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FRS 12: AN INTER-INDUSTRY STUDY OF ITS IMPACT ON SHARE PRICES

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ABSTRACT

This paper assesses the impact of the publication of FRS No. 12, 'Provisions, Contingent Liabilities and Contingent Assets' in 1998 on the share prices of UK companies. Although the standard affects all UK companies (restricting "big bath" provisions), it specifically requires extractive firms to make provisions for abandonment costs at the outset of the project. This additional requirement may cause FRS 12 to have a larger impact on companies in extractive industries compared to other companies. Using event study methodology, we find a positive share price impact on the release of FRS 12 for both extractive and other affected firms, although the abnormal returns are substantially lower for extractive firms. This suggests that, while investors welcomed the increased disclosure requirements, the mandatory requirements set by FRS 12 may be onerous for extractive firms. The abnormal returns were significantly lower for those firms reporting significantly increased provisions after the introduction of the new standard, consistent with the new provision requirements being costly for the companies most directly affected.

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INTRODUCTION

Financial Reporting Standard No. 12, 'Provisions, Contingent Liabilities and Contingent Assets' (FRS 12), is the first accounting standard to comprehensively deal with provisions and contingencies in the UK. FRS 12 was developed as part of a joint project by the UK's Accounting Standards Board (ASB) and the International Accounting Standards Board (IASB) to prevent the use of "big bath" provisioning[1] by entities as an instrument to reduce reported profits for the year (ASB, 1998; Ernst and Young, 1998; Oil Industry Accounting Committee (OIAC), 1999). In order to promote the harmonization of accounting, the issuance of FRS 12 on 17 September 1998 was chosen to coincide and be compatible with the publication of an international equivalent, International Accounting Standard No. 37 (IAS 37) 'Provisions, Contingent Liabilities and Contingent Assets'. Except for differences in terminology, IAS 37 and FRS 12 are similar in substance. However, the level of guidance on the use of discounting, especially relating to the choice of discount rates to be used for net present value calculations, is less clear in the former than in the latter (Ernst and Young, 1998; Wilson *et al.*, 2001). FRS 12 became mandatory from March 1999, with an option to voluntarily adopt the standard prior to this date.

During its conception and subsequent introduction, FRS 12 was viewed as potentially having a dramatic impact on the financial statements of firms, especially those engaged in exploration and production of natural resources, namely, mining,

nuclear, oil and gas companies (Hastie, 1997; Newman, 1997; OIAC, 1997; Sharp, 1998; Wright, 1998; Martin, 1999; Stokdyk, 1999; Cook, 2000; Metcalf, 2000; Paterson, 2000; Russell and Fifield, 2000; Trevett and Maugham, 2000; Walker, 2000; Jetty, 2004). The controversy surrounding this standard centered on the potential and often uncertain effects of the new treatment for decommissioning and environmental liabilities on the earnings of these firms, as the new treatment calls for such liabilities to be accounted for at the outset. The setting-up of these liabilities involves high levels of subjectivity, especially when determining the future size of environmental and decommissioning costs for large facilities owned by extractive firms, and the use of discounting in estimating these costs. These issues, in particular discounting, are seen as materially relevant for firms with many long-term liabilities such as decommissioning and environmental liabilities, since these cash flows will occur far in the future. According to Russell and Fifield (2000), "when it [discounting] does apply, the scope for debate over the choice of discount rate will be large" (p. 21). In addition, they state that these extra requirements within FRS 12 may affect "UK oil and gas firms disproportionately more than other companies" (p. 18).

As argued by Perks (1993):

"In so far as directors can determine what is and what is not disclosed they can, therefore, influence stock prices. And in so far as accounting standards influence what is and what is not disclosed, they too can influence stock prices and/or restrict the freedom of management to influence stock prices" (p.156).

Although the impact of FRS 12 is perhaps likely to be most pronounced for companies in extractive industries, the standard may also affect other UK companies, particularly those with high levels of provisions. Consequently, this paper extends

prior research by assessing the impact on company value of the introduction of the standard on provisions and contingencies not only on extractive firms, but also on UK firms in other industries, such as Pharmaceuticals, Food Producers and Paper, Printing, and Packaging, where companies also often have large provisions. By comparing the stock market reaction of 'other affected' and extractive companies, we are able to ascertain whether the requirements of the standard disproportionately affect UK oil, gas and other extractive firms, or whether the standard similarly affect companies in other industries where provisions are common. Furthermore, by undertaking cross-sectional analyses, we explore what factors may account for the stock market reaction to the introduction of the standard.

A study of the impact of FRS 12 is especially important in light of the recent movement towards the use of international financial reporting standards for reporting purposes in Europe as well as in many other countries around the world. As FRS 12 is similar to its international equivalent IAS 37 (although IAS 37 provides less guidance than FRS 12 (Ernst and Young, 1998; Wilson *et al.*, 2001)), an analysis of the impact on company value from the introduction of FRS 12 may give us some indication of the costs and benefits (from the investors' point of view) of oil and gas, as well as other companies with large provisions, adopting IAS 37.

Our main results suggest that the introduction of FRS 12 had a positive impact on share prices of both the extractive and the other affected firms sampled, but that investors in extractive firms reacted much less positively to the standard as compared to shareholders in the non-extractive companies sampled. These results are consistent with the hypothesis that, while the market welcomed the increased level of disclosure

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and restrictions on "big bath" accounting as prescribed by FRS 12, it was recognized that implementing the standard would be more onerous for firms operating in extractive industries.

We also find the stock market reaction was worse for companies that reported increases in their provisions after the introduction of the accounting standard[2]. This is consistent with the market viewing the new reporting requirements as burdensome for affected companies, possibly due to the complications and costs of estimating the appropriate levels of provisions, or the negative impact on reported equity values for companies required to substantially increase their levels of provisions.

The reminder of the paper is organized as follows; section 2 provides a background to FRS 12, while section 3 presents the methodology applied in assessing the capital market impact of the publication of this standard. The results are presented in section 4, while section 5 contains the cross-sectional analyses. Finally, section 6 discusses the principal conclusions of the paper.

ACCOUNTING FOR PROVISIONS AND CONTINGENCIES

One of the main reasons for the development of FRS 12 and its international equivalent IAS 37 was the need to prevent the use of "big bath" provisioning by entities as an instrument to reduce reported profits for the year (ASB, 1998; Ernst and Young, 1998; OIAC, 1999). In addition, these standards were designed to improve disclosure relating to provisions, as prior to FRS 12 there was no standard in the UK which comprehensively dealt with provisions[3] (ASB, 1998). The introduction of FRS

12 and IAS 37 was also aimed towards promoting international harmonization of accounting standards around the world.

However, despite these proposed benefits, FRS 12 was widely reported as potentially having a dramatic effect on the financial statements of extractive firms, mainly oil and gas companies, more so than on other firms reporting under the UK Generally Accepted Accounting Principles (GAAP). Specifically, the standard sets out the treatment of decommissioning provisions for entities engaged in exploration and production of natural resources, namely, mining, nuclear, oil and gas companies. According to FRS 12, decommissioning provisions are to be recognized at the commencement of the project. Companies will therefore have to estimate and record the immediate clean-up liabilities at the outset, even though the actual decommissioning will take place far into the future.

Newman (1997) argues that the "precise nature of the implications is uncertain" and that "some small oil companies would probably find the changes inappropriate, while others might actually welcome them". Sharp (1998) is more forthright about the effects of the standard on the accounts of companies and commented that "… FRS 12 will have a 'double dip' impact on many companies' accounts…" as the writing-off process of last year's provisions against current earnings would dramatically affect earnings in the year of transition. Stokdyk (1999) highlights this sizeable impact by reporting the effects of adopting FRS 12 by First Leisure PLC, which removed provisions of almost £2 millions from its balance sheet and concludes that, based on this evidence, "its (FRS 12) effect on provisions may well be colossal". Wright (1998) also suggests that there are many inherent

uncertainties relating to the estimation of future costs such as decommissioning and environmental liabilities. For example, the determination of the size of decommissioning costs is highly controversial and involves a high level of subjectivity. According to Bostock (1999), the uncertainties relating to options for removal of facilities are large and material in determining the size of the provisions to be made and eventually the possible impact of these costs on firm value.

These implications are further highlighted in Linsmeier *et al.*'s (1998) study on IAS 37, which suggests that provisions and contingencies are relevant in capital market valuation decisions. For example, Banks and Kinney (1982) and Frost (1991) find that abnormal returns of firms disclosing unexpected loss contingencies are significantly more negative than for comparable firms that do not have loss contingencies. Blacconiere and Paton (1994) reveal that the capital market reacts more negatively when firms with uncertain potential liabilities are not forthcoming with reliable information about such costs, and *vice versa*. Linsmeier *et al.* (1998) further state that estimates about environmental liabilities are considered to be value relevant by the capital market; according to them, the estimation rule of liabilities are essential for enabling users to assess whether managers are conservative or optimistic about such estimations. In addition, the capital market seems to believe that earnings with higher estimation errors are less reliable for valuing shares than earnings with lower errors.

Jetty and Russell (2002) investigate the impact of the issuance of FRS 12 on the share prices of UK oil and gas companies. They find a significant positive price effect related to the release of FRS 12, but that smaller oil and gas firms may view the

standard as being more onerous. The results also suggest that the release of FRS 12 was a signal that firms may disclose value relevant information in the near future. In addition, the positive response may be attributable to a resolution of uncertainty about the eventual outcome of the standard[4] for oil and gas firms.

Overall, the observers' comments and prior literature suggest the adoption of FRS 12 (and IAS 37 as it is similar to FRS 12) may be value relevant and may have dramatic earnings implications for all UK companies, although especially for companies in extractive industries. Consequently, this study extends the work of Jetty and Russell (2002), by examining the impact of the release of FRS 12 on two groups of firms, one made up of extractive firms and the other of companies from non-extractive industries also likely to be affected by FRS 12 due to their normally high levels of provisions (hereby known as non-extractive firms). In particular, we examine: (1) if there is a share price reaction associated with the publication of FRS 12 on companies other than oil and gas companies; (2) if there is a differential share price impact between companies which are extractive in nature and non-extractive firms; and (3) the likely factors which could explain the abnormal returns observed in the event study through a cross-sectional regression analysis of the cumulative abnormal returns.

DATA SELECTION AND RESEARCH METHOD

The sample selected for this study consists of UK firms from the Oil and Gas, Mining, Pharmaceuticals, Food Producers and the Paper, Printing and Packaging (PPP) industries[5]. The firms were listed on either the London Stock Exchange (LSE)

Official List or the Alternative Investment Market (AIM) at the date when the FRS was issued: 17 September 1998. These firms had to be based in either the UK or the Republic of Ireland (RI)[6] and have their daily share price data available from Datastream. Any firm announcing disclosures that were likely to affect the share prices of the firms during the test period were excluded from the sample. These confounding events consisted of earnings news, dividend payouts, oil discoveries and the publication of joint venture contracts[7]. The final sample consists of 90 firms, of which 16 operated in the oil and gas industry, 13 in mining, 19 in pharmaceuticals, 23 were food producers and 19 were PPP firms. News announcements during the test period were obtained from the *EXTEL UK Weekly Financial News Summary* and other financial news sources such as the Financial Times newspaper and the ASB's news bulletins.

To examine the effect on share prices, daily data was obtained from Datastream. Share returns are calculated using log returns as follows:

$$R_{it} = Ln(P_{it}/P_{it-1}) \qquad\qquad [1]$$

where R_{it} is the return on share *i* on day *t*, P_{it} and P_{it-1} are the prices for share *i* on day *t* and day *t-1*, respectively, and Ln is the natural logarithm. Abnormal returns are calculated for the 11-day period from day t-5 to day t+5, centered on the day the new accounting standard was issued (day t_0):

$$AR_{it} = R_{it} - E(R_{it}) \qquad\qquad [2]$$

where AR_{it} is the abnormal return on share *i* for day *t*, and $E(R_{it})$ is the expected return on share *i* for day *t*. This study uses an 11-day test period to capture not only

the reaction to the announcement, but also any information leakage before the publication of FRS 12 and any readjustments after the event. The expected returns are calculated using the market model[8], which takes into account the systematic risk associated with each share:

$$E(R_{it}) = \alpha_i + \beta_i(Rm_t) + \varepsilon_{it} \qquad [3]$$

In equation [3], α_i and β_i are estimated from day t-205 to day t-6 and are adjusted for thin trading[9] using the Dimson Aggregated Coefficient Method (Dimson, 1979). α_i is the constant term for share i and β_i is the sensitivity of the returns on share i to the returns on the market, Rm_t is the return on the *Financial Times All-Share* index for day t, while ε_{it} is the random error term for day t.

Finally, the abnormal returns are adjusted for cross-dependency[10] according to equation [4]. Specifically, the abnormal returns, AR_{it}, for each share are divided by their estimated standard deviation during the estimation period, to yield standardised abnormal returns, AR'_{it}, as follows:

$$AR'_{it} = AR_{it} / \hat{S}(AR_{it}) \qquad [4]$$

where

$$\hat{S}(AR_{it}) = \sqrt{\left(\sum_{t=-205}^{t=-6} (AR_{it} - AR_i^*)^2 \right) \Big/ 199} \qquad [5]$$

and

$$AR_i^* = \frac{1}{200} \sum_{t=-205}^{t=-6} AR_{it} \qquad [6]$$

The test-statistics of the abnormal returns for any given day are then derived using equation [7]:

$$\left(\sum_{i=1}^{N_t} AR'_{it} \right) \cdot \left(N_t \right)^{-\frac{1}{2}} \qquad [7]$$

The abnormal returns are analysed according to sectors – i.e., the extractive sectors (consisting of the oil and gas and mining sectors) against the non-extractive sectors (pharmaceutical, food producers and PPP) – over the test period. The cumulative abnormal returns (CAR) are analysed over several periods across the test window; for instance, the test statistic for CAR over the whole 11-day [-5,+5] interval, is the ratio of the CAR to its estimated standard deviation, and is given by:

$$\sum_{t=-5}^{+5} AR_t \left/ \sqrt{\left(\sum_{t=-5}^{+5} \hat{S}^2 \left(AR_t \right) \right)} \right. \qquad [8]$$

where the terms in the denominator are obtained from equation [5].

RESULTS AND ANALYSIS

Panel A of Table 1 presents the mean abnormal returns for the sample firms (extractive and non-extractive industries) over the 11-day test period, from five days prior to the announcement of FRS 12, to five days after the issuance date, which is denoted as day zero. Cumulative abnormal returns (CAR) are reported in Panel B. A number of points emerge from an analysis of the data. First, the trend of average abnormal returns over the 11-day test period for the extractive firms is similar to that of the non-extractive firms. The average abnormal returns of the extractive (non-extractive) firms is negative for six (five) of the eleven days being considered, and the

t-test of difference shows that none of the abnormal returns over the period are significantly different between the extractive and non-extractive firms. The trend also shows that there are instances of significant abnormal returns, possibly indicating information leakage, prior to the issuance of FRS 12, on days t-5 and t-3 (day t-5) for the extractive (non-extractive) firms. However, the CARs during the five-day pre-release period (t-5, t-1) are very small, at -0.001 for firms in the extractive industries and 0.002 for the non-extractive firms. Neither is statistically significant, nor is the difference in CARs between the industry samples significant.

[INSERT TABLE 1 HERE]

Second, the mean abnormal returns on the event day (day zero) for both extractive and non-extractive firms are positive and significant at the 5 per cent and 1 per cent level respectively; the extractive firms exhibit a mean (p-value) of 0.008 (0.037) while their non-extractive counterparts reveal a mean (p-value) of 0.016 (0.006). This may suggest that the issuance of the standard signals a positive movement towards better reporting for both types of firms. The positive share prices reactions on the day of the issuance of FRS 12 for the extractive firms on the day of the event is consistent with the findings by Jetty and Russell (2002) for oil and gas firms. However, although the share price impact for both industry groups is positive, the reaction is substantially smaller for firms in the extractive industries than for those in the non-extractive industries sampled. The t-test of the difference in event day abnormal returns is, however, not statistically significant.

Third, there is a small readjustment to the abnormal returns over the days after the publication of the FRS; the abnormal returns show a reversal from positive to negative a few days after the event date for both the extractive and non-extractive

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firms. Panel B of Table 1 indicates that over the five-day post-release period, negative CARs of -0.012 (-0.009) accrue to shareholders of extractive (non-extractive) firms. This reversal is, however, not statistically significant.

Over the whole test period from five days prior, to five days after, the day of the standard being made public, the means CAR amounts to -0.005 for the extractive companies and 0.009 for the non-extractive firms. Neither is statistically significant, nor are they significantly different from each other. Overall, the results in Table 1 suggest the issuance of FRS 12 resulted in significant abnormal returns for both extractive and other affected firms on the day of its release, although the abnormal returns were not significant over the longer test period. While the magnitude of the gains appears to have been lower for the extractive firms compared to their non-extractive counterparts, the abnormal returns are not significantly different.

CROSS-SECTIONAL REGRESSION ANALYSIS

While the results in Table 1 suggest there was a significant, if small, average impact on the share prices of sample firms on the release of FRS 12, we expect the reaction of shareholders to the introduction of the new accounting standard to vary with the characteristics of the firm. In this section we report results of cross-sectional analyses[11]. Specifically, a cross-sectional regression model is fitted to explain the CAR over the test window, and in particular the day of the issuance of FRS 12. We control for five variables: whether the firm is in an extractive or non-extractive industry; the size of the company; whether the company is Irish or UK based; the level of provisions reported prior to the switchover to the new FRS; and the change in

provision levels reported following the adoption of FRS 12[12], as detailed in equation [8]:

$$CAR_i = \eta + \delta_i(EXTRACTIVE) + \gamma_i(SIZE) + \lambda_i(COUNTRY)$$
$$+ \mu_i(PROV97) + \rho_i(\Delta PROV) + \varepsilon_i$$

[8]

In equation [8], η is the constant term and ε_i the error term. EXTRACTIVE is a variable that takes the value 1 where the firm belongs to one of the extractive industries, and 0 if the firm is in one of the non-extractive industries sampled. This variable assesses if there are differences in the CARs for extractive firms relative to their non-extractive counterparts. Based on prior literature suggesting the implementation of the new accounting standard may be particularly onerous for, and puts more restrictions on, extractive compared to non-extractive firms, we predict a negative coefficient on the EXTRACTIVE variable.

SIZE is the natural logarithm of the market capitalization value (measured in £ millions) for each firm as at 17 September 1998 and examines whether CAR is related to firm size. Based on prior literature suggesting the standard may be viewed as being more onerous for smaller firms who may find the standard costly to implement, we would expect a positive coefficient on SIZE. It should be noted, however, that an alternative hypothesis may be put forward. It is possible that investors will particularly welcome the improvement in disclosure by small companies, where arguably little information is available other than that disclosed in company accounts. Thus, financial statements may potentially have less value relevance for large companies, where investors may rely on other sources of

information such as analyst reports or private communication channels (Holland, 1997), than for small companies.

The COUNTRY variable represents a firm's country of origin, where 1 represents UK firms and 0 represents Irish firms. At the same time as the issuance of FRS 12, firms in the Republic of Ireland were preparing to convert to Euros, which was set for implementation in January 1999. According to Bris *et al*. (2005), the effects of converting to Euros would result in lowering the cost of capital and increasing expected cash flows for firms in countries that adopted the Euro, hence improving a firm's investment opportunities and access to financing. There are 14 Irish companies in the sample. In order to control for the possibility of such effects, a COUNTRY variable is used for the differences in origin of the firms sampled. We expect a negative coefficient on COUNTRY.

As argued above, the introduction of the new accounting standard could be expected to be particularly onerous for companies with high levels of provisions. We include the variable PROV97, which captures the levels of long-term provisions, scaled by total assets, reported by the sample firms in 1997 – the year before the adoption of FRS 12. We predict PROV97 to have a negative impact on abnormal returns.

However, the stock market reaction to the introduction of the accounting standard can be expected to be particularly adverse for companies who have to set aside substantial *additional* provisions as a result of the new requirements specified in FRS 12. While we acknowledge that investors and/or analysts may not have been able to fully anticipate the exact changes in the levels of provisions, we include ΔPROV to capture the change in provisions from 1997 to 1999 (leaving out 1998 –

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the year of transition[13]). Assuming investors were, at least in part, able to predict which companies would be required to report additional provisions, we hypothesise ΔPROV will have a negative impact on CAR.

Descriptive statistics are contained in Table 2, Panel A, while a correlation matrix is contained in Panel B. The descriptive statistics indicate that the extractive firms in our sample are on average significantly smaller than the non-extractive companies. As the correlation matrix suggests there is a negative (though not statistically significant) relationship between event day abnormal returns and company size, it may be important to control for size in our cross-sectional analysis. The correlation matrix also suggests the abnormal returns on the day of the accounting standard being released were significantly higher for Irish than for UK companies. As a significantly higher proportion of extractive than non-extractive companies in our sample are Irish, we control for country effects when analysing the differences in abnormal returns between extractive versus non-extractive firms.

The level of accounting provisions prior to the introduction of FRS 12 were, on average, higher for extractive than for the non-extractive companies, at 2.5 per cent and 1.0 per cent of total assets, respectively, although these differences are not statistically significant. There were, however, large variations in the levels of provisions, ranging from zero to 43 per cent[14]. Similarly, the average change in provisions from 1997 to 1999 was also somewhat larger for extractive than for non-extractive firms, at 1.0 and 0.4 percentage points, respectively, although again these differences are not statistically significant. The correlation matrix suggests the level of abnormal returns on the day of the release of the standard was marginally lower for companies with high levels of provisions. However, contrary to expectations, the

correlation matrix further suggests companies who subsequently reported increased provisions earned higher abnormal returns on day zero than companies for which the change in provisions was smaller. As PROV97 and ΔPROV are significantly negatively correlated (suggesting companies with few provisions prior to FRS 12 were more likely to report large increases in their levels of provisions after the introduction of the standard), it may be important to control for these variables simultaneously rather than focusing on univariate correlations. It should be noted, however, that while some of the independent variables are significantly correlated, the correlation coefficients (at a maximum of about 0.4) suggests our cross-sectional regression model, as detailed in equation [8], will not be subject to colinearity problems.

[INSERT TABLE 2 HERE]

The results from the cross-sectional regression analyses, based on equation [8], are shown in Table 3. We report significance levels based on heteroscedasticity-adjusted t-statistics (White, 1980). For the five-day pre-release period (t-5, t-1), none of the explanatory variables are significant, and the regression model overall has no explanatory power. In contrast, the regression model for the event day is significant, with an adjusted R^2 of 8.5 per cent. Three of the five explanatory variables, as well as the constant term, are statistically significant. The positive and highly significant constant term is consistent with the generally positive reaction to the release of the new accounting standard, as detailed in Table 1. However, while the results in Table 1 indicate the difference in abnormal returns between extractive and non-extractive companies is not significant, the industry effect becomes significant once we control for other variables in the cross-sectional analysis. As can be seen from Table 3, the

coefficient for EXTRACTIVE on the event day, at –0.016, is significant at the 5 per cent level, confirming that investors view the issuance of FRS 12 less positively for extractive firms than for companies in non-extractive industries also likely to be affected by the standard. This supports the hypothesis that, while the release of the standard is overall positive, firms which are extractive in nature may find the implementation of the standard more burdensome since it sets out additional requirements relating to decommissioning and environmental liabilities which are mainly applicable to such firms.

[INSERT TABLE 3 HERE]

Our results suggest the COUNTRY variable is negative and significant for the event day and for the overall analysis period. The negative COUNTRY coefficient indicates that UK firms may view the standard less favourably than their Irish counterparts; this supports the controlling hypothesis regarding the potential benefits that could be derived from converting to Euros, as suggested by Bris *et al.* (2005).

The results in Table 3 indicate SIZE had a small, though insignificant, negative impact on the event day abnormal returns. This result rejects the hypothesis that smaller firms may find the standard more onerous than their larger counterparts. Instead, investors in small companies appear to react marginally more favourably to the issuance of FRS 12 than do investors in large companies, although this effect is not statistically significant.

While the level of long-term provisions (PROV97) prior to the release of the standard appears to have had an insignificant impact on the abnormal returns during the day of the release of the new accounting standard, we observe a significant positive coefficient on the change in provisions from 1997 to 1999. This is contrary to

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our expectations of the impact of the introduction of FRS 12 being particularly onerous for companies reporting large increases in provisions after the introduction of the standard. However, while statistically significant, the economic impact is relatively small. As indicated in Table 1, the average change in provisions, scaled by total assets, was one percentage point for extractive firms. Therefore, the coefficient of 0.054 for ΔPROV suggests a company with average levels of change in provisions would have day zero abnormal returns 0.05 percentage points lower than a firm with no change in provisions after the introduction of FRS 12. Despite this, the result supports the findings shown in Table 1 which suggest that, on first impressions, the standard signalled a positive move towards better reporting by firms which were initially reporting high levels of provisions.

Interestingly, a further check on Table 3 shows changes in signs for the coefficients of both the level and change in provisions in the five-day post release period (t+1, t+5). While the coefficient for the level of provisions is not significant at conventional levels, the coefficient for the change in provisions is highly significant. While the immediate reaction to the publication of FRS 12 appears to have been to mark down the value of extractive compared to other companies, analysis of the post-release window suggests the market took a more nuanced view of which companies would be adversely affected by the requirements of the new standard on 'Provisions, Contingent Liabilities and Contingent Assets'. While many extractive firms would see changes in the reporting of provisions, not all firms in the oil, gas or mining sectors would be equally affected by the standard. Analysis of the five-day post release period shows the abnormal returns to be lower for companies with high levels of provisions. While the coefficient of −0.370 is not significant under White-adjusted

estimation, it is statistically significant using robust rank regressions. More importantly, however, companies that reported increased provisions in the year after the introduction of the new accounting standard earned significantly lower abnormal returns. The coefficient is significant at the 1 per cent level and, at –0.704, is substantially larger than the positive coefficient (of 0.054) for the event day. This suggests that, once the market had time to digest the implications of the new standard, share prices of those companies most directly affected by the new provision requirements due to the company being required to make additional provisions after the introduction of FRS 12, were marked down compared to other companies in the same industries less directly affected by the standard.

The results for the overall eleven-day event window are similar to those of the post-release period, with an insignificant negative coefficient for PROV97 (at –0.360) and a highly significant negative coefficient for ΔPROV (at –0.635), significant at the 1 per cent level). The adjusted R^2 amounts to a highly significant 28.4 per cent. The results suggest that, while shareholders overall welcomed the introduction of the new accounting standard (as indicated by the significant positive abnormal returns on the day of release) – possibly due to the restrictions imposed on 'big bath' provisions – there was a recognition by the market that the new provision requirements would be onerous for companies with large provisions and, in particular, for companies having to report increased levels of provisions after the introduction of FRS 12.

CONCLUSIONS

The publication of Financial Reporting Standard No. 12, 'Provisions, Contingent Liabilities and Contingent Assets' (FRS 12) restricted companies' abilities to make "big bath" provisions, and required extractive companies to make provisions for abandonment costs at the outset of the project. The objective of this paper is to examine whether the issuance of FRS 12 had an impact on the share prices of UK companies, and whether the price effect was different for extractive firms compared to companies in non-extractive industries also likely to be affected by the standard due to their generally high levels of provisions. As the International Accounting Standard 37 is similar to FRS 12 (although IAS 37 provides less guidance on the issue of provisions compared to FRS 12), our results may also provide a possible insight into the likely impact on affected firms, in particular oil and gas companies, of the current implementation of international financial reporting standards by companies in Europe and elsewhere.

Our results suggest that changes in accounting standards, leading to a change in the accounting numbers reported to investors, might have a major impact on share prices. This supports the notion that accounting statements are value relevant; specifically, the standards (rules) governing the reporting of these statements may be valued by the market, as suggested by Perks (1993). In particular, our findings support the hypothesis that the issuance of FRS 12 had, on average, a significant positive impact on share prices for both extractive and non-extractive firm. This is consistent with the publication of FRS 12 being seen as likely to result in beneficial restrictions on "big bath" provisions, and an improvement in the transparency of

information provided by companies regarding provisions and contingencies. Such information regarding the costs and uncertainties borne by firms is likely to be value relevant.

However, our results further suggest that the share price impact was significantly less positive for extractive firms (operating in the oil and gas or mining industries) than for non-extractive companies operating in the pharmaceuticals, food producers, or paper, printing and packaging (PPP) industries. This may be due to the implied greater effect of accounting for decommissioning and environmental liabilities on the earnings of extractive firm. Furthermore, extractive firms may find the implementation of the standard more onerous, given the additional requirements regarding how decommissioning and environmental liabilities are recorded and published to users of information. Indeed, we find strong evidence of a negative price impact on companies that went on to report large increases in the levels of provisions after the adoption of the new standard. This suggests the new reporting requirements were expected to be onerous and costly for the firms most severely affected.

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Table 1
Abnormal returns and cumulative abnormal returns for sample sectors around the issuance of FRS 12

Panel A

	Days	Extractive Mean (p-value)	Other Mean (p-value)	T-test of difference (p-value)
	-5	0.018** (0.027)	0.020*** (0.005)	(0.798)
	-4	-0.002 (0.834)	-0.002 (0.813)	(0.852)
	-3	-0.015*** (0.003)	-0.014 (0.101)	(0.836)
	-2	-0.002 (0.570)	-0.003 (0.842)	(0.958)
	-1	0.000 (0.800)	0.000 (0.616)	(0.996)
	0	0.008** (0.037)	0.016*** (0.006)	(0.274)
	1	0.014 (0.146)	0.005 (0.194)	(0.102)
	2	0.004 (0.448)	0.003 (0.684)	(0.855)
	3	-0.007 (0.295)	-0.012** (0.050)	(0.177)
	4	-0.012** (0.030)	-0.011 (0.145)	(0.903)
	5	-0.012 (0.193)	0.006 (0.623)	(0.317)

Panel B

	Periods	Extractive Mean (p-value)	Other Mean (p-value)	T-test of difference (p-value)
Pre-release CAR	[-5,-1]	-0.001 (0.997)	0.002 (0.997)	(0.594)
Post-release CAR	[+1,+5]	-0.012 (0.975)	-0.009 (0.986)	(0.540)
Overall CAR	[-5,+5]	-0.005 (0.993)	0.009 (0.990)	(0.577)

Notes: Days –5 to +5 represent the 11-day test period, with day t_0 being the date of issuance of FRS 12 for firms in extractive (oil, gas and mining) and 'other affected' (pharmaceuticals, food producers, and paper, printing and packaging) industries. The mean p-values depict the significance of the daily average residuals under the parametric two–tailed tests where H_o: mean = 0, H_a: mean ≠ 0. The t-test of difference provides a comparison between the two sample industries. *, ** and *** indicate significant p-values at the 10, 5 and 1 per cent significance level, respectively.

Table 2
Descriptive statistics and correlation matrix

Panel A
Descriptive statistics

			Extractive	Other	Difference
	Sample		29	61	
	Size	Mean	1.005	1.602	-0.597***
		Median	0.883	1.592	(0.000)
		St dev	0.674	0.682	
		Min	-0.161	-0.066	
		Max	2.490	3.212	
	Country	UK	21	55	0.272**
		Ireland	8	6	(0.030)
		UK %	72.4%	90.2%	
	Prov 97	Mean	0.025	0.010	0.014
		Median	0.000	0.000	(0.283)
		St dev	0.082	0.045	
		Min	0.000	0.000	
		Max	0.431	0.339	
	Δ prov	Mean	0.010	0.004	0.006
		Median	0.000	0.000	(0.763)
		St dev	0.145	0.028	
		Min	-0.431	-0.077	
		Max	0.628	0.161	

Panel B
Correlation matrix

	CAR [0]	Extractive	Size	Country	Prov 97	Δ Prov
CAR [0]		-0.133	-0.098	-0.186*	-0.066	0.166
Extractive	-0.114		-0.384***	-0.229**	0.114	0.032
Size	0.026	-0.391***		-0.094	-0.083	-0.132
Country	-0.201*	-0.229**	-0.093		0.099	0.026
Prov 97	-0.028	0.034	0.074	0.037		-0.412***
Δ Prov	0.181*	0.028	0.038	-0.030	-0.361***	

Notes: The table contains descriptive statistics for the variables in the cross-sectional regressions based on equation [8]. DIFFERENCE is calculated for Size, Prov 97 and Δprov as the difference in means using a two-sample difference in means t-test, and for Country as the difference in proportion of Irish firms using a Chi-squared test. P-values are reported in parentheses based on two-tailed tests. In Panel B, Pearson correlations are reported in the top right hand corner, while Spearman correlations are reported in the bottom left corner. EXTRACTIVE is a dummy variable taking the value 1 for companies in extractive industries (oil, gas and mining) and the value 0 for companies in 'other affected industries' (pharmaceuticals, food producers, and paper, printing and packaging); SIZE is the natural log of the market value (in £ millions); COUNTRY is a dummy variable taking the value 1 for UK companies and 0 for Irish companies; Prov97 refers to provision levels reported, scaled by total assets, by sample firms in 1997 while Δprov indicates the change in provision levels reported, scaled by total assets, by sample firms between 1997 and 1999. *, ** and *** indicate significant p-values at the 10, 5 and 1 per cent significance level, respectively.

Table 3
Cross-sectional analysis of the share price reaction over different periods around the issuance of FRS 12

Variables	Predicted Sign	Pre-release CAR [-5,-1]	Event date CAR [0]	Post release CAR [+1,+5]	Overall CAR [-5,+5]
Constant		0.011	0.046***	-0.014	0.043
		(0.667)	(0.000)	(0.499)	(0.249)
EXTRACTIVE	-	-0.005	-0.016**	0.010	-0.010
		(0.801)	(0.040)	(0.466)	(0.660)
COUNTRY	-	-0.013	-0.020**	-0.001	-0.035*
		(0.467)	(0.029)	(0.915)	(0.075)
SIZE	+	*0.002*	-0.007	0.008	0.002
		(0.833)	(0.119)	(0.373)	(0.879)
PROV 97	-	-0.012	0.022	-0.370	-0.360
		(0.858)	(0.471)	(0.185)	(0.136)
Δ PROV	-	*0.015*	0.054***	-0.704***	-0.635***
		(0.693)	(0.000)	(0.000)	(0.000)
Adj R^2		0.0%	8.5%	52.3%	28.4%
Wald test		1.01	26.24***	17.70***	18.16***
Probability		(0.962)	(0.000)	(0.003)	(0.003)

Notes: The table shows the coefficients for each variable from OLS regressions of equation [8], with p-values based on White (1980) adjusted t-statistics reported in parentheses. *, ** and *** indicate significant p-values at the 10, 5 and 1 per cent significance level, respectively, using two-tailed t-tests. Adj R^2 is the adjusted goodness of fit of the equation explained by the variables. Coefficients changing sign or losing significance under robust rank regression estimation are highlighted in italics. EXTRACTIVE is a dummy variable taking the value 1 for companies in extractive industries (oil, gas and mining) and the value 0 for companies in 'other affected industries' (pharmaceuticals, food producers, and paper, printing and packaging); SIZE is the natural log of the market value (in £ millions); COUNTRY is a dummy variable taking the value 1 for UK companies and 0 for Irish companies; PROV97 refers to provision levels reported, scaled by total assets, by sample firms in 1997 while ΔPROV indicates the change in provision levels reported, scaled by total assets, by sample firms between 1997 and 1999.

Notes

[1] "Big bath" provisioning refers to writing-off large provisions against earnings with the objective of avoiding or minimizing future shortfalls. Provision refers to a liability of uncertain timing or amount.

[2] The difference in the levels of provisions reported in 1999 and 1997 were used to reflect the change after adopting FRS 12 since 1998 is the transitional period for conversion; FRS 12 stipulates that firms are to formally adopt the standard from March 1999, with the option to voluntarily adopt the standard earlier within their financial statements. Since FRS 12 was published in 1998, there would be instances where some firms might not have adjusted their 1998 accounts to fully reflect the new requirements. Given the differences in year-ends for the companies sampled and the likelihood of a stagger of adoption by firms in their 1998 statements, we have assumed 1998 as the transitional period for conversion whilst 1999 was the period after full conversion.

[3] Statement of Standard Accounting Practice 18 'Accounting for Contingencies' was the only standard that dealt with contingencies and in parts, provisions. This standard was eventually superseded by FRS 12.

[4] Although the releases of FRS 12's preceding drafts, i.e., the Discussion Paper and Exposure Draft, contained various intentions towards changes in how companies account for provisions and contingencies, FRS 12 extended and modified those plans suggested by the earlier drafts, whilst introducing further new changes to its requirements. For example, FRS 12 provides detailed explanations on the use of discounting, while the previous drafts only referred to its use for companies. FRS 12 also introduces a clause, which allows companies to not disclose information which could seriously prejudice the position of the entity. Given the substantive changes between the Exposure Draft and the final standard, the publication of FRS 12 on 17 September 1998 would be expected to have a significant price impact.

[5] Oil and gas and mining sectors were chosen due to their extractive activities in the exploration and production of natural resources, while the other three sectors were selected for comparison, as companies in these non-extractive sectors generally have high levels of provisions and may thus also be expected to be affected by the standard.

[6] Paragraph 17.45(a) of the UK Listing Rules issued by the Financial Services Authority, which outlines the accounting standards requirements for overseas companies, states that: An overseas firm must issue an annual report and accounts which must be drawn up and independently audited in accordance with the requirements of the applicant's national law and, in all material respect, with UK GAAP, United States GAAP or IAS. For the purposes of this research, it is therefore necessary to exclude overseas companies that are not wholly subjected to UK GAAP. As per the Foreword to Accounting Standard issued by the ASB (ASB, 2000), para.14: Accounting standards should be applied to UK and Republic of Ireland group financial statements.

[7] From the original sample of 198 firms, 108 firms made other prices sensitive announcements during the test window. See Foster (1980) and Wright (1987) for a discussion regarding the treatment of confounding events.

[8] A market adjusted returns model (i.e. the index model) was also used to determine the abnormal returns; the results obtained were similar to the market model abnormal returns reported here.

[9] Infrequent or non-synchronous trading gives rise to share prices which are recorded intermittently whereas for shares which are traded frequently, the recordings are almost continuous. As prices are recorded only at distinct, random intervals, completely accurate calculation of returns over any fixed period is virtually impossible. This problem becomes more severe when using daily data. (Dimson, 1979).

[10] These hypothesis testing methods are derived from Brown and Warner (1985).

[11] Robust rank regressions were also conducted to support the ordinary least squares (OLS) regressions shown in the paper. The results obtained were similar to the OLS regressions.

[12] The levels of provision reported in 1998 were excluded from the analysis as those levels were reported during the transitional period of the adoption of FRS 12; the standard must be formally adopted from March 1999, with a choice of earlier adoption possible. In order to eliminate the stagger of implementation within the 1998 financial statements, we have assumed 1998 as the transitional period of conversion. We use 1997 data to capture the level of provisions prior to the introduction of the standard, and 1999 to represent the provisions reported after the adoption, since 1999 was the formal date of implementation for all firms. We scale provisions by total assets.

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[13] See note 2.

[14] Extractive firms often prefer to avoid decommissioning and clean-up costs by leasing facilities from other bigger firms, hence the existence of extractive firms with zero long-term provisions. In the case of the other affected firms in the sample, the nature of provisions reported is often not far enough into the future, thus there are instances of firms with zero long-term provisions. Nevertheless, when firms do report such provisions, these costs are often materially relevant.