



Do resource consent announcements provide valuable information?

Evidence from New Zealand

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Abstract

Purpose – Investor access to timely, financial resource consent information is problematic, consequently the purpose of this paper is to investigate the economic importance of New Zealand resource consent announcements to the stock exchange.

Design/methodology/approach – The authors apply event study methodology and cross-sectional rank regression using a sample of resource consent announcements from 1993 to 2007.

Findings – Evidence of excess return volatility is found both on and before resource consent announcement dates. The results show that stock market reactions to resource consent announcements are positive for news of successes and negative for news of setbacks. Uncertainty associated with resource consent announcements appears to contribute to a delayed negative market response. In contrast, price reactions to announcements of resource consent success are immediate and significantly positive only when the news is concurrently disseminated via the media.

Research limitations/implications – The findings imply that resource consent announcements are newsworthy and provide valuable information to the stock market regarding future regulatory compliance costs. Media dissemination is suggested to play an important role in the price-adjustment process for news of resource consent successes. Given the increasing prominence of environmental compliance issues, the authors suggest that more informative disclosures regarding the types of consent(s) sought, the dollar value of expected compliance costs, expected time to gain consent, project investment costs and consent conditions imposed, would better assist investors to assess the economic impact of firm capital expenditures.

Originality/value – This study adds evidence to the literature on the role of environmental disclosures in disseminating information and reducing information asymmetry and offers suggestions to enhance the informativeness of environmental disseminations.

Keywords New Zealand, Capital markets, Economic resources, Environmental disclosures, Resource consents, Compliance costs, Information asymmetry

Paper type Research paper

1. Introduction

Since the enactment of the Resource Management Act (1991, RMA), major investment projects in New Zealand that may have a potentially adverse environmental impact

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upon the air, land or water have required resource consent approval before proceeding. The processes associated with resource consents have provoked considerable criticisms of excessive delays and compliance costs (OECD, 1996, 2007; Ministerial Panel on Business Compliance Costs, 2001), and yet investor access to timely, financial resource consent information is problematic. Companies listed on the New Zealand stock exchange must disclose price-sensitive information immediately as it becomes available, so market announcements of resource consent progress may signal to investors useful information about future regulatory compliance costs. Yet, the nature of such announcements is overwhelmingly non-financial, and past research evidence suggests that market prices may be slow to react when information uncertainty is high (Zhang, 2006) or disclosures are imprecise (Bulkley and Herrerias, 2005). Moneva and Cuellar (2009) find that non-financial disclosures of voluntary environmental activities are not value relevant, and suggest that lack of uniformity of reporting standards may impede investors' ability to interpret the information. In this study, we seek to add to the research evidence assessing the economic importance of environmental disclosures by studying the stock market reaction to resource consent announcements. The degree of information uncertainty surrounding resource consents may be affected by the news characteristics and breadth of dissemination of the announcements, so we consider how these factors may influence investors' reactions.

We examine a sample of resource consent announcements to the stock exchange from 1993 to 2007 and find evidence of excess volatility on and before the event day, suggesting that the information is newsworthy and that some investors anticipate the news and engage in pre-event trading. Subsample results show that stock market reactions to resource consent announcements are positive for news of successes, when regulatory compliance costs are largely sunk. In contrast, resource consent announcements of setbacks imply an increase in expected compliance costs, and are viewed negatively by the market. Furthermore, event-day abnormal returns for unsuccessful announcements are significantly lower than those from successful or uncertain announcements. We find that prices react immediately and positively to successful resource consent announcements that are media disseminated. However, for resource consent news that is not definitively positive or negative, prices adjust more slowly and negatively, irrespective of breadth of dissemination.

Our study of the capital market impact of New Zealand resource consent information adds to the growing literature on the role of environmental disclosures in disseminating information. Our results suggest that resource consent announcements transmit valuable information to the markets regarding future regulatory compliance costs, and in doing so, play an economically valuable role in reducing information asymmetry. However, our findings also imply that firm dissemination of more quantitative information is desirable to reduce the uncertainties surrounding resource consent announcements. We also present evidence that media dissemination plays an important role in the price adjustment process for news of resource consent successes.

2. Institutional background

Since the implementation of the RMA 1991, major New Zealand investment projects have required resource consent approval through local councils and/or regional authorities in order to proceed. A standardised resource consent process must be followed if the RMA environmental provisions relating to land, air or water could be potentially contravened.

These regulations have affected many important new projects planned by listed companies, such as the establishment and development of new landfill sites, wind farms and retirement villages. Each project proposal may require the applicant to request several resource consents if different types of uses are planned (such as land use, water, discharge, coastal or subdivision) or if more than one RMA authority has jurisdiction over the affected geographical locations. Once granted, resource consents are transferable but only together with the project assets. Water rights are an exception to this, but high barriers to the trading of those rights have been identified (Counsell and Evans, 2005).

Resource consent compliance costs are reputed to be particularly high, hence this information may well be important to investors in their assessment of the timing and magnitude of future project cash flows. Critics contend that regional and territorial authorities lack the policy guidance (OECD, 1996, 2007), funding (Milligan, 1992) and expertise (Kerr, 2003) needed to efficiently administer the RMA and the resource consent process, resulting in *ad hoc* decision making and costly processes (Upton, 1997). In addition, the breadth of consultation required under the act has reportedly led to delays that have increased the time and cost of resource consent processes (Ernst & Young, 1997; Ministerial Panel on Business Compliance Costs, 2001; OECD, 2007). Furthermore, future project cash flows may be negatively affected by the imposition of strict monitoring conditions or limits on development (such as the number of turbines allowed in a wind farm). These observations imply that the process of obtaining resource consents to undertake major capital expenditure projects may impose high compliance costs and uncertainties on New Zealand businesses.

Although resource consent information may well be helpful to investors to assess project cash flow and risk consequences, there are no statutory requirements under the RMA for the specific accountability reporting of resource consents. Under general accounting standards, resource consent costs are either expensed if they fail to meet the general test as an asset, or capitalised as part of the project assets to which they relate. This treatment has remained materially unchanged as a consequence of the staggered 2005-2007 New Zealand adoption of International Financial Reporting Standards. Initial recognition of resource consent-related assets is normally at cost, and then after the asset is in use, with the exception of some property investment assets, companies have the choice of measuring the asset at cost or fair value, as long as they are consistent within each asset class. However, the revaluation of assets tends to sever the direct link between the actual resource consent expenditures and the reported balance sheet value of the asset. Consequently, investors are generally unable to identify resource consent cash flows through published company financial statements (Tozer and Hawkes, 2001).

Given that the RMA devolves much of the resource consent decision making to regional and local bodies, information on consent types, conditions and application/hearing fees is only freely available to those participants who attend the resource consent hearings. For most investors, the only timely, widely available resource consent information is transmitted via the stock exchange and media. Most resource consent announcements report the status of resource consent progress on capital expenditure projects. Some projects may be the subject of several announcements, as the time to gain resource consent approval varies according to the environmental sensitivity of the project. Upon the initiation of a project a company may announce their project and resource consent plans, and then later as the resource consent process ensues, they may

report further details of delays, progress, appeals and/or approvals. Some examples of such announcements are presented in Appendix. Immediate disclosure to the New Zealand Exchange (NZX) is required under their continuous disclosure regulations if information materially affects the value of a listed company's securities (McLaughlin and Wallis, 2002; New Zealand Exchange, 2005)[1]. Announcements are then disseminated electronically by the NZX directly to institutional investors and brokers and indirectly to other investors through the NZX website. This implies that resource consent announcements disseminated via the stock exchange may provide insights on changes in the market valuation of future project environmental compliance costs. As discussed further below, these disclosures are also frequently reported upon by the media, which may be the principal source of information for some unsophisticated investors. Nevertheless, the nature of information communicated through the stock exchange and media lacks uniformity and tends to be largely non-financial. The amount of detail conveyed varies considerably, and rarely is information provided on the types of consent sought, the dollar value of expected compliance costs, expected time horizon, project investment cost or details of conditions imposed. Given the lack of detailed quantitative information available to investors, the usefulness of these disseminations in assisting investors to assess the project cash flow and risk consequences appears uncertain.

3. Literature review and hypothesis development

Finance literature suggests that corporate disclosures may have firm-specific as well as market-wide benefits (Leuz and Wysocki, 2008). Public news releases may reduce investors' costs of information acquisition and improve risk sharing among them through increased homogeneity of beliefs and reduced speculative position-taking (Diamond, 1985). More informative disclosure practices may attract more potential investors, enhance the accuracy of investors' predictions, reduce asymmetry in performance expectations and in turn, reduce firms' costs of capital (Lang and Lundholm, 1996).

Several studies have investigated stock market reactions to environmental disclosures. Environmental news of future costs, high pollution and legislation has mostly been viewed negatively by the stock market (Shane and Spicer, 1983; Blacconiere and Patten, 1994; Hamilton, 1995; Diltz, 2002). However, some voluntary environmental disclosures have been found to be associated with more precise analysts' earnings forecasts, increased market values and reduced costs of capital (Aerts *et al.*, 2008; Marshall *et al.*, 2009). Disclosures that reveal sound environmental risk management practices may signal to investors company policies that mitigate environmental risk exposure (Blacconiere and Patten, 1994; Klassen and McLaughlin, 1996; Blacconiere and Northcut, 1997). The Porter hypothesis (Porter and van der Linde, 1995) suggests that proactive firms may benefit from environmental regulation through technological innovation and investment, however research evidence has yielded mixed results (Nehrt, 1996; Helland and Matsuno, 2003; Clarkson *et al.*, 2004; Johnston, 2005).

If news of resource consent progress causes investors to revise their expectations of the amount or risk of future cash flows, then any changes in firm value will be observable through changes in the firm's stock price. Yet, given that the financial dollar cost of the resource consent process is rarely disclosed through any medium, the overwhelmingly qualitative nature of the disclosures may hamper investors' abilities to interpret the financial impact (Moneva and Cuellar, 2009). Uncertainty surrounding

resource consent information could contribute to increased return volatility and correspondingly higher costs of capital for businesses.

Accordingly, our *H1* examines the information content of resource consent announcements. If resource consent announcements have economic implications, then on average, evidence of price movements are expected on the announcement dates (Fama, 1991). Given potentially offsetting effects of stock price reactions to resource consent announcements, the absolute values of abnormal returns are pooled over the sample as in Bhattacharya *et al.* (2000). Stock return volatility has been directly related to the rate of information flow to the market and has been suggested to represent dispersion of investor beliefs (Ross, 1989; Harris and Raviv, 1993). If on average, the announcements provide the markets with new, unanticipated information, then as postulated in *H1*, there should be evidence of significant volatility on the event day:

H1. The event-day absolute abnormal returns of resource consent announcements are significantly greater than zero.

The next three hypotheses seek to determine how the characteristics of resource consent announcements influence investors' reactions. The classification of resource consent announcements into "successful", "unsuccessful" and "uncertain" classifications, described later in the data and methodology section, is used to differentiate announcements.

Some announcements are expected to be interpreted as good news, such as when an Environment Court appeal against a resource consent is dismissed, or when a resource consent has been secured to allow an important investment project to proceed. Johnston *et al.* (2008) find that news of purchases of SO₂ emission allowances evokes a positive stock market reaction. Similarly, resource consent successes signal that most of the regulatory compliance costs have already been incurred, so we predict positive stock market reactions:

H2. The event-day abnormal returns of successful resource consent announcements are significantly greater than zero.

In contrast, setbacks in the resource consent process are expected to be associated with decreases in stock prices. Some research finds evidence of negative capital market reactions to news that signals increased future environmental compliance costs (Blacconiere and Northcut, 1997; Johnston, 2005; Canon-de-Francia and Garces-Ayerbe, 2009). Accordingly, we predict that announcements of delays, appeals and monitoring in connection with project resource consents will result in negative share price reactions if project net present values are expected to be negatively affected through either diminished future cash flows or increased risk:

H3. The event-day abnormal returns of unsuccessful resource consent announcements are significantly less than zero.

Yet the net direction of market reactions to other resource consent announcements such as managements' initiation of the resource consent process, is difficult to predict. Investors may react negatively at the prospect of lengthy regulatory delays and high environmental compliance costs (Jaggi and Freedman, 1992; Palmer *et al.*, 1995). Alternatively, market reactions may be positive if net benefits are expected from improved environmental management systems (Hart, 1995; Melnyk *et al.*, 2003) or technological innovation and investment (Porter and van der Linde, 1995; King and Lenox, 2002; Helland and

Matsuno, 2003). As a result, we are unable to predict the direction of the stock price reaction to those announcements that we classify below as “uncertain”. However, if as predicted above, success news is positively valued while unsuccessful news is negatively valued, then we expect that event-day abnormal returns will be lower for unsuccessful announcements than for either successful or uncertain announcements:

H4. The event-day abnormal returns of unsuccessful resource consent announcements are significantly lower than those from successful or uncertain announcements.

H5 considers how the breadth of dissemination of a resource consent announcement may affect the stock price reaction. Some empirical research indicates that media coverage may strengthen the magnitude and/or speed of price reactions to information (Klibanoff *et al.*, 1998; Pritamani and Singal, 2001). However, the positive relationship between media coverage and firm size suggests that the media is more inclined to report news of large firms (Thompson *et al.*, 1987). In our study, insufficient sample size for the unsuccessful news group size limits our predictions to the successful news subsample. If media coverage of events is associated with increased magnitude and/or speed of price reactions to information, then it is expected that event-day abnormal returns will be greater for successful resource consent announcements that receive contemporaneous media news coverage than for those that do not:

H5. The event-day abnormal returns of successful resource consent announcements that receive contemporaneous media coverage are significantly higher than those that do not receive contemporaneous media coverage.

4. Data and methodology

4.1 Data, data sources and sample selection

To test *H1-H5* regarding the economic impact of resource consent news, both the NZX i-Search and the IRG Deep Archive databases were searched for resource consent announcements reported to the NZX in the period from January 1991 to August 2007 by firms listed on the New Zealand Stock Exchange. A resource consent announcement is defined as news regarding the initiation, approval or process for approval of specific resource consents. The start date reflects the year of enactment of the RMA, while the cut-off date is prior to the September 2007 government announcement to implement an emissions trading scheme. This cut-off date is set to avoid possible complications caused by company wealth consequences of the emissions trading scheme. After deletion of duplicate announcements, this search yielded 287 resource consent announcements.

The sample was further restricted by applying the following selection criteria. First, the announcement had to relate primarily to resource consent news. Concurrent confounding events on day 0 resulted in the elimination of 183 resource consent announcements. Second, no other major announcements must have occurred on the day prior to (-1) or day after (+1) the event date. This resulted in 11 further exclusions. Finally, announcing firms' stock must have traded during the period from one day prior to one day after the event date. Another three announcements were excluded as a result of this criterion. Announcement dates were adjusted to the next working day for all after-hour announcements. After applying these screening criteria, the sample comprised 90 resource consent announcements from 30 companies from 1993 to 2007.

As reported in Panel A of Table I, the greatest number of announcements in the sample (18) is in 2004, coinciding with a period of high economic growth in New Zealand.

In order to test *H2-H5* regarding the influence of news characteristics and media dissemination on stock market reactions, the 90 announcements were read and assigned to either a “successful”, “unsuccessful” or “uncertain” subsample. An announcement is defined as “successful” when it reports the granting of resource consent by authorities with no major conditions, or when it advises the expiration of an appeal period for contesting a granted resource consent. Of the 90 announcements, 44 are classified as “successful”. An “unsuccessful” classification is used for announcements of major delays in the process of attempting to gain resource consent and/or major appeals lodged against a decision to grant resource consent. Surprisingly, only four of the 90 announcements are classified as “unsuccessful”. A review of contaminated announcements excluded from our sample indicates no over-representation of negative resource consent news in the contaminated announcements. Finally, announcements are categorised as “uncertain” when the news is not definitively good or bad. Specifically, announcements are classified as “uncertain” when they notify the lodging of an application or intent to apply for resource consent (26), report consent-related compliance activities, remediation actions, conditions and minor delays (11),

Panel A. Sample of resource consent announcements by year

| | <i>All</i> | <i>Successful</i> | <i>Unsuccessful</i> | <i>Uncertain</i> |
|-------|------------|-------------------|---------------------|------------------|
| 1993 | 1 | 0 | 0 | 1 |
| 1994 | 5 | 1 | 1 | 3 |
| 1995 | 5 | 1 | 0 | 4 |
| 1996 | 5 | 2 | 0 | 3 |
| 1997 | 2 | 1 | 0 | 1 |
| 1998 | 3 | 1 | 0 | 2 |
| 1999 | 7 | 2 | 1 | 4 |
| 2000 | 4 | 3 | 0 | 1 |
| 2001 | 3 | 1 | 0 | 2 |
| 2002 | 3 | 3 | 0 | 0 |
| 2003 | 16 | 10 | 2 | 4 |
| 2004 | 18 | 11 | 0 | 7 |
| 2005 | 9 | 4 | 0 | 5 |
| 2006 | 5 | 1 | 0 | 4 |
| 2007 | 4 | 3 | 0 | 1 |
| Total | 90 | 44 | 4 | 42 |

Panel B. Industry affiliations of resource consent announcer sample

| <i>Datastream Industry Classification level 2</i> | <i>Number of companies</i> | <i>Total announcements</i> | |
|---|----------------------------|----------------------------|----------------|
| | | <i>Number</i> | <i>Percent</i> |
| Basic materials | 4 | 8 | 8.9 |
| Consumer goods | 1 | 2 | 2.2 |
| Financial services | 6 | 12 | 13.3 |
| Healthcare | 2 | 12 | 13.3 |
| Industrials | 9 | 21 | 23.4 |
| Oil and gas | 3 | 8 | 8.9 |
| Utilities | 5 | 27 | 30.0 |
| Total | 30 | 90 | 100.0 |

Table I.
Resource consent
announcements
sample analysis

Note: Table I summarises the sample distributions of 90 resource consent announcements to the New Zealand Stock Exchange from 1993 to 2007

or discuss the progress of more than one projects' resource consents (5). A total of 42 announcements are classified as "uncertain".

Panel B of Table I classifies the industry affiliations of the sample companies according to the level 2 Datastream Global Industry Classifications. A wide range of capital-intensive industries are represented, with announcements from the utilities industry making up 30 percent of the sample. The financial services category is wholly comprised of companies involved in property investment.

To implement the event study methodology, a benchmark stock market return is required. For this study, the Datastream live and delisted stock return indices and trading volume series from 1991 to 2007 were used to construct an equal-weighted stock market index of NZX domestically listed ordinary shares. Value-weighted indices are less appropriate for event studies in New Zealand due to the dominance of a few large companies (Coote, 1996). A total of 28 stocks that on average traded on fewer than 40 percent of available trading days were excluded as discontinuities in security trading caused by thinly traded stocks may bias market returns estimated using daily data (Scholes and Williams, 1977). This produced a relatively broad index of 193 stocks that comprises a substantial proportion of the domestic New Zealand stocks in the Datastream database. To compile the data for the sample of resource consent announcers, daily stock returns were captured from the market index dataset.

To test *H4* for differences across subsamples, cross-sectional regression analysis of abnormal returns is performed. Annual data for book value of total assets, book value of ordinary share equity and total liabilities was sourced from the NZX – Deep Archive Service. Market value of equity data and industry classifications were obtained from the Datastream databases. Innovation data, proxied by the number of patents held by resource consent announcers from 1995 to 2005 inclusive, was compiled from information from the Intellectual Property Office of New Zealand. Aggregated patent data beyond these dates was not available, so the available data spans 11 out of the 15 years of the current study.

H5 posits that event-day abnormal returns are positively associated with contemporaneous media coverage for successful resource announcements. We follow Mitchell and Mulherin (1994) and use media news releases to measure the relationship between media attention and firm-level abnormal returns. To obtain information on media news coverage, the Newspaper Index (NINX) and *Newztext* newspapers archives were searched for all major New Zealand newspaper reports regarding each resource consent over the sample period. The NINX database was searched for articles from May 1993 to January 2003, while the *Newztext* Newspapers database was used from January 1995 onwards. For the January 1995 to January 2003 period during which the two databases overlapped, both sources were used.

To test the relationship between resource consent announcement abnormal returns and current media news arising between the stock exchange announcement release date and the event date, a dummy variable is used to represent media coverage contemporaneous with an announcement. For those stock exchange announcements released during trading hours, the stock exchange release date is the same as the event date. However, for those stock exchange announcements released after market close, the event date is the first trading day after the stock exchange release date. Often the media publish articles over the weekend or holidays while the stock exchange is closed. We restrict our consideration of newspaper coverage to those articles published

on or subsequent to the stock exchange announcement release date, up to and including the event date. This allows us to focus on contemporaneous event-related media publicity and avoids potential endogeneity problems whereby media publicity is caused by event-induced stock price movements (Veldkamp, 2006). A newspaper article is defined as pertaining to a given resource consent if it includes information directly relevant to the consent and contains the words “resource consent” or “coastal permit” (a marine resource consent). Applying the above selection criteria, 19 of the 90 sample announcements are found to have received contemporaneous media coverage.

4.2 Event study methodology

In our tests, we conduct event studies on the abnormal returns around resource consent announcements. Abnormal returns are calculated as the difference between observed and expected market model returns over the event window, using a 121-day sample period ($-110, +10$). The market model is the most commonly used return measure in event studies and yields well-specified test statistics for as few as 50 events (Brown and Warner, 1985; Corrado and Truong, 2008). Market model abnormal returns using the Scholes-Williams beta are calculated to avoid the understatement of beta coefficients when trading is infrequent, as in the case of the New Zealand market (Scholes and Williams, 1977).

Following the methodology employed in Bhattacharya *et al.* (2000), the absolute values of abnormal returns (AAR_i), being a measure of abnormal return volatility, are pooled over the entire sample for each event i , to test the first hypothesis concerning the information content of resource consent announcements. Furthermore, unreported analysis finds that the distributions of abnormal returns required to test the remaining hypotheses are highly asymmetrical and leptokurtic. Accordingly, conventional parametric t -tests cannot be used as the non-normality of distributions violate parametric test assumptions. Following other researchers (Bhattacharya *et al.*, 2000; Bailey *et al.*, 2006), we use the non-parametric rank test and variance-adjusted rank test which are robust in the presence of non-normality and thin trading (Corrado and Zivney, 1992). For $H4$ and $H5$, we test for differences in subsample standardised abnormal returns using the two-sample Wilcoxon Z -test.

4.3 Cross-sectional regression analysis

$H4$ and $H5$ consider potential differences in event-day abnormal returns depending upon the news classification and media coverage. Cross-sectional regression analysis is undertaken to determine whether firm and industry factors other than the key variables of interest may affect abnormal returns. The day 0 abnormal returns for each event i , AR_i , are regressed against the news classification variables, the media coverage variable and several control variables. Persistence of results is tested using cumulative abnormal returns for event i , CAR_i , as the dependent variable over a $(-1, +1)$ event window.

To overcome the problem of non-normality of the sample abnormal returns distribution, a generalised least squares rank regression is used (Conover and Iman, 1981). Other financial research studies that use rank regression include Bamber and Cheon (1995), Guo *et al.* (2004) and Pacini *et al.* (2005). To operationalise the rank regression, the following is applied separately to each quantitative independent and dependent variable. Observed values for the variable are first sorted in descending order over the entire sample and then assigned a rank. The ranking transforms the set

of values for a given variable to a normal, linear distribution by replacing each value by its relative rank, thus reducing the sensitivity of the results to outliers (Cheng *et al.*, 1992). Conventional parametric generalised least squares regression is then applied to the ranked variables.

Several versions of the following cross-sectional rank regression model are estimated:

$$AR_i = \beta_0 + \beta_1 SCS_{DUM}_i + \beta_2 UNS_{CS_{DUM}}_i + \beta_3 MEDI_{ADUM}_i + \beta_4 MB_i + \beta_5 LEV_i + \beta_6 MVE_i + \beta_7 PAT_{DUM}_i + \sum_{j=1}^{J-1} \beta_{8j} INDDUM_{ji} + e_i$$

where AR_i is described above, and the independent variables are defined below. We initially include only the main independent variables of interest in the regression equation, being the news classification and media coverage variables. We then retest the model with several control variables. For testing over a wider window, the values for the variable CAR are substituted for the day 0 AR .

The key independent variables to be tested in $H4$ are the news classification dummies relating to successful (SCS_{DUM}), unsuccessful ($UNS_{CS_{DUM}}$) and uncertain ($UNCDUM$) resource consent announcements, which take the value of 1 when they apply, and 0 otherwise. We expect that successful resource consent announcements will have a positive regression coefficient if success news is more highly valued than uncertain news, and that unsuccessful resource consent announcements will have a negative coefficient if they are viewed more negatively than uncertain news. To more explicitly test $H4$ concerning the differential impact of successful and uncertain announcements relative to unsuccessful announcements, $UNCDUM$ is substituted for $UNS_{CS_{DUM}}$ in the regression equation. If successful and uncertain news are valued more positively than unsuccessful news, then we expect the SCS_{DUM} and $UNCDUM$ coefficients to be positive.

$H5$ considers the potential relationship that current media coverage may have with abnormal returns from successful resource consent announcements. If contemporaneous media coverage is associated with increased abnormal returns then we expect the coefficient on dummy variable $MEDI_{ADUM}$ to be positive. To consider the incremental influence of media presence on successful announcements relative to other news classification types, an interaction term, $SCS_{DUM} * MEDI_{ADUM}$, is also tested. If the presence of concurrent media coverage is associated with increased abnormal returns for successful consent announcements, then the $SCS_{DUM} * MEDI_{ADUM}$ coefficient is expected to be positive (Bhattacharya *et al.*, 2009).

The other independent variables in the regression equation allow for the possibility that other firm and industry factors may influence abnormal returns. The market-to-book value of assets ratio, MB , is used to proxy growth opportunities and the announcers' debt ratio (LEV) is used to control for the possible influence of financial leverage (Szewczyk *et al.*, 1996; Chen and Ho, 1997). Both MB and LEV are measured at the fiscal year-end immediately prior to the announcement. If firms with greater growth options tend to invest in positive net present value investments, then we expect MB to be positively related to abnormal returns. We expect the coefficient of the leverage variable to be positive if the commitment to pay higher levels of debt signals less wasteful use of free cash flow.

Small firms tend to have larger risk-adjusted returns than large firms, and accordingly we include the market value of the announcing firm equity at the previous fiscal year-end (*MVE*) to control for firm size (Bailey *et al.*, 2003). We predict a negative relationship between *MVE* and abnormal returns.

Investors may react positively to innovation and commercialisation news in connection with research and development and patent activities (Narayanan *et al.*, 2000; Bastin and Hubner, 2006). If innovating firms are more likely to undertake projects that require resource consent, then the market reaction to resource consent announcements may reflect positive sentiments concerning the firm's innovation activities. Over the period of this study, New Zealand firms were not required to divulge research and development costs in their financial accounts, so we control for innovative activity using patent data. We define a dummy variable *PATDUM* to be equal to 1 if a patent application was filed at the Intellectual Property Office of New Zealand by the firm in any year from 1995 up to and including the event year, and 0 otherwise. We predict a positive relationship between *PATDUM* and event-day abnormal returns.

Finally, we include as control variables several industry dummies that may have an impact on abnormal returns. *UTILS*, *OILGS*, *BMATR*, *INDUS* and *HLTHCR* denote firms in the utilities, oil and gas, basic materials, industrials and healthcare industries, respectively, while *FINCON* combines firms in the financial and consumer goods sectors.

5. Empirical results

5.1 Absolute abnormal returns

H1 tests the information content of project-related resource consent announcements by assessing event-day volatility. Results presented in Panel A of Table II reveal that abnormal return volatility is significantly greater than zero not only as predicted on event day 0, but also on day -2 . Cumulative absolute abnormal returns (*CAAR*) are evaluated over several different event windows, all of which show evidence of abnormal volatility. In Panel B of Table II, we re-analyse the data after deleting eight observations that have contaminated events on day -2 or $+2$ and find the results are materially unchanged, although the level of significance of *AAR* has declined and only three of the five event window *CAAR* remain significant.

The above findings lead us to accept *H1* that the event-day absolute abnormal returns of resource consent announcements are significantly greater than zero. The event-day excess volatility suggests that on average, resource consent announcements contain information that investors perceive to be important. Furthermore, the indication of excess volatility prior to resource consent announcements is consistent with the suggestion that the prospect of a public announcement may stimulate pre-event private information acquisition and trading by investors (McNichols and Trueman, 1994).

5.2 Abnormal returns

H2-H4 consider the economic impact of resource consent announcements for the news classification subsamples by testing the event-day abnormal returns. The mean and median *AR* and *CAR* presented in Table III differ markedly, confirming earlier indications of non-normality of returns. Standardised abnormal returns are first evaluated according to the Corrado and Zivney (1992) variance-adjusted rank test. Given previous indications of excess return volatility, a cross-sectional variance adjustment is made for each day within a $(-2, +2)$ window.

| Event days | Absolute abnormal return | | Ranked absolute abnormal returns | | |
|--|--------------------------|--------|----------------------------------|--------|---------------------|
| | Mean | Median | Mean | SD | t-value |
| <i>Panel A. Entire sample (n = 90)</i> | | | | | |
| -2 | 0.0136 | 0.0090 | 0.4377 | 0.2669 | 1.64 ^{**} |
| -1 | 0.0156 | 0.0077 | 0.2882 | 0.2669 | 1.08 |
| 0 | 0.0220 | 0.0090 | 0.7005 | 0.2669 | 2.62 [*] |
| 1 | 0.0145 | 0.0067 | -0.2138 | 0.2669 | -0.80 |
| 2 | 0.0155 | 0.0091 | 0.3335 | 0.2669 | 1.25 |
| <i>Event window</i> | | | | | |
| (-1, 0) | 0.0294 | 0.0124 | 0.9888 | 0.3775 | 2.62 [*] |
| (0, +1) | 0.0328 | 0.0135 | 0.4867 | 0.3775 | 1.29 ^{***} |
| (-1, +1) | 0.0374 | 0.0146 | 0.7749 | 0.4623 | 1.68 ^{**} |
| (-2, 0) | 0.0298 | 0.0126 | 1.4264 | 0.4623 | 3.09 [*] |
| (-2, +2) | 0.0423 | 0.0203 | 1.5461 | 0.5969 | 2.59 [*] |
| <i>Panel B. Entire sample without days ± 2 contaminated events (n = 82)</i> | | | | | |
| -2 | 0.0127 | 0.0083 | 0.3923 | 0.2707 | 1.45 ^{***} |
| -1 | 0.0154 | 0.0075 | 0.1808 | 0.2707 | 0.67 |
| 0 | 0.0220 | 0.0086 | 0.6099 | 0.2707 | 2.25 ^{**} |
| 1 | 0.0148 | 0.0065 | -0.2591 | 0.2707 | -0.96 |
| 2 | 0.0161 | 0.0091 | 0.3408 | 0.2707 | 1.26 |
| <i>Event window</i> | | | | | |
| (-1, 0) | 0.0290 | 0.0119 | 0.7907 | 0.3828 | 2.07 ^{**} |
| (0, +1) | 0.0332 | 0.0135 | 0.3507 | 0.3828 | 0.92 |
| (-1, +1) | 0.0372 | 0.0139 | 0.5315 | 0.4689 | 1.13 |
| (-2, 0) | 0.0285 | 0.0098 | 1.1829 | 0.4689 | 2.52 [*] |
| (-2, +2) | 0.0413 | 0.0181 | 1.2646 | 0.6053 | 2.09 ^{**} |

Notes: Statistical significance at: ^{*}1, ^{**}5 and ^{***}10 percent levels; we report mean and median absolute abnormal returns and cumulative absolute abnormal returns around resource consent announcements based upon market model residuals with Scholes-Williams betas using a (-110, +10) sample period; statistical significance is evaluated using the non-parametric (Corrado and Zivney, 1992) rank test; the null hypothesis is that event-day mean ranked absolute abnormal returns are not greater than zero

Table II.
Analysis of ranked
absolute abnormal
returns

Panel A of Table III reports no evidence of significant abnormal returns over the entire sample. This is not surprising as the full sample fails to distinguish between potentially offsetting positive and negative news. However, partitioned results in Panels B and C indicate that on day +2, abnormal returns are significantly greater than zero for the successful announcements subsample and significantly less than zero for the uncertain announcements subsample. No other days show statistically significant results. The evidence of positive abnormal returns for the successful subsample is consistent with prior studies that show that the market reacts positively to company investment announcements (Chen and Ho, 1997; Chen, 2006). Table III further reveals that the CAR are significantly different from zero in the window (0, +2) for the successful subsample, and in the windows (0, +1), (-1, +1) and (-2, +2) for the unsuccessful subsamples.

The above analyses do not support the propositions in *H2* and *H3* that the event-day abnormal returns are positive for successful resource consent announcements and negative for unsuccessful announcements. However, some evidence (at the 5 percent level) suggests that post-event abnormal returns (on day +2) are positive following news of success, and negative following uncertain news.

| Event days | Abnormal returns | | | Ranked variance-adjusted standardised abnormal returns | | |
|--|------------------|---------|---------------------------|--|--------|----------|
| | Mean | Median | Proportion of returns > 0 | Mean | SD | t-value |
| <i>Panel A. Entire sample (n = 90)</i> | | | | | | |
| -2 | -0.0019 | -0.0013 | 0.46 | -0.1711 | 0.2639 | -0.65 |
| -1 | 0.0021 | -0.0016 | 0.42 | 0.0889 | 0.2639 | 0.34 |
| 0 | 0.0065 | 0.0005 | 0.51 | 0.2695 | 0.2639 | 1.02 |
| 1 | 0.0043 | 0.0001 | 0.51 | 0.2186 | 0.2639 | 0.83 |
| 2 | -0.0037 | -0.0009 | 0.44 | 0.0065 | 0.2639 | 0.02 |
| <i>Event window</i> | | | | | | |
| (-1, 0) | 0.0086 | -0.0013 | 0.48 | 0.3584 | 0.3733 | 0.96 |
| (0, +1) | 0.0108 | 0.0006 | 0.51 | 0.4881 | 0.3733 | 1.31 |
| (-1, +1) | 0.0129 | -0.0012 | 0.48 | 0.5770 | 0.4572 | 1.26 |
| (0, +2) | 0.0070 | 0.0027 | 0.54 | 0.4946 | 0.4572 | 1.08 |
| (-2, +2) | 0.0072 | 0.0025 | 0.52 | 0.4124 | 0.5902 | 0.70 |
| <i>Panel B. Successful subsample (n = 44)</i> | | | | | | |
| -2 | 0.0023 | -0.0021 | 0.43 | -0.0385 | 0.2597 | -0.15 |
| -1 | 0.0031 | -0.0022 | 0.41 | -0.0185 | 0.2597 | -0.07 |
| 0 | 0.0102 | 0.0014 | 0.57 | 0.3231 | 0.2597 | 1.24 |
| 1 | -0.0006 | 0.0003 | 0.55 | 0.0734 | 0.2597 | 0.28 |
| 2 | 0.0025 | 0.0018 | 0.52 | 0.5444 | 0.2597 | 2.10** |
| <i>Event window</i> | | | | | | |
| (-1, 0) | 0.0134 | 0.0036 | 0.55 | 0.3046 | 0.3673 | 0.83 |
| (0, +1) | 0.0097 | 0.0015 | 0.55 | 0.3965 | 0.3673 | 1.08 |
| (-1, +1) | 0.0128 | 0.0005 | 0.50 | 0.3780 | 0.4498 | 0.84 |
| (0, +2) | 0.0121 | 0.0052 | 0.64 | 0.9409 | 0.4498 | 2.09** |
| (-2, +2) | 0.0176 | 0.0116 | 0.64 | 0.8839 | 0.5807 | 1.52 |
| <i>Panel C. Uncertain subsample (n = 42)</i> | | | | | | |
| -2 | -0.0065 | 0.0003 | 0.50 | -0.1434 | 0.2654 | -0.54 |
| -1 | 0.0034 | -0.0006 | 0.45 | 0.1290 | 0.2654 | 0.49 |
| 0 | 0.0090 | 0.0003 | 0.50 | 0.2934 | 0.2654 | 1.11 |
| 1 | 0.0125 | 0.0016 | 0.52 | 0.3169 | 0.2654 | 1.19 |
| 2 | -0.0098 | -0.0033 | 0.36 | -0.6482 | 0.2654 | -2.44** |
| <i>Event window</i> | | | | | | |
| (-1, 0) | 0.0124 | -0.0028 | 0.45 | 0.4224 | 0.3754 | 1.13 |
| (0, +1) | 0.0215 | 0.0008 | 0.52 | 0.6103 | 0.3754 | 1.63 |
| (-1, +1) | 0.0249 | -0.0010 | 0.50 | 0.7393 | 0.4597 | 1.61 |
| (0, +2) | 0.0118 | -0.0016 | 0.48 | -0.0378 | 0.4597 | -0.08 |
| (-2, +2) | 0.0087 | -0.0031 | 0.43 | -0.0523 | 0.5935 | -0.09 |
| <i>Panel D. Unsuccessful subsample (n = 4)</i> | | | | | | |
| -2 | -0.0011 | -0.0014 | 0.25 | -0.2869 | 0.2960 | -0.97 |
| -1 | -0.0220 | -0.0063 | 0.25 | -0.2582 | 0.2960 | -0.87 |
| 0 | -0.0620 | -0.0286 | 0.00 | -0.6680 | 0.2960 | -2.26 |
| 1 | -0.0282 | -0.0164 | 0.00 | -0.5533 | 0.2960 | -1.87 |
| 2 | -0.0082 | 0.0048 | 0.50 | 0.0533 | 0.2960 | 0.18 |
| <i>Event window</i> | | | | | | |
| (-1, 0) | -0.0840 | -0.0233 | 0.00 | -0.9262 | 0.4186 | -2.21 |
| (0, +1) | -0.0902 | -0.0450 | 0.00 | -1.2213 | 0.4186 | -2.92*** |
| (-1, +1) | -0.1122 | -0.0396 | 0.00 | -1.4795 | 0.5127 | -2.89*** |
| (0, +2) | -0.0984 | -0.0306 | 0.25 | -1.1680 | 0.5127 | -2.28 |
| (-2, +2) | -0.1215 | -0.0283 | 0.25 | -1.7131 | 0.6619 | -2.59*** |

Notes: Statistical significance at: *1, **5 and ***10 percent levels; we report mean and median abnormal returns and cumulative abnormal returns around resource consent announcements based upon market model residuals with Scholes-Williams betas using a (-110, +10) sample period; statistical significance is evaluated using the non-parametric (Corrado and Zivney, 1992) variance-adjusted rank test; the null hypothesis is that mean ranked event-day standardised abnormal returns are no different from zero

Table III.
Analysis of ranked abnormal returns

H4 predicts that event-day abnormal returns are lower for unsuccessful resource consent announcements than for either successful or uncertain announcements. A univariate comparison of standardised abnormal returns by news classification using the two-sample Wilcoxon test is presented in Table IV. The significant negative signs for the *Z*-statistics on each of days 0 (1 percent level) and +1 (5 percent level) provide moderate evidence that the standardised abnormal returns for unsuccessful announcements are lower than those for successful or uncertain announcements. Resource consent announcements in the uncertain news class are also found to result in significantly (1 percent level) lower abnormal returns than those in the successful news class, but only on event day +2.

H5 suggests that contemporaneous media coverage of successful resource consent announcements may be positively associated with event-day abnormal returns. Panel A of Table V reveals that for successful announcements, ranked variance-adjusted standardised abnormal returns are positive and statistically significant on day 0 when there is contemporaneous media coverage, and on day +5 in when there is no contemporaneous media coverage. Table V also presents the univariate results of the two-sample Wilcoxon *Z*-tests to compare the standardised abnormal returns with and without contemporaneous media coverage. Consistent with the *H5* prediction, the event-day results show significantly greater abnormal returns (at the 1 percent level) for successful announcements when media publicity is present than when it is absent. No other days show statistically significant differences, except on day +5 when successful announcements without contemporaneous event-day media coverage experience significantly greater abnormal returns (at the 5 percent level)[2]. These findings provide evidence that the presence of media publicity is positively associated with the magnitude and speed of price reactions to successful resource consent announcements. In contrast, Panel B of Table V shows that uncertain announcements display significantly negative abnormal returns on day +2 irrespective of the presence of contemporaneous media coverage. A possible explanation is that the information communicated in uncertain announcements is insufficiently precise or displays mixed signals such that investors experience difficulties in interpreting the implications.

The results in Table V shed light on the earlier apparent implication from Table III that the market fails to react immediately to resource consent announcements.

| Event days | Subsample median standardised abnormal returns | | | Wilcoxon z-statistic | | |
|------------|--|--------------------------------------|--|----------------------|-----------|-----------|
| | (1) Successful (<i>n</i> = 44) | (2) Uncertain (<i>n</i> = 42) | (3) Unsuccessful (<i>n</i> = 4) | (2) – (1) | (3) – (1) | (3) – (2) |
| -2 | -0.1326 | 0.0165 | -0.0560 | -0.10 | 0.17 | -0.06 |
| -1 | -0.1183 | -0.0515 | -0.3003 | 0.17 | -0.73 | -0.76 |
| 0 | 0.0615 | 0.0055 | -1.4823 | -0.04 | -2.56* | -2.75* |
| 1 | 0.0192 | 0.0689 | -0.8435 | 0.51 | -1.96** | -2.09** |
| 2 | 0.1373 | -0.2463 | 0.2547 | -3.03* | 0.00 | 0.80 |

Notes: Statistical significance at: *1, **5 and ***10 percent levels; we report median standardised abnormal returns around resource consent announcements based upon market model residuals with Scholes-Williams betas over a sample period of (-110, +10); the two-sample non-parametric Wilcoxon exact test is computed to test for significant differences between the groups

Table IV.
Comparison of successful,
uncertain and
unsuccessful
standardised abnormal
returns

By partitioning the data according to the presence of contemporaneous media reports, we see that the price reaction to resource consent information is immediate for successful stock exchange announcements that are concurrently disseminated via the media. For uncertain announcements and for announcements that do not receive contemporaneous media publicity, the speed of price reaction is slower. This is consistent with prior research findings that the magnitude and/or speed of price reactions is strengthened when media coverage is present (Klibanoff *et al.*, 1998; Pritamani and Singal, 2001).

For robustness, all univariate tests are repeated using a more liquid, equal-weighted market index comprised of securities that traded on at least 60 percent of available days to estimate market model absolute abnormal returns. We also repeat the Table II *AAR* analysis using market-adjusted returns and the Table III *AR* analysis using market model abnormal market-adjusted returns and market model abnormal returns without the cross-sectional variance adjustment. All results are materially unchanged. Tests for changes in our results from environmental, legislative and stock exchange reforms around December 2002 also find no statistical differences. Finally, eliminating two contaminating events that arise on day +2 from the sample of ranked abnormal returns does not make any material changes to our prior observations, irrespective of whether or not a variance-correction is made.

To gather further evidence with respect to *H4* and *H5*, Table VI reports the coefficient estimates from GLS cross-sectional rank regression models of abnormal returns with White (1980) heteroskedasticity-consistent *t*-statistics reported in brackets below. Models 1 and 2 include the independent variables of interest, being the news classification dummies and *MEDIADUM*. The news classification results are consistent with the Table IV univariate results and *H4* that event-day abnormal returns are lower for unsuccessful announcements than for uncertain and successful announcements. In Models 1 and 2, the *t*-statistic for *MEDIADUM* is significant at the 10 percent level, supporting earlier evidence in Table V that contemporaneous media coverage may be positively associated with event-day abnormal returns. To consider the possibility of a differential impact of media coverage for successful news relative to other news, Model 3 adds an interaction term between *SCSCDUM* and *MEDIADUM*. Although the direction of the *SCSCDUM***MEDIADUM* coefficient is positive as forecast, the insignificant *t*-statistic suggests that the relationship between media coverage and event-day abnormal returns is not different between the news groups.

Models 4 and 5 extend Model 2 by adding control variables that may affect day 0 abnormal returns. In Model 4, results for the news classification and *MEDIADUM* variables remain materially unchanged, with significantly positive coefficients at the 1 percent level for *SCSCDUM* and *UNCDUM* and a significantly positive coefficient at the 5 percent level for *MEDIADUM*. The significantly negative coefficient at the 1 percent level for *MVE* indicates higher abnormal returns for smaller firms, and is consistent with previous studies suggesting that small firms experience greater information asymmetry (Chen and Ho, 1997; Chen, 2006). The model signs for the remaining control variables of *MB*, *LEV*, and *PATDUM* are in the direction predicted but are not significantly different from zero (Anderson *et al.*, 2006)[3]. None of the coefficient estimates for the industry dummy variables is statistically significant. In Model 5 the insignificant control variables are dropped from the estimated equation, resulting in levels of significance for the coefficients that are unchanged at 1 percent for both news classification variables and slightly reduced to 10 percent for *MEDIADUM* and 5 percent for *MVE*.

Table VI.
GLS cross-sectional
rank regression model
of abnormal returns
(*t*-statistics)

| Variable | Predicted sign | AR(0) Model 1 | AR(0) Model 2 | AR(0) Model 3 | AR(0) Model 4 | AR(0) Model 5 | CAR (-1, +1) Model 6 |
|-------------------------|----------------|------------------|------------------|------------------|------------------|-------------------|-------------------------|
| Constant | n/a | 0.5020 (11.48)* | 0.0447 (0.75) | 0.0705 (1.40) | -0.366 (-0.27) | 0.1288 (1.48) | 0.0867 (0.72) |
| SCSDUM | + | -0.0074 (-0.13) | 0.4499 (6.45)* | 0.4045 (6.03)* | 0.5551 (5.13)* | 0.4738 (5.55)* | 0.5391 (5.91)* |
| UNSCSDUM | + | -0.4573 (-6.32)* | 0.4573 (6.32)* | 0.4463 (7.26)* | 0.5533 (5.14)* | 0.4815 (5.50)* | 0.4958 (5.37)* |
| UNCDDUM | + | 0.1288 (1.80)*** | 0.1288 (1.80) | 0.0258 (0.23) | 0.1172 (1.97)** | 0.1226 (1.86) | |
| MEDIADUM* | + | | | | | | |
| MEDIADUM | + | | | 0.1731 (1.20) | | | |
| MB | + | | | | 0.1857 (1.63) | | 0.1942 (1.86)*** |
| LEV | + | | | | 0.0807 (0.74) | | 0.0179 (0.16) |
| MVE | - | | | | -0.2940 (-2.95)* | -0.2114 (-2.22)** | -0.3474 (-3.05)* |
| PATDUM | + | | | | 0.0699 (1.05) | | 0.0257 (0.37) |
| FINCON | n/a | | | | 0.0755 (0.88) | | 0.0317 (0.39) |
| UTILS | n/a | | | | 0.0457 (0.49) | | 0.0376 (0.38) |
| OILGS | n/a | | | | 0.0238 (0.17) | | -0.1315 (-0.97) |
| BMATR | n/a | | | | -0.1064 (-1.17) | | -0.0978 (-0.86) |
| INDUS | n/a | | | | -0.1028 (-1.03) | | -0.0337 (-0.31) |
| Adjusted R ² | | 0.112 | 0.112 | 0.117 | 0.133 | 0.149 | 0.120 |

Notes: Statistical significance at: *, **5 and ***10 percent levels; cross-sectional rank regression analyses of event-day abnormal returns (AR) and cumulative abnormal returns (CAR) on the news classification, media and control variables are presented for the sample of resource consent announcements; the key independent variables are the news classification dummies relating to successful (SCSDUM), unsuccessful (UNSCSDUM) and uncertain (UNCDDUM) resource consent announcements, which take the value of 1 when they apply, and 0 otherwise. MEDIADUM is a dummy variable equal to 1 if media coverage is contemporaneous and 0 otherwise, and the interaction dummy SCSDUM * MEDIADUM equals 1 for successful announcements with contemporaneous media coverage and 0 otherwise; control variables include MB (the ratio of market to book value of assets at the prior fiscal year-end), LEV (the ratio of total liabilities to total assets at the prior fiscal year-end), MVE (the market value of equity at the prior fiscal year-end), PATDUM (equals 1 if a patent application was filed between 1995 and the event year, and 0 otherwise) and industry dummies. Industry dummy variables FINCON, UTILS, OILGS, BMATR and INDUS denote the financial/consumer goods, utilities, oil and gas, basic materials, industrials and healthcare industries, coefficient estimates are presented with White (1980) heteroskedasticity-consistent *t*-statistics reported in brackets below; tests for multicollinearity reveal no evidence of correlation between independent variables

The persistence of the results is reviewed over a wider event window $(-1, +1)$ in Model 6. *MEDIADUM* is dropped due to endogeneity issues because media news published on or after the stock exchange announcement release date is not likely to be responsible for day -1 abnormal returns. The t -statistics remain significant at the 1 percent level for the coefficient estimates of both *SCSCDUM* and *UNCDUM*.

In summary, the results of both the univariate and multivariate analyses of abnormal returns indicate that event-day abnormal returns for unsuccessful resource consent announcements are lower than those for uncertain and successful announcements as predicted in *H4*, and that contemporaneous media coverage is positively associated with event-day abnormal returns for successful announcements as posited in *H5*. While the Corrado-Zivney and Wilcoxon test results directly support *H5*, the regression results suggest that the influence of media coverage may extend across all news groups.

6. Conclusion

In this paper we test several hypotheses regarding the market reactions to resource consent announcements to assess their information content in view of criticisms that the resource consent process has been a source of excessive costs and uncertainty to businesses. Examination of a sample of resource consent announcements from 1993 to 2007 reveals excess event-day return volatility, suggesting that investors find the resource consent information is of value, notwithstanding its overwhelmingly qualitative nature. The indications of pre-announcement excess volatility suggest that some investors anticipate the upcoming announcement and trade on their private information. Partitioned results reveal that success news is positively valued while unsuccessful news is negatively valued, with the differences being statistically significant. The price reaction to successful announcements is immediate and significantly positive for news that has been concurrently disseminated via the media. In contrast, when the resource consent news is not definitively positive or negative, the market response is delayed and significantly negative, suggesting that uncertainty surrounding the news contributes to slower speed of price reactions and negative market sentiment.

The above evidence suggests that resource consent news may play an economically valuable role by providing timely information to the market that is not available from other sources such as environmental and annual reports. Investors may use these disclosures to assess the stage of resource consent progress which has important implications regarding the expected timing and magnitude of cash flows from related investment projects. Resource consent disclosures may also signal to the market the robustness of a firm's environmental risk management system and the potential for environmental contingent liabilities. Given the increasing prominence of environmental compliance issues for firms, the results of this research imply that it will become increasingly important for managers to make timely disclosures of their environmental risk management strategies and processes through stock exchange and press releases. More detailed information, such as the types of consent(s) sought, the dollar value of expected compliance costs, expected time to gain consent, project investment costs and consent conditions imposed, would better assist investors to assess the economic impact of firm capital expenditures. Additional research could help to further our understanding of the relative value that investors place on qualitative and quantitative resource consent disclosures.

If the general conjecture discussed earlier is correct that the resource consent process is imposing excessive delays, compliance costs and uncertainties upon businesses, then it is interesting to find so few “unsuccessful” announcements in our study. One possible explanation is that firms only undertake projects when they are confident that economic profits will be positive, such that the expected benefits exceed the total costs, including regulatory compliance costs. Some research suggests circumstances under which environmental regulation may allow firms to reap economic benefits from their investment activities (Maloney and McCormick, 1982; Dean and Brown, 1995; Porter and van der Linde, 1995). Future research could add to our understanding of the economic implications of environmental regulatory delay if the expected time to gain resource consent approval could be measured and used to assess the valuation implications for new capital expenditure projects.

Notes

1. Prior to 1 December 2002, immediate disclosure was required when the value of confidentiality no longer exceeded the value of disclosure.
2. Untabulated results partitioned according to media coverage over a wider window (0, + 2) show evidence of significantly positive abnormal returns (5 percent level) arising on day +2 for successful announcements that receive media coverage. Additional multivariate tests consider the possible influence of media reports in the 14 calendar days immediately prior to our stock exchange announcements, and find no material changes to our main results.
3. Differing levels of ownership concentration between firms may lead to greater short-term price reactions for low-liquidity, thinly-traded shares. Untabulated multivariate regression tests incorporating liquidity and thin-trading variables find no significant effects. Separate analyses suggest that our sample composition does not tend toward small firms that suffer from illiquidity and thin-trading effects.

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| Date released | Company | Extract from announcement |
|------------------|-----------------------|--|
| 20 October 1995 | Ports of Auckland Ltd | Ports of Auckland intends to seek resource consents for a third ship berth at its busy Fergusson Container Terminal to increase the ports' efficiency and container handling capacity. It is intended that the new berth will be at the realigned outer end of the terminal. The upgrade of the terminal's capacity will also require extending the existing terminal about 90 metres to the east to provide adequate land for container marshalling. Although these changes would increase the ports' wharf and handling areas by less than 11 percent they would provide additional capacity to handle the equivalent of 47 percent of combined current throughput of containers |
| 2 November 1999 | St. Lukes Group Ltd | St Lukes Group announced today that it has contracted to acquire a significant property holding in Newmarket. The site includes the Mercury Energy block plus additional adjoining properties on a long-term leasehold and freehold basis. The total acquisition cost is approximately \$50m. Westfield NZ who manages and develops the St Lukes Group's portfolio throughout NZ, is currently discussing planning options for the site with Auckland City Council and will lodge a resource consent application shortly |
| 24 November 2003 | Methlifecare Ltd | An appeal has been lodged against the Resource Consent granted on 30 October for the final stage of retirement apartments to be developed at 7 Saint Vincent, Remuera. The issues raised in the appeal were addressed at the Consent Hearing. CEO, Gavin Aleksich said "the Commission ruled in favour of Methlifecare granting the Resource Consent approval based on the evidence presented by independent expert consultants and through detailed examination of witnesses." Methlifecare is actively managing the appeal process and is confident of a successful resolution |
| 15 October 2004 | Contact Energy Ltd | Contact Energy Ltd said today that it has received the decision on its Wairakei resource consent applications and the conditions attached to the consent authorisation, but is yet to receive formal delivery of the complete decision. The consents relate to the take and discharge of geothermal fluid to generate electricity at Contact's Wairakei and Poihihi Geothermal Power Stations near Taupo. "We are naturally pleased to have reached this important stage of what has been a very long process", Contact's General Manager, Operations, David Thomas said. The consent process commenced in 1999 |

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Table AI.
Examples of resource
consent announcements

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