

Accounting for Climate Change: The Case of Carbon Markets and Emission Allowances

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Abstract: In this paper, we develop and present a case that can be used in accounting programs to introduce awareness of a contemporary social issue: Climate change. Using the cap and trade programs as the background, the case presents myriad challenges that involve accounting for the potential cost of polluting the environment. The topic is timely in that it addresses an important issue many students are deeply concerned about- the problem of climate change and what we all, as stewards of a world we share, can and should do to mitigate it.

INTRODUCTION

As business schools race to educate students concerning the myriad of economic issues now facing the world, they are challenged to introduce, analyze, and integrate important, and potentially critical, environmental threats which businesses, and society in general, must today come to terms with. In this paper, we present a case concerning climate change that may help in this effort. The case raises fundamental questions about how to best account for the impact of innovative regulatory schemes now in place to efficiently reduce Greenhouse Gas Emissions (hereafter referred to as GGEs) – a form of pollution that, by altering the climate, may have serious, adverse, and potentially irreversible environmental consequences. At issue are what responsibilities and obligations firms have that emit these gases, and how such obligations might best be accounted for.

In this paper, we focus on one specific market-based regulatory mechanism now being used to address the problem – a system known as “cap and trade”. This system integrates regulatory limits with cost efficiencies obtainable through trade within an established market for carbon. Fundamental accounting and financial reporting questions arise as externalities associated with GGEs are translated into firm-specific costs via the cap and trade mechanism. Interestingly, standard-setters, such as FASB, have, for the most part, remained silent on how to account for cap and trade, resulting in a great diversity of methods that are now being practiced. In one instance, where standard-setters did take a stand that required a substantial portion of pollution costs to be recognized on the balance sheet, great resistance was met, and the guidance was revoked quickly.¹ But, given the enhanced global attention to the issue that is now surfacing, this state of affairs may soon change.

The US government has recently issued an executive order “putting the climate crisis at the center of United States Foreign policy and national security”.² In addition, the current Biden administration has proposed spending billions of dollars on climate change related issues such as \$174 billion for electric vehicle infrastructure; \$50 billion to strengthen essential services against severe weather; and \$35 billion for climate-related research and development.³

The magnitude and the scale of the proposed initiatives is in response to the urgency in addressing the climate change issue which is now being touted as a global crisis. Specifically, the magnitude of GGEs have raised alarm about the environmental damage such emissions are causing. Scientists posit that when certain type of gases are emitted, they get trapped and contribute to global warming and climate change. Gates (2021) notes that currently 51 billion tons of greenhouse gases are added to the earth’s atmosphere every year.⁴ The gases emitted get trapped in the environment causing damage to the earth’s ecosystem. If GGEs remain unchecked, there are various undesirable scenarios in which global civic life and economic health of nations could potentially be jeopardized. Gates (2021) notes that the potential economic damage caused by climate change could be equivalent to having a COVID sized pandemic every 10 years.

In addition to the economic impact of climate change, debate has also arisen about who should be held accountable for the damage caused by GGEs, and how that can be mitigated.⁵ An important component of this debate concerns the way in which these emissions might be reduced. At issue is the classic problem of externality - the air is a free good, and the quality of that air impacts all of society, and all life on Earth. How can emitting companies, acting as they do in their own proprietary interest, be incented to efficiently reduce their GGE footprint? Two measures have been proposed to reduce carbon emissions: a carbon tax on emissions, which can act as a deterrent; and a market-based regulatory scheme, known as “cap and trade” to incentivize the emitters to

¹ IFRIC3, which is discussed later.

² See <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/> for more detail on the Biden administrations plan to tackle the climate issue.

³ <https://www.nytimes.com/2021/04/02/opinion/biden-climate-change.html>

⁴ Of all the greenhouse gases, carbon dioxide is the most common greenhouse gas. One-fifth of the carbon dioxide emitted today is likely to be in the earth’s atmosphere for 10,000 years (Gates 2021).

⁵ For a review of this debate, see Dessler and Parson (2019); and Kitcher (2010).

voluntarily reduce the emissions. While a carbon tax is imposed only by a handful of nations⁶, cap and trade schemes have sprouted globally in many places.

Cap and trade programs are regulatory schemes whose goal is to encourage reductions of GGEs by creating incentives using free market mechanisms. These programs began in Europe in 2005 (Engles 2009). Since then, the number, size, and scope of such programs worldwide has substantively increased. Within the USA, there are two main established cap and trade initiatives. The Regional Greenhouse Gas Initiative (hereafter, RGGI) in the northeast and the California Cap and Trade System (hereafter, CCAT). These two initiatives involve eleven states which have active carbon-pricing programs.

Firms involved in US carbon markets spent more than \$4.2 billion in carbon allowance auctions in 2017. Globally, the overall carbon market in 2020 reached 272 billion dollars, a growth rate of 20%, year over year, and a level five times greater than that recorded in 2017. These levels are sure to go much higher, given that nations such as the USA and China, that are major emitters of GGEs, have signaled in recent months a far greater commitment to clean energy.⁷ Dozens of countries, including Japan, the UK and Germany, plan to hit “net-zero” by 2050. China has committed to deliver net-zero emissions by 2060.⁸

The development of carbon emission allowances and credits, and the rise of carbon trading markets, give rise to many interesting accounting questions. At issue are fundamental questions such as what responsibilities and obligations private firms have to society at large, and how such obligations might best be accounted for. In addition, the meaning of the most basic accounting elements, including assets, liabilities and equity, are challenged by the existence of emission caps, emission allowances, and emission credits, thus raising questions about how these concepts should be operationalized, given today’s complex and interconnected global environment.

Many of these questions provide fertile ground for interesting and stimulating debate in the classroom. Such debate can be a very effective teaching tool because the issues raised by emissions cap and trade schemes, and the associated allowances and credits created by them, strike at the very meaning and purpose of accounting itself.

The remainder of this paper is presented as follows. In the next section, we discuss cap and trade programs, including the nature of carbon allowances and credits. In the third section, the case is next presented, along with notes that present the conceptual arguments for the various positions that can be taken as to the nature of carbon emission allowances and how they might be accounted for. The penultimate section presents the contributions of our paper with suggestions for where and how this topic might best be introduced into accounting curricula, both graduate and undergraduate, and also offer ideas for how the topic can be extended to other areas of interest and debate.

BACKGROUND

What is Cap and Trade?

In this paper, we focus on “carbon” emissions, which involve production of carbon dioxide, and other “greenhouse” gases (which can be transformed into “carbon equivalents”), that have the potential to cause global warming, and through this warming effect, cause adverse environmental damage. Under a cap and trade scheme, a governmental authority first sets up a cap, i.e., a limit on total quantity of GGEs that may be emitted by a firm into the atmosphere without penalty. This is done by issuing emission allowances equal to the amount of the cap to emitters. Emission allowances are rights issued by governments that permit holders to emit one metric ton of carbon dioxide per allowance issued. Because the political objective is a net reduction in emissions, such rights are issued to carbon-emitting firms in an amount that is less than such firms have historically emitted (Braun 2009). Typically, the amount of “free” allowances issued may begin at 85-90% of the known GGEs of a company, and then gradually be further reduced each year down to some stated target or goal.

The government then monitors GGEs of the emitter and fines those firms whose emission exceeds the cap (the total amount of “free allowances” issued to an emitter). To avoid these fines, emitting firms can cut their emissions so that they do not exceed the GGEs represented by the number of allowances awarded to them. Alternatively, firms can purchase additional allowances and credits in the secondary carbon markets to offset the excess emission.

The secondary markets are resourced with tradable credits from a number of different sources. First, some operators may not use up their quotas. In this case, they may sell their extra allowances, either privately or on the open market. Second, “assigned amount units” issued or auctioned by the national administrators of a cap and trade system may become tradable credits in the secondary market. Finally, emission offsets may be traded as well. These offsets reflect offsetting and mitigating activities that reduce greenhouse gases and, in doing so, presumably lessen the net adverse environmental footprint of aggregate human activity.

The Economic Issue

Broadly speaking, “Cap and trade schemes” are based on two presumptions. First, carbon emissions harm a public good. As a result, there is a cost society, and all life, must bear for emissions. Corporations that emit GGEs should mitigate this cost, because it is they that have caused the harm. Second, those companies and private agents that help to reduce the GGE-related costs that society must bear should be rewarded. Cap and trade engages these premises through the use of allocation, i.e., emitting firms are each assigned costless emission limits through the issuance of “free” allowances. Firms that exceed these limits may purchase additional allowances and those that emit less than the prescribed threshold, may enjoy the economic rewards of selling them or using them to reduce future cost.

From an economic framework perspective, the issue of carbon emissions thus has real meaning, both in aggregate, for society as a whole, and also at the micro level, for economic actors impacted by emission costs, and/or the market for carbon. Given that

⁶ For instance, in 2019 Singapore’s carbon tax was the first time a country in Asia introduced a carbon tax. See <https://openknowledge.worldbank.org/bitstream/handle/10986/33809/9781464815867.pdf?sequence=4&isAllowed=y>

⁷ For the US, see Restuccia and Puko, 2021. <https://www.wsj.com/articles/biden-to-urge-climate-action-at-world-leaders-summit-11619085614>

⁸ https://www.refinitiv.com/content/dam/marketing/en_us/documents/reports/carbon-market-year-in-review-2020.pdf

accounting profession is charged with providing useful firm-specific information to decision makers, the challenge becomes: how then to capture this information and report this information in published public financial reports.

Accounting Issues

Cap and trade systems are designed to reduce harmful emissions that may harm a free public good - the air we all breathe. What makes cap and trade so interesting from an accounting standpoint is the way reduction in aggregate emissions is accomplished, i.e., through a harnessing of private sector forces, forms, and mechanisms. This includes firms, managers, capital providers, investors, and other participants in public security markets around the globe.

How does one account for a public regulatory scheme designed to function at an aggregate level, when such a scheme is integrated with, and exploits, incentives and motivations that exist at the private sector level? This interesting problem makes cap and trade a perfect vehicle to teach and explore the dynamic conceptual core of accounting thought and practice.

Under cap and trade, a government regulator allocates, yearly, to each emitting firm a predetermined amount of “free” emission allowances. At the end of each yearly assessment period, the total amount of emissions that have been emitted by a firm are computed. To avoid penalties, each emitting firm must purchase of allowances and/or credits obtainable in secondary “carbon” markets to cover any shortfall. These cursory facts present a number of significant accounting problems.

The Asset Issue

Option 1: Record allowances as Inventory: First, what exactly are the emission allowances and credits, from an accounting perspective? Are they assets, and if so, what kind? Some have speculated that allowances are a kind of inventory because they are granted by an outside entity to the firm, and can be resold at a profit. Yet, if they are allocated by a governmental unit, they have no associated cost. How then can they be recognized and valued as inventory, under lower of cost or market accounting, if they have been received without cost? Of course, they could be reported at market value, initially, using secondary market prices for carbon, either at the time of issuance, or possibly at the time GGE takes place, and then adjusted to the lower of cost or market, as needed, going forward, as with any inventory.

Option 2: Record allowances either as marketable securities or Intangibles: Allowances, if they are assets, could also be classified as either a marketable security, or as an intangible. The choice of classification is important because it may impact how allowances are valued and how they impact reported earnings. In particular, if the allowances are reported as marketable securities, they would need to be marked to market each period, whereas if they are reported as intangibles that would only be necessary in the event that the price of carbon fell below historical cost, and was not expected to recover. In fact, the prices of carbon have proven to be quite volatile, e.g., ranging from about \$4 to over \$40 per metric ton in just the last 12 years.

The Liability Issue

The question of how, or whether to report a liability for GGEs, is equally complex, and thus interesting, as part of a case study on this topic. First, there is the question of what the liability is, or even if there is a liability, at least at the beginning of any fiscal year, or even during the emittance period itself.

Option 1: First, if “free” allowances are granted to cover 85% of all emissions, then arguably, *from a firm perspective*, the most the liability can possibly be is 15% of the emissions, in terms of metric tonnage, multiplied by some carbon price. Presumably, the actual economic cost would be the price of purchased allowances and credits to cover any shortfall, but when would they be purchased? Some estimate might be possible, e.g., year-end carbon prices, as part of an accrual, if additional allowances were needed to be purchased sometime after year end.

Option 2: Yet the liability may look quite different if the firm is viewed as part of a collective, i.e., it is conceptualized *from a societal perspective*. Would it not be socially responsible accounting, for the *entire GGE's cost to be reported as a liability*? In that case, the “free” allowances would be reported as an asset, either at cost or at market, perhaps with disclosure regarding the time periods in which they can be used, where they were obtained from, and at what cost, if any, and so forth. In this way, stakeholders, including the general public, and/or the government charged with maintaining clean air, could discern the total GGEs emitted by the firm, along with some concept of their presumed economic cost. This “liability”, if reported, would necessarily be reported gross, not net, of any “free” allowances, and thus drive up leverage ratios, have potentially adverse reputational effects, incite political action, and thus encourage emitting firms to act more aggressively to reduce GGEs.

Presuming, for the moment, that the societal perspective would be adopted, another interesting question for class debate emerges. What should be the carbon price used to value the gross liability? Carbon prices from secondary markets are a function of many factors, including the level of speculation, as well as the normal forces of supply and demand. They reflect, in part, the economic pressure of the cap and trade scheme itself, perhaps, but do they adequately express the true cost to society, and to the world, of the presumed environment damage of GGEs? If not, and it is this cost that is the true liability, how might that be measured?

Other Issues

The Timing Issue: When to record the liability: When should liabilities be recorded? Should they be recorded at the beginning of the year or at the end of the year when the liability is known? And if at the beginning of the year, then how should they be estimated?

The Stakeholder Issue: Finally, there is the challenge of accounting for externalities within a private sector reporting framework. Equities, as well as “liabilities”, are defined in part by how the accounting entity itself is conceptualized. Is the government, the nation, or even the world, in reality, a stakeholder in the firm with GGEs? And if so, where is that stake represented in the financial report? Is it one of the equities of the firm? Or is it one of the liabilities, in the broad sense of defining “liabilities” as corporate responsibilities to a larger purpose or good? These are very abstract questions, and thus, supremely useful ones, in terms of getting students to really think, in progressive and/or fundamental terms, about who economic actors really are, both as entities and as agents for society at large, and what accounting for them actually is, and what it might be used for and accomplish.

CASE DEVELOPMENT

Consider the following case scenario:

XYZ Company, a calendar year-end reporting firm, produces GGEs in a state with a cap and trade program. The purpose of the program is to reduce emissions of greenhouse gases that may be contributing to the phenomenon of global warming. The company operates a number of coal-burning units and is a significant emitter of one particular greenhouse gas- carbon dioxide. Last year, the company emitted 42,000 metric tons of CO₂. Because no additional coal-burning units have come on-line, carbon dioxide emission has been stable at about this number for the last several years.

On February 1, 202X, at no cost, XYZ received allowances from the relevant government to emit 36,000 metric tons of CO₂. Assuming that XYZ again emits 42,000 metric tons of CO₂, it will have four options:

- (a) pay significant fines, likely in excess of the cost of purchasing additional allowances;
- (b) develop carbon offset programs that can reduce carbon emissions elsewhere, thereby producing Carbon Emission Credits (CERs);
- (c) purchase allowances or CERs in secondary markets, thereby obtaining sufficient allowances to cover its “excess” emission rate; or
- (d) close coal-fired units or purchase emission reduction technology that will significantly cut its emission level to that represented by the allowance it received.

During 202X the market price for emission allowances and CERs averaged about \$40 per metric ton of carbon. XYZ settles its emission account with governmental authorities on or about March 31st of each year, which is company’s fiscal year-end.

The CFO of the company is charged with making a decision on how to proceed. He/she seeks to understand what the economic and reporting ramifications of the GGEs being emitted as a result of company’s business operations. The CFO has learned that, while there is no FASB guidance at this time concerning how to account for Carbon allowances. Federal Energy Regulatory Commission guidelines, published by the Federal Energy Regulatory Commission (hereafter, FERC) in 1993, have informed US Accounting practice in this area for some time.

In the wake of the current void in guidance from FASB, and the increased attention now being given to climate change, the CFO is understandably concerned. He/she would like to know what accounting treatments might ultimately be adopted, how these might impact the Corporation’s risk exposure, and reporting, and how these developments might be received by its various stakeholders. Accordingly the CFO contacts the Accounting department and seeks comprehensive guidance about this issue. You are asked, as a member of that department, to write a written memo to the CFO, discussing the topic, identifying the issues it raises, and providing recommendations on how GGEs, allowances and credits should be accounted for by the firm, as it waits for future actions and rulings by standard-setters in this matter.

REQUIRED:

Answer the following questions:

1. From an accounting standpoint, what are emission allowances?
2. What accounting treatments have been used and/or proposed to account for emission allowances? What is the conceptual justification for these treatments?
3. What accounting treatments have been proposed and/or used to account for emission liabilities the company may have?
4. How would differences in these treatments potentially impact the company’s reported earnings and financial position, if they were adopted this year?
5. How do the accounting treatments discussed above measure up with respect to the criteria described within the FASB’s conceptual framework?
6. What are the political and economic implications of the reporting options you have identified?
7. How do the different accounting treatments you have identified stack up in terms of social responsibility?
8. Are there any other options besides those that have been proposed and/or used so far, and identified above? If so, what are they and how would they work?
9. Which accounting would you recommend the firm utilize at this time, as it awaits actions by standard-setters? Why?

Case Solution

1. From an accounting standpoint, what are emission allowances?

Emission allowances are issued by governments to define the amount of GGEs (the “cap”) a given corporate carbon emitter may emit without penalty or cost in a given year. These allowances are fungible (each representing 1 metric ton of carbon emission per year) and tradable in established secondary “carbon” markets. From an accounting standpoint, they can be conceptually classified as either inventory, marketable securities or intangibles, that define the GGE “cap”, the company faces as a result of its emission practices.

2. *What accounting treatments have been used and/or proposed to account for emission allowances? What is the conceptual justification for these treatments?*

FERC rules classify allowances as inventory, valued at historical cost. “Free” allowances are booked at zero cost, and purchased allowances are reported at the cost incurred at the time of purchase. The argument supporting this accounting is that the allowances are obtained from a third party, in each case, and are then “sold”, in the sense of being used to allow emission at a given level without penalty. Of course, this is quite a stretch from classic applications of “inventory”, i.e., as goods manufactured or purchased for resale to downstream customers.

Another standard that has been used, for foreign companies cross-listing on US exchanges, and filing under IFRS, was IFRIC3, which was issued by the International Financial Reporting Interpretations Committee, as part of IFRS guidance in this area. It classified allowances as intangible assets. They were booked at historical cost, if purchased, or at fair value when received, if issued without cost by the government to a corporation. In either case, they arguably proffered an intangible, future, economic benefit to the firm, namely, permission to pollute, up to the level of allowances obtained, without penalty. Under IAS 38, as recognized intangibles, the allowances could be maintained at cost, or revalued periodically to fair value.

3. *What accounting treatments have been proposed and/or used to account for emission liabilities the company may have?*

Emission liabilities may be accounted for (e.g., under FERC) on a net basis, i.e., expected or actual emissions, less allowances the company has on hand (purchased and/or “free”), times the market value of carbon allowances needed at year’s end to cover the shortfall. The justification for this approach is that “free” allowances are not really assets, because the company’s GGEs almost certainly will exceed them, but are instead a cap, allowing a company to pollute up to a certain point without penalty. Over and beyond that point, a cost is incurred by the firm, computed to be the lesser of the carbon price times the number of allowances needed to make up any shortfall, or the regulatory penalty for GGEs exceeding the “cap”, as measured by the number of “free” allowances received.

Alternatively, at the other extreme (i.e., IFRIC3), emission liabilities may be measured as total GGEs times the fair value of carbon allowances, at year-end. This accounting recognizes “free” allowances as an intangible asset, entirely separate from the act of emission. It recognizes the emission event itself on a gross basis, with a full liability reported for it. The justification here is that, irrespective of whatever allowance a government entity may be providing, the social responsibility of the firm warrants recognition of the entire cost of its pollution. The allowance mechanism is simply a means by which to temper the cost of this responsibility, and then raise it slowly over time, in recognition of the fact that emitters need time to adjust and take corrective action.

4. *How would differences in these treatments potentially impact the company’s reported earnings and financial position, if they were adopted this year?*

The financial reporting effects of these two approaches would be quite different. In the first FERC-like approach, since allowances are netted against the gross liability, the value of that liability would be much lower than for the other approach discussed here. Moreover, since the allowances would be booked as inventory, at historical cost, the “free” allowances would be valued at zero. Because purchased allowances would require cash, another current asset, to acquire, as long as carbon prices did not fall below cost, there would be little or no change in assets as well. Of course, if purchased allowances were classified as marketable securities, mark-to-market accounting for them would ensue, such that changes in carbon prices, relative to market, would impact both current assets and income.

On the other hand, if the liability were to be reported gross, without consideration of any “free” allowances received, solvency ratios could be far more severely impacted, depending on how the “gain” is treated. On the asset side, if allowances were booked as intangibles, at market value on the date of issuance or purchase (whichever applies), noncurrent assets and total assets would be relatively more inflated. There could also be unbalanced equity effects. The problem is that the offsetting “gain”, being unrealized, would be directed to comprehensive income, but the offsetting “expense” for an emitters full pollution would be directed to the income statement. Ultimately, net income would be only marginally impacted, because these two items would offset each year, as allowances were utilized, leaving only any additional incurred cost for purchased allowances and/or penalties imposed by the regulator, together with mark-to-market effects as carbon prices change across time. If, however, the settlement date with regulators did not align with the emitter’s fiscal year-end, there could be mismatches.

Finally there can be valuation effects ensuing from the classification differences alone. Inventory is booked at the lower of cost or market; intangibles are normally booked at cost, with no write-ups, but possible write-downs, if falling carbon prices are adjudged to reflect permanent impairment. If allowances are recognized as marketable securities, they would be reported at fair value, with any associated gains and losses taken into income. Entering into this fray, particularly if allowances are classified as inventory, are cost flow assumptions imposed within the reporting. For example, if LIFO is used, and there are more “free” and “purchased” allowances than emissions at year-end, does this mean there will be an inventory of allowances carried into the next cycle at zero cost, even though emissions in the current year exceeded “free” allowances allocated?

On the liability side, somewhat similar valuation issues ensue. Currently companies have a choice as to whether or not to carry liabilities at historical cost or fair value. If the liability were carried at fair value, there could be gains and losses that could affect income and/or Accumulated Other Comprehensive Income (AOCI), depending on where any gains and losses were to be routed.

5. *How do the accounting treatments discussed above measure up with respect to the criteria described within the FASB’s conceptual framework?*

The conceptual framework is built around the concept of “decision-usefulness”. Students will quickly see that their answer hinges on who is making the decision, what the decision is, and for what purpose. We begin here by defining the decision-maker in the classical sense, i.e., an investor making a decision to buy, hold or sell the emitting company’s common stock. The conceptual framework defines “decision-usefulness along two dimensions - “faithful representation” and relevance. The FERC approach of netting “free” allowances against emissions is higher on both of these dimensions, because it defines the actual GGE liability a firm faces, and will likely face again, going forward. On the other hand, emission allowances are not inventory, nor are they simply intangibles, since active secondary markets for carbon allowances exist. The only classification that is faithful in representation is that of treating purchased allowances as trading securities, with all of the accounting implications of that classification, including mark to market rules. The valuation of the net liability is straightforward, conceptually. The excess liability (GGEs, less free allowances, or free and purchased allowances) will be whatever cost the company is likely to incur to obtain sufficient allowances to avoid penalties. Alternatively, the accounting could take into account onerous actions, recognizing, for example, that in some cases, the penalty might be lower than the cost of purchasing allowances (e.g., when carbon prices reach very high relative levels, as they are currently), thereby capping the liability accordingly.

If, on the other hand, the decision-maker is a regulator, government responsible for oversight and GGE reduction, and/or perhaps communities and others potentially impacted by GGEs, and the externality costs they impose on society at large, the IFRIC3 - like approach may arguably be more useful, both in terms of relevancy and also faithful representation. That is because it fully represents, on the balance sheet, as a liability, the total pollution an emitter is causing. Of course, the cost of this pollution to society may not be faithfully represented by carbon prices, even when stated at the fair value of carbon allowances. That is because carbon prices reflect the supply and demand for allowances at any given time. Yet this price may not map well to the actual cost society must bear, now and in the future, for damage to a critical free good, namely, the air we all breathe. Finally, there is the problem of a mismatch of costs and economic benefits across periods, i.e., if benefits (the value of “free” allowances) are taken to comprehensive income, while costs (the computed gross pollution cost) are taken to income. To the extent of any mismatch, there will be a loss of relevancy, for all decision-makers.

6. *What are the political and economic implications of the reporting options you have identified?*

Some would argue that the FERC-like accounting approach described here, which nets allowances against emissions, shelters companies from exposure to political risk associated with pollution. It also arguably understates the true liability to the firm, by integrating this with a regulatory mechanism designed simply to give emitters more time to make adjustments. On the other hand, because this approach focuses primarily on firm-specific, proprietary effects, it may encourage companies to be more aggressive in mitigating emission, especially given that carbon prices have risen so high in recent years, and thus have the potential to adversely affect shareholder interests now more than ever before.

The IFRIC-3 like approach, on the other hand, blatantly exposes the pollution, and may weaken solvency (by increasing the liability), thereby strengthening economic incentives to reduce pollution and also by increasing justifications supporting for political action to reduce GGEs. But the IFRIC3-like approach has a major problem. It does not map well to the proprietary focus of financial reporting and the accounting model, as implemented to date. By taking the focus away from proprietary effects, and onto societal responsibilities beyond the purview of managers, the sense of proprietary responsibility may be weakened. Companies, and their investors, may view the liabilities as less meaningful, at the firm level, and with respect to investment, thereby weakening the economic and political impact of cap and trade, and with it the impetus for effective change it was designed to encourage and foster.

7. *How do the different accounting treatments you have identified stack up in terms of social responsibility?*

Clearly the IFRIC3-like approach seems more responsive to socially responsible causes and concerns, for the same reasons as described in (6) above. It demonstrates an accounting that views corporate stakeholders in a much more expansive light. Firms, after all, are chartered, incorporated, and exist, at the pleasure of the people, the government, and society at large. In a sense, the entire society is a stakeholder, certainly in the air we all share, and even in the emitting firm itself, and the IFRIC3-like accounting presented here arguably, more explicitly, acknowledges that.

8. *Are there any other options besides those that have been proposed and/or used so far, and identified above? If so, what are they and how would they work?*

One view that has not been considered so far here, is the possibility of accounting for “free” allowances through equity representation in the balance sheet. When governments send “free” allowances, they are, in effect, rationing an externality, a certain level of GGE the society is willing to tolerate, to the firm. This amounts to an equity stake by society in that firm. The accounting might look something like this:

A. When the government issues “free” allowances, they would be booked at market value at time of issuance:

| | | |
|-----------------|-----|-----|
| Allowances | XXX | |
| Societal Equity | | XXX |

B. As GGEs are emitted:

| | |
|--------------------------|-----|
| Pollutions expense* | XXX |
| Societal Equity | XXX |
| Provision for Allowances | XXX |

*To the extent societal equity is insufficient

C. As allowances are purchased to cover the deficit:

| | |
|------------|-----|
| Allowances | XXX |
| Cash | XXX |

D. At settlement with the regulator:

| | |
|--------------------------|-----|
| Provision for Allowances | XXX |
| Allowances | XXX |

The advantage of the accounting, above, is that it does not confuse proprietary accounting with societal goals and information needs, but instead maintains their distinctiveness.

9. Which accounting would you recommend the firm utilize at this time, as it awaits actions by standard-setters? Why?

Students might advocate and/or integrate various combinations of FERC-like or IFRC3-like accounting, or other possible options, as discussed above. Issues of recognition, classification and/or valuation, for assets, liabilities, and even equity, are all at play in this case, as described and discussed above. It is this richness that makes this case so apropos as a study in social responsibility accounting.

CONTRIBUTIONS

One of the most important pedagogical issues in Accounting today is the problem of how to foster and stimulate genuine student interest in the study of Accounting - a discipline that is arguably perceived by many students as coldly analytical, rigid, and often difficult to learn. A related problem, in an age of increased automation and information technology, is the problem of how to increase the role of Accounting as a communication mechanism that can serve the modern needs of business and society, and thereby attract the most qualified students to meet those needs. To accomplish these goals, new challenges and learning methodologies will be needed - methods and objects of study that allow students to go far beyond the bygone era of bookkeeping, to encompass new skills, e.g., in critical thinking, integration, analysis, and the application of advanced information technology, that have become so crucial in an information age.

Efforts to meet the pedagogical challenges mentioned above have been underway in Accounting for some time. As an anecdotal evidence of this, consider the number of non-lecture based teaching methodologies which have received increased attention and use in recent years. Presumably these methodologies have become more popular because, by making the topic more relevant, less sterile, and more "real", they serve to motivate and attract student interest as well as stimulate more thoughtful debate about the subject. These methodologies include more hands-on, experiential-based learning, problem-based learning approaches, case-based critical thinking exercises, and more extensive references, in class discussions, textbook chapters, and homework exercises, to real and contemporary issues and events. The application of the preceding methodologies are arguably enhanced and improved when topics are identified that lend themselves well to critical and deep conceptual analysis and integration. Accounting for Greenhouse Gas Emissions, and the associated innovative efforts underway to reduce those emissions, e.g., cap and trade, is certainly one of those topics. Moreover it is a very timely topic that addresses an important issue many students are deeply concerned about- the problem of climate change and what we all, as stewards of a world we share, can and should do to mitigate it.

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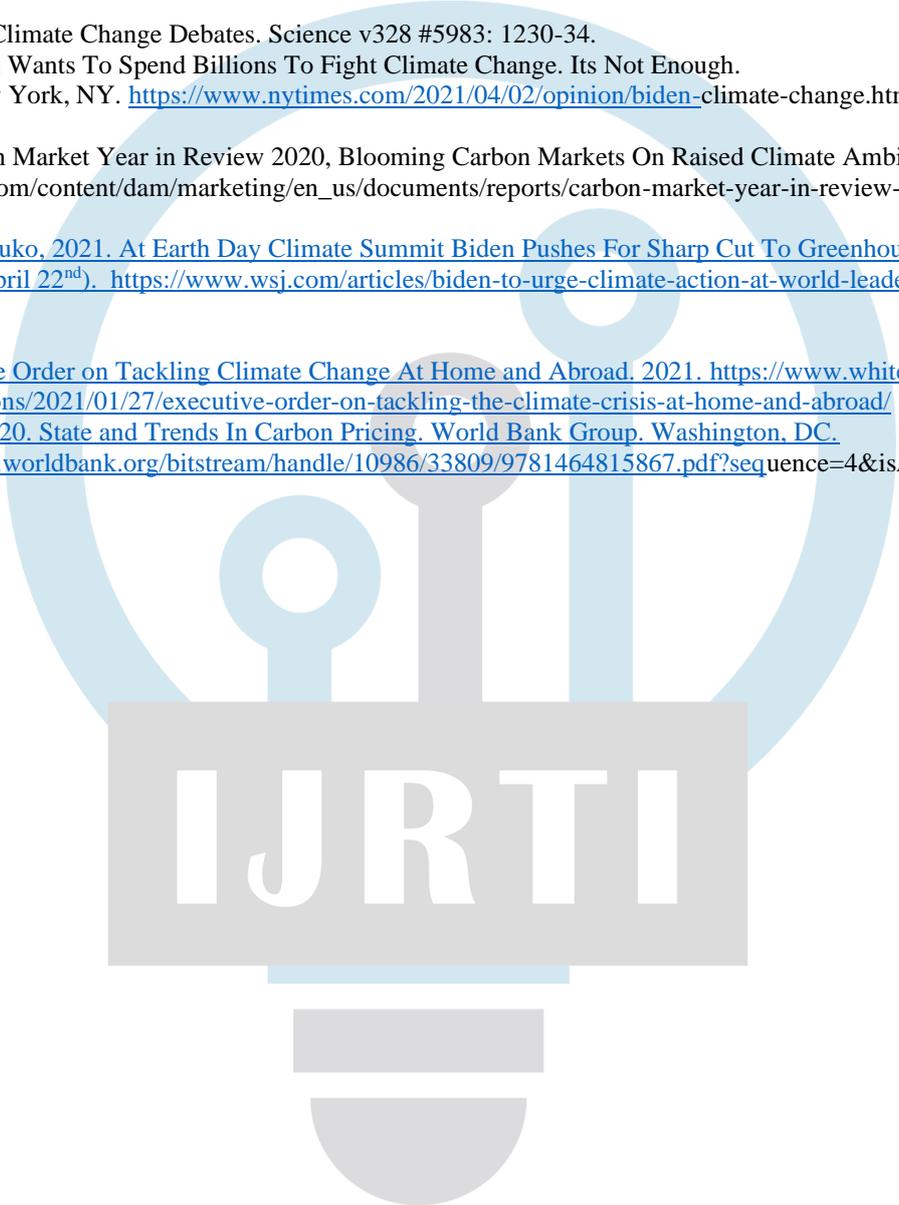
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A large, light blue watermark logo is centered on the page. It features a stylized lightbulb shape with a circular top and a semi-circular base. Inside the circle, there are three vertical lines of varying heights, resembling a gear or a stylized 'I'. A grey rectangular box is superimposed over the middle of the logo, containing the letters 'IJRTI' in a bold, white, sans-serif font.

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