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Recognition versus Disclosure in the Oil and Gas Industry

DAVID ABOODY*

1. Introduction

I investigate whether recognition and disclosure have equivalent pricing consequences in the oil and gas industry. I concentrate on the oil and gas industry because Securities and Exchange Commission (*SEC*) Regulation SX [1978, sec. 210, para. 4–10] provides a unique opportunity for testing the stock price consequences of recognition versus disclosure. The *SEC* regulation requires the firm-specific effect of a macroeconomic event such as a major change in oil prices to be formally recognized in the financial statements for oil and gas firms adopting the full cost method but only disclosed in footnotes for firms following the successful efforts method. My results indicate that the effect of footnote disclosure on price differs from the effect of recognition.

Whether users of financial statements distinguish between recognition and disclosure is often an important question in the debate over accounting standards. However, this question was never explicitly empirically tested (for a literature review, see Bernard and Schipper [1994]). The experimental literature (Harper, Mister, and Strawser [1987; 1991]) suggests that whether an item is recognized or disclosed influences financial statements users' perceptions. However, the experimental studies do

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not address the issue of whether different users' perceptions will result in different pricing in the marketplace.

The accounting treatment for oil and gas firms provides a unique opportunity for testing the pricing implications of recognition and disclosure. *SEC Regulation SX* allows firms adopting the full cost (*FC*) method to capitalize all costs associated with property acquisition, exploration, and development activities even if the capitalized costs result in dry wells (see Brock, Klingstedt, and Jones [1985]). Therefore, if the net capitalized cost of *FC* firms exceeds the net *discounted* future cash flows from proved oil and gas reserves (termed ceiling), the excess is an ordinary loss. Successful effort (*SE*) firms are firms following the successful effort method. Under the *SE* method, a firm may capitalize the above costs only if they result in an increase of proved oil and gas reserves. Therefore, the *SEC* and Generally Accepted Accounting Principles (*GAAP*) force *SE* firms to recognize a write-down only if the capitalized costs exceed the net *undiscounted* future cash flows from proved oil and gas reserves. Consequently, if the net capitalized costs exceed the ceiling but are less than the undiscounted cash flows, an *FC* firm must write down its assets to the discounted cash flow while an *SE* firm will report an as-if write-down only in its footnotes.

In this study I focus on a sample of 21 *FC* firms that recognize a write-down and a sample of 50 *SE* firms that disclose an as-if write-down in their footnotes. I investigate the cross-sectional variation of stock returns at the write-down announcement date and the 10-K filing date. For *FC* firms the write-down is generally disclosed at the earnings announcement date, and for *SE* firms the write-down can be estimated at the 10-K filing date.

Pooled cross-sectional regression results document, at the write-down announcement date, a significant negative market reaction to firms recognizing a write-down. At the 10-K filing date there is no significant market reaction to firms disclosing a write-down.

2. Accounting Background and the Disclosed Write-Down for *SE* Firms

2.1 ACCOUNTING BACKGROUND

SEC Regulation SX states that *FC* firms must perform a "ceiling test" at the end of each quarter. The ceiling for each country is the sum of (1) the present value of proved oil and gas revenues from estimated production of proved oil and gas reserves, based on the oil and gas prices at the end of each quarter and a discount rate of 10%, (2) the cost of properties not being amortized, and (3) the lower of cost or estimated fair value of unproved properties included in the costs being amortized, less (4) income tax effects related to the difference between the book and tax basis of the properties involved.¹

¹ Cited from *Regulation SX*, "Full Cost Method" (*SEC* [1978, sec. 210, para. 4]).

Subsequently, if the net capitalized costs within a cost center, less related deferred income taxes, exceed the cost center ceiling, the excess is an ordinary loss. *FC* firms cannot reinstate the loss (termed a write-down) due to a subsequent increase in the cost center ceiling. The *SEC* did not apply this recognition requirement to *SE* firms because it contended that the write-down event should be rare. Therefore, *SE* firms recognize a write-down only if their net capitalized costs are higher than the net undiscounted value of their proved oil and gas reserves.² Consequently, the different reporting rule causes *FC* firms to recognize in the income statement the excess of the net capitalized cost over the ceiling, while *SE* firms need only disclose the capitalized cost and ceiling in the supplementary unaudited part of the financial statements.

2.2 CALCULATION OF AS-IF WRITE-DOWNS FOR SUCCESSFUL EFFORTS FIRMS

Regulation SX requires *FC* firms to recognize write-downs, while for *SE* firms, investors can only infer the as-if write-down from footnote disclosure. This section details how I use footnote information for *SE* firms to calculate their as-if write-downs, and Appendix A details a specific example of how footnote disclosure is used to calculate the as-if write-down.

As previously discussed, the ceiling is composed of four components. The supplementary unaudited section of the financial statements provides information on two components: the present value of future net revenues from the oil and gas proved reserves and the income tax effect related to them. The audited part of the financial statements provide the other two components, cost of unproved properties and properties not being amortized.

I define the as-if write-down as the excess of the disclosed ceiling amount over the net after-tax capitalized cost of proved oil and gas assets. The audited part of the financial statements reports the before-tax net capitalized cost of oil and gas properties. However, the sample firms do not detail the deferred income taxes associated with the capitalized costs in their tax footnotes. Therefore, I calculate the pretax as-if write-down by adding back to the ceiling its fourth component, namely, the present value of income taxes. The sample of 50 *SE* firms includes 16 firms that explicitly disclose the present values of income taxes and 34 firms that disclose the future values of income taxes. For the 34 firms, I apply the discount rates they use to discount their future net cash flows to the future values of income taxes. Since this procedure can underestimate or overestimate the write-down, given the firm's specific pattern of cash

² Before December 15, 1995, managers of *SE* firms with net capitalized assets higher than the undiscounted value of proved reserves had discretion over whether the assets should be written down to the discounted or undiscounted value. I found only one *SE* firm stating that if a write-down occurs, the asset value will be reduced to the discounted value. After December 15, 1995, *SFAS No. 121: Accounting for the Impairment of Long-Lived Assets* (FASB [1995]) requires the asset to be written down to its discounted value.

flows, I repeat the calculation, this time using the minimum discount rate over the past three years, which eliminates two as-if write-downs. Finally, 7 of 17 firms operating outside the United States did not provide a country-by-country breakdown of the information. Therefore, I underestimate the as-if write-downs for these firms because they are estimated on an aggregate level.

In this study, I define the pretax as-if write-downs for *SE* firms as the excess of the pretax net capitalized costs over the pretax ceiling. Consequently, users of *SE* firms' financial statements could also perform the above calculation and arrive at as-if write-downs for the net capitalized assets of *SE* firms. Therefore, I consider *SE* firms the disclosing firms and *FC* firms the recognizing firms.

3. *Sample Selection and Descriptive Statistics*

3.1 SAMPLE SELECTION

I based the sample of recognized write-downs on a search for keywords in both *LEXIS* and *Corporate Text*.³ I identified the sample of firms disclosing the write-downs by analyzing the financial statements footnotes for all firms classified by *Compustat* as *SE* firms (footnote 31 in *Compustat*). I chose the sample period, 1990 through 1993, because of the effort required to analyze the footnotes. Since footnote disclosure, required for estimating the as-if write-down, is available only in annual reports, I use in this study only write-downs that are recognized in the fourth quarter. Moreover, I include only firms that recognize or disclose write-downs because of the *SEC* ceiling test.

Table 1 reports the distribution of recognized and disclosed write-downs for the 1990–93 period. There are 26 recognized write-downs taken by 22 different firms. Four of the recognized write-downs were taken by *SE* firms that wrote down the assets to the undiscounted net cash flows. If the firms had written down the assets to the discounted cash flows, the average recognized write-downs deflated by market value would have increased from 8.1% to 35.5%. Therefore, in this paper I treat *SE* firms recognizing a write-down as disclosing firms.

The analysis of the disclosed write-downs is based on 402 financial statements. The reduction in sample size, compared to the number of firms reported in *Compustat*, is mainly due to the elimination of utilities and missing financial statements.⁴ For firms disclosing write-downs, the year that the as-if write-down is disclosed might not necessarily match

³The search keywords are “red! of carr!,” “imp! of carr!,” “wri! of carr!,” and “oil and gas.” Homestake Mining, which recognized a write-down in the fourth quarter of 1993, was deleted from the sample since it is a gold-producing firm with one oil well.

⁴Firms listed as *ADR* and firms concentrating in gold mining were also eliminated. Finally, *Compustat* reports 103 *SE* firms with total assets of less than \$2 million. Financial statements for only one such firm (Oil City Petroleum) were found. However, no price data for this firm was available on *CRSP*.

TABLE 1
Distribution of Recognized and Disclosed Write-Downs: 1990–93

	1990	1991	1992	1993	Total
<i>FC</i> firms recognizing a write-down	3	12	1	6	22
<i>SE</i> firms recognizing a write-down	0	1	1	2	4
<i>SE</i> firms with an as-if write-down	8	17	6	15	46

Data on recognized write-downs are based on a search for keywords in both *Lexis* and *Corporate Text* (search keywords are “red! of carr!,” “imp! of carr!,” “wri! of carr!,” and “oil and gas”). Data for disclosed write-downs are based on financial statements footnotes for firms classified by *Compustat* as *SE* firms (footnote 31 in *Compustat*).

FC firms are firms following the full cost method. Under the *FC* method a firm may capitalize all costs associated with property acquisition, exploration, and development activities.

SE firms are firms following the successful effort method. Under the *SE* method, a firm may capitalize the above costs only if they result in an increase in proved oil and gas reserves.

Although financial statements before 1990 are not used in this study, I analyzed prior years’ financial statements if I detected an as-if write-down, to determine in which year it belongs.

In this study, *SE* firms recognizing write-downs elected to write down the assets to the undiscounted value. Therefore, the as-if write-down is equal to the undiscounted value of proved reserves minus the discounted value of proved reserves.

the year in which the as-if write-down occurred. Since no actual write-down takes place, the as-if write-down might belong to prior years. Therefore, I examine the past annual statements of firms identified with as-if write-downs and adjust their net capitalized assets if necessary. This procedure eliminated 29 as-if write-downs and shifted three firms that reported an as-if write-down in 1990 to the 1989 fiscal year. The analysis yields 46 as-if write-downs taken by 30 firms with one required write-down each and 8 firms with two required write-downs each.

3.2 DESCRIPTIVE STATISTICS FOR THE SAMPLE

Results of the *t*-test, median test, and Wilcoxon nonparametric test indicate that the financial characteristics of *FC* firms are insignificantly different from those of *SE* firms. Both groups display the same market value, change in sales, change in cash from operations, and change in the oil and gas reserves’ quantities and values. When the recognized write-down is ignored, both groups have the same change in net income. However, *FC* firms are more leveraged, with a debt-to-market value ratio more than double that of the *SE* firms.⁵

The write-down amount is large relative to the annual net income excluding the write-down: a median of 270% for *FC* firms and 186% for *SE* firms. Overall, the market value of disclosing and recognizing firms is relatively small: a median of \$100 million for the *FC* firms and \$165 million for the *SE* firms.

Finally, *FC* and *SE* firms significantly differ in their operations. *FC* firms are significantly less diversified (measured as the percentage of oil

⁵ The mean probability of debt covenant violation, excluding the current year information, is 0.2265 for *FC* firms and 0.178 for *SE* firms. Details on this variable construction are available from the author upon request.

TABLE 2
Univariate Statistics for All Recognized Write-Downs: 1990–93

Variable	Write-Downs of FC Firms—22 Events				Write-Downs of SE Firms—4 Events			
	Day -1	Day 0	Day + 1	Three-Day	Day -1	Day 0	Day + 1	Three-Day
	Mean return	-0.025	-0.021	-0.045	-0.079	-0.023	0.027	0.016
<i>p</i> -value	0.141	0.079	0.046	0.024	0.539	0.194	0.679	0.412
# of returns > 0	4	4	4	5	1	2	2	2
# of returns < 0	11	12	13	17	3	0	1	2

Day -1 = one day before the write-down announcement.

Day 0 = day of the write-down announcement (retrieved from the *Nexis Allnews* library).

Day + 1 = one day after the write-down announcement.

Three-Day = three-day cumulative return surrounding the write-down announcement.

and gas sales out of total sales).⁶ In addition, *FC* firms devote more resources to exploration, and their success rate of drilling exploratory and development wells is significantly higher than *SE* firms. Hence, *FC* firms concentrate more on drilling and exploration, and *SE* firms concentrate more on development and production.

Table 2 provides the market reaction for the three days surrounding the write-down announcement date for recognizing firms.⁷ The table includes 22 *FC* firms and four *SE* firms recognizing a write-down between 1990 and 1993. Overall, a negative market reaction to the write-downs is documented. This is consistent with studies conducted by Elliott and Shaw [1988] and Strong and Meyer [1987] that document a significant negative market reaction to discretionary write-off announcements. However, only *FC* firms exhibit a significant negative market reaction.⁸ *FC* firms write down their assets to the discounted value, while *SE* firms write down their assets to the undiscounted value. Consequently, the mean write-down deflated by the market value of equity is 0.259 for *FC* firms and 0.081 for *SE* firms. In addition, the correlation between the write-down size and the stock price return is -0.598 (*p*-value of 0.003). One potential explanation is that investors classify, at the write-down announcement date, a small write-down as transitory and a large write-down as permanent.

⁶When seven integrated *SE* firms are removed, both groups display the same diversification.

⁷All the results in this paper are based on returns. Repeating the analysis with *CAPM*-adjusted returns and size-adjusted returns yielded consistent results.

⁸This result is substantiated by a *Wall Street Journal* article (April 17, 1992). The article discussed *FC* firms' ceiling write-downs and made the following claim: "Disclosing a large write-down almost always depresses a company's stock price, even though the regulators themselves concede that the non-cash adjustment doesn't really change a company's actual performance prospects."

4. Research Design and Test Results

4.1 RESEARCH DESIGN

To test the pricing implication of recognition and disclosure, I estimate a cross-sectional regression at the recognized write-down announcement date and at the 10-K filing date. The dependent variable is the three-day stock return surrounding both events and is identified using the *Nexis Allnews* library for the write-down announcement and using the *Access Disclosure Database* for the 10-K filing date. The analysis includes the day prior to the announcement to control for leakage of news. The trading day following the announcement is included to capture investors' reactions to announcements made after trading ends.⁹

The regression independent variables are as follows.

Unexpected earnings (UE) and unexpected operating cash flows (UOCF). Since all but two firms announced their write-downs simultaneously with earnings, a different financial performance across the two groups will cause a different price reaction at the write-down announcement.¹⁰ To control for financial performance, I calculate the earnings surprise, *UE*, as the difference between the prior year's and current year's net income deflated by the firm's market value at the current fiscal year's end. For firms recognizing the write-down, I exclude the write-down from the current year's net income. Since earnings are known at the filing of the 10-K, I use the change in operating cash flows at the 10-K filing date as the financial performance measure. The variable is the current year's operating cash flows minus the prior year's operating cash flows divided by the firm's market value at the current fiscal year's end.

Recognized write-down (WTFC) and as-if write-down (WTSE). At the write-down announcement date, I use only *WTFC*. *WTFC* is a slope dummy with a positive value of the pretax recognized write-downs for *FC* firms and zero for the disclosing firms. At the 10-K filing date, I add *WTSE* as an explanatory variable. *WTSE* is a slope dummy with the positive value of the pretax disclosed write-downs for *SE* firms and zero for *FC* firms. Both *WTFC* and *WTSE* are deflated by the market value at the fiscal year-end. However, the recognized write-down is associated with the fourth quarter, while the disclosed write-down may occur anytime during the year. Therefore, I adjust the as-if write-down by multiplying it by the proportion of the fourth-quarter oil and gas price decline out of the annual decline.¹¹

⁹ Changing the event window to include only the write-down announcement day and the following trading day does not change this paper's results.

¹⁰ The three-day return for two firms announcing only the write down is -12.5% and -66.67%.

¹¹ The proportion of the decrease in the oil and gas prices attributed to the fourth quarter is $(P_t - P_{t-1}) / (P_t - P_{t-4})$, where P_t is the weighted average of oil and gas prices at the end of the current fiscal year, P_{t-1} is calculated at the end of the third quarter, and P_{t-4} is calculated at the end of the previous year. If all of the decline in oil and gas

Industry concentration (INDCON and INDCON10K). The market reaction to recognition and disclosure may be affected by the firms' differential involvements in oil and gas production. For example, *Zacks Investment Research* recommends excluding from *EPS* a write-down of oil and gas properties by a firm that is not primarily engaged in the oil and gas business. To control for the firms' concentration in the oil and gas industry, I use the percentage of total revenue due to oil and gas operations. At the write-down announcement, since the revenue attributed to oil and gas sales is unknown, *INDCON* is the previous year's oil and gas sales divided by total sales, and at the 10-K filing, *INDCON10K* is the current year's oil and gas sales divided by the current year's total sales.

Size (MV). In the past 20 years, several anomalies related to firm size have been documented in various accounting and finance studies. For example, Ball and Kothari [1991] document that surrounding earnings announcements, abnormal returns are positive and decreasing in firm size. Therefore, *MV* is the controlling variable for firm size and is calculated as the natural log of the firm's market value at its fiscal year-end for the year the recognized or disclosed write-downs are identified.

4.2 TEST RESULTS

The following cross-sectional regression is estimated at the write-down announcement date:

$$RET_{it} = \alpha + \beta_1 UE_{it} + \beta_2 WTFC_{it} + \beta_3 INDCON_{it} + \beta_4 MV_{it} + \varepsilon_{it} \quad (1)$$

where the variables are defined in section 4.1.

The results of estimating the regression are presented in table 3, panel A. The test excludes one *FC* firm that is an outlier and two *SE* firms with no information on their previous year's oil and gas operations.¹² The coefficient on the recognized write-down amount (*WTFC*) is -0.077 with a *t*-statistic of -5.19 . The coefficient on *UE* is 0.008 with a *t*-statistic of 2.06 . However, the coefficient on the *UE* of firms recognizing the write-down is -0.010 (*t*-statistic of -0.45), while the coefficient on *UE* for firms disclosing the write-down is 0.008 (*t*-statistic of 2.19). Therefore, for firms recognizing the write-down, investors price only one component of net income, namely, the recognized write-down. Finally, *INDCON* and *MV* are insignificant at conventional levels. The insignificance of the coefficient on the industry concentration and market value is not surprising, given the similar value for both groups.

prices occurs in the fourth quarter, this calculation is set to one, and if none of the decline occurred in the fourth quarter, it is set to zero. The mean (median) percentage of oil and gas decline that is attributed to the fourth-quarter decline in prices by my method is 0.8441 (1.0).

¹²Including the *FC* firm in the regression increased the *t*-statistic on *WTFC*.

TABLE 3

Pooled Estimation Results of Three-Day Average Return Surrounding the Write-Down Announcement and the 10-K Filing on Explanatory Variables: Sample of Disclosing and Recognizing Firms, 1990–93 (t-statistics in parentheses)

Panel A: Three Days Surrounding the Write-Down Announcement							
$RET_{it} = \alpha + \beta_1 UE_{it} + \beta_2 WTFC_{it} + \beta_3 INDCON_{it} + \beta_4 MV_{it} + \varepsilon_{it}$ (1)							
α	β_1	β_2	β_3	β_4	Adjusted R^2	n	
0.011 (1.39)	0.008 (2.06)	-0.077 (-5.19)	-0.002 (-0.29)	-0.001 (-1.12)	0.296	69	

Panel B: Three Days Surrounding the 10-K Filing							
$RET10K_{it} = \alpha + \beta_1 UOCF_{it} + \beta_2 WTFC_{it} + \beta_3 WTSE_{it} + \beta_4 INDCON10K_{it} + \beta_5 MV_{it} + \varepsilon_{it}$ (2)							
α	β_1	β_2	β_3	β_4	β_5	Adjusted R^2	n
-0.016 (-1.80)	0.003 (0.38)	0.027 (1.69)	-0.001 (-0.16)	0.006 (0.79)	0.002 (1.08)	0.003	69

The regression excludes one *FC* firm because it is an outlier and two *SE* firms with no information on their previous year's oil and gas operations.

- RET* = average of the three-day return surrounding the write-down announcement date. The announcement day (day 0) is retrieved from *Nexis Altnews* library.
- UE* = change in net income excluding the recognized write-down (deflated by *MV*).
- WTFC* = pretax recognized write-downs (positive values) and zero for disclosing firms (deflated by *MV*).
- INDCON* = percentage of oil and gas sales out of total sales (using the preceding year's sales figures).
- MV* = market value at the fiscal year-end (in a natural log).
- RET10K* = average of the three-day return surrounding the 10-K filing date. The announcement date (day 0) is retrieved from the *Access Disclosure* database.
- UOCF* = change in the cash flows from operating income (deflated by *MV*).
- WTSE* = pretax disclosed write-downs (positive values) and zero for recognizing firms (deflated by *MV*).
- INDCON10K* = percentage of oil and gas sales in the current year out of total sales.

To investigate the market reaction to the disclosed write-down, the following regression is estimated at the 10-K filing date:

$$RET10K_{it} = \alpha + \beta_1 UOCF_{it} + \beta_2 WTFC_{it} + \beta_3 WTSE_{it} + \beta_4 INDCON10K_{it} + \beta_5 MV_{it} + \varepsilon_{it} \quad (2)$$

where the variables are defined in section 4.1.

The estimation results are presented in table 3, panel B. The coefficient on the recognized write-down is 0.027 (*t*-statistic of 1.69) and on the disclosed write-down is -0.001 (*t*-statistic of -0.16). The coefficient estimate on the as-if write-down indicates that investors do not price it at the 10-K filing date. The coefficient on *WTFC* is due to a reversal of the significant negative return for some of the firms recognizing a large write-down at the write-down announcement date.¹³ In addition, none of the other explanatory variables in the regression significantly differs from zero. Moreover, the adjusted R^2 is only 0.0029 and the *F*-value of the regression insignificantly differs from zero.¹⁴

¹³ The mean (median) three-day return around the 10-K filing for 21 *FC* firms is 0.8% (-1.1%).

¹⁴ The inclusion of a variable that captures the change in the probability of debt covenant violation increases the regression's adjusted R^2 to 0.0414. However, the coefficient estimates reported in table 3 do not change significantly. The test results are available from the author upon request.

Table 3 results are consistent with a different market reaction to recognition versus disclosure.¹⁵ However, the results may be affected by different noise levels in announcement dates since write-down announcement dates are more precise than 10-K filing dates. In addition, it is possible that the 10-Ks include favorable information that nullifies the negative implications of the disclosed write-downs.

5. Summary

In this paper I investigate whether investors value recognized information differently from disclosed information. This conjecture is tested in the oil and gas industry where *FC* firms recognize a write-down and *SE* firms disclose it. I argue that this is a powerful test since I concentrate on a single industry where the value of oil and gas reserves is important for firms' valuations. I find that whether a write-down is recognized or disclosed has significant impact on firms' values. The stock price reactions to firms recognizing losses are negative and differ significantly from the reactions to firms disclosing losses.

This study has some limitations. First, my sample consists only of 22 *FC* firms and 50 *SE* firms in the oil and gas industry. Therefore, generalization to other industries may be limited. Second, the evidence is restricted to write-downs that are large so the conclusions may not be generalizable to other components of earnings that are smaller in nature. Third, write-down announcement dates are more precise than 10-K filing dates. Finally, the effects of disclosing the write-down "compete" with other information contained in the 10-K that might be favorable. In contrast, the recognition of the write-down in the earnings announcement is highly visible. This may allow managers of *SE* firms to "put the right spin" on the as-if write-down disclosed in the 10-K. The 10-K will generally include about 30 pages describing the firm's business, including positive events such as drilling a new well, increase in reserves, and highlights of financial performance. Following that, the 10-K will include management discussion and analysis that includes the managers' description of past events and the future actions the firm will take to resolve the current "challenges" facing it. Therefore, it is possible that favorable information disclosed in the 10-K dominates the news about the as-if write-down.

¹⁵ Robustness tests indicate that the results are not due to several alternative explanations, such as leakage of information from the write-down announcement date to the 10-K filing date, change in oil and gas prices between the two dates, misspecification of the regression, or annual reports' filing dates preceding the 10-K filing dates. The tests are available from the author upon request.

APPENDIX A

The Following Are Excerpts from the Fiscal 1991 10-K of Adobe Resources

The following chart sets forth certain information regarding the corporation's oil and gas exploration, development, and production activities (amounts in thousands) on December 31, 1991:

	United States	Indonesia	Total
Proved Oil and Gas Properties	\$511,655	59,348	571,003
Unproved Oil and Gas Properties	10,960	3,253	14,213
Total Oil and Gas Properties	522,615	62,601	585,216
Accumulated Depreciation, Depletion, and Amortization	220,444	37,108	257,552
Net Capitalized Costs	302,171	25,493	327,664

The following chart sets forth certain information regarding the corporation's discounted future net cash flow from proved reserves (amounts in thousands) at December 31, 1991:

	United States	Indonesia	Total
Future Cash Inflows	\$598,332	102,873	701,205
Future Production Costs	185,736	47,709	233,445
Future Development Costs	51,705	6,748	58,453
Future Income Tax Expenses	11,259	18,620	29,879
Future Net Cash Flows	349,632	29,796	379,428
Discount at 10% for Timing of Cash Flows	112,211	8,168	120,379
Discounted Future Net Cash Flows from Proved Reserves	237,421	21,628	259,049

The amount of as-if write-down is calculated as follows:

Net capitalized costs in the United States is \$302,171 and in Indonesia is \$25,493.

Ceiling = Discounted Future Net Cash Flows from Proved Reserves + Unproved Reserves + Discounted Future Income Tax. Since discounted future income tax is not provided, the discount factor used by the firm is applied to the future income taxes. Hence, the firm's discount factor is equal to the discounted net cash flows divided by the undiscounted cash flows. The ceiling for each cost center is:

$$\text{United States} = \$237,421 + (237,421 / 349,632) \times 11,259 + 10,960 = 256,026.5.$$

$$\text{Indonesia} = \$21,628 + (21,628 / 29,796) \times 18,620 + 3,253 = 38,396.69$$

There is no as-if write-down in Indonesia, while the as-if write-down in the United States is the net capitalized costs (\$302,171) minus the ceiling (\$256,026.5), that is, \$46.1445 million. Notice that the pretax undiscounted future net cash flow in the United States is equal to \$349,632, which is larger than the net capitalized costs. Therefore, prior and subsequent to *Statement of Financial Accounting Standards No. 121 (FASB [1995])*, Adobe Resources records no asset write-downs.

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