



Green accounting and green eyeshades twenty years later



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ABSTRACT

This article proposes a way of accounting for firms' social responsibilities as constructive obligations under the doctrine of promissory estoppel, thereby exposing certain limitations of financial accounting, given its current conceptual framework.

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In 1993 I placed an article in *CA Magazine* that began with the statement, "I am going to do something novel in a green accounting article. I am going to talk about accounting." By that, I meant that I was going to get into the debits and credits one would need make in order to account for an enterprise's social responsibilities as well as its private claims rather than just talking about them in general terms. I'm going to do that again because the Editor asked me to reprise my thinking about what I said twenty years ago and to produce a revision that might serve as a lightning rod for commentary from critical accountants.

Perhaps because of that promise to talk about debits and credits, the 1993 paper struck a chord with practitioners; it was named as runner-up for the magazine's "Walter J. Macdonald Award" for the best English-language feature article in 1993. In contrast, the reaction from my academic colleagues was muted at best. Although the article was reprinted in at least one reader used in accounting theory courses (Zeff and Dahrán, 1997), I believe that it was used mainly as a basis for criticizing shortcomings of financial accounting. That is precisely how I intended it to be used.

That is also why I introduced the "green eyeshades" metaphor in the first place. In the olden days, North American accountants used to wear opaque, green eyeshades to shield their eyes from the light as they toiled away at their

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bookkeeping, oblivious to any distractions outside their traditional duties or any inconsistencies between the entries they were making and the phenomena they were accounting for. I suspect that few practitioners or academics caught on that, while I was dead serious about some of the points I raised, I was also poking a bit of fun at my profession and myself.

Twenty years ago I saw the chief roles of accounting as reliably recording market-mediated transactions and providing numbers that serve as observable bases for contracts. (I still do.) The numbers in financial statements, I observed, “are only as good as the prices behind them.” Moreover, even prices in perfectly efficient markets can motivate people to engage in actions that are socially detrimental because they do not incorporate externalities like environmental degradation. If the price of polluting the environment is zero, firms will pollute as much as they need to in order to maximize their profits. Financial statements based on such prices can portray a firm as being privately profitable when it is socially destructive and making messes that will be socially costly to remediate. The firm cannot be forced to foot the bill because it has limited liability.

Rather than criticizing accounting for failing to allow for such externalities, I argued that it was up to governments to force firms to “internalize the externalities” by establishing cap-and-trade markets for pollutants. That was a radical idea in 1993. I argued that “[t]he firms that can pollute most efficiently are willing to pay the most for the certificates. Managers trade off the costs of refining their firms’ productive capital, so that it is less polluting, against the costs of buying certificates.” Accounting would then stick to its traditional role of reliably recording the transactions consummated in this market. Auditors would continue to play their traditional role, ensuring that firms’ emissions didn’t exceed the quantities allowed by their purchased certificates. I now think that is the real reason practitioners liked the article: I wasn’t rocking the boat.

I was not naïve enough to think that governments can establish efficient cap-and-trade markets for all firms’ environmental responsibilities. Even so, I argued that capital markets exert pressure on firms to internalize externalities to some extent. To obtain financing a firm issues a prospectus outlining opportunities and risks for prospective investors, including its asset-retirement obligations (AROs), if any. In 1993, accounting standards for AROs did not exist. I argued, however, that managers and auditors had incentives to disclose them because in competitive capital markets, both managers and auditors have incentives to convince investors that the disclosed amounts are reliable: both the firm’s cost of capital and the auditor’s future fees are positively related to reliability. In the absence of reliable disclosures, investors assume the worst and price the firm’s securities and the auditor’s services unfavorably, as “lemons.” I now think I was too optimistic about managers’ and auditors’ ability to estimate AROs and investors’ ability to interpret information about them (or the absence of information about them). Twenty years later, however, I now believe that they are in a much better position to do so, largely because of the way accounting standards have evolved since then.

1. Green accounting twenty years later

In 2004, the CICA introduced Section 3110, *Asset Retirement Obligations* requiring Canadian firms to estimate AROs under the doctrine of promissory estoppel. When Canada switched to IFRS for public companies in 2011, a simplified version of this standard was carried over in accounting standards for private enterprises. Under International Financial Reporting Standards (IFRS), International Accounting Standard (IAS) 37 contains a similar requirement to record “constructive obligations,” which exist if a firm has committed to reclamation expenditures beyond those that are required by law, as liabilities. My non-lawyer’s interpretation of the two standards is that the Canadian one is more rigorous, requiring greater amounts of AROs to be recorded; however, the basic idea behind the standards is the same.

Section 3110 defines promissory estoppel as follows:

3110.04 Promissory estoppel is the legal principle that a promise or assurance made without consideration may nonetheless be enforced to prevent injustice when:

- (a) the promise or assurance was intended to affect a contract or other legal relationship between the promisor and the promisee, and to be acted on; and
- (b) the promisee acted on the promise or assurance, or in some way changed its position.

Under this doctrine AROs are recorded as liabilities equal to the present value of the estimated future costs of cleaning up the environment, and as additions to the cost of the related assets (e.g., oil fields). The reason is that the government (the promisee) takes the action of allowing the firm to establish its operations in return for exacting a promise to clean up the environment when operations cease. In future years, the firm accretes the liability, recording the buildup as “interest expense,” and depreciates the asset over its useful life. The sum of interest and depreciation are often material amounts. I think it is now more likely that the market can price the firm’s AROs than it was twenty years ago. Managers and auditors have incentives to measure and disclose AROs reliably for the same reasons I advanced in 1993. Now for the debits and credits.

2. Debits and credits in a closed economy

Of course, the devil is always in the details. To illustrate the accounting for environmental liabilities and the judgments required, I assume for simplicity that there is only one country in the world with a single polluting firm, Oil Limited (“Oil”).

Oil will need to keep track of its assets and liabilities, including AROs. The government will likewise keep track of its assets and liabilities, including any receivables from Oil with respect to AROs.

The composition and value of the government's assets and liabilities would generally depend on the ideology of the political party in power. For instance, Party A might assign a relatively high value to air quality, whereas Party B might assign a relatively high value to GDP per capita. To sidestep some related issues for the moment, I will assume the existence of an Omniscient Critical Accountant (OCA) that will properly measure and record Canada's assets and liabilities on behalf of the public. I will not attempt to imagine what Canada's financial statements would look like in toto under the aegis of the OCA; I will focus only on the incremental debits and credits occasioned by Oil's operations. As will soon be apparent, even in this highly stylized situation, many thorny accounting issues arise.

In 2013 Oil begins operations in the Canadian Arctic. Under Section 3110 it records an ARO as follows¹:

Oil field asset	1000
Asset Retirement Obligation (ARO)	1000

The obligation exists because the CEO of the company has promised to return the land to its original condition twenty years from now. Assuming a discount rate of 10%, the \$1000 liability implies that the company and its auditors estimate Oil will need to spend about \$6700 in 2033 to discharge the liability. To arrive at this estimate, they must forecast how much it will cost to return the land to the same condition it was in when they began to exploit it. One can imagine situations, perhaps in the Alberta oil sands today, where it would be impossible to do this at any price. The issue would then be to determine what condition would be acceptable to the government and how much it would cost to achieve that outcome. The firm would then need to estimate the prices and quantities of labor and capital in 2033 that would be required to accomplish this objective.

A year later, Oil records interest on the \$1000 ARO at 10% and depreciation (20-year straight line) relating to the ARO's incremental impact on the cost of the oil field asset:

Depreciation expense	50	
Oil field asset		50
Interest expense	100	
ARO		100

Under Canadian accounting standards, this accounting would continue until 2033 unless the firm's estimate of the price of remediation increased. An increase would trigger an increase in the present value of the ARO, possibly with a revised interest rate used to discount the increment. Under the doctrine of conservatism, however, the firm would not reduce the ARO if the price of remediation decreased or the discount rate increased.

Concurrently, the OCA makes the following journal entries:

Receivable from Oil Ltd.	1000	
Citizens' equity		1000

This reflects the fact that the government, on behalf of society, can expect to receive approximately \$6700 worth of cleanup services from Oil in 2033. The OCA would also record an increase in its receivable at the end of the year:

Receivable from Oil Ltd.	100	
Citizens' equity		100

These increases in Citizens' equity would offset decreases occasioned by the firm's intention to pollute.

The OCA's journal entries are predicated on the assumption that the implementation of the doctrine of promissory estoppel provides the same degree of environmental remediation that is required by the government on behalf of the citizens. If there is a conflict between the OCA's view of the proper amount of remediation and the company's view, the OCA needs to make a further journal entry. For instance, suppose the OCA felt that additional accommodations were required for polar bears, beyond those the CEO of Oil had committed to. Then to the extent this difference of opinion could not be reconciled and acceded to by the CEO under promissory estoppel, a journal entry would be required. Suppose the OCA thinks \$7000 (including polar bear accommodation costs) would be required to remediate the environment in 2033, the present value of which is \$1041 at 10%. This is \$41 higher than the \$1000 already recorded. Then the OCA would record the following additional entry at the beginning of the year:

Citizens' equity	41	
Citizens' assets		41

¹ This is only the incremental addition to the carrying value of the asset occasioned by the ARO. The oil field asset would be recorded at historic cost, probably using Accounting Guideline No. 13, Full Cost Accounting in the Oil and Gas Industry. The ARO would be an addition to the cash and noncash costs of the oil field.

Similar differences might exist relating to the proper interest rate to use in discounting the ARO to its present value: the rate used by the company might be higher, incorporating default risk, whereas the government's might be lower, reflecting its requirement of more certainty as to the outcome on behalf of its citizens.

The OCA could not stop there. It would need to critically evaluate other aspects of the impact of Oil's operations on its citizens. For example, lifetime GDP per capita might be incrementally higher because of Oil's operations. Suppose that Oil were expected to generate \$400 of social value beyond the amounts reflected in its financial statements as wages and benefits.² Then the OCA would make the following entry:

Citizens' assets	400	
Citizens' equity		400

This example illustrates that Oil could offset the detrimental impact of environmental degradation by making Canada's citizens richer. Of course, the OCA would need to factor in more than just dollars and cents in making the journal entry. For instance, the amount might be reduced to allow for the detrimental impact of any resulting inequality of incomes between the rich and the poor. It could even be negative (credit assets, debit equity), depending on the OCA's view of the tradeoffs among environmental harm, income inequality, and the monetary wealth of citizens.

Even in this simplified scenario, there is considerable tension between what the company records as an ARO and what the OCA records in the country's books. Of course, one can imagine the firm being forced to record liabilities according to the OCA's directives, but this is not the sort of economy we currently live in. It is consistent with what a totalitarian state would require using central planning rather than allowing prices to coordinate economic activity.

Unless these issues can be worked out, it seems that the best firms can do is to record their monetary obligations under the doctrine of promissory estoppel and discuss their social responsibilities in notes to financial statements or documents like the Management Discussion and Analysis. That is approximately what they do now.

3. Additional considerations in an open economy

In an open economy, the OCA would need to consider what in 1993 I called "ecological subsidies" granted by other countries. If Country X allowed companies like Oil to operate without any obligation to reduce pollution or remediate environmental damage, Oil might go out of business because of its ARO, or be not a viable entity to start with. OCA would still have something to account for: the change in Citizens' equity because of the demise of Oil. Citizens' equity could go up or down, depending on OCA's view of the determinants of social welfare. Citizens' equity would go down to the extent that the lost jobs and GDP per capita were less; it would go up to the extent that Canada "did the right thing" in the international arena, making its citizens "proud to be Canadians."

In principle, issues like these could be resolved politically. Canada might negotiate a deal with Country X, whereby each country would allow its oil companies to produce so much pollution and spend so much to clean up the environment. This agreement would feed back on companies like Oil, whose CEO would modify his or her estimates of the amounts needed to rectify environmental damage in 2033. (Of course, this could be lower because the scale of Oil's operations could be considerably less if there were international competition.) It would also feed back on OCA's journal entries. OCA's receivable from Oil would be lower. The change in Citizens' equity would reflect a larger benefit due to the increased GDP, because without Oil there might be no oil company at all in Canada.

Once we allow for more than one country, at least two additional issues arise. First, should every country have its own OCA, which records the parochial costs and benefits of Oil's operations only for the citizens of its own country? Or should there be just one, global OCA that would record the social costs and benefits of Oil's operations on a worldwide basis? I will not attempt to address those questions because I find them to be mind-boggling.

Second, taxation becomes a salient issue. To some extent, taxes exacted on Oil's profits (or royalties levied on its revenues) can be viewed as damage deposits that the government can use to pay for remediation in 2033, should Oil default on its obligation under promissory estoppel. This arrangement seems to be feasible if Canada is the only jurisdiction in existence. In the international arena, however, if Canada's taxes are too high in relation to those of other countries, capital will be attracted abroad and Canada may end up with no oil industry at all. Part of the OCA's job, then, will be to establish a tax base that allows Oil to operate competitively and does not unduly constrain its ability to reinvest in productive capital or allow capital to flee to countries granting ecological subsidies.

4. Absence of an OCA

The discussion above shows that even if we had an OCA, the journal entries required to assess the environmental impact of Oil require a tremendous amount of judgment and pose heady measurement issues. In reality, of course, there is no OCA. Instead we have a complex web of regulations that ebb and flow according to the government agencies that lose and gain

² This situation could arise if oil production created more wealth than other activities in the country. For example, with more or cheaper oil, firms might find investments in cranes more affordable and build better infrastructure.

power. Even accounting standard setters can be viewed as part of the regulatory framework. Their views concerning what to measure – e.g. historical costs or fair values – and how to measure can materially affect firms' financial statements. They even affect the taxes firms pay, since GAAP profits are the starting point for the calculation of taxable income and GAAP assets are the starting point for computing numbers like regulatory capital. To the extent that our institutions improperly incorporate social welfare issues, a non-omniscient Government Accountant (GA) will not be able to record the “true” changes in Citizens' equity occasioned by Oil's operations; and the ARO recorded by Oil under promissory estoppel will be based on CEO promises that are not in the best interests of the citizens. (I put “true” in quotation marks as Einstein was wont to do when he thought a word was “under suspicion by the intellectual police.”)

Changes in regulations would affect the journal entries of all parties. Changes in government could affect them to an even greater degree. For example, Government B might put a lower value on GDP per capita than Government A and might insist on greater AROs for private companies. This brings up the issue of whether the initial journal entries should incorporate any expected changes in governments or regulations in the future. CICA Section 3110 unequivocally states, “In assessing whether a legal obligation exists, an entity is not permitted to forecast changes in the law or changes in the interpretation of existing laws and regulations” (Paragraph A3). I believe that the reason for this is that the authors of the Section were pragmatic. They realized that once one starts to forecast such things, the exercise becomes hopelessly subjective and the results lack reliability for accounting purposes. In contrast, subjectivity is the OCA's prerogative.

5. A word about the financial sector

Big oil is arguably the poster child for green accounting and environmental issues. Recently, however, I believe that the financial sector has wrought as much damage to social welfare as the resource sector has – maybe more, depending on how you measure it.

Deep-sea drilling and financial derivatives are both exceedingly complex technologies. Is there any substantive difference between an oil spill in the Gulf of Mexico that ravages the ecosystem and a financial meltdown due to a spate of derivative counterparty defaults that wipes out the savings of a billion people? They both happen quickly, seemingly without warning. They both do a lot of damage: so much damage that the perpetrator cannot afford to rectify it and governments must step in to foot the bill. How should these technologies be accounted for and regulated? How should the damages be measured?

To some extent, banks' credit valuation adjustments serve as early warnings of financial difficulties, such as nonperforming credit default swaps, which can have socially undesirable consequences. Unfortunately, however, there is no explicit accounting for the interconnectedness of banking claims across institutions and across borders; nor for the consequent possibility of contagion when a few rogue banks make reckless bets with people's savings or when profligate governments borrow beyond their means. Our international OCA will need to augment its education with degrees in financial economics and welfare economics as well as environmental science. The OCA surely needs to ensure the LIBOR isn't rigged in the financial sector; if it is, the discount rate for Oil's AROs will be wrong to boot.

6. Conclusion

I am left in approximately the same position I enunciated in 1993. Accounting generally needs to rely on prices to arrive at bookable journal entries. In contrast to 1993, we now have a standard on Asset Retirement Obligations that requires firms to estimate their values when no explicit market for AROs exists. These estimates are based on expected future prices and current interest rates, which reflect people's expectations about future interest rates. This seems like progress to me. At least companies must make an attempt to reliably measure and disclose their audited obligations to society for environmental damage. I believe that the resource sector is doing a better job at this than the financial sector is.

Concurrently, we are experiencing a virtual revolution in financial accounting away from historic costs toward fair values as the measurement bases for many items in firms' financial statements. The objective in estimating fair values is *not* to arrive at the value in use of an item for a specific company; it is to estimate what a hypothetical “market participant” would receive to sell an asset or require to assume a liability. The current standards with respect to AROs do not require that they be measured at fair value. The likely reason for this is that it is too difficult to imagine who or what a market participant might be in 2033, let alone how much the market participant would require in payment to assume the obligation. (If anyone has noticed any market participants in the business of assuming environmental liabilities, please let me know. In principle, an insurer could assume this role; or something like a credit default swap could be arranged. Even then, however, there is the risk of counterparty default.) As a result, firms fall back on measuring something close to value in use. So far, the Canadian standard does not even require that AROs be re-measured each year to account for changes in interest rates (although IAS 37 does). Maybe that's a good thing because once we walk through the fair value door, we can't avoid confronting the hypothetical market participant that will exist in 2033. Is that construct any less far-fetched in the corporate sector than that of our hypothetical Omniscient Critical Accountant in the public sector?

Reference

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