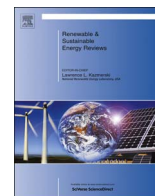




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Market dynamics of buyout acquisitions in the renewable energy and cleantech sectors: An event study approach [☆]

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ABSTRACT

This paper examined the market dynamics of mergers and acquisitions in the renewable energy and cleantech sectors. We analyzed abnormal returns from 273 announced and 54 completed buyout acquisitions that took place between the years 1997 and 2014, and we used an event study methodology to test (i) whether renewable energy and cleantech deals experienced higher rates of abnormal returns than traditional energy and mining deals, (ii) whether deal completions displayed similar effects as deal announcements, and (iii) whether homogenous deals experienced higher rates of abnormal returns than heterogeneous deals. Our findings were (i) that the traditional energy and mining sector outperformed the renewable energy and cleantech sectors in homogenous deals, (ii) that the deal completion effect followed the announcement effect in 9 of 12 cases, and (iii) that homogenous deals outperformed heterogeneous deals. To the best of our knowledge, comparisons of deal announcements and deal completion effects in the renewable energy and cleantech sectors have not to date been previously examined in the literature.

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Contents

1. Introduction	271
2. Working hypotheses	272
3. Methods and data set	273
3.1. Methods	273
3.2. Data set	275
3.2.1. Data collection	275
3.2.2. Sorting the data	276
3.2.3. Testing the data	276
4. Results	276
5. Discussion	277
6. Conclusions	277
References	278

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1. Introduction

This paper provides the existing mergers and acquisitions (M&A) literature in the renewable energy and cleantech sectors with additional depth concerning market dynamics (see, e.g., [1,4,12]).

Throughout history, economic growth has evolved towards a goal of ending resource and green-house gas emissions, which will otherwise lead to significant global warming. According to a report

from the IPCC [6], more than 80 percent of the world's energy supplies come from fossil fuels. In his famous report from 2006, *The Economics of Climate Change*, Nicholas Stern claims that the investments that take place in the next 10–20 years will have a profound effect on the climate in the second half of this century and the next century. After failing to reach a binding global agreement for climate action at the Copenhagen 2009, the Cancún 2010, and the Durban 2011 meetings, an agreement was reached at the Paris COP21-meeting in 2015, which is a clear signal that the topic is now a priority on the global agenda [10].

Given the climate change and the global policy challenges ahead, the renewable energy and cleantech sectors are likely to be popular targets for policy-makers around the globe to speed the transition towards a green economy. One example of this, the first of its kind, is the public funding (£3.8 billion) of a green investment bank in the U.K. The aim of this bank is to mobilize investments in the green economy, and it can only do so by investing in projects in which the market does not reach an agreement [5]. This policy provides incentives for the sector to attract investors. A surge in M&A activity in the renewable energy and cleantech sectors during the past few years suggests that M&As are becoming an increasingly important strategy for decision-makers to enable this economic and policy shift. Furthermore, the M&A trend appears to be continuing despite the financial crisis of 2008, when several sectors lost momentum and even declined in investment activity [9].

As technological change accelerates and the industry gains restructuring priority, acquisitions are often viewed as a tool for the rapid exploitation of new products and markets. In other words, acquisitions are a way for companies to enter the renewable energy and cleantech sectors and to prosper on the growth that is expected to come. However, the reasons acquisitions occur are far from clear. Several theories have attempted to rationalize trends in M&As over time. Few of them have been successful, and the occurrences of M&As are even considered to be one of the top unexplained puzzles in financial economics [3]. This paper is not dedicated to examining the determinants of M&As, but a reasonable explanation for the occurrences of M&As is that changes at the macro-level of the global economy lead to industry-level shocks that, in turn, affect the incentives and motives for business leaders at the micro-level. These macro-level factors that lead to industry-level shocks might, for example, be economic booms and busts, globalization, major policy changes, oil price fluctuations, technological developments or research breakthroughs.

One may assume that M&A activity peaks during financial crises and economic busts because it is cheap. At the same time, however, an economic boom improves the position of the acquirer and may thus lead to additional investments. Globalization lowers the barriers for cross-country investments, which could increase M&A activity as the market for potential targets expands. Major policy changes can directly influence the profitability of the sector and signal into which direction the industry is developing (as in, for example, the COP21-agreement in Paris). The cleantech industry may also be spurred by taxes levied or subsidies removed within the fossil fuel industries and/or fluctuating oil prices. Disruptive changes to industries could also come from technological changes and/or research breakthroughs. Another, less macroscopic, perspective is that hubris from managers may drive M&As [7].

Policy-makers play an important role in incentivizing the business community to speed the transition from a fossil-fuel dependent economic system to a sustainable and resource efficient system. York and Venkataraman [13] add to this argument by concluding that entrepreneurship thrives in a for-profit context. Profitability is needed to attract the interest and to encourage the risk-taking of entrepreneurs. At the same time, the industry has undergone substantial changes over the past 25 years in terms of

global environmental deregulation as well as increased public spending to promote cleantech [11]. This trend, supported by the global agreement in Paris, implies that economic incentives might spur M&A activity within the renewable energy and cleantech sectors to increase further as the sectors mature and become more profitable in the future.

This paper provides investors, management and shareholders with an empirical foundation to take into account in their decision-making. Specifically, this paper uses the event study methodology to analyze abnormal returns from 273 announced and 54 completed buyout acquisitions that took place between the years 1997 and 2014. The acquisitions are divided into the renewable energy and cleantech sectors (solar, waste management, water treatment, and wind), a sector of traditional energy and mining deals, and a group of other companies investing in renewable energy and cleantech. The deals are further divided into deal type based upon the underlying business strategy (horizontal, vertical, and risk-diversifying).

Three hypotheses are tested in the paper. First, do the effects of buyout acquisitions align with the beneficial idiosyncrasies of the renewable energy and cleantech sectors compared with the traditional energy and mining sector? Second, are there abnormal returns from the actual completion of the deals, considering the uncertainty of a deal breaking down? Hence, the rate of abnormal returns at the date of completion of an acquisition is analyzed when the announcement and completion dates are not executed simultaneously. To the best of our knowledge, such a comparison has never before been examined in the literature. Third, are there differences between these effects depending on the underlying business strategy?

The rest of this paper is organized as follows. Section 2 outlines our working hypotheses. Section 3 presents the empirical methodology and data set. Section 4 presents the results. Section 5 contains a discussion of the findings and Section 6 ends the paper with our conclusions.

2. Working hypotheses

This section specifies three testable hypotheses¹ that this paper conveys.

First, it is expected that renewable energy and cleantech deals should experience significantly higher rates of abnormal returns than deals in the traditional energy and mining sector. This is due to the backing of public funding and the fact that the cleantech industry is growing fast and markets are starting to mature and reach break-even. Achieving part of the green premium that is associated with government support and public funding should, if correctly applied, lead to higher positive abnormal returns than deals that do not take advantage of the premium. Thus, the first hypothesis (H1) is summarized as follows:

H1: The renewable energy and cleantech sectors experience higher rates of positive abnormal returns from buyout acquisitions than deals in the traditional energy and mining sector.

Second, it is expected that the announcement date effect is followed by similar abnormal returns at the completion date whenever there is a delay in the completion. Many deals are automatically completed when they are announced, but some, roughly one fifth of all deals in our data set, are completed at a later date. When a deal is not completed at the same time as it is announced, it is always subject to uncertainty. Thus, the date of

¹ Be aware that the hypotheses are working hypotheses, not statistical hypotheses, although they are implicitly transformed to statistical hypotheses in Table 5 in Section 4.

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