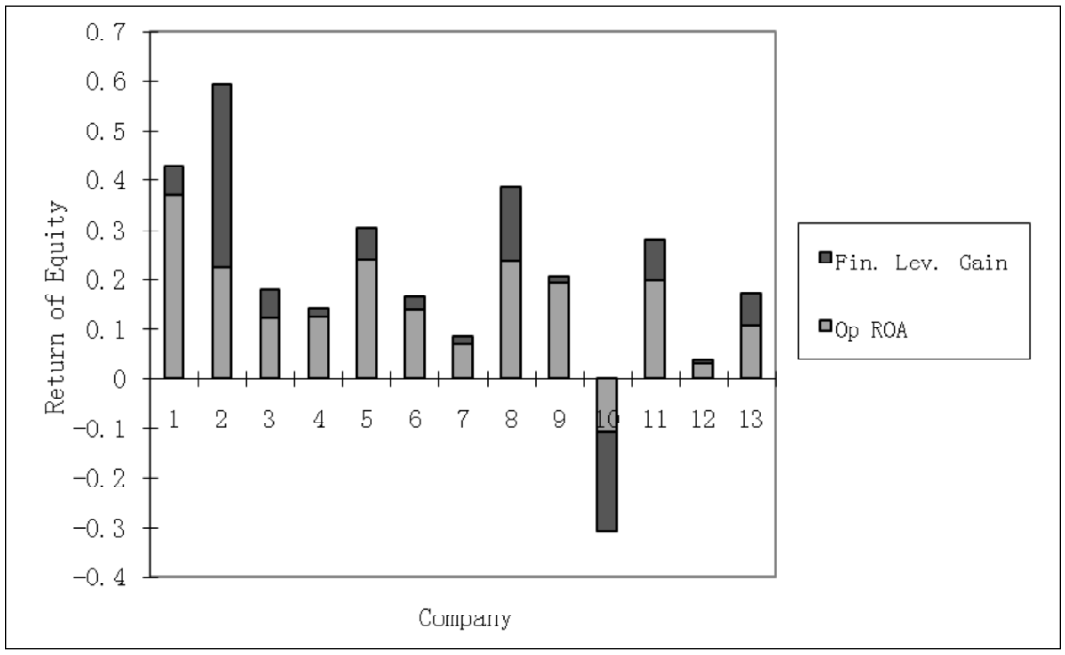
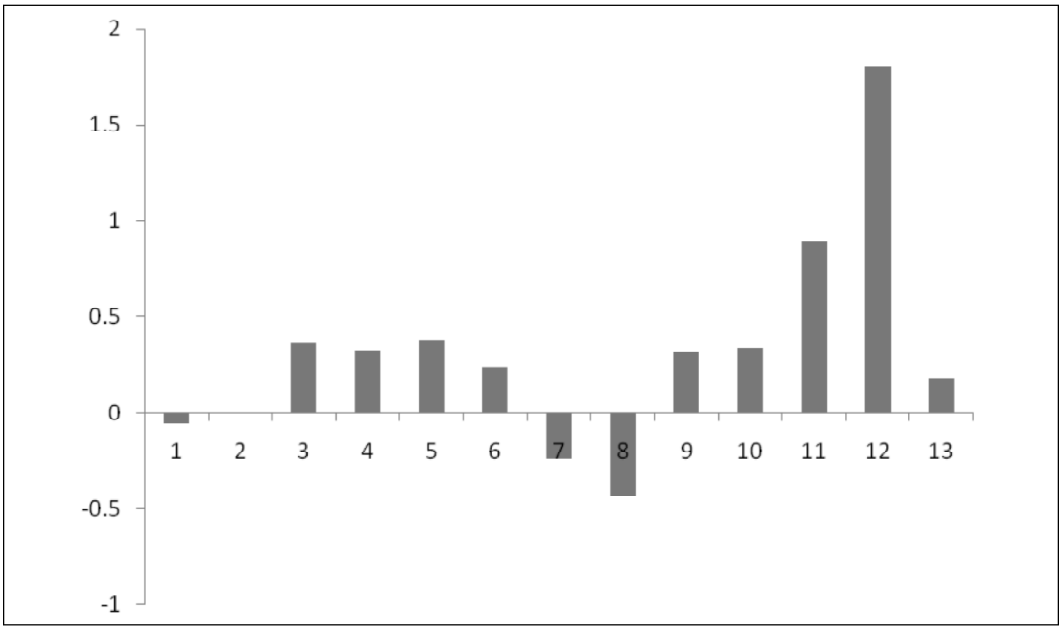


Figure (iii): Normalized operating working capital of the studied companies

(a) Year 1:



(b) Year 2:

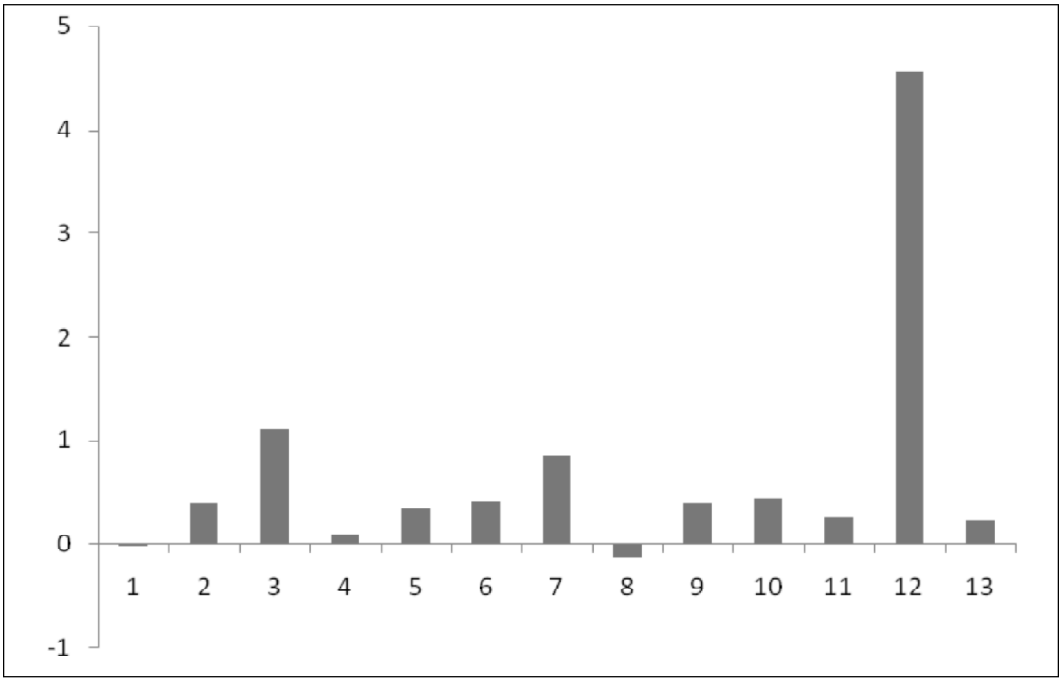
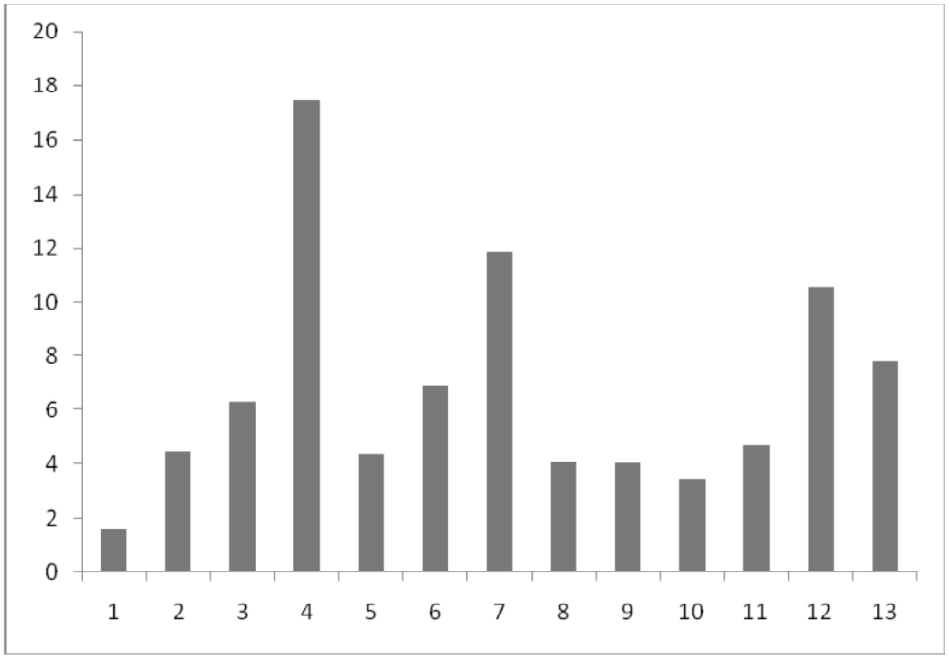


Figure (iv): Normalized net long-term assets of the studied companies

(a) Year 1:



(b) Year 2:

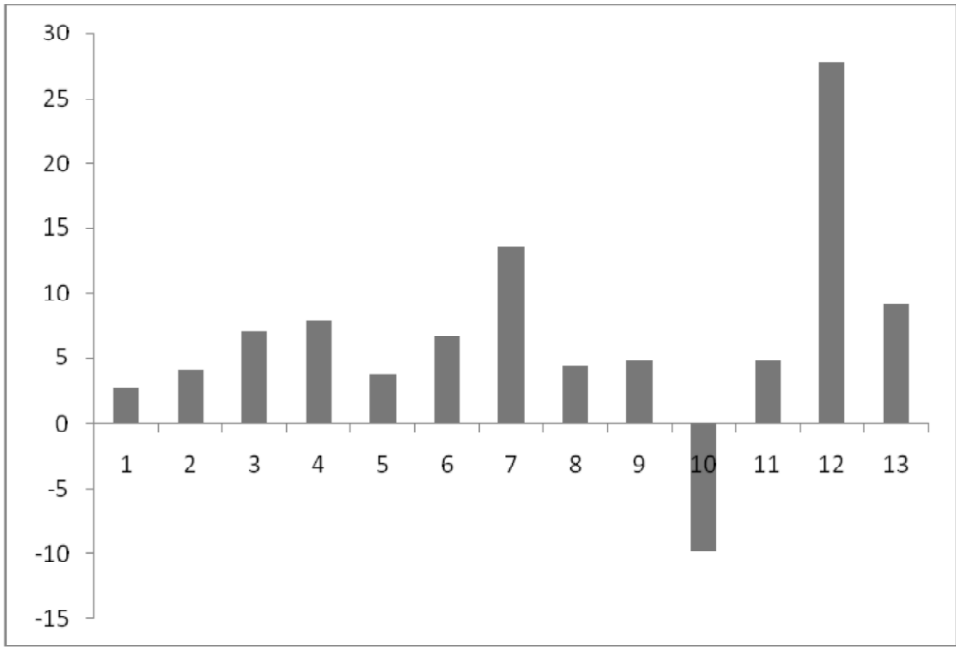
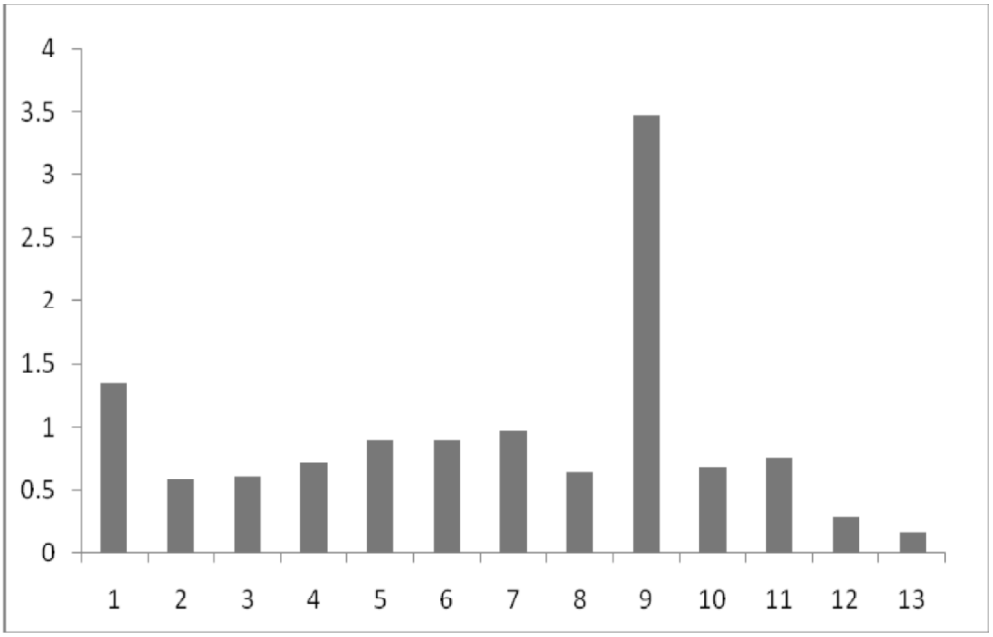


Figure (v): Cash ratio of the studied companies

(a) Year 1:



(b) Year 2:

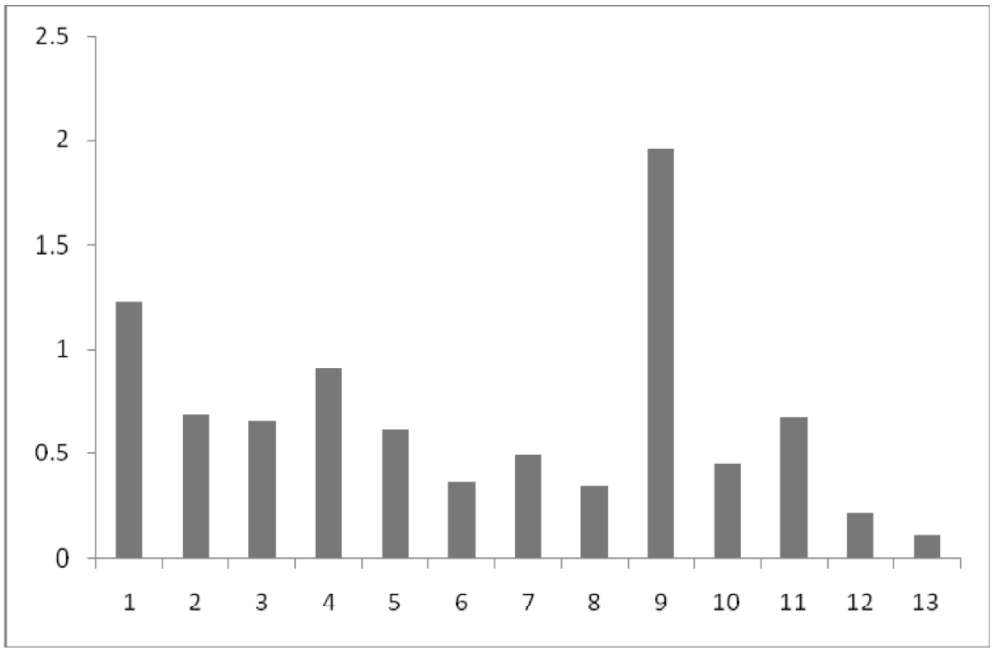
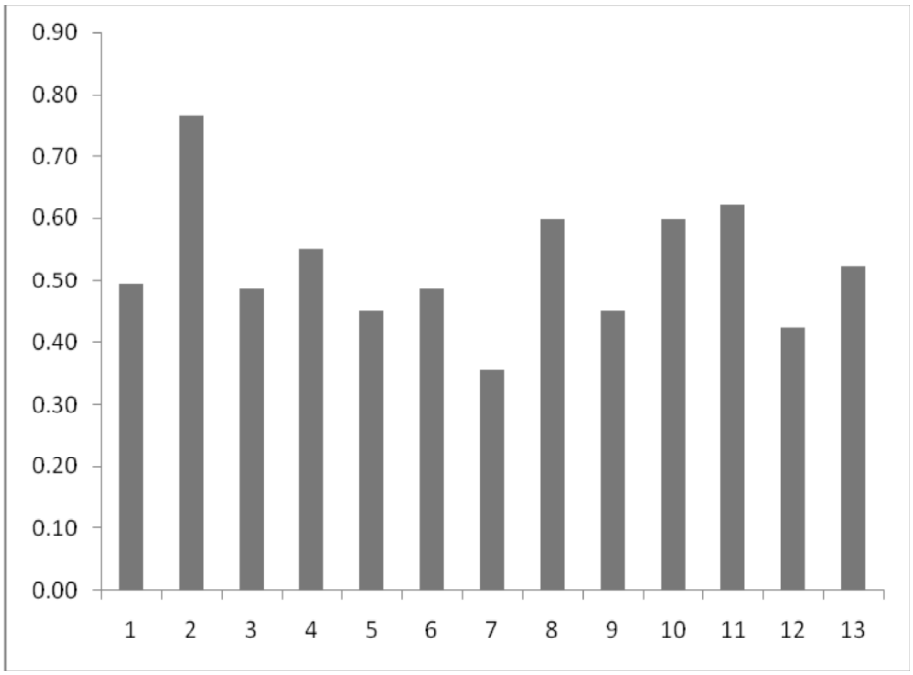


Figure (vi): Debt ratio of the studied companies

(a) Year 1:



(b) Year 2: