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Impact of mergers and acquisitions on stock prices: The U.S. ethanol-based biofuel industry

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ARTICLE INFO

Article history:
Received 16 July 2013
Received in revised form
3 December 2013
Accepted 6 December 2013
Available online 25 December 2013

JEL classification:
G34
Q20
Q42
Q43

Keywords:
Biofuel
Ethanol
Event analysis
Bioenergy
Mergers
Acquisitions

ABSTRACT

Corporate restructuring activities in the form of mergers and acquisitions (M&As) are ongoing in the U.S. ethanol-based biofuel industry. With regard to M&As, a widespread concern is about financial performance of an individual firm and stable financial performance of the overall industry. Using an event analysis method, this study explores the impact of recent M&As on stock prices and value of the firm of publicly traded ethanol-based biofuel industry between 2010 and 2012 in the United States. Results regarding the average cumulative abnormal returns of acquiring firms suggest that the market positively responded toward recent M&As in the industry. Around 4% positive growth on a 60-day event window was attributed to M&As using market-adjusted market portfolio. A significant positive 0.47% gain in cumulative returns in a 4-day event window and a 2.7% positive gain in a 10-day event window were suggested by this study.

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1. Introduction

The ethanol-based biofuel industry is one of the primary biofuel manufacturing industries in the United States. North and Central America produce about 49% of the total ethanol biofuel production in the world [1]. The ethanol industry uses agricultural crops, such as corn and sugarcane, as major sources of raw material and thus has very close association with the agricultural commodity industry. About 40% of the

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http://dx.doi.org/10.1016/j.biombioe.2013.12.004

total corn use in the US is claimed to be used for ethanol-based processing [2]. With implementation of new environmental regulations such as certain mandatory laws to produce biofuels, the ethanol industry is expanding its production. However, the supply of agricultural commodities, government regulations, and investor confidence directly affect the ethanol industry's stock prices and value of the company.

In the U.S. ethanol-based biofuel industry, restructuring activities in the form of mergers and acquisitions (M&As) have increased in recent years. Activities such as acquisition of foreign companies, asset acquisition from private companies, buying new plants from chemical companies, and merger of small companies are all going on in the ethanol industry. Industry is said to be growing through M&As [3]. The M&As in the biofuel industry, ethanol in particular, may represent an attempt by firms to capture the economies of scale to cope with adverse business environment such as increasing commodity prices and overcapacity. In addition to this, pursued acquisitions through production facilities are aimed at implementing new technologies related to bio-based chemicals. As implementation of new technologies takes some time to ramp up, some of the companies have faced challenges to meet investor expectations (on revenue generation and profit), while some others are recovering from revenue decline and boosting their production through scale-ups. However, to the best of our knowledge, none of the studies in the agricultural sector have explored the effects of M &As on financial performance as reflected in the stock prices of bio-based fuels and ethanol industry.

A question arises as to how frequency and scale of consolidation affect investor confidence and hence the value of the firm (stock price). There is widespread concern with regard to M&As on the financial performance of individual firms and on the stability in financial performance of the overall industry. However, studies related to recent evolutions of the biofuel industry have been scant. To the best of our knowledge, no previous studies have examined the effects of M&A activities on the financial performance of the ethanol industry. Mergers and acquisition activities in the industry captures not only the attention of a broad segment of the community, producers, consumers, environmentalists, and agriculturists but also the scrutiny of the government (federal).

The objective of this paper is to evaluate the impact of recent M&As on the ethanol-based biofuel industries. This study used M&A data on the financial performance of the firms from 2010 to 2012. In total, 38 events of firm acquisition were used in analyzing the financial performance. We employed several techniques from event analysis. The event study method determines the impact of specific financial decisions on shareholder returns and expected firm profitability. McWilliams and Siegel [4] described the analysis as an approach to assess the strength of linkage between managerial actions and the creation of firm value. Since we require daily return data, only publicly traded firms were considered in this study. Event data were compiled using various sources such as news, online business magazines, and M&A statistics. For each event, announcement dates and the companies involved (target and acquiring) were collected. Then, impact of the event was analyzed for different time windows from the date of announcement. We assessed daily abnormal returns and cumulative abnormal returns for the duration of 30 days pre- and post-announcement date and for some alternative event windows.

The remainder of the paper is organized as follows. The Section 2 provides a review of literature from theoretical and empirical perspectives. Section 3 describes assumptions and methodology of event analysis and data collection, respectively. Section 4 presents findings from our study, followed by the conclusion in Section 5.

2. Theoretical and empirical studies on merger and acquisitions

Mergers and acquisitions is one of the topics that receive a considerable attention in economics, finance, and management literature. Incidentally, Lubatkin [5] started with the question "do mergers provide real benefits to acquiring firms?" He further argued that, "If mergers provide no real benefits, then why do firms continue to merge?" and "If merger provides real benefits, then why did some empirical studies find no evidence of such?" The author presented two parallel possible propositions. First, mergers do not provide real benefits, merely based on the logic that managers make mistakes or seek to maximize their own wealth at the expense of stockholders' wealth. Second, mergers do provide real benefits; however; we do not observe the benefits because administration problems may accompany the merger and cancel out the benefits arising from it. He further pointed out that there may be potential methodological problems in detecting benefits appropriately. On the other hand, many empirical studies have established the notion that shareholders of acquired (target) firms benefit by M&As (Dodd and Ruback [6]; Asquith and Kim [7]; Jensen and Ruback [8]; Al-Sharkas et al. [9]). However, Wong and Cheung [10], while studying six key Asian markets, found an existence of significant negative average residuals for target firms around the M&A announcement date. The gains to acquiring firms are difficult to measure. However, some of the studies have suggested a little gain in bidding firms. From management perspectives, "stockholders of acquiring firms get synergistic benefits if there is strategic fit between them" [5]. Magenheim and Mueller [11] argue that researchers should begin measuring gains or losses on acquiring firms stock when the target firm prices start to increase. This may be because the price increase signals the first release of merger-related information.

Wong and Cheung [10] discussed the reason behind the announcement of a merger. The basic principle comes from overcoming information asymmetry. In a relatively new industry, small investors are often in a dilemma: do they sell their shares when a bid is made? A possible reason is that they do not know much about gains and losses from M&A. In the same way, managers of target companies might not know if there exist any gains when faced with a bid. Decisions about M&As and payments often depend on the preference of managers of the acquiring firm and the targeted firm. Thus, the acquiring firm launches a takeover announcement, in a

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