

# **Sustainability Balanced Scorecard Disclosures and Corporate Commitment to Sustainability: An Australian Study**

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## **Abstract**

The purpose of this research is to analyse corporate sustainability commitment level (SCL) and its determinants by examining the extent of Sustainability Balanced Scorecard (SBSC) public disclosures provided by Australia's largest publicly listed companies. First, content analysis is used to scrutinise publicly available disclosures. Then, logistic regression is conducted to analyse the determinants of SCL. The analysis shows that the company's level of commitment to sustainability can be determined from voluntary disclosures using a set of criteria developed from the relevant SBSC and environmental management literature. It is also found that SCL is significantly associated to size, leverage, industry and government reporting legislation but not to profitability.

**Keywords:** *Sustainability Balanced Scorecard, Sustainability Commitment, Top100 Australian Listed Companies, Voluntary Public Disclosure*

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## **Introduction**

As climate change continues to dominate public policy debates, businesses around the world face increasing pressure to adopt environmentally sustainable practices and to keep their important stakeholders informed about their performance. While the proliferation of sustainability disclosures is well documented (see for example, Ernst & Young 2002; KPMG 2008; 2013), numerous authors have indicated that disclosing firms are rarely integrating sustainability into core management processes and performance monitoring system (Figge, Hahn, Schaltegger & Wagner 2002; Bieker 2003) suggesting that sustainability commitment is merely superficial.

The practice of embedding environmental and social strategies, objectives and targets into corporate processes and performance monitoring system paves the way to what is loosely referred to as Sustainability Balanced Scorecard (SBSC) adoption. SBSC is a multi-perspective performance evaluation system based on the traditional Balanced

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Scorecard that integrates the three dimensions of sustainability namely: (1) profit (financial); (2) planet (environment); and (3) people (social) (Epstein and Wisner 2001; Figge *et al.* 2002).

The environmental management literature points that corporate actions pertaining to environmental issues describe their commitment to environmental sustainability (Henriques & Sadorsky, 1999). Such commitment, according to corporate social responsibility research (e.g. Ullmann, 1985; Roberts, 1992) is driven by the firm's proactive strategic stance which then leads to greater socially responsive initiatives. A number of environmental reporting studies (e.g. Bewley & Li, 2000; Clarkson, Li, Richardson & Vasvari, 2008) likewise confirm that firms with high environmental commitment and superior performance are more forthcoming in providing voluntary environmental disclosures.

In conjunction with these prior studies, it appeals to intuition that when sustainability commitment is embedded into corporate strategies and performance evaluation system, such as SBSC, environmentally sustainable actions adopted by firms should flow through publicly available disclosures. This notion prompts the motivation for this research. Given that sustainability discretionary disclosures are commonly criticised as mere green-washing mechanism, our aim in this paper is to investigate whether true commitment to sustainability can be determined by examining voluntary SBSC public disclosures provided by Australia's Top100 listed companies. Furthermore, in order to understand whether companies with higher sustainability commitment level (SCL) have different characteristics from those that display lower SCL, we also seek to examine the determinants of SCL. Accordingly, the following research questions are addressed:

*RQ1: Can the level of commitment to sustainability be determined from publicly available Sustainability Balanced Scorecard (SBSC) disclosures?*

*RQ2: Are there differences in characteristics between companies with higher sustainability commitment level (SCL) compared to those with lower SCL?*

We adopt the Reactive-Defensive-Accommodative-Proactive categorisation (Carroll 1979; Wartick & Cochran 1985; Hunt & Auster 1990), hereafter called RDAP model, in conducting content analysis of publicly available disclosures to determine the firm's level of commitment to sustainability. Then, logistic regression is used to analyse the determinants of SCL. The analysis shows that the company's level of commitment to sustainability can indeed be determined from voluntary disclosures using a set of criteria developed from the relevant SBSC and environmental management literature. It is also found that SCL is significantly related to size, leverage, environmental sensitivity of industry and government reporting legislation but not significantly associated to profitability.

This study contributes to existing research in a number of ways. Firstly, whilst a growing body of research considers the viability of incorporating sustainability into corporate strategy to align corporate values with financial objectives (Epstein & Roy 2001; Figge, et al, 2002; Chenhall 2005; Crawford & Scaletta 2006), studies investigating the extent of SBSC disclosures from publicly available reports are relatively scarce. In attempting to fill this gap in the literature, this study provides empirical evidence that

companies can indeed use public disclosure media effectively by showing how sustainability is embedded in corporate strategies. Secondly, to facilitate SCL analysis, it develops a set of criteria based on the relevant literature. These criteria could assist report users in assessing corporate commitment to sustainability as opposed to greenwashing. Thirdly, it documents specific examples of corporate sustainability initiatives. This can be useful to companies contemplating on embedding sustainability strategies into their core management system.

Finally, in exploring the determinants of SCL with particular focus on the Australian context, this study contributes to existing knowledge as it captures a unique period when mandatory reporting legislation is being introduced. The reporting periods covered in this study, i.e. 2007 to 2008, are specifically chosen to highlight the initial introduction of Australia's National Greenhouse gas and Energy Reporting (NGER) Act 2007 as a case in point. Effective since 1<sup>st</sup> July 2008, NGER requires organisations that meet particular thresholds to disclose annually to the National Greenhouse Office their greenhouse gas (GHG) emissions, energy consumption and/or production including abatement projects which reduce or offset GHGs. The threshold was initially set at 25 kilotonnes of carbon dioxide equivalents for corporations and 125 kilotonnes for corporate groups with further reductions in threshold levels for corporate groups planned for subsequent years (Clean Energy Regulator, 2012). The relevant insights gained from this study could potentially inform regulatory policy particularly if firms required to report under NGER have significantly different SCL compared to non-NGER reporters.

The rest of the paper is divided into six main parts. Section 2 reviews the relevant literature. Section 3 explains the research methodology adopted. Section 4 presents the results from SCL analysis and provides specific disclosure examples of companies that fit the reactive, defensive, accommodative and proactive profiles. Section 5 discusses the logistic regression findings identifying the significant SCL determinants. Finally, Section 6 provides the conclusions, limitations and some recommendations for future research.

## Literature Review

A brief review of the relevant literature surrounding Balanced Scorecard and SBSC as well as the RDAP model is outlined to provide the context and background to the study.

### Balanced Scorecard and Sustainability Balanced Scorecard

Balanced Scorecard (BSC) was developed by Kaplan and Norton (1992; 1996) as a performance measurement system that enables an organisation to define its strategies and objectives over a range of perspectives allowing management to supplement financial measures with a diverse mix of non-financial metrics. The original Kaplan and Norton (1992) BSC model translates an organisation's vision and strategy into operational objectives and performance measures under four perspectives namely: 1) *Financial Perspective* - shows whether the translation of the company's missions and strategies lead to improved economic success; 2) *Customer Perspective* - focuses on how to create and keep customers; 3) *Internal Business Process Perspective* - monitors the internal processes that are critical to delivering products/services to customers such as

product quality and innovation; 4) *Learning and Growth Perspective* - describes the infrastructure needed to achieve the objectives in the other three perspectives such as employee and information system capabilities.

In essence, BSC adoption necessitates well-defined corporate vision and strategies to be put in place (*strategy statement*), relevant objectives/measures/future targets to be set (*forward-looking statements*), and appropriate indicators of past performance to be clearly delineated (*backward-looking statements*) for each perspective. Not surprisingly, these BSC core elements are also considered essential for an effective implementation of an environmental management system (Stead & Stead, 2009) and consequently, in assessing corporate social/environmental responsiveness (Clarkson, 1995). Hence, managers are advised to continuously embed BSC in their ongoing management system by: (1) clarifying and translating the vision and strategy; (2) communicating and linking strategic objectives and measures; (3) planning and target-setting; and (4) strategic feedback and learning (Kaplan & Norton, 1996).

BSC has gained a high degree of recognition as one of the most widely used innovations in management accounting (Lawrie & Cobbold 2004). For example, Renaissance Worldwide (cited in Langfield-Smith, Thorne and Hilton, 2009) reports that more than 30% of Australia's Top500 firms use some form of BSC by 1999. In their survey of Australian manufacturing firms, Yu, Perera, and Crowe, (2008) reveal that different forms of BSC are used by different organisations. For instance, BSC usage varies in terms of the number of perspectives used. Yu, *et al.* (2008) also suggest that there are a number of organisations that use additional measures/perspectives such as safety, environmental, behavioural and ethical measures/targets. This practice of incorporating sustainability measures/targets/perspective is now commonly referred to in the literature as Sustainability Balanced Scorecard (SBSC).

Conceptually, SBSC implementation helps to identify the important strategic environmental and social objectives of the firm (Bieker *et al* 2001; Figge *et al* 2002). Epstein and Wisner (2001) assert that SBSC can be used to communicate the importance of a company's sustainability strategy thereby helping senior managers to reposition and improve their sustainability performance and corporate image. Developing an SBSC, however, has a number of challenges. Bieker (2002, p. 9) states that "developing and implementing an SBSC ... is rather a complex, highly micro-political process requiring a lot of patience, power and persistence". As such, many companies lag behind in updating their strategies and related measures. Furthermore, SBSC could be rejected by some managers particularly because as transparency increases, the pressure to achieve corporate goals also increases (Bieker, 2002). Thus, top management commitment is an important precondition for SBSC acceptance (Bieker 2003).

While SBSC adoption has its advantages and challenges, there are also various motivations in disclosing the company's SBSC and sustainability strategy. These include improving the transparency and communication with relevant stakeholders, portraying a good image, i.e. as a 'good corporate citizen', and maintaining the firm's 'license to operate', among others (Bieker *et al* 2001; Figge *et al* 2002; Bieker, 2003). The environmental disclosure literature has much to say in this area. For example, following the Alaskan oil spill, Patten (1992) finds that the threats to the petroleum industry's legitimacy entice firms to increase the amount of environmental disclosures. Deegan and Rankin (1997) confirm that report users consider environmental information in deci-

sion making. Prior studies also find that adverse environmental events have significant impact on the level of environmental disclosures provided by firms (Patten 1992; Eljido-Ten, Kloot & Clarkson 2010).

Despite these findings, it is not just threats and negative events that trigger an increase in disclosures. In line with voluntary disclosure theory, Clarkson *et al* (2008) confirm that companies with superior environmental performance are more forthcoming in providing discretionary disclosures. Thus, it appeals to intuition that SBSC adopters would be more willing to provide relevant disclosures to show their superiority in terms of past and future sustainability performance, targets and goals thereby highlighting their commitment to sustainability.

In conjunction with our objective in this study, that is, to analyse the level of corporate sustainability commitment based on SBSC voluntary disclosures, it is necessary to adopt a set of criteria that would make an assessment possible. This is particularly important given that prior early studies in the field of corporate social responsibility have differentiated between reactive and proactive firms. In many ways, the green business literature alludes to this notion of differentiating between firms that merely react to legal requirements and those that proactively adopt strategies beyond what is required by legislations (Carroll 1979; Clarkson 1995; Henriques & Sadorsky 1999; Buysse & Verbeke 2003). The next section describes various reactive-proactive typologies in order to gain relevant insights from the characteristics featured in each profile.

### The Reactive-Proactive Typologies

Various models have been developed to classify the firm's level of social and environmental commitment. Henriques and Sadorsky (1999) provide a concise summary of a number of typologies in the literature. For example, in the environmental management literature, Hunt and Auster (1990) introduced five levels of corporate environmental responsiveness starting with: (1) *beginners* - those that cope by turning their back on the problem; (2) *firefighters* - those that address issues only as they occur; (3) *concerned citizens* - those that view environmental issues as a worthwhile function but tends not to involve other departments; (4) *pragmatist* - those that manage issues actively after its industry experienced costly problems; and (5) *proactivists* - those that rank environmental management as top priority. These five conceptual classifications are analogous to Roome's (1992) environmental strategic options namely: (1) *non-compliance*; (2) *compliance*; (3) *compliance plus*; (4) *commercial / environmental excellence*; and (5) *leading edge*. *Noncompliance firms* are cost constrained who can't or choose not to react to changing environmental legislations. *Compliance firms* are unlikely to gain competitive advantage on their environmental stance since they are in a reactive position driven by legislations. *Compliance Plus firms* are more proactive showing willingness to use management systems and policies to encourage change while *commercial/environmental excellence* and *leading edge firms* are the environmental leaders who view environmental excellence as good management practice.

Relatedly, in social responsibility studies, Clarkson (1995) builds up on earlier research (McAdam, 1973; Carroll, 1979; Wartick & Cochran, 1985) categorising corporate social responsiveness into *reactive*, *defensive*, *accommodative* and *proactive* profiles (RDAP model). *Reactive firms* do not take their responsibility seriously (doing

less than required) and are likely to act only for fear of negative publicity. *Defensive firms* tend to admit their responsibility but do only the least required. *Accommodative firms* are known to be more progressive than the other two categories doing all that is required. *Proactive firms* are the leaders in the industry, doing more than required by anticipating their responsibility.

In adopting the RDAP model to understand corporate environmental commitment, numerous scholars hint on the essential characteristics of firms fitting each profile. For instance, Henriques and Sadorsky (1999) assert that reactive companies are those that provide little or no environmental reports, no employee environmental training and those that do not have much top management involvement concerning environmental issues. Further, defensive firms are those committing limited environmental competencies, little development of employee skills, little external reporting and a rather weak integration of environmental issues into corporate strategy (Henriques & Sadorsky 1999; Buysse & Verbeke 2003). Buysse and Verbeke (2003) find that the environmental managers in defensive firms have limited participation in corporate strategic planning.

On the other hand, because both accommodative and proactive companies view environmental management as a worthwhile function, firms that fit these profiles involve top management, initiate employee environmental training and provide more extensive external reports to inform the public of their ongoing social and environmental commitment (Henriques & Sadorsky, 1999; Eljido-Ten, 2008). Furthermore, as leaders in their field, proactive firms embed environmental management in their primary business function (Henriques & Sadorsky, 1999; McAdam, 1973) by proactively conducting research and development related to social and environmental sustainability (Buysse & Verbeke, 2003). Hence, the inclusion of environmental issues into corporate strategy beyond what is required by regulation is viewed as a priority. The environmental management literature advocates that corporate actions with reference to environmental issues are indicative of their commitment to the natural environment. In this vein, Henriques & Sadorsky (1999) suggest that proactive firms show its environmental commitment through a number of ways such as having a written document describing its environmental plan and communicating their plan to stakeholders such as shareholders and employees. They also add that having an environmental, health and safety unit and a board or management committee dedicated to deal with environmental issues are good indicators of the company's SCL.

What is clear from the typologies reviewed is that corporate social and environmental responsiveness can range on a continuum from a *reactive/passive stance* ('do-nothing-until-you-have-to') to a *proactive posture* (being-ahead-of-the-pact). Thus, using the literature reviewed in this section, we consider it appropriate to build-up on the characteristics shown in each of the profiles, i.e. Reactive, Defensive, Accommodative and Proactive, to assess the firm's commitment to sustainability. The BSC and SBSC literature, on the other hand, enables the justification for the choice of criteria used to identify SBSC disclosers thereby providing the context and justification for the criteria used in this study and the research method adopted which are discussed next.

## Research Method

### Overview of Research Design

This research is conducted in two phases employing both qualitative and quantitative methods. In the first phase, qualitative content analysis is used to investigate the extent of SBSC disclosure while quantitative regression analysis is employed in the second phase to explore the determinants of sustainability commitment. Publicly available information are sourced from company websites, annual reports, sustainability reports, shareholder reviews, stakeholder impact report and corporate responsibility policies provided by Australia's Top100 listed companies during the year 2007 and 2008. Staw, McKechnie and Puffer (1983) explain that corporate reports are the documents by which companies publicly disclose their past performance, future expectation, and any other information that the management feels significant to communicate to their relevant stakeholders. Content analysis can be used in both quantitative and qualitative study. Hair, Babin, Money and Samouel (2003, p. 126) explain that content analysis is useful when "....the researcher examines the frequency with which words and main themes occur and identifies information content and characteristics embedded."

Content analysis is used to identify the SBSC disclosers and to examine whether sustainability targets/objectives/measures are embedded into the corporate vision, strategies and operations of Australia's Top100 listed companies. The relevant disclosures provided by firms identified as SBSC disclosers are further scrutinised to determine the level of commitment to sustainability using the RDAP model. Rather than counting the frequency of themes, qualitative content analysis is deemed more appropriate in analysing the firm's commitment. White and Marsh (2006, p. 36) state that "qualitative [content analysis] researchers focus on the uniqueness of the text and are consciously aware of the multiple interpretations that can arise from a close perusal of it." This suggests that in qualitative studies, many explanations for a single event can be taken into account. Janesick (2003) argues that qualitative research is credible when the researcher engages in a series of cross-checks and audits. Thus, it is deemed necessary to analyse and cross-check various reports to increase the validity and reliability of the findings in this study.

### Identifying SBSC Disclosers

As highlighted in the BSC literature, despite the variety of BSC forms used in practice, three essential features are common, i.e. well-defined corporate vision and strategies (*strategy statement*), relevant objectives/targets (*forward-looking statements*), and appropriate measures/indicators of past and current performance (*backward-looking statements*). We extend these essential BSC characteristics to identify SBSC adopters in line with prior SBSC studies (e.g. Figge *et al* 2002; Bieker 2003). Accordingly, in order to be categorised as SBSC discloser, the information regarding the firm's sustainability measures, targets and strategy links have to be identified from publicly available reports. Thus, the criteria used and explanations are provided below.

***Presence of Sustainability Strategy Statement.*** Having a sustainability strategy statement is the most basic criterion that must be met before a company is identified as SBSC discloser. To meet this criterion, the disclosure must have summary statements of why environmental/social perspective is important to the company (corporate values/vision), how it affects the company and how the non-financial targets may be

linked to financial targets.

**Presence of Sustainability Backward Looking Statement.** Backward looking statements communicate the firm's past sustainability initiatives and the corresponding performance measures and targets (if any). To pass this criterion, these backward looking statements must be reported with possible links to corporate strategy.

**Presence of Sustainability Forward Looking Statement.** Future sustainability goals, actions and targets have to be recognised by the firm. These goals and targets can be identified by examining the forward looking statements in the company's reports. This statement can indicate how things need to be different in the future.

The above three criteria are fundamental requirements for a firm to be identified as SBSC discloser. As such, all three criteria must be substantially fulfilled. The next section outlines the criteria to facilitate the examination of the firm's SCL from publicly.

### Assessing Sustainability Commitment Level

We examine further the disclosures provided by companies identified as SBSC discloser with a view to classify their SCL as either *reactive*, *defensive*, *accommodative* and *proactive*, i.e. RDAP analysis. Table 1 summarises the relevant criteria used to analyse corporate SCL based on the literature reviewed in section 2.2. Explanations and justifications for the choice of these criteria are provided below.

**Table 1. Reactive-Defensive-Accommodative-Proactive (RDAP) Criteria**

Criteria	References	Reactive	Defensive	Accommodative	Proactive
Backward, Forward & Strategy Statement	(Clarkson 1995; Stead & Stead 2009)	More backward than forward statements and unclear link to strategy statement	More balanced backward & forward statement but, unclear link to the strategy	More balanced backward & forward statements as well as clear link to the strategy	More detailed & more specific backward & forward statements with very clear link to the strategy
Carbon Disclosure Project	(Kolk, Levy & Pinkse 2008)	Not participating	Yes - may or may not be publicly available	Yes - may or may not be publicly available	Yes - publicly available
Sustainability Board Committee	(Buzzelli 1993)	No	No	Yes	Yes
Employee Sustainability Training	(Henriques & Sadorsky 1999; Buysse & Verbeke 2003)	None	None to a few	Yes - less to more intensive	Yes - more to very intensive
Sustainability Measure as Directors' KPI	(Henriques & Sadorsky 1999; Buysse & Verbeke 2003)	No	No	No	Yes



***Forward and backward looking statements and linkage to strategy statement.***

Although the forward and backward looking statements and strategy statements have been used to identify SBSC disclosers, these statements are again used in the RDAP analysis by examining the quality of the information provided. Stead and Stead (2009) argue that an effective environmental management system requires developing clear environmental goals and communicating them throughout the corporation, along with specific strategy and objectives that support these goals. Clarkson (1995) uses the strategy statement as one of the central elements in evaluating the level of environmental responsiveness that a company demonstrates. Hence, this is the first criterion to determine the firm's SCL. The clearer the link between sustainability measures, targets and strategy statements, the higher the company's commitment toward sustainability. Since firms fitting the reactive profile do not take their responsibility seriously, they are likely to focus more on past performance with few future targets and unclear link to sustainability strategies. Companies with defensive and accommodative profiles, on the other hand, acknowledge their responsibility and will therefore provide more balanced backward and forward looking statements that are linked to specific strategies. Proactive firms, being industry leaders, are expected to be highly specific in reporting their past and future measures/targets with very clear linkage to sustainability strategies.

***Carbon Disclosure Project***

When a company voluntarily provides sustainability reports, it indicates that it is willing to communicate its sustainability strategies and plans to its stakeholders, and is not afraid to expose their sustainability performance. The literature (Salancik 1977) suggests that 'going public' builds commitment to a plan. Consequently, the act of voluntarily disclosing their sustainability information shows the company's commitment toward its social/environmental plans and targets. The Carbon Disclosure Project (CDP) is an independent not-for-profit organisation holding the largest database of primary corporate climate change information voluntarily provided by companies around the world (CDP 2009). Kolk, Levy and Pinkse (2008) find that CDP has successfully urged firms to disclose extensive information about their sustainability performance particularly climate change activities. In addition to company's reports and web disclosures, CDP is viewed as a significant external reporting media that can be used to measure corporate sustainability commitment. Since the literature describes reactive firms as doing the bare minimum and CDP participation is voluntary, it is highly unlikely that reactive firms will participate in CDP compared to defensive, accommodative and proactive profiles.

***Sustainability Board Committee***

When a company becomes committed to sustainability, issues such as carbon management and related social and environmental activities become a legitimate corporate concern. Buzzelli (1993) assert that the creation of a board committee dedicated to dealing with social/environmental issues demonstrates the commitment of top management to responsible stewardship. Given that reactive and defensive firms are more prone to 'deny' or 'fight' their social responsibility (Clarkson 1995), these firms are unlikely to have sustainability committee. On the other hand, accommodative and proactive firms are likely to establish sustainability committee because they are more willing to accept their responsibility (Clarkson 1995) and are more progressive in demonstrating their serious concern toward sustainability (Carroll 1979).

### ***Employee Sustainability Training***

By voluntarily providing employee sustainability trainings, a firm shows its ongoing commitment to sustainability. As hinted in the literature, communicating an environmental plan through employee training is an important sign that a firm is serious about its environmental goals and targets. Buysse and Verbeke (2003) find that reactive and defensive companies tend to have none or very little investment in developing the employees' environmental skills, whereas accommodative and proactive firms tend to have more. Therefore, in this study, the firms that fit the reactive and defensive profile are expected to have none or little sustainability training, whereas those under the accommodative profile have some intensive training. Companies fitting the proactive profile are expected to provide various intensive employee trainings.

### ***Sustainability as Part of Directors' Key Performance Indicators***

Prior studies suggest that the firms' environmental commitment can be characterised by the support and involvement of top management. This involvement may include investments to environmental research and development (R&D) projects (Bieker 2003). Buysse and Verbeke (2003) categorise the level of environmental commitment by looking at the importance attached to the environmental performance in appraising top management's performance. Thus, the use of environmental performance measure to evaluate the director's performance is an important sign that the firm is serious about its sustainability commitment. According to Buysse and Verbeke (2003), only few companies use environmental measures to evaluate top management performance. Hence, it is conceivable that only proactive companies will utilise sustainability measures as part of the director's key performance indicators.

### **Logistic Regression Model**

Logistic regression is used to explore the determinants of SCL. Industry and other financial data such as total revenue, debt to asset ratio and return on assets are gathered from FinAnalysis, a database providing historical financial data for companies listed in the Australian Stock Exchange (ASX). Data on companies required to report under NGER are sourced from the relevant Australian government website. In order to make full use of the ordered nature of SCL, i.e. from lower level of commitment (reactive and defensive) to higher SCL (accommodative and proactive), ordinal logistic regression is conducted using the following model:

$$SCL_{it} = \beta_0 + \beta_1 LREV_{it} + \beta_2 DAR_{it} + \beta_3 ROA3_{it} + \beta_4 IND_{it} + \beta_5 NGER_{it} + e$$

Where:

- $SCL_{it}$  = Sustainability commitment level (SCL) is determined from public disclosures for firm  $i$  in period  $t$ ; 1 = SCL-reactive; 2 = SCL-defensive; 3 = SCL-accommodative; and 4 = SCL-proactive;
- $\beta_0$  = Intercept
- $LREV_{it}$  = Natural log for total revenue for firm  $i$  in period  $t$ ;
- $DAR_{it}$  = Debt to asset ratio for firm  $i$  in period  $t$ ;
- $ROA3_{it}$  = Return on asset 3-year average for firm  $i$  in period  $t$ ;
- $IND_i$  = Presence of firm  $i$  in environmentally sensitive industry at period  $t$ ; 0 if the firm belongs to energy, utilities, transportation, materials, and telecommunication industry; 1 otherwise;
- $NGER_{it}$  = Firms required to report their greenhouse gas (GHG) emissions, energy consumption and/or production including abatement projects under National Greenhouse gas and Energy Reporting Act (NGER) at period  $t+1$ ; 0 for NGER reporter; 1 otherwise;
- $e$  = error term

## **Variable Measurement and Justification**

### ***Sustainability Commitment Level (SCL)***

In order to understand whether companies with higher SCL have different characteristics from those that display lower SCL, the dependent variable SCL is derived from content analysis of firms identified as fitting one of the RDAP profile. Thus, a score of 1 is awarded to SBSC disclosers that fit the reactive profile; 2 for defensive; 3 for accommodative and 4 for firms in the proactive category.

### ***Firm Size (LREV)***

The size of the firm has been suggested in previous studies as a correlate of social responsibility/environmental disclosure (Roberts, 1992; Eljido-Ten, 2009). By virtue of their size, large firms have a wider general audience. Hence, it is reasonable to expect that larger firms are more likely to commit more resources to sustainable practices and publicly disclose such initiatives. In this study, the natural log of revenue is used to proxy for size.

### ***Leverage (DAR)***

Debt to Asset Ratio (DAR) is a measure for leverage which is included in this study because prior research indicates that monitoring demand increases with leverage (Clarkson, Overell & Chapple, 2011).

### ***Profitability (ROA)***

It is deemed important to ascertain whether firms with stable profitability have greater propensity to commit to sustainable practices. Prior studies use various forms of proxy for financial performance, such as return on assets (e.g. Roberts, 1992) and shareholder returns (e.g. Crabtree & Debusk, 2008) recognising a time lag. To capture stability in profitability and take into account the time lag, the three-year-average return on assets (ROA3Av) is used as proxy.

### ***Industry (IND)***

Various studies have shown that industries such as those in the oil, electronic computing, chemical, pulp and paper, mining and electricity (e.g. Roberts, 1992; Eljido-Ten, 2007; 2013) face unique societal pressures because of their negative impact on the environment. Based on this list, a perusal of the industries included in this study shows that the energy, utilities, transportation, materials (including mining) and telecommunication industries have the most intuitive appeal to be categorised in the environmentally-sensitive industries. Thus, a score of 0 is awarded to firms in the environmentally-sensitive industries and 1 otherwise.

### ***Government Regulation (NGER)***

The power of the government is manifested in its enforcement mechanisms. Watts & Zimmerman (1978) argue that corporations use socially responsible activities to reduce the risk of government intrusions. As stated earlier, the reporting periods covered in this study, i.e. 2007 to 2008, are specifically chosen to test whether companies that are mandated to report under the NGER Act are more likely to show higher commitment to sustainable practices. Therefore in this study, NGER is included as proxy for

government regulation with firms meeting the NGER threshold being coded as 0 while those below the threshold are coded 1.

## Content Analysis: Results and Discussion

### Preliminary Analysis: Identifying SBSC Disclosers

The analysis reveals, for both 2007 and 2008, that less than half of Australia's Top100 largest listed firms are identified as SBSC discloser. These firms disclose their sustainability objectives/measures/targets that are linked to corporate strategies. Table 2 shows that SBSC disclosers are spread across different types of industries. Panel A contains the SBSC disclosers from environmentally-sensitive industries (ESIs) while Panel B presents the non-environmentally-sensitive industries (non-ESIs). In 2007, more than half (59% or 23 out of 39) of the SBSC disclosers belong to ESIs. About the same proportion holds true for 2008, albeit, slightly less at 58% (24 out of 41).

**Table 2. SBSC Disclosing Firms According to Industry Type**

Industry Type	Number of SBSC Disclosers	
	2007	2008
<b>Panel A: Environmentally-Sensitive Industries</b>		
Energy	5	6
Materials	14	14
Telecommunication Service	1	1
Transportation	2	2
Utilities	1	1
<b>Sub-total</b>	<b>23</b>	<b>24</b>
<b>Panel B: Non-Environmentally-Sensitive Industries</b>		
Banks	3	4
Capital Goods	2	1
Commercial and Professional Service	2	2
Diversified Financials	1	1
Food and Staples Retailing	2	2
Food Beverage and Tobacco	1	2
Insurance	1	1
Real Estate	4	4
<b>Sub-total</b>	<b>16</b>	<b>17</b>
<b>Total</b>	<b>39</b>	<b>41</b>

### Analysing Sustainability Commitment Level (SCL)

The tabulated RDAP analysis of firms identified as SBSC disclosers are presented in Appendix 1. The results show that 15.4% (6 out of 39) in 2007 and 12% (5 out of 41) in 2008 fit the reactive profile. The number of firms categorised as defensive is double the number of reactive firms in both 2007 and 2008, i.e. 41% (16 out of 39) and 44% (18 out of 41), respectively. In 2008, there are two reactive companies that start to provide SBSC disclosure and three companies that have moved from reactive to defensive profile. Firms categorised in the accommodative profile far exceeds the reactive firms: 25.6% (10 out of 39) in 2007 and 24.5% (10 out of 41) in 2008. These companies are

mostly from the ESIs. Not all the accommodative companies in 2007 are the same in 2008. One company has moved from defensive to accommodative while another firm has been upgraded from accommodative to proactive profile in 2008. There are 7 companies in 2007 and 8 in 2008 that are found to have proactive level of commitment to sustainability.

The analysis shows significant similarities among companies that fit the reactive, defensive, accommodative and proactive profiles. For example, the analysis confirms that the disclosures provided by reactive firms have similar patterns. Thus, to gain more insights, we now discuss one representative company from each of the profile categories.

#### ***Reactive Firm Example: Suncorp-Metway Limited***

As explained earlier, reactive companies are characterised by having limited sustainability goal and strategy statements in their reports, no sustainability board committee, no environmental employee trainings, no CDP participation, and no sustainability KPIs for top management performance evaluation. Operating in insurance and wealth management, Suncorp-Metway provides sustainability-related objectives/strategies in its annual report in 2007 and in shareholder review report in 2008 but does not participate in CDP. It is worth noting that most of the reactive companies from the non-environmentally-sensitive industries do not provide separate sustainability report. Furthermore, as stated in its shareholder review report, Suncorp's sustainability indicators are still being refined attesting to its early development:

*"[to] continue to develop, refine and formalise sustainability indicators to underpin measurable goals for the entire organisation" (Suncorp-Metway Limited 2008, p. 25)*

Being an insurance company, Suncorp-Metway's sustainability disclosures are more focussed towards social contribution such as supporting health centres/not-for-profit groups and conducting activities like Suncorp SunWise Skin Cancer Program. There is, however, limited information provided regarding its future plans/sustainability targets and the link to strategy statements is unclear. The literature suggests that less committed firms will only provide general disclosure since it is difficult for them to mimic the disclosure practices of highly committed companies (Clarkson *et al.* 2008).

#### ***Defensive Firm Example: Aquarius Platinum Limited***

In this study, three characteristics that differentiate defensive from reactive profiles are: (1) the quality of backward/forward-looking statements and strategy statements; (2) participation in CDP; and (3) presence of sustainability employee training. Similar to reactive firms, defensive companies have no sustainability board committee and no sustainability measures in evaluating directors' performance. Aquarius Platinum, a metal producer, has been disclosing sustainability information since 2005 in a separate report called corporate citizenship report. It has started participating in CDP since 2007. Its corporate citizenship report consists of five main elements: economic contribution toward sustainability issues; human capital; safety and health; community development; and environmental management. One of Aquarius' strategy statements is to have "continuous improvement in safety, health and environmental performance towards the goal of zero harm" (Aquarius Platinum Limited 2008, p. 12). As part of its

action strategy to achieve zero harm, Aquarius also discloses its targets such as: “[the] noise levels from source should not exceed 110dBA by 2011” (Aquarius Platinum Limited 2008, p. 21).

In addition, the firm has introduced hearing conservation programmes at all operations to reduce the risk of noise-induced hearing loss. Aquarius also reports that in 2007 and 2008 there is an increase in the number of fatal incidents which lead to death suggesting that actions taken toward safety issue might not have been sufficient. Moreover, although it has mentioned some actions taken in regards to these incidents, specific information of how those actions are conducted is not provided:

*“...much effort was made to increase behaviour-based training at Mimosa. A policy of zero tolerance to lax safety procedures was enforced and the risk assessment system improved. The mining cycle was enforced as was adherence to safety standards” (Aquarius Platinum Limited 2008, p. 20)*

No further clarification is provided to support and justify these statements including information on how these actions can lead to prevention of future accidents. Whilst ‘behaviour-based training’ is mentioned, there is very little information provided suggesting limited commitment especially in terms of reducing fatalities. Turning to environmental aspect, Aquarius’ strategy involves reducing emissions of greenhouse gases which is linked to its targets in reducing its energy demand by 15% by 2015. There is, however, no specific plans/initiatives provided as to how this will be achieved. Recall that defensive firms may admit some responsibility but may also avoid it particularly when not legally required (Clarkson 1995). The following statement is reminiscent of indirectly avoiding responsibility:

*“Given that its operations are located in South Africa and Zimbabwe, which are not included in the first commitment period (ends 2012) of the Kyoto Protocol, Aquarius is subject to minimal regulations regarding GHG emissions. It seems unlikely that either South Africa or Zimbabwe will be subject to binding emission targets before 2020” (Aquarius Platinum Limited 2008, p. 37)*

This could be one of the reasons why the quality of Aquarius’ sustainability disclosure has declined from 2007 to 2008. Furthermore, there is no mention of having sustainability board committee. These patterns of disclosures reaffirm its fit into the defensive profile.

#### ***Accommodative Firm Example: Woodside Petroleum Limited***

Accommodative firms do more than what is legally required in accepting their sustainability responsibility. As such, firms that fit this profile are expected to report more balanced forward and backward looking statements that are linked to strategies, to have a sustainability board committee and participate in CDP. Woodside Petroleum Limited is an oil and gas company that is listed in the Top 20. In its sustainability report, Woodside states its mission statement as well as its environmental management objectives, respectively:

*“to create and deliver outstanding, sustained growth in shareholder wealth by providing energy for the future.” (Woodside Petroleum Limited 2008a, p. 6)*

*“to achieve excellence in emissions reduction, resource efficiency, biodiversity*

*conservation and environmental legal compliance” (Woodside Petroleum Limited 2008a, p. 12).*

Several strategies that are linked to environmental objectives have been developed such as:

*“reducing greenhouse gas emissions and flaring, marine discharges, land disturbance, incidents and spills; resource efficiency (energy, water, chemical use, waste management and recycling) and biodiversity conservation.” (Woodside Petroleum Limited 2008a, p. 12)*

*“promoting natural gas as the energy source that helps the global transition to a lower greenhouse footprint.” (Woodside Petroleum Limited 2007, p. 30)*

Woodside further states that one of the practices taken to achieve these strategies is by providing the low emission product such as liquefied natural gas (LNG). While this practice has successfully assisted Woodside to achieve improvement in its sustainability performance, it also suggests that achieving these strategies provide an opportunity to improve its financial performance.

*“This [LNG] is an outstanding growth opportunity that will deliver shareholder value. It will also help to reduce the world’s greenhouse footprint.” (Woodside Petroleum Limited 2007, p. 33)*

This also shows that the sustainability strategies and objectives are linked to its corporate mission, i.e. to achieve ‘sustained growth in shareholder wealth by providing energy for the future’. Likewise, Woodside provides specific targets, e.g. to achieve 30% reduction in its emissions by 2010. Several measures are used to evaluate its performance, such as:

*“...we use two performance measures for monitoring greenhouse gas emissions: [1] Total amount of greenhouse gas emissions in tonnes of carbon dioxide equivalents (CO<sub>2</sub>e); and [2] Greenhouse emissions intensity measured in tonnes of CO<sub>2</sub>e per tonne of hydrocarbon produced.” (Woodside Petroleum Limited 2007, p. 40)*

Moreover, as part of its 2008 biodiversity conservation initiative, Woodside undertakes environmental research on water use studies at Karratha Gas Plant and King Bay Supply Base. Consequently, these facilities have put in place water efficiency management plans. Woodside has also entered a joint venture project with the Australian Institute of Marine Science to conduct research on biodiversity, oceanography and ecosystem function. It is found in this study that environmental research is only undertaken by accommodative and proactive firms that belong to environmentally-sensitive industries possibly because of higher expectations/demand from their relevant stakeholders.

Several employee trainings have also been conducted. These trainings include safety and health training such as noise management training, incident investigation training and another called Foundations of Integrity training course<sup>1</sup>. These intensive training

<sup>1</sup> Foundations of Integrity training is a course conducted by Woodside to improve understanding of integrity, its importance to organisational sustainability and how individuals have an active role to ensure integrity throughout the asset life cycle (Woodside Petroleum Limited 2008a)

programmes seem to indicate a commitment to involve different levels and divisions of the company to improve their sustainability performance. This commitment is also shown through the establishment of a sustainability board committee which has the responsibility:

*“to assist the board to meet its oversight responsibilities in relation to the company’s sustainability policies and practices” (Woodside Petroleum Limited 2008b).*

As earlier noted, accommodative companies view environmental management as a worthwhile function by getting both the top management and employees involved. Although Woodside participates in CDP since 2006, its disclosure is not made publicly available until 2010. Furthermore, despite its intensive training programmes, Woodside falls short of including sustainability KPIs as part of top management’s evaluation measure. As such, Woodside fits the accommodative profile.

### **Proactive Firm Example: Westpac Banking Corporation**

Proactive companies are those that show high commitment to sustainability. Westpac Banking Corporation is one of the four largest banks in Australia and is listed in the Top20. In its Stakeholder Impact Report, Westpac states its view about sustainability:

*“We see ESG (environment, social and governance) management ... as a proxy for overall management quality, given the strong empirical correlation that has been shown with earnings quality... From a quantitative perspective, ESG metrics and ratings can be assessed more directly - as a broad investment signal, for example for earnings quality, share price performance or company valuation.” (Westpac Banking Corporation 2007, p. 6)*

Westpac also states that the objectives of its ESG [Environmental, Social & Governance] approach are to:

*“embed ESG risks and opportunities within our corporate strategy; establish KPIs for strategic ESG performance using existing and comparable reporting frameworks; and set long-term targets for ESG performance and report on performance... Our ESG strategic priorities underpin and support Westpac’s core strategy...” (Westpac Banking Corporation 2007, p. 6)*

Westpac’s ESG measures and long-term targets are linked to its core business strategy. Specific strategies toward climate change are also disclosed such as: reducing direct environmental impact; anticipating and responding to changes in trade and regulatory frameworks; identifying and responding to emerging business risks and opportunities; and broader advocacy in the community. These strategies have been translated into actions such as reduction in energy, water, paper use as well as reducing wastes. Other practical actions include developing site specific energy management plans, partnering with Landcare Australia in the establishment of a not-for-profit carbon trading and brokering service, supporting the establishment of the Water Stewardship Initiative<sup>2</sup> and conducting the graduate sustainability program and training.

<sup>2</sup> The Water Stewardship Initiative (WSI) is a collaborative project to build a credible system that will allow responsible commercial and industrial water users to be recognised and rewarded.



In terms of social commitment, Westpac's strategy has three components, namely: (1) employee involvement; (2) community partnerships; and (3) capacity building. Its social commitment is shown through actions such as partnerships with non-profit organisation for community activities, donations, social training, as well as undertaking several social research and development. Research and development undertaken include partnership with Juvenile Diabetes Research Foundation<sup>3</sup> for conducting diabetes research and developing the Agricultural Alliance on Climate Change (AACC), a commissioned research examining how rural community can promote climate change resilience and prosper from harvesting clean energy and farming carbon.

In addition, Westpac participates in CDP, has a sustainability board committee and uses sustainability KPIs to evaluate its directors' performance. Moreover, Westpac integrates sustainability in its corporate governance and the code of conduct as shown in this statement:

*"Our approach to corporate governance is based on a set of values and behaviours that underpin everyday activities, ensure transparency and fair dealing, and protect stakeholder interests. This approach includes a commitment to the highest standards of governance, which our Board sees as fundamental to the sustainability of our business and performance." (Westpac Banking Corporation 2008, p. 21)*

In summary, Westpac's detailed sustainability initiatives/targets that are embedded to its core business processes fits the proactive profile which indicates a high level of commitment to sustainability.

### Logistic Regression Results

The empirical model used to explore the determinants of SCL has a Chi-square score statistic of 30.291 with 5 degrees of freedom significant at less than 0.0001 level. In addition, the Pearson and Deviance goodness-of-fit tests have significance level greater than 0.05 implying that the model's estimates fit the data at an acceptable level. The Cox & Snell and Nagelkerke pseudo  $R^2$  are 0.315 and 0.341, respectively. The pseudo  $R^2$  indicates that the model explains around 31% to 34% of the variability in the dependent variable. The ordinal logistic results are shown in Table 3 below.

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<sup>3</sup> The Juvenile Diabetes Research Foundation (JDRF) is the world's leading non-profit contributor to diabetes research particularly the medical research

**Table 3. Logistic Regression Results**

Dependent Variable: Sustainability Commitment Level (SCL) 4=Proactive; 3=Accommodative; 2=Defensive; 1=Reactive (N=80)				
Variable Name & Description	Coefficient	Standard Error	Wald Chi-square	p-value (Sig.)
<i>Dependent Variable: SCL Threshold</i>				
SCL = 1	3.613	4.292	0.708	0.400
SCL = 2	6.315	4.329	2.128	0.145
SCL = 3	7.814	4.366	3.203	0.074
<i>Independent Variables:</i>				
LREV: Natural log of total revenue	0.998	0.459	8.510	0.030
DAR: Debt to Asset Ratio	-0.036	0.014	3.949	0.011
ROA3: Return on Asset 3-year Average	-0.061	0.051	23.474	0.239
IND: Industry: 0 for firms in the energy, transportation, mining, pharmaceutical and utilities industries; 1 otherwise	1.576	0.529	36.475	0.004
NGER: National Greenhouse gas & Energy Reporting Act (NGER): 0 for firms required to report under NGER; 1 otherwise	2.095	0.623	0.015	0.001
Model chi-square = 30.291 with 5 df, significant at less than the 0.0001 level				
Pseudo R <sup>2</sup> : Cox & Snell R <sup>2</sup> = 0.315; Nagelkerke R <sup>2</sup> = 0.341				

Almost all the independent variables are significantly associated to SCL. IND and NGER are both significantly associated to SCL at less than the 1% level ( $p < 0.01$ ). The positive sign in the coefficient for IND and NGER indicates that firms in environmentally sensitive industries and those that are required to report their GHG emissions and energy consumption/production under NGER Act display more propensity to disclose higher SCL. Likewise, LREV and DAR are both significantly associated to SCL, albeit at a lower significance level ( $p < .05$ ). The positive sign for LREV suggests that larger firms are indeed showing higher SCL while the negative sign for DAR coefficient implies that firms that are less reliant on their creditors (i.e. low leverage) show more commitment to sustainability. The only independent variable that is not significantly related to SCL is ROA3 confirming that profitability is not a major determinant of SCL.

Overall, these findings can be interpreted in a positive light. The findings that large firms and those in the environmentally sensitive industries are the ones adopting high SCL indicates that there is, indeed, a real opportunity for this highly visible large firms to commit to sustainable practices given the larger pool of resources available at their discretion. This is encouraging since large and highly polluting firms are inevita-

bly the ones having huge impact on environmental degradation by virtue of their size and nature of operation. As more exemplary examples of sustainable practices and eco-efficient business opportunities from these firms are publicised through appropriate media exposure, other firms could follow suit particularly when economies of scale from large firms' operations are made available from sustainability initiatives developed. These initiatives could range from eco-efficient carbon sequestration to clean energy generation.

Moreover, the highly significant result for NGER implies that firms which will be required to report GHG emissions and energy consumption/production including their abatement initiatives from mid-2008 onwards have shown higher commitment to sustainability prior to the implementation of this legislation. This can be taken as an affirmation of the government's ability to persuade firms to go beyond what is legally required. This exploratory analysis focussed in the Australian context offers rich insights given the period covered and the progressive nature of climate-change-related legislations. As noted earlier, the initial threshold of 125 kilotonnes of GHG emissions for corporate groups is progressively reduced in subsequent years. This means that some companies below NGER threshold at the initial year of implementation could be required to report under NGER in later years if they choose to adopt 'business-as-usual approach' and not to reduce their emissions. Furthermore, NGER is designed as a precursor to Australia's carbon pricing legislation. Thus, this result seems to confirm that by showing firms that the Australian government is serious about progressively enacting climate-change-related legislations, firms are encouraged to proactively seek innovative means to reduce energy consumption and GHG emission.

### **Conclusion**

This research seeks to analyse corporate sustainability commitment level (SCL) and its determinants by examining the extent of Sustainability Balanced Scorecard (SBSC) public disclosures provided by Australia's Top100 listed companies. This research contributes to knowledge in four ways. Firstly, it investigates SCL from publicly available disclosures provided by Australia's Top100 listed firms. Secondly, based on the social responsibility and environmental management literature, it develops suitable criteria, to enable the use of the RDAP model to analyse corporate sustainability commitment. Thirdly, it documents specific examples of corporate sustainability initiatives that fit the RDAP profile. Fourthly, by exploring the determinants of SCL, relevant insights are captured from the unique period of transition to mandatory GHG reporting legislation in Australia.

This study adopts both qualitative and quantitative methods of data analysis. First, content analysis is conducted to scrutinise voluntary public disclosures provided by the firms. Then, logistic regression is used to analyse the determinants of SCL.

The analysis confirms that the company's level of commitment to sustainability can indeed be determined from voluntary disclosures using a set of criteria developed from the relevant literature. It is also found that SCL is significantly related to size, leverage, environmental sensitivity of industry and government reporting legislation but not significantly associated to profitability.

One major conclusion derived from the results is that companies that incorporate sustainability objectives, measures and initiatives that are clearly linked to core business strategies and processes are more forthcoming in providing high quality disclosures. This is potentially beneficial for both the report users and reports providers. From the report providers' point of view, the increasing pressure to integrate sustainability into their core business process and the inherent demand for transparency could force them to re-evaluate and enhance their sustainability strategy and performance. From the perspective of the report users, this greater push for transparency has positive implications on corporate accountability. However, voluminous disclosures could overwhelm report users. Hence it is all the more important to be more discerning and be able to identify the firm's commitment to sustainability.

Likewise, the findings that less than half of the firms included in the sample fit the accommodative and proactive profile suggest that not all SBSC disclosers are truly committed to sustainable management practices. It is possible that some firms are merely providing disclosures as a 'green-washing' mechanism. Following this line of thought, another conclusion drawn from the RDAP analysis indicates that SBSC disclosures provided in publicly available reports can be better understood using a set of criteria backed up by prior research. The discussion of four representative examples of firms in each of the four profiles confirm that superior performers tend to provide disclosures that are more detailed and specific which are not easily mimicked by other firms displaying lower SCL.

Finally, the conclusion derived from exploring the SCL determinants attest to the government's power to induce firms to proactively seek innovative means to be socially and environmentally sustainable while confirming that stability in profits is not a prerequisite for firms to put sustainability at the top of its priority list.

As in all research, these findings and conclusions must be interpreted with caution subject to the following limitations. Firstly, since this study is conducted using publicly available reports, the analysis is based only on what the companies have disclosed which could include biased information. It is also quite possible that some companies in the Top100 might satisfy the criteria used in the RDAP analysis but did not provide adequate public disclosure. Furthermore, given that this exploratory study is limited to the Top100 Australian listed companies, its generalisation could be limited. Despite these limitations, this study can be a catalyst for more in-depth studies.

Future studies extending the period covered can help to substantiate the findings in this study. In-depth studies using primary data such as interviews and case studies can provide additional insights to the current body of knowledge. In addition, comparative country studies are also useful to broaden our understanding of the extent by which sustainability commitment are publicly disclosed in other countries using the criteria developed in this study.

## References

- Aquarius Platinum Limited (2008). *Corporate Citizenship Report 2008*.
- Bewley, K. & Li, Y. (2000) "Disclosure of environmental information by Canadian manufacturing companies: A voluntary disclosure perspective", *Advances in Environmental Accounting and Management*, Vol.1, pp. 201-226.
- Bieker, T. (2002). "Managing Corporate Sustainability with the Balanced Scorecard: Developing a Balanced Scorecard for Integrity Management" Paper presented at *The Oikos PhD Summer Academy 2002*, pp. 2-20.
- Bieker, T. (2003). "Sustainability Management with the Balanced Scorecard", *Conference proceedings of 5th International Summer Academy on Technology Studies*, Karner, S., Oehme, I. and Seebacher, U. eds. Corporate Sustainability, Deutschlandsberg, Austria, 13–19 July 2003, pp. 17–34.
- Bieker, T, Dyllick, T, Gminder, C. U. & Hockerts, K. (2001) "Towards a Sustainability Balanced Scorecard - Linking Environmental and Social Sustainability to Business Strategy", *Conference proceeding of the 2001 Business Strategy and the Environment in Leeds, UK*, ERP Environment: Shipley, pp. 22-31.
- Buysse, K. & Verbeke, A. (2003) "Proactive Environmental Strategies: A Stakeholder Management Perspective" *Strategic Management Journal*, Vol.24, No. 5., pp. 453-470.
- Buzzelli, D. T. (1993) "Time to Structure an Environmental Policy Strategy", *Journal of Business Strategy*, Vol. 12, No. 2., pp.17-20.
- Carroll, A. B. (1979). "A Three-Dimensional Conceptual Model of Corporate Performance" *Academy of Management Review*, Vol.4, No. 4., pp. 497-505.
- CDP 2009, *Carbon Disclosure Project*, London.
- Chenhall, R. H. (2005). "Integrative Strategic Performance Measurement Systems, Strategic Alignment of Manufacturing, Learning and Strategic Outcomes: An Exploratory Study" *Accounting, Organizations and Society*, Vol. 30, No. 5., pp. 395-422.
- Clarkson, M. (1995). "A Stakeholder Framework for Analysing and Evaluating Corporate Social Performance" *Academy of Management Review*, Vol. 20, No. 1., pp. 92-117.
- Clarkson, P. M., Li, Y., Richardson, G. D. & Vasvari, F. P. (2008). "Revisiting the Relation between Environmental Performance and Environmental Disclosure: An Empirical Analysis" *Accounting, Organizations and Society*, Vol. 33, No. 4-5., pp. 303–327.
- Clarkson, P. M., Overell, M. B. & Chapple, L. (2011). "Environmental reporting and its relation to corporate environmental performance" *ABACUS*, Vol. 47, No. 1., pp. 27-60.
- Clean Energy Regulator 2012, *Assessment of NGER reports*, Clean Energy Regulator, 16 August 2012, <http://www.cleanenergyregulator.gov.au/National-Greenhouse-and-Energy-Reporting/Fact-sheets-FAQs-and-guidelines/Fact-sheets/Pages/Assessment-of-NGER-Reports.aspx>

- Crabtree, A. D. & DeBusk, G. K. (2008). "The effects of adopting the balanced scorecard on shareholder returns". *Advances in Accounting, incorporating Advances in International Accounting*, Vol. 24, pp. 8-15.
- Crawford, D. & Scaletta, T. (2006). "The Balanced Scorecard and Corporate Social Responsibility: Aligning Values for profit". *FMI Journal*, Vol. 17, No. 3., pp. 39-4.
- Deegan, C. & Rankin, M. (1997). "The Materiality of Environmental Information to Users of Annual Reports" *Accounting, Auditing, and Accountability*, Vol. 10, No. 4., pp. 562-583.
- Eljido-Ten, E. (2007). "Applying Stakeholder Theory to Analyse Corporate Environmental Performance: Evidence From Australian Listed Companies". *Asian Review of Accounting*, Vol. 15, No. 2., pp. 164-184.
- Eljido-Ten, E. (2008). "The Case for Reporting Pro-active Environmental Initiatives: A Malaysian Experiment on Stakeholder Influence Strategies" *Issues in Social and Environmental Accounting*, Vol. 2, No. 1., pp. 36-60.
- Eljido-Ten, E. (2009). Can stakeholder theory add to our understanding of Malaysian environmental reporting attitudes? *Malaysian Accounting Review*, 8(2), 85-110.
- Eljido-Ten, E. O. (2013). "Determinants of Strategic Performance Measurement System Disclosures in Australia's Top100 Publicly Listed Firms". *Journal of General Management*, Vol. 34, No.4., pp. 57-73.
- Eljido-Ten, E., Kloot, L. & Clarkson, P. (2010). "Extending the Application of Stakeholder Influence Strategies to Environmental Disclosures: An Exploratory Study from a Developing Country". *Accounting, Auditing and Accountability Journal*, Vol. 23, No. 8., pp. 1032-1059.
- Epstein, M. J. & Roy, M. (2001). "Sustainability in Action: Identifying and Measuring the Key Performance Drivers". *Long Range Planning*, Vol. 34, No. 5., pp. 585-604.
- Epstein, M. J. & Wisner, P. S. (2001). "Using a Balanced Scorecard to Implement Sustainability". *Environmental Quality Management*, Vol. 11, No. 2., pp. 1-10.
- Ernst & Young (2002), *Corporate Social Responsibility: A Survey of Global Companies*, Ernst and Young, Australia.
- Figge, F., Hahn, T., Schaltegger, S. & Wagner, M. (2002). "The Sustainability Balanced Scorecard - Linking Sustainability Management to Business Strategy". *Business Strategy and the Environment*, Vol. 11, No. 5., pp. 269-284.
- Hair, J. F., Babin, B., Money, A. H. & Samouel, P. (2003). *Essentials of Business Research Methods*, John Wiley & Sons, New York.
- Henriques, I. & Sadorsky, P. (1999). "The Relationship between Environmental Commitment and Managerial Perceptions of Stakeholder Importance". *Academy of Management Journal*, Vol. 42, No. 1., pp. 87-99.
- Hunt, C. B. & Auster, E. R. (1990). "Proactive Environmental Management: Avoiding the Toxic Trap". *Sloan Management Review*, Vol. 31, No. 2., pp. 7-18.

- Janesick, V. J. (2003). The Choreography of Qualitative Research Design: Minuets, Improvisations and Crystallisation, in Denzin NK and Lincoln YS (eds), *Strategies of Qualitative Inquiry 2nd edition*, Sage Publications Inc, California, pp. 46-79.
- Kaplan, R. S. & Norton, D. P. (1992). "The balanced scorecard ~ measures that drive performance." *Harvard Business Review*, Vol. 70, No. 1., pp. 71-79.
- Kaplan, R. S. & Norton, D. P. (1996). *The Balanced Scorecard*. Boston, MA: Harvard Business School Press.
- Kolk, A., Levy, D. & Pinkse, J. (2008). "Corporate Responses in an Emerging Climate Regime: The Institutionalization and Commensuration of Carbon Disclosure". *European Accounting Review*, 17(4), 719-745.
- KPMG 2008, *International Survey of Corporate Responsibility Reporting 2008*, KPMG International.
- KPMG 2013, *The KPMG Survey of Corporate Responsibility Reporting 2014*, KPMG International
- Lawrie, G & Cobbold, I (2004). "Third-Generation Balanced Scorecard: Evolution of an Effective Strategic Control Tool". *International Journal of Productivity and Performance Management*, Vol. 53, No. 7., pp. 611-623.
- Langfield-Smith, K., Thorne, H. & Hilton, R. W. (2009). *Management Accounting: Information for Creating and Managing Value*, McGraw Hill, Sydney, NSW.
- McAdam, T. W. (1973). "How to Put Corporate Responsibility into Practice". *Business and Society Review*, Vol. 6., pp. 8-20.
- Patten, D. M. (1992). "Intra-Industry Environmental Disclosures in Response to the Alaskan Oil Spill: A Note on Legitimacy Theory". *Accounting, Organizations and Society*, Vol. 17, No. 5., pp. 471-475.
- Roberts, R. W. (1992). "Determinants of Corporate Social Responsibility Disclosure: An Application Of Stakeholder Theory". *Accounting, Organizations and Society*, Vol. 17, No. 6., pp. 595-612.
- Roome, N. (1992). "Developing environmental management systems". *Business Strategy and the Environment*, Vol. 1., pp. 11-24.
- Salancik, G. R. (1977). Commitment and the Control of Organizational Behaviour and Belief, in BM Staw and GR Salancik (eds), *New Directions in Organizational Behaviour*, Chicago: St. Clair, pp. 1-54.
- Staw, M. B., McKechnie, P. I. & Puffer, S. M. (1983). "The Justification of Organizational Performance". *Administrative Science Quarterly*, Vol. 28, No. 4., pp. 582-600.
- Stead, W. E. & Stead, J. G. (2009). *Management for a Small Planet*, 2nd edn., M.E. Sharpe, Armonk, N.Y.
- Suncorp-Metway Limited (2008). *Shareholder Review 2007-2008*.
- Ullmann, A. (1985). "Data In Search of A Theory: A Critical Examination Of The Relationship Among Social Performance, Social Disclosure And Economic

- Performanc”e. *Academy of Management Review*, Vol. 10, No. 3., pp. 540-577.
- Wartick, S. L. & Cochran, P. L. (1985). “The Evolution of the Corporate Social Performance Model”. *Academy of Management Review*, Vol. 10. No. 4., pp. 758-769.
- Watts, R. & Zimmerman, J. (1978). “Towards a positive theory of the determination of accounting standards”. *Accounting Review*, January, pp. 112-134.
- Westpac Banking Corporation 2007, *Stakeholder Impact Report 2007*.
- Westpac Banking Corporation 2008, *Annual Report 2008*.
- White, MD & Marsh, EE (2006).” Content Analysis: A Flexible Methodology”. *Library Trends*, Vol. 55, No. 1., pp. 22-45.
- Woodside Petroleum Limited (2007) *Sustainable Development Report 2007*.
- Woodside Petroleum Limited (2008a). *Sustainable Development Report 2008*.
- Woodside Petroleum Limited (2008b). *Annual Report 2008*.
- Yu, L., Perera, S. & Crowe, S. (2008). “Effectiveness of the Balanced Scorecard: The Impact of Strategy and Causal Links”. *Journal of Applied Management Accounting Research*, Vol. 6, No. 2., pp. 37-55.