Received 31 July 2013
Revised 31 July 2013
Accepted 31 July 2013

The impact of financial ratios on the financial performance of a chemical company

The case of LyondellBasell Industries

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Abstract

Purpose – The purpose of this paper is to examine the impact of financial ratios on the financial performance of a chemical company: LyondellBasell Industries (LYB). Some selected ratios: current ratio (CR) and quick ratio (QR) represent the liquidity ratios, debt ratio (DR) and debt equity ratio (DTER) represent the leverage ratios, while operating profit margin (OPM) and net profit margin (NPM) represent the profitability ratios. LYB faced financial problems after its merger and the financial performance of the company shrank to negative due to the world financial crisis. However, this company has bounced back after a year and is now the world's third largest chemical company based on revenue.

Design/methodology/approach – The financial ratios were measured from 2004 to 2011, quarterly. A multiple regression model has been used and secondary data has been analyzed.

Findings – The results shows that CR, QR, DR and NPM have a positive relationship while DTER and OPM have a negative relationship with the company's financial performance. Among the six ratios, CR, DR and NPM show the highest significant impact on the company's performance.

Originality/value – This research paper contributed the result of the impact of financial ratios on the financial performance of a chemical company as the previous studies with this focus are hard to find and some of the sources are not specifically related to the topic.

Keywords Economics, Sustainable development, Financial performance, Finance, Financial ratios, Liquidity ratios, Leverage ratios, Profitability ratios

Paper type Research paper

Introduction

Mergers, acquisition, downsizing and divestiture activities have been front-page news for a significant period of time. They are very common in the markets and industries that are in the process of becoming more global. Sherman (2006) stated that during the 1980s, nearly half of all US companies were restructured, over 80,000 were acquired or merged and over 700,000 sought bankruptcy protection in order to reorganize and continue operations. The 1990s were equally dynamic in terms of companies evolving through upsizing and growth, downsizing, roll-ups, divestitures and consolidation, but with a different focus on operational synergies, scale efficiencies, increase in customer bases, strategic alliances, market share and access to new technologies.

LyondellBasell Industries (LYB) claims to be one of the world's largest polymers, petrochemicals and fuels companies and a global leader in polyolefin's technology, production and marketing; a pioneer in propylene oxide (PO) and derivatives; and a significant producer of fuels and refined products, including biofuels. On December 20, 2007, Lyondell and Basell completed its $19.4 billion (€13.6) merger, forming LYB with headquarters in Rotterdam, the Netherlands. It is believed that the merged LyondellBasell company will have better upstream integration, linked technologies and markets. The merger provides scope for integration along the ethylene and propylene chains and

World Journal of Entrepreneurship, Management and Sustainable Development
Vol. 10 No. 2, 2014
pp. 154-160

2042-5961
DOI 10.1108/WJEMSD-07-2013-0041

brings more opportunities for upstream integration with the Lyondell-owned North America refinery (DuBose, 2010). However, after a year, Short (2008) reported that two major credit rating agencies – Moody and Standard & Poors (S&P) – had downgraded their ratings for LYB, and S&P declared that LYB had entered into "selective default." The declaration refers to a technical status entered when LYB postponed its huge amount of loan payments. Moody Investors Service downgraded the rating and placed it under review for possible further reduction based on the outcome of the restructuring discussions. Susan Moore, vice president of communications in the company's Houston office said that:

> LyondellBasell is looking to restructure our debt and we are exploring all of our options.

Therefore, in December 2008, LYB confirmed that filing the Chapter 11 bankruptcy protection was an option being considered as it looked to restructure its debts. In early 2009, LYB tried to negotiate with the banks over the loan payment of $281 million, which was due on 4th January. A few days later, the US operations of LYB and its European companies filed for bankruptcy protection in the USA, with listed debts of $2.8 billion. LYB struggled to discharge the debts, while on the other hand, Reliance Industries (India) attempted to takeover LYB with a $15 billion takeover bid (DuBose, 2010). The situation was worsened by the US financial crisis. As a result, LYB were unable to repay the debt even though it planned a stock offering to raise funds to exit the bankruptcy protection. Greenwood (2010) wrote in ICIS News that its nearly 16-month stint in bankruptcy protection made LYB one of the quickest reorganizations among chemical companies. According to Greenwood (2010), LYB issued about $570 million shares of common stock to raise funds, and it was a main strategy of LYB's reorganization plan. In addition, the stock issued also allowed LYB to exchange its debt for equity in the company. After all, LYB emerged from Chapter 11 protection as a stronger, leaner, more competitive company, with an improved balance sheet and liquidity, intent on making LYB the industry leader, according to the chief executive officer (CEO) of LYB at that time (DuBose, 2010; Greenwood, 2010).

Problem statement

A study done in India to compare the financial performance of the pre- and post-merger of the Indian manufacturing companies (2010) revealed that the major component in the financial and economic environment all over the world is corporate restructuring. Companies in India have started restructuring their operations for their core business activities through M&A since 1991. However, M&A must benefit the companies, otherwise the situation becomes worse. It was found that in India, merging companies were taken over by reputable companies with good management (Vanitha and Selvam, 2010). Thus, this study is conducted with the purpose of analyzing the financial performance of a merged company, especially during the recession (2008-2009). The main focus of this study is the financial performance of the selected merged company based on quarterly performance from 2004 to 2011. Previous studies with this focus are hard to find and some of the sources are not specifically related to the topic.

Research questions

Several questions have been developed which pertain to the problem statement. The research questions are:

RQ1. How could the liquidity ratios affect the company's financial performance?

RQ2. Does the leverage ratio impact upon the company's financial performance?

RQ3. Do profitability ratios effect the company's financial performance?

Research objectives

The main objective of this study is to analyze the financial performance of a merged company LYB.

The specific objectives are:

(1) to examine the impact of the liquidity ratios on the company's financial performance;

(2) to test whether the leverage ratios impact the financial performance of a company; and

(3) to analyze whether the profitability ratios effect the company's financial performance.

Significance of the study

There is not much research on the financial performance of merged companies in the chemical industry; a previous study focussed more toward banking, manufacturing and other sectors. Therefore, this study can be used as a measurement to see whether the post-merger financial performance of a chemical company produces the same results as the study that focussed on other companies and sectors.

Scope of the study

The study will focus on the pre- and post-merger financial performance of the company, especially during the economic downturn, which may have had a big impact on the company's performance. Data have been collected from the Bloomberg terminal and the Annual Report of LYB for the nine-year period from 2004 to 2011.

Literature review

Organizational performance has many dimensions, such as long-term performance, short-term performance, financial performance, non-financial performance and relationship-building performance. Numerous studies have been done on mergers and acquisitions abroad and several theories have been proposed and tested for empirical validation. Researchers studied the economic impact of mergers and acquisitions on industry consolidation, returns to shareholders following mergers and acquisitions, and the post-merger performance of companies (Mantravadi and Reddy, 2008). Furthermore, the critical issue after the merger is whether the company achieves the expected performance. Thus, most researchers are studying the results of the merger. Healy *et al.* (1992) examined the post acquisition performance for 50 of the largest US mergers by measuring cash flow performance, and concluded that the operating performance of merging firms improved significantly following acquisitions, when compared to their respective industries. Furthermore, Ikeda and Doi (1983) studied the financial performance of 43 merging firms in the Japanese manufacturing industry and found that the rate of return on equity increased in more than half the cases, but the rate of return on total assets was improved in about half the cases. However, both profit rates showed improvement in more than half the cases in the five-year test.

Leepsa and Mishra (2012) found that merged firms show significant improvements in operating performance while Ramaswamy and Waegelein (2003) found that there is improvement in post-merger operating financial performance measured by industry-adjusted return on assets. In addition, most of the merged companies had improved their financial performance. Vanitha and Selvam (2010) agreed that the financial performance of merged companies improves. Ooghe *et al.* (2006) found that the profitability, liquidity and solvency/leverage of combined companies declines. To support this, a study by Pazarskis *et al.* (2006) also found that the profitability of merged firms decreases due to merger and acquisition activity. Kumar (2009) stated that on average, the post-merger profitability, assets turnover and solvency/leverage ratios of the acquiring companies show no improvement when compared with pre-merger values. Mantravadi and Reddy (2008) found that mergers have a positive impact on the profitability of firms in the banking and finance industry, while pharmaceuticals, textiles and electrical equipment sectors saw a marginal reduction in performance in terms of profitability and returns on investment. For the chemicals and agri-products sectors, performance after mergers declined, both in terms of profitability margins and returns on investment and assets. Vanitha and Selvam (2010) said that the liquidity, leverage and profitability ratios have an impact on the company's financial performance. In addition, higher liquidity shows that the company is in good condition, while higher leverage is a warning sign that the company is at risk. However, the rule of thumb is that the higher the risk, the higher the expected return. Moreover, they also agreed that a higher profitability means that the company is highly efficient.

Research methodology

In this study, only secondary data have been used to gather and collect as much as possible in relation to previous journals, articles and financial statements from 2004 to 2011. All the data are collected from reliable sources, which comprise: *University Library Journal*, *Emerald*, *Journal for Financial Performance*, *Bloomberg Terminal*, Google search and the company web site. All the data were estimated using multiple regression analysis. The financial ratio is regressed using E-views.

The model of the study is:

$$\mathrm{LYBP} = \alpha + \alpha\mathrm{Liq}R - \alpha\mathrm{Lev}R + \alpha\mathrm{PR} + \varepsilon$$

where LYBP, is the LyondellBasell financial performance; α, is the constant VALUE; Liq R, is the liquidity ratios (select whichever higher); Lev R, is the leverage ratios (select whichever higher); PR, is the profitability ratios (select whichever higher).

Analysis and interpretation

The multiple regression models are designed to test the relationship between the dependent and independent variables. For this model, the LyondellBasell financial performance (LYBP) is dependent variable and current ratio (CR) (liquidity ratio), debt ratio (DR) (leverage ratio) and net profit margin (NPM) (profitability ratios) are the independent variables. The regression model is analyzed by using the least square method.

The result:

$$\begin{array}{llllll} \mathrm{LYBP} = & -949.7223 & +\ 339.8353(\mathrm{CR}) & -\ 833.2160(\mathrm{DR}) & +\ 10278.03(\mathrm{NPM}) \\ & (7.743) & (9.564) & (10.788) & (13.346) \\ & (p = 0.034) & (p = 0.027) & (p = 0.015) & (p = 0.001) \end{array}$$

where adjusted R^2: 0.963; F statistic: 201.99; Durbin-Watson statistic: 2.104; t-statistic is in parentheses.

From the result above, it can be seen that when the CR, DR and NPM ratio are equal to zero, the financial performance of LYB in term of net income will be decreased to \$949.7223 million.

LYB's performance (net income) will increase by \$339.835 million when the CR increases by \$1. The net income of LYB's performance will also increase by \$833.216 million if the DR decreases by \$1. Furthermore, the company's net income will rise by \$10278.03 million when the NPM increases by \$1. It shows a positive relationship between LYBP with CR and NPM, while there is a negative relationship between LYBP and DR.

All the independent variables are significant based on the 5 percent level of significance. Based on analysis via the individual significance test (t-statistic), it can be concluded that NPM is the variable that has a highly significant impact on LYBP, followed by the DR and CR. The objective of this study is therefore achieved: the NPM is identified as the main variable that impacts upon LYBP.

Conclusion

From the results, it can be concluded that all the independent variables (liquidity ratio, leverage ratio and profitability ratio) have an impact on LYBP. NPM has a strong positive relationship with LYBP. This variable is the most influential factor regarding the company's financial performance. The next most influential variables are DR and CR, which also affects the company's financial performance after the NPM. These results are in line with those of Vanitha and Selvam (2010) for a manufacturing company in which profitability was the major factor affecting financial performance after merger. In addition, Collins and Clark (2003) stated that top managers are important for firm performance.

In conclusion, profitability ratios are the key factors which highly influence the financial performance of LYB rather than liquidity and leverage ratios. NPM is the most influential variable that affects the company's net income, which means the increase in profitability will boost the company's financial performance.

Furthermore, all the variables have a positive relationship with LYBP. Therefore, every part in the financial statement should be improved in order to sustain good financial performance. For liquidity ratio, the company should manage both their current assets and current liabilities wisely in order to avoid any default payment. The higher CR shows that the company can pay its debts and obligations when due. In addition, the company can also avoid having more short-term financing to increase their short-term growth. As a result, interest expenses will decrease and total revenue will increase. DR is very important because a higher DR means the company has many long-term debts and the possibility to default is higher. It is recommended that LYB should increase its reliability and fully utilize its assets rather than buying new assets, which will increase total debts and total expenses. By doing this, the company may increase the profit gains rather than increase the total interest expenses. Furthermore, profitability ratio is the main ratio representing the company's financial health. To increase the profitability margin, the company should reduce its expenses portion, increase the total revenue and maintain total cash fixed costs.

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