

Chapter 10

TRADITIONAL ACCOUNTING RETURN RATIOS AND BUSINESS SUSTAINABILITY

An Incompatible Relationship in the Context of Greek Strategic Business Units

Benjamin Karatzoglou

University of Macedonia, Thessaloniki, Greece, venos@uom.gr

Abstract: The pursuit of sustainability in business practices has necessitated the *integrated assessment* of corporate economic, environmental and social performances. Continuous technological, political and legal evolutions enforce the implementation of Sustainable Development (SD) principles in major sectors of Greek corporate reality. However, the ultimate criteria for the evaluation of a company's performance remain its profitability and market value. Interesting parties emphasise and base their credit and investment decisions on various accounting ratios of return produced on data disclosed in the financial statements of companies. This paper analyses how the traditional accounting ratios, discourage the implementation of investment plans that aim to improve the environmental performance of companies and therefore can prove inadequate and misleading for SD applications. With few exceptions, most international studies have recorded a positive relationship between the environmental performances of proactive firms and their financial positions and market values in the long run. This fact has consistently been disregarded in the computation of the return ratios, widely used in the Greek context to set up the basis for management rewards and bonuses. The divergence of the real market value of a corporation from the book value on which ratios are based indicates the urgent need for adjustment to the return ratios so that they can record the positive economic impact of sustainable actions and encourage decision makers in this direction. This article offers recommendations about how such an adjustment can be achieved while the company works within traditional accounting principles.

1. INTRODUCTION

Companies are being encouraged to move towards greater sustainability in their operations. The drivers of attitudinal change may be internal or external, local, national or international, general or sectoral, statutory or voluntary. For Greek companies such drivers include:

- The EU Recommendation (Commission of the European Union 2001: 33ff.) for disclosure of the environmental impact of corporate activities in their annual reports
- The implementation of the White and Green Books (respectively on Environmental and Social Liabilities of companies), adopted by the European Commission (Commission of the European Union 2002)
- The Integrated Pollution Prevention and Control Directive (Commission of the European Communities 1996) on the competitiveness of European Industry, with its implementation deadline in 2007
- The increasing number of certified Environmental Management Systems (EMS) such as ISO 14001 and EMAS, required by companies interested in expanding their operations internationally
- The recent Greek Law 3016 (Greek Parliament 2002) on Corporate Governance
- A number of international general and sectoral initiatives, such as the TOI (Tour Operators Initiative) in the field of tourism and the GMI (Global Mining Initiative by the World Business Council for Sustainable Development WBCSD and the International Institute for Environment and Development (IIED)), two sectors on which the Greek economy is heavily dependent
- The GRI (Global Reporting Initiative), a joint effort by UNEP (the United Nations Environmental Programme), EU (the European Union) and WBCSD presented at the World Summit on Sustainable Development conference (WSSD, Johannesburg, August/September 2002). The initiative's mission involves the development and dissemination of globally applicable sustainability reporting guidelines, to help those companies interested in pursuing sustainability. A limited number of Greek companies have already expressed an interest in applying GRI guidelines in the disclosure of their environmental and social performance
- The fact that major Greek Banks, such as the Commercial Bank of Greece and Alpha Bank have recently joined the UNEP-FI (United Nations Environmental Programme-Finance Initiative), with the stated purpose of improving their own corporate ecological efficiency, evaluating environmental risks as part of their normal risk assessment process and encouraging voluntary agreements with their stakeholders aimed at

strengthening environmental awareness and preventing environmental degradation (UNEP-Finance Initiative 2004).

One impact that these drivers have in common, is the requirement they place on Greek companies to proceed with investment in new processes, purchase of new technology and the hiring or training of personnel to operate and support these processes, i.e. expenses. Investment activities in the context of this paper refer to a company's acquisition and maintenance of tangible or intangible non-current assets, for the purpose of conducting its business operations. Expenses refer to all non-capitalised expenditures made in the proper course of operations, to allow the company to generate revenue (Wild et al. 2001). Companies can proceed with proactive investments to achieve process optimisation and increase their economic and environmental efficiency. They can also operate reactively, investing in capital intensive end-of-pipe technologies, which incur high operating costs and usually do not generate any revenue (Schaltegger and Figge 1998).

The modern definition of environmental costs shifts emphasis from the traditional "monetary measure of the resources consumed by a product, service, function or activity" (Ansari 1997:20) to the extended "physical measure of the material and energy flow that can be systematically assigned to inputs, processes and products" (Letmathe and Doost 2000:426). Any attempt to define a cost as environmental is rather problematic since in many instances it is difficult to distinguish between the purely environmental and partly (or non-) environmental components. Nevertheless, because of the increasing importance of environmental factors, it is not sufficient merely to disregard the problem. Strong environmental performance will become a significant determinant of the future survival and success of the business and accountants must redefine their positions, taking a proactive and extrovert role in their organisations (Karatzoglou 2002). In its transition to a more sustainable approach, company management will have to balance the company's environmental aspirations with the capital base and the financial strength (Crosbie and Knight 1995). Different companies will adopt different environmental and financial strategies. At the lowest level such strategies will be compliance driven, reactive and struggling to meet the minimum requirements of the law. At the highest level, companies will shift the emphasis towards measures that lead to the reduction in both environmental risk and resource use. These companies will be the only ones to embark on a proactive journey towards sustainability. The distinction between the different strategies is related to the classification of the costs involved. The more reactive a company, the more it treats environment-related outlays as expenses. The more proactive a company, the more it treats the same costs as investments. Corporate choice of environmental strategy is an internal

decision which soon has an impact on the market value of the whole company. This leads to the question: what happens when different divisions of the same company with one uniform publicly proclaimed environmental strategy adopt different environmental practices in order to manipulate divisional financial performance measures? The following paragraphs provide an answer to this question as well as policy recommendations on how to alleviate the problem raised.

2. A COSTING APPROACH TO SUSTAINABILITY

The effective implementation of organisational strategy requires that all company divisions share the same corporate goals and are held responsible for the accomplishment of those goals. The company's accounting system measures the contribution of each division to the corporate economic value-added. When these divisions are organised using a strategic dimension, such as customer type, product type or technology applied, they are called strategic business units (SBUs). 'Divisionalisation' has clearly added to the flexibility, autonomy and accountability of management in each SBU but can also lead to friction between different divisional managers in the same company, as they act in their own division's best interest and disregard the interests and strategy of their corporate organisation (Brandon and Drtina 1997).

An large number of major Greek companies from sectors critical to the Greek economy such as the food and beverage sector, the textile and apparel sectors, the banking sector, the construction and the hospitality industries, operate with divisions scattered all over the country. From the 5,603 Greek manufacturing companies 1,267 (22.6%) operate decentralised units within Greece (ICAP data base, <http://www.icap.gr/financial/guide/1_gif.asp?lang=1>). All banks and other financial institutions maintain branches on a country-wide basis and the same observation applies for a considerable number of merchandise companies and for over fifty hotel chains. In responsibility accounting terms, SBUs are treated either as profit centres or as investment centres. Though the managers of both these types of centres have autonomy in deciding what types and amounts of costs to incur in order to generate revenue and thus profit, only the investment centre managers are responsible for controlling the amount of investment their profit centres require. The most common measure of profit centre performance is Return on Sales (RoS, or the net profit ratio) while for an investment centre the most typical performance measure is Return on Investment (ROI). The company-wide accounting system has the crucial role of charging each SBU with the expenses incurred by their operations, as well as with an allocated part of

general and other corporate expenses. Most decisions related to such charging processes have an impact on the RoS and ROI measures of the SBUs.

Depending on their causal links to outcomes, costs can be recognised as engineered, committed or discretionary. *Engineered* costs are variable costs, largely determined by levels of expected activity and make up a minor percentage of sustainability related costs. *Committed* costs are binding for the SBU managers who cannot negotiate or reduce them and therefore cannot be held accountable for them. (Brandon and Drtina 1997, Garrison and Noreen 2000). Compliance or regulatory costs offer a typical example of committed costs and constitute the biggest proportion of environment related expenses for a reactive company. For a proactive company, the major part of such expenses falls in the *discretionary* cost category with no clear relationship established between cost input and product output. Such voluntary costs mostly stem from societal, cultural or business causes, are incurred by an organisation on its own initiative, and aim to meet customer expectations or create goodwill (Ansari et al. 1997). Being non-compulsory, such costs are prime candidates for cutting when budgets become tighter. Scaling back or eliminating these costs will benefit short-term economic divisional goals but will also pose a hazard to long-term corporate strategy. The characteristics of discretionary costs include a dominating fixed nature; difficulty to measure value-added; and an input-output relationship that cannot be standardised. So, when the performance of a division is measured and evaluated with accounting data, management will continually evaluate the trade-off between the incurrence of further discretionary costs and the expected benefits. This presents a rather unfortunate evaluation for the sustainability cause, since costs will be immediate, certain and measurable while benefits will be postponed, probable and non-quantifiable.

3. A PERFORMANCE MEASUREMENT APPROACH TO SUSTAINABILITY

A performance measurement system provides management and other interested parties with feedback about how well corporate objectives have been attained. The theme underlying the use of measures is that people will act in accordance with the way their actions are being measured. Comparing the actual with the targeted performance for a SBU, provides an indicator of its management's *effectiveness*. The ratio of the input required (resources consumed) to achieve actual output is a measure of *efficiency* (Brandon and Drtina 1997). Recent developments, including the interest in quality and continuous improvement as well as regulatory, societal and other external stakeholder requirements, encourage businesses to focus attention on the

simultaneous consideration of financial and non-financial performance measures (Bartolomeo et al. 1999). Various schemes, such as the Balanced Scorecard (Kaplan and Norton 1996), the Baldrige Quality Award (1987) and the European Quality Award (1991), provide templates and organised procedures for their application. Since these schemes offer approaches addressing how to link strategy with operational and non-financial corporate activities, they were soon modified and proposed as being strategic management tools, integrating the three pillars of sustainability into a single overarching measurement system (Figge et al. 2002, 2003).

The *first step* for setting up a performance measurement system is to derive the key variables for every SBU. Key variables gauge high-risk activities that can disrupt the accomplishment of corporate strategies. The previously mentioned list of drivers of sustainability in the Greek context (Section 1) convincingly indicates the emerging necessity for Greek companies to include sustainability related activities among the key variables being monitored by the firm. On the other hand, Greek corporations suffer from very low levels of competitiveness and Greek industrialists have expressed serious reservations as to whether the Greek and the European economy can proceed unilaterally to pursue sustainability without further aggravating their world market share and competitiveness (S.E.B. 2004). This means that maximising shareholder value remains the top-priority, but productivity, quality and environment are gradually becoming equally important concerns. The loosely used term “*shareholder value*” in this context is defined as the present value of a company’s future cash flows, discounted at an appropriate rate (Bartolomeo et al. 1999, Wild et al. 2001). Since the environment can potentially affect all the parameters in this equation, i.e. the investment level, the cost of capital, future expenses and revenues, it is an important element to be considered in the relevant calculations (Schaltegger and Figge 2000). This is especially true in countries with organised and extended capital markets, which have a strong impact on the economy as a whole. However, the Greek capital market does not exactly match this description. Its shallowness and immaturity produce excessive reactions (volatility) and result in extreme fluctuations in the market value of the companies, making it particularly important that companies properly and accurately estimate the impact of their strategic decisions in advance.

The *second step* for setting up a performance measurement system is to associate specific measures with each key variable and assign ideal values to each measure. Literature indicates that the measures and values chosen should be controllable, attainable, error-free, timely, understandable, homogenous among divisions, and cost-effective (Brandon and Drtina 1997, Simons 2000). The last two qualities are debatable for at least two reasons.

First, although the legal framework is uniform throughout Greece, its enforcement is poorer in certain regions, either because of incompetent authorities and inadequate controls, or as a way of attracting direct investment, circumstances that in both cases result in lower environmental standards. Second, divisions of the same company, operating in different regions, may have varying environmental performance levels because of differences in size, manufacturing or production processes, or in local characteristics. The headquarters' requirement that all divisions conform to the same higher standards may result in value enhancement at the corporate level but definitely will not be equally cost-effective for, and will have a different impact on, the financial performance of the SBUs. The opposite will be true if all divisions are allowed to adopt lower, locally acceptable environmental standards. Such practice will result in cost-effective divisions but also in declining corporate reputation and shareholder value.

3.1 The Traditional Return Measures

In accounting terms, business success is measured by the firm's ability to generate profits. Profits allow a company to acquire resources to invest in future opportunities, pay higher dividends to investors and enjoy higher stock prices. Ratio analysis is among the most popular and widely used tools of financial analysis (Wild et al. 2001). Ratios provide meaningful economically important relationships between financial statement elements. Ratios are easy to calculate but difficult to interpret. Limitations and inherent weaknesses in accounting measurements, adjustment requirements and unreliable monitoring mechanisms have a further impact on the credibility of ratios. This is particularly true in the case of sustainability when accounting data that relate to the past are used to evaluate and manage a concept which by definition refers to the future. The International and the UK Accounting Standards Boards (IASB and UKASB) have already acknowledged that the "bottom-line" is not a particularly useful number because it aggregates a whole range of components of financial performance and because of the ambiguity inherent in the definition of "operating earnings". Both Boards are currently working toward the development of a single statement of comprehensive income (IASB 2002). Yet, this "bottom-line" figure provides the basis for practically all the return ratios used by Greek companies in their annual reports for illustrating corporate performance and, at an intra-company level, for evaluating the performance of their SBUs. The first claim is easily supported by the fact that all major Greek financial data banks, such as ICAP (<<http://www.icap.gr>>), STAT Bank (<<http://www.statbank.gr>>) and Naftemporiki, classify companies based on these ratios. The same ratios are used by commercial banks and Development Laws as the primary

evaluation criteria to assess company prospects. Greek companies are particularly reluctant to disclose information about the way they perform intra-company (SBU) comparisons and evaluations. Thus, the second claim can only be validated by the author's personal experience and research (Kakarelis and Karatzoglou 2003).

The most important measure for investors is Return on Investment (or ROI). ROI is a ratio measure of the profit output of the business expressed as a percentage of financial investment inputs:

$$\text{ROI} = \text{Net Income}/\text{Investment in Business} \quad (1)$$

Because of the accounting equation, according to which assets always equal liabilities, ROI equals ROA (Return on Assets) and operates as an indicator of the efficiency with which the assets of the company have been used. Contrary to the notion prevailing in relevant international studies, managers too often consider environmental investments as counter-productive and as forcing companies to commit resources and manpower to non-productive uses, thus resulting in a lower ROA (Haveman and Christiansen (1981) cited by Dowell et al. 2000). From the management perspective the most appropriate internal measure for Return should be Return on Equity (or ROE), a ratio of the income made by a company or division expressed as a percentage of the shareholders' equity portion of the balance sheet:

$$\text{ROE} = \text{Net Income}/\text{Shareholders' Equity} \quad (2)$$

Both ratios derive their numerator from the Income statement and their denominator from the Balance Sheet. A newer measure of value creation that goes one step further than ROI and ROE is the Residual Income, a measure of how much additional profit remains in the firm after subtracting the normal cost of capital used:

$$\text{Residual Income} = \text{Accounting Profit} \textit{ less} \text{ Charge for Capital Used to} \\ \text{Generate Profit (Value of Assets Used * Expected Rate of Return on} \\ \text{Those Assets)} \quad (3)$$

Finally, SBU managers are often held accountable for a variant of ROE known as Return on Capital Employed (or ROCE):

$$\text{ROCE} = \text{Net Income}/\text{Capital Employed} \quad (4)$$

where capital employed refers to the assets within a manager's direct span of control. Involvement of a SBU manager in the adoption of more sustainable operations will result in a decrease in the Net Income (profit) component

found in all the above ratios and therefore to a deterioration of the perceived performance of his/her division and of his/her personal reputation. The decline of the Net Income will result from the 'internalisation' of externalities, i.e. those costs which originate from the operations of the division but have been traditionally imposed on entities external to the corporation, such as the society and the environment (Epstein 1996). Such costs may take the form of increased operating expenses (employee training, health and security measures, social concerns, better design of products and processes) or of capitalised expenses (investment in tangible and intangible assets to protect, benefit or remediate the environment) that will flow in the Income statement through the depreciation or amortisation process. In the case of capitalised assets, the denominator of ROI and ROCE will increase, further aggravating recorded performance. Therefore investments in environmental improvements will result in a decline of the perceived profitability of the division and potentially of the whole corporation. This statement does not disregard the fact that certain environmental improvements may have a beneficial effect on a company's economic performance. Yet, most of these improvements would have been undertaken by managers, with environmental gains as side-effects of a purely economic decision, if management had access to relevant information and funds. The fact is that an indefinite number of pollution prevention activities cannot continuously increase the economic performance of any company and net marginal benefits will soon decrease since all rational managers will start by investing money on the activities that provide the highest return (Schaltegger and Synnrestvedt 2002)

3.2 Accounting Value vs. Market Value

While by definition traditional accounting based performance measures produce a negative linkage between environmental management and economic firm performance, a number of empirical studies (Arlow and Cannon 1982, Capon et al. 1990) have found either no correlation, or an unclear correlation between corporate social responsibility and financial performance. Yet, most recent academic and empirical research concedes that financial performance, and by inference the market valuation of a firm, is positively affected by strong environmental performance (Hart and Ahuja 1996, King and Lenox 2001, Klassen and McLaughlin 1996, Porter and van der Linde 1995, Welford 1993). The observed relationship between environmental performance and market valuation takes place through both revenue and cost pathways. On the revenue side, customer preferences for the products of environmentally orientated companies allow such companies to enjoy market differentiation, competitor advantage and price premiums. On the cost side, benefits mostly result from increased efficiency (Schaltegger and Burritt

2000, Schmidheiny 1992), avoidance of potential liabilities, better positioning to meet or exceed standards and creation of entry-barriers to potential competitors. McGuire et al. (1988) found that this positive correlation relates to historical, rather than future, economic performance but raised the issue of causality between high profits and social concerns. Hart and Ahuja (1996) found that increasing pollution precedes poor financial performance by one or more years while King and Lenox (2001) provided statistical evidence that environmental performance is associated with financial performance rather than being the outcome of some other underlying firm attribute. Stage of technological development, long-term or short-term orientation to the environment, size of the firm, regulatory regime and industry in which the firm operates, as well as the frequency of events and stakeholder pressure, all have an impact on the intensity of the economic-environmental relationship. The fact that all these are dynamic, constantly changing factors shifts the question from “does it pay to be green?” to “when does it pay to be green?” (Reinhardt 1999), and to “which is the optimal combination of environmental protection activities that a company should undertake to maximise its market valuation in the most economically efficient manner possible?” (Schaltegger and Synnestevedt 2002, Schaltegger and Figge 2000).

The market valuation, or corporate value, concept in this paper is based on *present value theory* which states that the value of debt or equity securities (and thus of the assets they represent) is equal to the sum of all the expected future payoffs, discounted to the present at an appropriate discount rate (Wild et al. 2001). The market value is determined as the discounted net current value of a company’s future free cash flow (FCF), i.e. the cash flow from the company’s activities that is left to pay the providers of both equity and borrowed capital:

$$\sum_{n=1}^{n=\infty} FCF \frac{1}{(1+i)^n} \quad (\text{Schaltegger and Figge 2000}) \quad (5)$$

Evaluation of business prospects combines elements of past-related financial (accounting-based) analysis as well as of future orientated business environment and strategy analysis. Market actors continuously scrutinise companies within the environment in which they operate to assess how successfully they have established a competitive advantage. Accordingly, accounting data provide only part of the basis upon which market actors evaluate a firm, while investor expectations, growth prospects and perceived risk provide additional considerations that have an impact on the expected annual free cash flows and the discount rate elements of the free cash flow formula. The more investors base their evaluation on future prospects, the more irrelevant traditional return ratios become for measurement and

appraisal reasons. Assuming that the semi-strong form of the Efficient Market Hypothesis holds (Fama 1970), the market continually values and assesses all public information related to the firm's environmental performance and its expectations are reflected in the equity value of the firm. Thus, the publicly traded share price includes information about the current and the expected financial performance of the firm in an overall 'intrinsic' valuation. The unanticipated portion, i.e. the actual return less the amount expected according to some fundamental investment analysis, is the *surprise* element and follows the random walk hypothesis and therefore is not correlated with any publicly available information (van Horne 1992). Unlike positive events, such as investment in new environmental technologies or a sustainability award received by the firm, environmental crises tend to generate follow-up publicity that can result in a far more significant, negative change in the market valuation of the firm. Even if the damages are covered by insurance, loss of public trust and customer goodwill have ramifications for future corporate profitability (Klassen and McLaughlin 1996:1209). Observation of the equity beta (an indicator of systematic risk) of sustainable firms shows that change in market valuation is not accompanied by an increase in risk. Environmental management is linked to both corporate and functional strategies and, through market gains and cost savings, affects corporate financial performance. When made public, it alters investors' valuation of the firm's stock price. And stock price is a proxy for financial performance, representing actual financial benefits for the environmentally conscious firm (Klassen and McLaughlin:1212).

3.3 Management Reservations about Sustainability

Since environmentally proactive companies benefit in terms of market value, why do some managers not pursue relevant opportunities? "When managers see that their execution of socially responsible policies and programs is evaluated in promotion and compensation decisions, along with meeting familiar profit, cost and productivity goals, they will be motivated to address all of these factors. For obvious reasons, middle managers "...appraise responsibility in terms of two familiar criteria. The first is what is measured and the second is what is rewarded" (Ashen (1980) cited by Gray 1993:160). Not many companies worldwide, and specifically in Greece, have organised their appraisal and reward systems in the way described above. Even those that do so, face serious problems when financial and environmental criteria conflict, and most of the time the traditional financial measures dominate the environmental ones (Gray 1993). A possible explanation lies in the fact that research into the links between environmental improvements and financial gains has not been convincing. Although the findings of both academic and

empirical research referred to in Section 2 suggest that investments in environmental management lead to a substantial reduction in the perceived risk of a firm with an accompanying increase in its stock price, businesses still doubt whether pollution reduction enhances financial performance, or whether higher financial performance allows involvement in pollution reduction (King and Lenox 2001). Statistical proof on this issue has been very difficult to obtain, especially in countries like Greece, that do not maintain long-term analytical environmental data records such as those supplied by the USA Toxic Release Inventory (<<http://www.epa.gov/tri/>>). Other corporate environmental measures widely used involve: capital expenditures on pollution control technology; spills and plant accidents; energy and water consumption patterns; and lawsuits concerning improper disposal of hazardous waste. Event studies have been used to correlate environmental performance with market capitalisation (Wagner et al. 2002), but all cases studied were *only partially* environmental in nature, with other elements present and other firm attributes affecting the final result thereby allowing for alternative interpretations. In many studies it seems that only firms with certain attributes can profitably improve their environmental performance and also that the means used and the timing of sustainability initiatives can play a crucial role in the intensity of this correlation.

The direction and strength of correlation between environmental and financial performance, though not critical for researchers, is extremely critical from the perspective of corporate managers (Schaltegger and Synnestvedt 2002). Contrary to any 'green literature', managers will never proceed to implement environmental investments that may aggravate accounting measures, unless they are convinced that financial gains, sooner or later, will be credited to them (Gray et al. 1993). Therefore, all attempts to make sustainability a part of the managerial agenda should involve eliminating the negative impact of relevant impacts on the accounting ratios and/or considering the positive impact of initiatives on the market value of the company. Currently, the performance of all profit and investment centre managers in Greece seems to be evaluated on a purely accounting basis. Although, at this point, no relevant empirical studies are readily available to support this claim, one should consider the fact that accounting data, despite the vagueness of their content, are still objective, measurable and allow for comparisons. Also the fiscal and legal frameworks in which Greek companies operate require that they only need to supply accounting based ratios for loan applications, state subsidies, other financing activities, or in their annual reports; these frameworks are not standardised and do not demand other physical or qualitative measures or ratios to evaluate financing or investing decisions, making it unnecessary for managers to produce or rely on such other measures.

4. SUGGESTED MODIFICATIONS OF THE PERFORMANCE MEASURES USED

To encourage the adoption of sustainability initiatives by their Strategic Business Units, Chief Executive Officers and central corporate administrators might do one of the following:

- a) Allow capitalisation of sustainability related *operating* expenses (such as training employees in operating an EMS) and their amortisation over the estimated life during which the company will benefit from their use. Such practice will result in an increase in income for the investment year as well as an increase in and a more accurate representation of the value of the asset and capital bases of the company. The Greek State has legislatively approved (2002) the measure of allowing Greek companies to capitalise and amortise the massive losses they have suffered from their investments in traded securities quoted on the Athens Stock Exchange (ASE), after the sharp decline of the ASE general composite index from over 6,000 points (September 1999) to below 3,000 points (March 2001). The same practice would be far more relevant in the case of capitalising SD related expenses, since the balance sheet would represent an actual asset rather than aggregate losses of the company. The suggestion, if applied at an intra-corporate level, will not have an impact on the published financial statements but will result in reclassification of company divisions according to their profitability. Further, it can be applied at a corporate level, since it does not seem to operate against any Stock Exchange Committee (SEC) ordinances, such as SFAS 5, FIN 14 and SAB 92, which set disclosure requirements to ensure that companies provide a meaningful analysis of how the amounts charged in each period were determined and recorded in the Management Analysis and Discussion section of their annual reports (SEC 2004).
- b) Allow subtraction of operating environmental and social expenses as well as of the amortised part of capitalised expenses from the total expenses of the SBU. Sustainability expenses should be debited to the general administrative expenses of the corporation to the extent that such investments illustrate the *corporate commitment to sustainability*. Of course, investments determined by the SBU management to be in excess of the corporate commitments should still be debited to the SBU expense ledger. The tax impact of the subtraction should be considered (deducted amount = total amount * (1-tax rate)) so as to avoid a misallocation of the income among the divisions of the company, or among the divisions and Headquarters (HQs). The Economic Value Added (EVA) concept, a newer indicator of returns that attempts to transform accrual accounting income into a figure that more closely approximates cash economic

income, allows for these relevant adjustments (Wild et al. 2001). To maintain objectivity and preclude cross-subsidisation, HQs should apply standard costing principles in advance. Costing here refers to a broader view of environmental costs, expanded to involve energy and resources consumed (Schaltegger and Burritt. 2000). Standard costing refers to the attainable (not ideal) level of resource consumption and pollution production that can be tolerated by each specific division, considering its size, manufacturing process occupied, obsolescence and other relevant variables and which indicates the acceptable level of environmental expenses for this division.

- c) The breakdown of ROCE can take the following form:

$$\text{ROCE} = (\text{Net Income/Sales}) * (\text{Sales/Capital Employed}) \quad (6)$$

Capital employed may be designed so as *not to include* the SBU tangible and intangible sustainability related investments. One way or another, the definition of ‘capital employed’ differs from company to company and normally refers to the capital used by each SBU (profit centre) *to generate revenue and profits*, not to capital that has been scheduled to defend the corporate reputation and values. ROCE can be further decomposed into a systematic view of the efficient use of specific parts of the company’s operations and can help in the computation of emission ratios (total emissions of a firm over total revenues), compliance ratios (total penalties over total revenues) and environmental policy efficiency ratios (total emissions over environmental capital expenses).

- d) A similar decomposition and correction can be applied to the Return on Assets (ROA) ratio and the Residual Value assessment. In both these cases the value of assets used can be reduced by the amount of those assets acquired by the division to comply with the corporate goal of sustainability. To the extent that the structure of the firm and the type of its operations require extensive investment on such assets the impact of such a modification will be positive.
- e) Deduction of up to 100 per cent of interest on any loan taken by a corporate division from any private sector lending institution for restructuring the facilities or refurbishing the division’s operations to upgrade its environmental performance. In case the materials and the equipment required have to be imported, import should take place free of custom duties. Items imported duty-free or funded by an interest-free loan will have to be used by the division for a minimum time period. Both interest expense and duties expense should be debited to the corporate HQs ledger. After all, it is the HQs that administer and allocate funding for the divisions’ involvement in environmental investments when this funding comes from national or European programs. Such programs in Greece, like

development Law 2601/98, can subsidise heavily relevant initiatives by up to 40 or 50 per cent of the total investment cost. It is also the HQs that benefit from refunded duties, accelerated depreciation and credit interest aimed by the state at improving divisional environmental performance. Forwarding part of the related costs to the instigator and final beneficiary of sustainable initiatives via such practices has been suggested by PriceWaterHouse Coopers and has successfully become part of the Barbados Tourism Development Act (Barbados Hotel & Tourism Association et al. 2002). The impact on the return ratios results from improvement in the numerators because divisions are relieved of certain expenses.

- f) The market value of a firm is the price at which the shares of the company are traded on the open market. The total market value of a company, or total capitalisation, is calculated as the number of shares outstanding times the price per share and is considered the highest, most aggregate measure of value created by the firm. Market value fluctuates with investor perceptions of the level and timing of expected future cash flows of the business. James Tobin developed a market valuation tool called *Tobin's q* (Lindenberg and Ross 1981). Tobin's *q* has been defined as the ratio of the market value of the company to its net worth, i.e. to the replacement costs of its assets minus the market value of its liabilities (Dowell et al. 2000, Wild et al. 2001). Using replacement values, Tobin's *q* compensates for inflation and may differ strongly from the traditional 'price to book value' ratio. Various forms of Tobin's *q* have been widely used by researchers as indicators of the intangible value of the firm (Dowell et al. 2000, Klassen and Mc Laughlin 1996). Tobin's *q* has been consistently and positively correlated with a firm's choice of environmental standards. This correlation is particularly strong for closely monitored, highly polluting companies. Statistically excluding other factors that may affect Tobin's *q*, such as firm size, growth trends and product diversification, one can estimate the *added market value* resulting from the application of environmental standards. Since this 'value premium' represents the (discounted present value) perception of the investors about the increased incremental future cash flows related to current environmental investments, the managers that determined and implemented these investments should be credited with the financial results responding to their decisions. A limitation with the application of Tobin's *q* is that the market value increase refers to expectations extended for an unknown length of time and therefore its allocation over a number of years would be subjective. Yet, distant future expectations are usually not considered in any investment appraisal and, in practice, analysis is restricted to a limited period of five to ten years (Epstein

1995, Schaltegger and Figge 2000). In any case, part of the capitalisation increase must be considered and assigned to those corporate divisions which have created the value added. To avoid an arbitrary allocation process the drivers used in the process, such as environmental investments or hours of employee environmental training, should be predefined and communicated to all divisions. The application of this suggestion does not have an impact on the overall earnings and tax liabilities of the corporation and therefore does not operate against SEC or IAS directions. Rather, it results in a reallocation of earnings among the divisions, encouraging their managers to give serious attention to the environmental impact of their decisions.

Suggestions (a), (b), (e) and (f) refer to an increase in the return ratio numerators while suggestions (c) and (d) will result in a lower and more relevant denominator. Since all suggestions result in an improvement of the return ratios through different routes, they *should not* be applied simultaneously. By the time a company proceeds with the proposed changes it should decide on the ideal mix of actions and choice of measures that will optimise its balanced performance measurement. The suggestions made do not, and should not, have an impact on the externally orientated, market based measures of the company, such as earnings per share, price to earnings, earnings yield and dividend yield ratios; they act on the reevaluation and reapportionment of the financial benefits among the company SBUs according to the management accounting definition as “the process of identifying, measuring, analysing and interpreting information that assists executives in fulfilling *organizational* objectives” (Horngren and Sundem 1990). Yet, if the choices made may somehow influence the figures in the annual report, the impact should be properly disclosed and the same ratio definitions should be consistently applied. The modified ratios will alleviate the negative impact of the sustainability choices on divisional accounting figures and will encourage management to adopt and implement relevant measures.

Greek companies are not expected to embrace the idea of restructuring their performance measures to enhance the sustainability cause. Although the accounting departments of most major corporations utilise ERP (enterprise resource planning) computer software that can support such proposals, these systems have been developed with the emphasis on external reporting. So, conventional Greek accounting departments lack not only the incentives but also the experience and the human resources to implement such proposals. Indicatively, when the Greek State mandated that companies operating under the 4th and 7th EU directives apply plain cost accounting (1991), companies and professional chambers exercised pressure thereby

postponing implementation of the decision for two years, by invoking technical and personnel inability to comply with the Law. A small number of Greek companies utilise composite performance measurement systems such as the balanced scorecard. Further, increased resistance to change should be expected from the SBU managers against any measurement system that increases the informational load required and that might 'subjectify' their evaluation, shifting the emphasis from monetary, anticipated and manageable accounting ratios to physical, vague and incomprehensible SD ratios. Yet, the need for the attitudinal change, mentioned in the introduction, will be reinforced in the following years. Availability of technical means and trained individuals will deprive Greek companies of all potential excuses to ignore current trends. The Federation of the Greek Industrialists, S.E.B., at its 2003 annual convention (May 2003) established SD as a cornerstone on which member companies should plan their development (S.E.B. 2003:9). Certain corporations, such as Eurobank, Grecohotel and S&B Industrial Minerals S.A., are pioneering the field by gradually introducing specific environmental and social measures. It is anticipated that these will be the first entities to elaborate on the suggestions made here.

5. CONCLUSION

This paper posits that, in a company's search for sustainability, most divisional management attempts to internalise external environmental costs lead to deterioration in traditional accounting-based return ratios (ROE, ROI, ROCE). They do so by either decreasing the ratio numerators, i.e. the perceived earnings of the division, or by increasing the denominators, i.e. the means that the division has used to achieve these earnings. When such ratios constitute the critical basis for evaluation of divisional managerial performance, they remove any incentive for managers to undertake relevant initiatives. Yet, the adoption of high environmental standards by the company's operating departments has been shown, both academically and empirically, to be associated with increased corporate market valuation.

The need for an improved sustainable performance is gradually being recognised by Greek corporations. Three major Greek banks have recently joined the UNEP Financial Initiative and TITAN Cement S.A. has become the first Greek company to publish a sustainability report based on the Global Sustainability Reporting (GRI) Guidelines. Yet, the ultimate criterion for the evaluation of Greek companies remains their profitability measured using a number of traditional return ratios. Company divisions are closely monitored for their contribution to satisfaction of the quest for

overall corporate profitability, and those divisions that fail to contribute adequately are the prime candidates for closure of their operations.

The simultaneous consideration of these needs leads to the conclusion that, in Greece, any corporate expression of interest in sustainability should be accompanied by a number of return ratio modifications at the intra-company level. Proper modifications, if effectively devised, applied and communicated, will allow a more accurate evaluation of each division's contribution to the pursuit of company profits and will encourage sustainability thinking and actions by decision makers, without harming corporate compliance with conventional accounting principles and standards. The paper concludes by suggesting possible ways of implementing such modifications and by underlining possible obstacles to the implementation of these suggestions in the context of Greek SBUs.

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