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Fashion or future: does creating shared value pay?

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Abstract

Porter and Kramer's (2011) concept of 'creating shared value' (CSV) has attracted considerable attention from business and academics. According to Porter and Kramer, CSV is about creating economic value in a way that also generates value for society by addressing its basic needs and challenges. One of the key assumptions of the CSV concept is that companies will benefit economically through engaging in CSV activity. We test this empirically by developing a proxy measure of CSV based on 26 sustainability performance indicators drawn from a customised database. Based on a sample of ASX 300 companies taken over a 5-year period (2008–2012), we find a strong statistical association between the CSV proxies and a range of financial performance indicators. These companies also tend to be larger and have higher growth opportunities. However, statistical tests of causality indicate that superior financial performance *leads to* greater CSV activity, rather than CSV activity driving financial outcomes. This finding suggests that successful companies may well be adopting CSV-type practices more as an outcome of management fashion than because of their tangible contribution to the financial performance of the firm.

Key words: Creating shared value; Corporate social performance; Financial performance; Business sustainability

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1. Introduction

The social impact of business has been a subject of recurring debate in the wider business and management literatures, and more recently in the

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accounting literature (Moser and Martin, 2012). In particular, the importance of this field of research appears be growing strongly in the Asia Pacific region (see e.g. Benson *et al*., 2015). Despite engagement with a range of ethical and moral concerns, the principle theme in much of the academic discussion about the social role of business has been the so-called bottom-line impact of corporate social programmes; that is, do such initiatives result in improved corporate financial performance? (see for example Vogel, 2005) An extensive research literature has developed around this question, with meta-analyses differing in the degree to which corporate social initiatives are seen as contributing to improved financial performance (see for example Margolis and Walsh, 2003; Orlitzky *et al*., 2003; Margolis *et al*., 2007). The recent emergence of the concept of 'creating shared value' (CSV) (Porter and Kramer, 2011) and its popularisation within business has reinvigorated academic and practitioner debate about the social contribution of business (Crane *et al*., 2014). According to Porter and Kramer (2011), CSV is about creating economic value in a way that also meaningfully generates value for society by addressing its basic needs and challenges. However, critics argue that the CSV concept is inherently flawed in understating the inherent tensions between social and economic goals. Rather than creating 'shared value', for critics, these practices may simply lead to more sophisticated corporate strategies of 'greenwashing', thereby maximising shareholder value at the expense of society (Crane *et al*., 2014).

While the potential impact of CSV on social and environmental outcomes is critical, in this article, we seek to test the more basic contention that CSV activities contribute positively to firm financial performance. As Crane *et al*. (2014) note, a major strength of the CSV concept is that it 'purportedly offers a holistic framework to unify largely disconnected debates on CSR. . .'. While the concept is somewhat inchoate and nebulous, this article attempts to provide some empirical value and tangibility to the concept by developing a proxy measure of CSV based on 26 sustainability performance indicators drawn from a customised database. Based on a sample of ASX 300 companies taken over a 5-year period (2008–2012), we investigate the hypothesis that companies with high levels of inferred CSV activity financially outperform their peers. While CSV is characterised by Porter and Kramer (2011) as a new approach to business society relations and 'conscious capitalism' debates, we are particularly interested in testing the so-called business case for such initiatives, that is the financial returns/benefits that might accrue to companies from promoting social well-being.

The article is structured as follows. After reviewing the broader literature on the relationship between corporate social and financial performance, we outline the concept of CSV and detail its key component categories. We then outline our data sample and research method, before detailing our empirical findings. While we do indeed find a strong statistical association between our CSV proxy and various financial performance indicators, we argue that in most instances, superior financial performance *precedes* greater CSV activity, rather than CSV

activity itself leading to, or causing, improved financial performance. This suggests that shared value activity may result more from executives' belief that such activities are the mark of 'good management' rather than the actual causal impact of CSV activities in improving financial results. Our article therefore contributes to the emerging debate over CSV (Crane *et al*., 2014), by demonstrating empirically that a 'business case' for CSV is actually difficult to discern. Conceptually, this suggests that rather than a rational tool of value creation for shareholders (let alone other stakeholders), CSV activities appear more a product of management fashion.

2. Corporate social and financial performance

An extensive literature has developed seeking to address the issue of whether a business can be both financially successful as well as socially and environmentally beneficial, in short 'do well by doing good' (Margolis and Elfenbein, 2008). For much of the last century, the dominant neoclassical view of the firm presented an unequivocal answer to this question; '. . .social welfare is maximized when all firms in an economy maximize total firm value' (Jensen, 2002, p. 239). Such theoretical perspectives argued that businesses should only concern themselves with social issues where this answered the 'true' purpose of the firm which was to maximise shareholder value (Friedman, 1970). This neoclassical focus on firm profitability has served to shape much of the subsequent debate over the relationship of the business firm and its broader social responsibilities. Perhaps not surprisingly then, the dominant concern of studies of corporate social responsibility has focused on determining the 'bottom-line' impact, that is the relationship between so-called corporate social performance (CSP) and corporate financial performance (CFP) (Orlitzky *et al*., 2003; Jones *et al*., 2007). Here, CSP is taken to mean, 'a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relation (Wood, 1991, p. 693). Thus, a consideration of CSP includes not only statements of intent (the discourse and rhetoric of corporate social responsibility), but also the processes and practices that seek to put such statements into effect, as well as crucially, the outcomes and results of corporate social practice. These processes and practices can take a variety of forms from seeking to improve the educational and employment opportunities of disadvantaged groups in society, through to funding and involvement with community groups and charities, or a focus on reducing the environmental impact of the organisation. Indeed, the level and ambit of such corporate social activity can vary from the firm's immediate operations through to its procurement activities, product stewardship and a broader policy and advocacy role in social and environmental improvement.

A vast range of empirical studies have explored the CSP–CFP relationship (for reviews see Margolis and Walsh, 2003; Orlitzky *et al*., 2003; Margolis

et al., 2007; Molina-Azorin *et al*., 2009). Theorising this relationship, Orlitzky *et al*. (2003) note how a firm's improved social performance often relies upon negotiating and contracting with a range of stakeholders that facilitates better monitoring and enforcement of financial goals. In addition, in focusing on its social performance, a firm may be able to develop new competencies, resources and capabilities (Barney, 1991). For example, by undertaking social initiatives, new knowledge can be imported and the firm can gain an improved ability to create value. Moreover, by engaging with external parties (such as nongovernment organisations and the media) about its social initiatives, a firm can enhance its legitimacy and reputation and differentiate its brand amongst customers, suppliers and investors, further benefitting its business objectives (Fombrun and Shanley, 1990; McWilliams *et al*., 2006). For instance, Dhaliwal *et al*. (2012) assert that CSR activities can lead to improved financial performance by improving the firm's reputation with customers (leading to higher sales growth), improving reputation with regulators for more favourable treatments, and attracting and motivating employees. These arguments suggest CSP better places the firm in navigating within a changing social, technological, economic and political context.

In analysing the results of these studies, meta-analyses have suggested that there is a positive relationship between CSP and CFP, although the quantum of this effect and its causal relationship is debated.[1] By contrast, Margolis and Elfenbein (2008), Margolis *et al*. (2007) found a far more limited relationship between CSP and CFP.[2]

3. 'Creating shared value' – a new approach?

While corporate social responsibility implied a 'business case' for social initiatives through improved corporate reputation, staff engagement, and improved productivity, demonstrating the financial performance link to CSP has recently received much greater emphasis with the popularisation of Porter and Kramer's (2011) concept of 'creating shared value' (CSV). Porter and

[1] For instance, Orlitzky *et al*. (2003) in a meta-analysis of over 30 years of empirical studies found a universally positive relationship between CSP and CFP across industries and different study contexts, although this varied from highly positive to modestly positive 'because of contingencies, such as reputation effects, market measures of CFP, or CSP disclosures' (2003, p. 423).

[2] More recently, a study by Eccles *et al*. (2012) provides further insight into the CSP–CFP relationship. In their study of matched sets of 180 companies operating in the same sectors and exhibiting 'identical size, capital structure, operating performance, and growth opportunities', they found that high sustainability companies performed in the long term significantly better than their low sustainability counterparts in terms of both stock-market and accounting measures of performance. This was found to be particularly pronounced for companies engaged in natural resource extraction and where competition was based upon brand and reputation.

Kramer outlined a vision of 'policies and operating practices which enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates'. Developed by Porter in work with Nestlé (Nestlé 2010), the concept of 'shared value' goes back to the idea of the interlinked interests of the business firm and society. Businesses have of course always claimed they create social value through job creation and economic growth. However, beyond this, CSV claimed that social and environmental well-being should be a *core* concern of business strategy rather than an addendum. Porter and Kramer (2011) argued that this interlinkage between the firm and society occurs at a variety of levels. For instance, social issues are seen as central to a business strategy of value creation in that societal needs 'define markets' and 'social harms or weaknesses create internal costs for firms', through for example wasted energy and resources, labour shortages, insufficient skills, and reduced health and living standards (Porter and Kramer, 2011, p. 65). Rather than costs that should be avoided, Porter & Kramer argue that by engaging with social problems through innovation in processes and technologies, firms can not only increase their productivity but also create new and expand existing markets. So, for example, General Electric's *ecomagination* initiative (Chesbrough, 2012), or Nestlé's focus on water and food scarcity (Nestlé 2010), are cited as examples of firms that have identified urgent social needs and through innovation sought to solve these issues, while at the same time creating new products and markets. While critics have questioned whether this really represents new thinking (Gilding *et al*., 2002; Elkington, 2012; Crane *et al*., 2014), Porter & Kramer emphasise a distinction from related discourses such as CSR and sustainability, in their focus upon value creation, innovation, corporate profitability and competitiveness. In particular, the attention upon *value creation* stresses the need to demonstrate economic and societal benefits relative to cost of various corporate undertakings in the social space. Indeed, they go as far as to claim CSV represents a way to 'reinvent capitalism' (Porter and Kramer, 2011, p. 63). In articulating the CSV concept, Porter and Kramer (2011) emphasise three key aspects: reconceiving products and markets; redefining productivity in the value chain; and enabling local cluster development.

3.1. Reconceiving products and markets

As Porter and Kramer point out – societal needs are enormous and include health, better housing, better education, improved nutrition, aged care, greater financial security, and less environmental damage. Porter and Kramer (2011, p. 67) perceive these needs as 'the greatest unmet needs in the global economy'. In reconsidering products and markets, the perennial question is whether the firm's products and services are actually *good* for their customers (or their customer's customers). Examples might include as follows: food companies that traditionally concentrated on taste and quantity to drive greater

consumption could refocus on the fundamental need for better nutrition; IT and software companies devising ways to help utilities harness digital intelligence to economise on power usage; banks producing a line of products that help customers budget, manage credit and pay down debt; or energy companies and manufacturers developing more environmentally friendly processes.

3.2. Redefining productivity in the value chain

As pointed out by Porter and Kramer (2011, p. 68–9), a firm's value chain can be impacted by various societal issues at any number of levels, including natural resource and water use, health and safety, working conditions and equal treatment in the workplace. Therefore, opportunities to create shared value can arise because societal problems can create economic costs in the firm's value chain. Many so-called externalities actually inflict internal costs on the firm, even in the absence of regulation or resource taxes. For instance, excess packaging of products and greenhouse gases are not just costly to the environment but costly to the business. Ways in which shared value could transform the value chain include energy use and logistics (e.g. energy utilisation through better technology, recycling, cogeneration, improve logistical systems); resource use (e.g. utilisation of water, raw materials, and packaging, recycling and reuse); procurement (e.g. buying from capable local suppliers rather than overseas); distribution (distribution models that reduce paper and plastic usage); employee productivity (safety, wellness, training and opportunities for advancement for employees have on productivity); and business location (supporting local communities in which a company operates).

3.3. Enabling local cluster development

Porter and Kramer (2011, p. 72–3) argue that productivity and innovation are strongly influenced by 'clusters', or geographic concentrations of firms, related businesses, suppliers, service providers, and logistical infrastructure in a particular field. Clusters also draw on broader public assets in the surrounding community, such as schools and universities, clean water, fair competition laws, quality standards and market transparency. This can help companies' secure reliable supplies and acquire from suppliers with better economic incentives for quality and efficiency while simultaneously improving the standard of living of local populations. All of these factors can facilitate a 'positive cycle of economic and social progress and development'.

There is little doubt the CSV has attracted extraordinary (and largely positive) attention from executives, consultants and academics. As Crane *et al.* (2014, p. 132–3) note, this is evident in the extensive syndication of the concept in major media and business publications (e.g. *New York Times*, *The Economist*, the *Guardian* and *Forbes*), its inclusion in MBA teaching

programmes and the extensive number of positive citations it has garnered within a short time frame. While a direct comparison with other management fashions is difficult, it would seem that CSV satisfies many of the criteria of a management idea that is highly fashionable (Abrahamson, 1996).

However, while the Porter and Kramer concept implies that high CSV companies should be strategically aligned to be more profitable, this relationship is not entirely clear. For instance, Crane *et al*. (2014, p. 136–7) argue that CSV ignores fundamental tensions between social and economic goals that corporations face, particularly trade-offs between social and economic value creation, and potential negative impacts on stakeholders. For instance, there is no evidence that behaving virtuously should necessarily make companies more profitable (Vogel, 2005). Crane *et al*. (2014) argue that many corporate decisions relating to social and environmental problems do not present themselves as 'win–wins' but rather manifest themselves as ethical dilemmas where 'worldviews, identities, interests and values collide'. Hence, as they note, 'instead of promoting the common good, CSV might promote more sophisticated strategies of greenwashing'. While this criticism highlights the potential for profitability to trump any social or environmental benefit See Wright and Nyberg, (2015), an even more basic question is whether CSV activities do in fact result in superior firm financial performance? Indeed, this claim is largely assumed within Porter and Kramer's (2011) depiction of the concept (and indeed by critics). In this context, the study tests the following hypothesis in the null form:

H_0: There is no relationship between CSV activity and financial performance.

To test this hypothesis, we firstly construct an operational proxy for corporate CSV activity using 26 sustainability performance indicators which most closely align with Porter and Kramer's original conceptualisation of CSV: (i) recreating products and markets; (ii) redefining productivity in the value chain; and (iii) enabling local cluster development. Second, using standard regression and linear mixed-effects models, we explore whether a firm's level of CSV activity (as measured by our CSV proxy index) is systematically associated with key financial performance metrics, such as rate of return, cash flows, liquidity, leverage and other variables such as investment returns. Finally, we investigate the direction of the relationship between CSV activities and financial performance using the Granger causality test.

4. Research method

Our analysis of the financial implications of CSV activity by businesses uses a customised database of corporate social and financial performance. In developing the empirical framework for this study, we attempted to improve

on methodological limitations in previous empirical studies in the field of corporate social responsibility. First, our analysis is based on 5 years of data, whereas much previous research on corporate social performance has relied on a single-year cross section. Our 5-year sampling frame facilitates more robust inferences to be made about the CSP–CFP relationship, as well as improving on the construct validity and generalisability of our CSV proxy measure. Second, much previous research in this field has examined links between corporate social and financial performance using self-constructed indices developed by the researchers themselves, often based on small and undiversified samples (Patten, 2002). Invariably, these indices are derived from published sources of sustainability disclosure, such as annual reports, sustainability reports and web-based sources. This methodology can introduce some unavoidable bias into the analysis due to the subjective interpretations of the researchers and the limitations associated with voluntary company disclosures regarding social and environmental performance. For instance, what companies choose to disclose about themselves could be part of a more subtle economic or social legitimising strategy (Patten, 2002). Several studies have shown that greater corporate sustainability disclosure can in fact be *negatively* related to actual sustainability performance (see Brown and Deegan, 1998; Hughes *et al*., 2001; Patten, 2002; Cowan and Deegan, 2011), suggesting that disclosure indices themselves are not necessarily good proxies for good CSR behaviour.[3] This study attempts to improve on such limitations by developing a proxy for CSV based on a customised database developed by a leading sustainability research organisation in consultation with a major sustainability advisory firm.[4] Finally, many studies in this field tend to rely on relatively simplistic statistical inferences based on correlation and/or OLS regression analysis, often based on small undiversified samples.[5]

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[3] However, evidence of a positive relationship is reported by Clarkson *et al*. (2011).

[4] There is a possibility that this process instils greater objectivity and reliability in developing the CSV proxy, as these external parties were able to provide a further layer of attestation to the relevance of input measures used to construct the proxy measure. Further, the customised sustainability ratings were based on, inter alia, structured questionnaires to companies which can lead to more objective assessment of corporate sustainability performance over and above what a company discloses to the public (discussed further below).

[5] A surprisingly large number of studies fail to control for potential sources confounding effects (such as endogeneity between the independent and predictor variables, see Al-Tuwaijri *et al*., 2004; Gippel *et al*., 2015), violation of various statistical assumptions (such as IID), nor introduce formal statistical tests of causality between sustainability and financial performance. While many studies speculate on the direction of the CSP–CFP relationship, a panel/time series data analysis can facilitate more robust tests of direction and causality.

4.1. Sample

Our sample is based on Australia's largest 300 public companies (collected from the ASX 300 list). The sample was reduced to 287 firms due to missing or incomplete data. Each firm was sampled over a 5-year period from 2008 to 2012 inclusive. Access to the sustainability data was gained with the assistance of the Net Balance Foundation, the not-for-profit arm of Net Balance, one of Australia's largest sustainability advisory firms and a member of the 'Global Shared Value Initiative'. Our sample period starts in 2008 as CAER coverage of ASX firms is quite limited prior to this period. While our sample period spans the period of the global financial crisis (GFC), our empirical results suggest that the GFC event is unlikely to have impacted our empirical results in any significant way. Finally, a number of firms did not have five complete years of CSV scores (the median was 4 years of complete data), yielding a valid sample of 1037 of firm years with complete CSV scores.[6]

4.2. CSV proxy

As with most studies in this field, finding suitable sustainability performance data was a key challenge. After assessing various sources of data, the customised data set provided by the Centre for Australian Ethical Research (CAER) was deemed the most appropriate for this study. CAER is a leading Australasian provider of independent research into the environmental, social, governance (ESG) and ethical performance of public companies. CAER is also a member of the EIRIS Global Alliance of Environmental, Social and Governance (ESG) research firms.[7] CAER's database covers the ASX 300 and NZ 50 companies in Australia and New Zealand (based on market capitalisation). The data set consists of over 150 qualitative sustainability performance measures for the ASX 300 for the period July 2008 to June 2012, covering the following specific areas: governance; human rights; employees; customers and suppliers; and products. The CAER methodology surveys each company directly based on their sustainability performance. CAER then assesses each company against a set of global criteria. In addition to the information the firm provides in this survey, CAER also uses publicly available

[6] There was a broad spread of industries represented in the sample, including firms from the following sectors: energy ($n = 31$), materials ($n = 55$), consumer discretionary ($n = 46$), industrials ($n = 61$), consumer staples ($n = 13$), health care ($n = 14$), financials ($n = 41$), information technology ($n = 13$), telecommunication services ($n = 6$), utilities ($n = 6$) and other ($n = 1$). The mean market capitalization for the sampled firms over all periods was $3.6B, while the mean total revenues figure was $2.12B.

[7] With 30 years' experience of conducting research and promoting responsible investment strategies, EIRIS now provides services to more than 100 asset owners, asset managers and major index providers worldwide (e.g. FTSE4Good).

information provided by the company (e.g. website, annual report, CSR report and so on); information from independent regulatory and other industry sources; and searches of the press and NGO publications. Our second task was to select, from CAER's 150 performance measures, a suite of CSV-type explanatory variables that best map to the three CSV categories proposed by Porter and Kramer (2011), namely 'reconceiving products and markets', 'redefining productivity in the supply chain' and 'enabling local cluster development'. The task of selecting the CSV-type explanatory variables into the overall CSV score was carried out in conjunction with the Net Balance Foundation. Working in collaboration with CAER and the Net Balance Foundation, we selected 26 sustainability indicators that best approximated the Porter and Kramer CSV categories set out above (see Table 1). While the 26 sustainability variables selected did not in all cases map precisely to the Porter and Kramer (2011) categories, they represented the closest approximation available from the CAER data set. For example, in terms of Porter and Kramer's category of 'reconceiving products and markets', CAER has few specific metrics for assessing whether a firm's products or services are 'good' in terms of overall societal needs. However, there are several metrics available for assessing the overall sustainability framework in which firms provide goods and services in the community, which can reflect on the quality of goods and services that are provided, including: environmental policy; ESG risk management; stakeholder engagement; customer/supplier relations; product stewardship; environmental solutions; and more specific categories such as sustainable timber; and chemical safety and sustainability. Similarly, the 'enabling local cluster development' category was difficult to map directly to CAER's data set given the recent development of cluster theory in sustainability (Michelini and Fiorentino, 2012). Hence, for this study, we adopted a broader, supply chain, stakeholder engagement and community development definition.

4.3. Sustainability ratings

The CAER scoring system ranges from −3 to +3 as displayed in Table 2 below. For the purposes of this study, the theoretical range of the CSV scores is from a maximum of 78 to a minimum of −78 (i.e. 26*3 to 26*−3). CAER provides ratings categories ranging from A to E based on their own unique scoring methodology. Using this scheme, 'A' represents the best CSR performance rating possible and roughly equates to a firm being in the top 15 percent of CSR performers (based on the raw scores). While an 'E' rating represents the worst CSR rating and roughly equates to a firm being in the bottom 15 percent of CSR performers. CAER explains that its ratings incorporate two key factors: (i) a company's actual risk exposure and (ii) how well a company discloses the management of this risk. This process typically results in a 'negative' skew in the CAER ratings: CAER will initially assign a firm a negative rating that is based on their overall *risk exposure*. CAER then

Table 1
CSV proxy based on CAER indicators

Reconceiving products and markets	
Environmental policy	How well does the company rate on environmental policy and commitment?
ESG risk management	How well do the board and senior management address company-wide ESG risks and opportunities?
Stakeholder engagement	What level of engagement with stakeholders does the company disclose?
Customer/supplier relations	How clear is the evidence of systems to maintain good relations with customers and/or suppliers?
Product stewardship	What is the extent of the company's commitment to minimise its product or service environmental impact?
Environmental solutions	What proportion of turnover comes from environmental solutions?
Sustainable timber	How developed are the company's sustainable timber sourcing standards?
Chemical safety and sustainability	How is the company addressing the issue of chemical safety and sustainability?
Redefining productivity in the value chain	
Environmental performance	What level of improvements in environmental impact can the company demonstrate?
Environmental management	How does EIRIS rate the company's environmental management system?
Water management response	How does the company manage water risks?
Climate change	How is the company addressing the issue of climate change?
Biodiversity	How does EIRIS rate the company's biodiversity policy?
Chemicals of concern	Does the company manufacture or supply internationally restricted chemicals (UNEP 12, OSPAR Priority List)?
	Does the company manufacture or supply chemicals subject to NGO campaigns?
	Does the company manufacture or supply products containing ozone-depleting substances?
	Does the company manufacture or supply pesticides?
	Does the company manufacture or supply PVC or phthalates?
Health and safety	How clear is the evidence of health and safety systems?
Equal opportunities	How good is the company's policy on equal opportunity and diversity issues?
	How clear is the evidence of systems and practices to support equal opportunities and diversity?
Training	How clear is the evidence of systems to support employee training and development?
Job creation and security	How clear is the evidence of systems and practices to advance job creation and security?
Trade unions and employee participation	How clear is the evidence of systems to manage employee relations?
Human rights overall	What is the overall extent of policies and systems addressing human rights issues?

(continued)

Table 1 (continued)

Enabling local cluster development	
Indigenous rights	How is the company addressing the issue of indigenous rights?
Stakeholder policy	How good are the company's policies towards its stakeholders overall?
Stakeholder systems	How good are the company's management systems for stakeholders overall?
Stakeholder reporting	How good is the company's quantitative reporting on stakeholder relationships?
Community involvement	How clear is the company's commitment to community or charitable work?
Supply chain overall	What is the overall extent of policy, systems and reporting on supply chain labour standards?

Table 2
CAER rating of corporate sustainability performance

Qualitative grade	Numeric score
High Positive	+3
Med Positive	+2
Low Positive	+1
Low Negative	−1
Med Negative	−2
High Negative	−3

provides companies the chance to respond to this risk to 'neutralise' the negative risk exposure. For example, an energy company will initially receive a high negative rating from CAER because of its high environmental risk exposure.[8]

We do not introduce any weighting system for three CSV factors described by Porter and Kramer (2011) as they provide no indication of relative priority (see Crane *et al.*, 2014). Furthermore, given the generic description of CSV outlined by Porter and Kramer, our proxy measure is highly malleable in terms of the input measures used. For instance, we use 12 measures for 'redefining productivity in the supply chain' but less on the other CSV measures. However, as we are simply aggregating across the 26 input ratings into an overall CSV index, our approach is expected to provide a reasonably strong overall proxy of CSV despite the flexibility used in its construction. Every company rated by CAER is invited to respond to its rating, which provides a useful feedback mechanism to establish the overall reliability of the rating.

[8] If the firm cannot adequately respond to the negative risk exposure concerns, the resulting CAER rating will remain negative overall. The poorer the managements' response is to the perceived risk, the worse the CSR rating will be. Firms with greater than zero sustainability scores will typically have good CAER ratings because they are able to deal more effectively with their sustainability risks.

4.4. Financial performance and market variables

Financial and market metrics were extracted from the Thomson-Reuters database, a leading global provider of corporate financial and market data. A broad cross section of financial and market variables were extracted to test the relationship between various aspects of financial performance and CSV scores. These variables are defined in Table 3 below. Most of these explanatory variables have been well tested in a variety of empirical contexts in a substantial empirical literature (see Jones and Belkaoui, 2010). While the explanatory variable provided in Table 3 is far from exhaustive, the aim was to select a reasonably parsimonious group of variables which are considered representative and mainstream in the literature. We test cash flow performance, profitability, liquidity, capital structure, activity, distress risk (proxied by the Altman Z score with updated parameter estimates)[9] and annual investment returns. While it is useful to explore the relationship between current earnings/rate of return and CSV scores, we also include a measure of the market's expectation whether historical earnings performance will likely continue in the future. Hence, we model analysis consensus forecasts of future earnings growth as an explanatory variable. Some variables are introduced as control variables. For instance, previous literature has found an association between various types of sustainability disclosures and firm size and industry effects (Jones *et al*., 2007). In Australia, firms from the energy and materials sectors (which include all resources companies) have relatively higher sensitivity to environmental regulation and tend to disclose more information than firms from less environmentally sensitive industries (Beck *et al*., 2013). Hence, one industry control is set up as dichotomous variable coded '1' for firms in the energy and materials sector and zero otherwise. In the linear mixed-effects analysis, we include several other industry categories in the analysis of fixed effects. Firm size is also an important control variable used in previous research. An extensive empirical literature demonstrates that larger firms tend to disclose more than smaller firms, a finding also found to be true in many studies exploring the CSP–CFP relationship (Jones *et al*., 2007). We also use an earnings management proxy for this study as recent literature documents a strong association between CSR and a firm's propensity to manage earnings through discretionary accruals. For instance, Kim *et al*. (2012) find that firms that meet the ethical expectations of society through engaging in CSR activity are likely to be more conservative and transparent in their financial reporting, and less likely to engage in aggressive earnings management. Consistent with Kim *et al*. (2012), we use the Kothari (2005) methodology to estimate the earnings management proxy. We also test measures of a firm's discretionary investment in capital expenditure and intangible assets as proxies for growth opportunities (Myers, 1977). The level of capital expenditure is also a widely

[9] Estimated on a recent international sample of corporate failures.

Table 3
Explanatory variables

Quick ratio (acid test)	Cash + receivables + short-term investments in period *t* divided by current liabilities in period *t*
Cash resources to total assets	Cash + short-term investments in period *t* divided by total assets in period *t*
Cash flow returns	Net operating cash flow in period t divided by total assets in period *t*
Current ratio	Cash + receivables + short-term investments + inventory + prepayments in period *t* divided by current liabilities in period *t*
Cash flow to debt	Total debt in period *t* divided by net operating cash flow in period *t*
EBIT to total assets (EBITTA)	Earnings before interest and taxation in period *t* divided by total assets in period *t*
Earnings per share (EPS)	Net profit after tax in period *t* (less preference dividends) divided by total shares outstanding in period *t*
Free cash flow per share	Net operating cash flow minus capital expenditure in period *t* divided by number of shares outstanding in period *t*
Forecasted EPS Growth	Consensus analyst EPS growth forecast for next financial period
Industry Dummy	A dichotomous variable equal to 1 for firms in the energy and materials sector and zero otherwise
Log of Total Intangible Assets	Natural log of total intangibles in period *t*. Total intangibles include all identifiable intangible assets plus goodwill
Leverage ratio	Total debt in period *t* divided by total equity in period *t*
Log of capital expenditure	Natural logarithm of total annual capital expenditure for firm *i* in period *t*
Market capitalisation	Share price in period *t* multiplied by the number of shares outstanding in period *t*
Price to book ratio	Share price in period *t* divided by the book value per share in period *t*
Profit margin	Operating profit in period *t* divided by total revenue in period *t*
Return on assets (ROA)	Net profit after tax in period *t* divided by total assets in period *t*
Return on equity	Net profit after tax in period *t* divided by total equity in period *t*
Retained earnings to total Assets	Retained earnings in period *t* divided by total assets in period *t*
Risk Proxy (updated Altman Z score)	Sum of the following ratios weighted by their coefficients: T_1 = Current assets in period *t* less current liabilities in period *t* divided by total assets in period *t* all multiplied by 0.012 T_2 = Retained earnings in period *t* divided by total assets in period *t* all multiplied by 0.014 T_3 = Earnings before interest and tax in period *t* divided by total assets in period *t* all multiplied by 0.033 T_4 = Market capitalisation in period *t* divided by total liabilities in period *t* all multiplied by 0.006 T_5 = Total revenue in period *t* divided by total assets in period *t* all multiplied by 0.009
Sales to total assets	Sales revenue in period *t* divided by total assets in period *t*
Annual investment returns	Raw stock price returns + dividends in period *t*
Working capital to total assets	Current assets in period *t* minus current liabilities in period *t* divided by total assets in period *t*

used proxy for financial health (see for example Asquith *et al*., 1994). Both the total capital expenditure and total intangible asset investment variables exhibited significant heteroscedasticity across the sample and were log-transformed based on the Box–Cox power analysis.[10]

5. Empirical results

The following section presents the empirical results. We first set out the descriptive statistics that is followed by the regression analysis.

5.1. Descriptive statistics

Table 4 below displays descriptive statistics for key variables of this study. As can be seen from Table 4, the CSV score has a range of −20 to 55 over the sample and has a standard deviation of 17.47. The mean CSV score for the sample is 7.04. The bottom 25 percent of the sample displays a mean of −7.00, while the top 25 percent has a mean of 19.5. As can be seen from Figure 1 below, the trend in CSV scores over the whole sample has been generally negative over the 2008–2012 sample period, notwithstanding an uptick in mean scores in the 2012 period. The downtrend is CSV scores is most likely attributed to the GFC and the sharp tightening in discretionary expenditure and refocusing on the 'balance sheet' by companies in Australia and worldwide.

However, the mean differences in CSV scores across each of the years 2008–2012 are not statistically significant.[11] Figure 2 shows that for the ASX 100, CSV scores are actually higher than the rest of the sample and there is modest uptrend in CSV scores, but the trend is not statistically significant over any of the sampled time frames.

While the trend in CSV scores is lower on average over the sample period, there are considerable variations across industry sectors. The sharpest downtrends over the sample period can be observed in the telecommunications sector (the mean CSV score dropped from around 35 to 2); the materials sector (a drop from around 15 to 10); the healthcare sector (a drop from around 7 to 3); and the financials sector (a drop from around 17 to 13). By contrast, the average CSV scores in the utilities sector has sharply increased from a mean of around 0 to 10, while all other industry groups have displayed no particular trends in CSV scores over the sample period.

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[10] Using the Box–Cox transformation procedure, the lambda value was found to be close to zero, indicating that the natural logarithm is the optimal transformation method for these variables.

[11] Using one-way ANOVA, the omnibus *F*-statistic is found to be only marginally significant ($F = 2.20$, $p = 0.067$). Post hoc testing, using Tukey's HSD method, indicates that none of the differences across individual time periods are statistically significant.

Table 4
Descriptive statistics

	N	Mean	Median	SD	Skewness	Kurtosis	Minimum	Maximum
CSV score	1,037	7.04	3.00	17.47	0.63	−0.64	−20.00	55.00
Acid test ratio	1,303	0.91	0.56	2.62	10.22	119.74	−0.01	37.46
Cash to total assets	1,315	9.02	5.03	11.66	2.79	10.32	0.00	80.91
Cash flow returns	1,353	8.64	7.85	12.92	−0.09	3.44	−42.90	52.62
Stock price returns	1,101	28.65	4.33	121.05	6.28	56.97	−92.53	1690.15
Current ratio	1,301	3.14	1.53	6.70	7.29	70.10	0.04	94.21
Debt to cash	1,323	2.57	1.57	6.97	1.07	13.13	−34.89	48.54
EBIT to total assets	1,316	8.59	8.33	17.43	−2.09	31.20	−202.77	143.09
EPS	1,058	−8.09	4.01	211.30	−1.02	9.22	−972.75	970.18
Free cash flow per share	1,332	16.78	14.07	19.39	2.65	38.93	−89.40	302.81
Gearing	1,346	61.30	34.27	95.13	3.07	10.29	0.00	534.91
Growth in EPS	1,040	44.82	7.34	176.20	5.13	27.22	−152.24	1105.79
Intangibles to total assets	1,003	9.14	3.28	14.26	2.57	6.921	0.00	75.99
Log of CAPEX	1,333	3.38	3.49	2.22	−0.51	1.32	−6.21	9.93
Log of total intangibles	982	3.41	3.39	2.55	−0.48	0.91	−6.91	9.11
Market capitalisation	1,388	3601.73	633.42	11595.85	6.92	59.84	3.05	146660.72
Earnings management proxy (modified jones model)	1,160	0.00	0.29	0.99	−0.25	3.09	−2.65	4.40
Price to book	1,334	2.18	1.48	2.42	4.73	39.09	−1.95	31.71
Profit margin	1,317	−11.83	7.31	122.12	−3.71	27.65	−973.02	746.80
Retained earnings to total assets	1,337	−0.4940	7.18	52.65	−4.08	22.58	−383.03	139.26
Return on assets	1,351	2.94	4.81	19.26	−3.81	36.14	−230.33	96.87
Return on equity	1,352	7.98	9.79	30.26	−0.83	9.87	−152.21	212.62
Sales to total assets	1,318	78.98	61.93	74.67	1.624	3.255	0.00	454.74
Working capital to total assets	1,303	14.03	10.95	21.77	0.822	2.686	−85.43	98.81

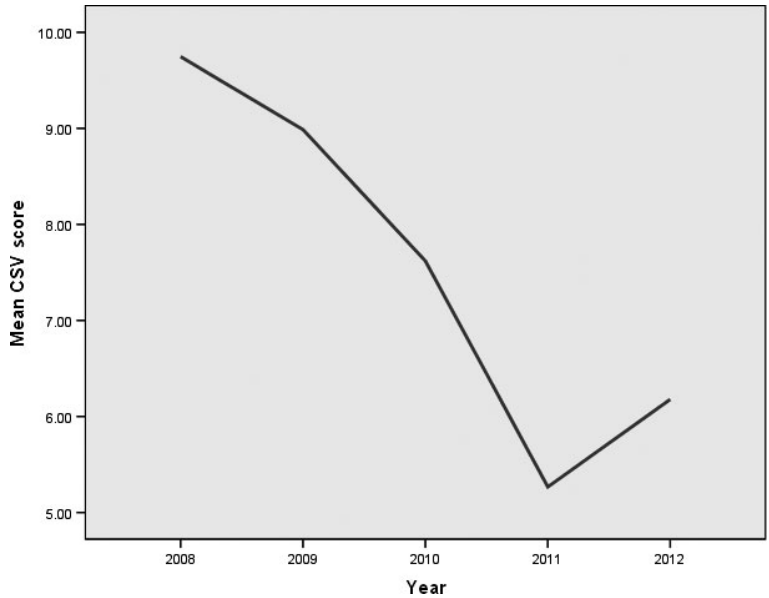

Figure 1 Trend in CSV scores 2008–2012 (whole sample).

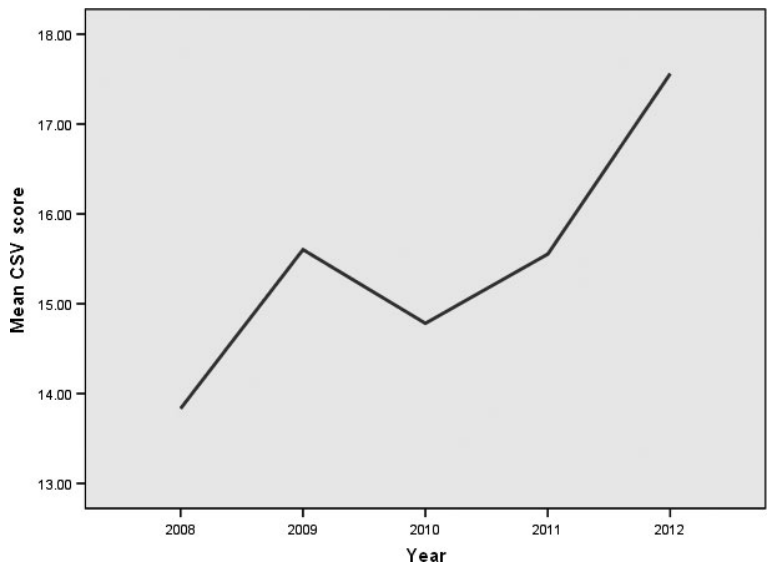

Figure 2 Trend in CSV scores 2008–2012 ASX100.

Table 4 indicates that the overall financial performance and balance sheet strength of the sampled companies is quite strong as might be expected for the ASX 300, particularly when compared to global performance benchmarks. For

instance, the mean return on equity for the sample is 7.98 percent, while the mean value of EBIT to total assets is 8.59 percent. The rate of return on assets (ROA) is more modest with a mean value of 2.9 percent over the sample period. The cash flow performance of the sampled companies is also quite strong. For instance, the mean value for cash flow returns (operating cash flows divided by total assets) is 8.64 percent. The mean return for the current ratio and acid test ratio (quick ratio) are 3.14 and 0.919, respectively, indicating strong short-term liquidity for the sampled companies. The mean ratio for leverage (total debt to equity) is fairly conservative at 61.30 percent. The median annual investment returns over the sample period is a mere 4.33 percent annually, reflecting the weak stock market conditions over the past 5 years following the GFC. There have been significant improvements in average liquidity and profitability over the sampled period. For instance, the EBIT to total assets ratio has increased from around 6 to 9 percent between 2008 and 2012. One of the most noticeable changes is that many companies have been deleveraging following the GFC. For instance, the leverage ratio has decreased sharply from around 75 percent in 2008 to just over 50 percent in 2012.

5.2. *Regression analysis*

We utilise a multiple regression framework to examine the behavioural influence of financial and market variables on CSV scores across the sampled firms. We then discuss robustness tests, including re-estimating the model parameters using a linear mixed-effects model to examine potential impacts of potential violations of regression assumptions (particularly the *IID* condition). Table 5 below displays the final regression model, including parameter estimates, *t*-values, significance levels, confidence intervals and multicollinearity statistics (variance inflation factors). The model reported in Table 5 contains a number of statistically significant parameters and has an adjusted R^2 of 55.4 percent, indicating a very good model fit. Two other measures of goodness of fit that penalises regression models for potential over fitting (such as using additional parameters to inflate the R^2 value) are the Akaike information criterion (AIC) and Bayesian information criterion (BIC).[12] The AIC for the model in Table 5 has a value of 4,505.43 (and a BIC value of 4,566.58), which was the lowest amongst alternative models estimated. This result indicates that the model in Table 5 is the most preferred in terms of explanatory power (see Yang, 2005).

As can be seen from Table 5, most parameter estimates are highly significant. Overall, the model suggests a relatively strong relationship between CSV scores and financial performance based on the pooled observations 2008–2012. The model indicates that higher CSV scores have a positive and statistically

[12] These statistics measure the information lost from alternative models and can be interpreted broadly as a trade-off between model precision and complexity.

Table 5
OLS parameter estimates for final regression model (pooled observations)

Model Adj. R^2 (55.4%)	Unstandardised coefficients		Standardised coefficients			95.0% Confidence interval for B		Collinearity statistics	
	B	SE	*β*	*t*-value	Sig.	Lower bound	Upper bound	Tolerance	VIF
(Constant)	−12.362	1.829		−6.758	0.000	−15.955	−8.769		
Cash flow returns	0.798	0.132	0.584	6.029	0.000	0.538	1.058	0.183	8.461
Leverage	−0.036	0.008	−0.151	−4.805	0.000	−0.051	−0.021	0.785	1.275
Log of capex	5.480	0.416	0.646	13.169	0.000	4.663	6.297	0.323	3.098
Market capitalisation	0.000	0.000	0.161	4.749	0.000	0.000	0.000	0.675	1.482
Sales to total assets	0.019	0.007	0.082	2.721	0.007	0.005	0.033	0.856	1.169
Annual investment returns	−0.021	0.008	−0.075	−2.584	0.010	−0.037	−0.005	0.922	1.084
Profit margin	0.010	0.006	0.062	1.703	0.089	−0.002	0.021	0.594	1.683
Free cash flow per share	−0.873	0.099	−0.751	−8.824	0.000	−1.067	−0.678	0.107	7.500
Return on assets	0.165	0.073	0.133	2.254	0.025	0.021	0.308	0.223	4.483
Log of intangibles	0.769	0.254	0.113	3.035	0.003	0.271	1.268	0.555	1.800
Earnings management proxy	−1.424	0.609	−0.091	−2.336	0.020	−2.621	−0.227	0.506	1.976
Retained earnings to total assets	−0.095	0.018	−0.217	−5.408	0.000	−0.130	−0.061	0.480	2.084
Industry dummy	3.274	1.344	0.080	2.436	0.015	0.634	5.913	0.724	1.382
Current ratio	−0.461	0.863	−0.016	−0.534	0.594	−2.156	1.234	0.905	1.105
Forecasted EPS growth	0.006	0.004	0.047	1.604	0.109	−0.001	0.013	0.915	1.093

This table displays the final OLS regression model for pooled observations (2008–2012), including parameter estimates, *t*-values, significance levels, confidence intervals and multicollinearity statistics (variance inflation factors). The model reported in Table 5 contains a number of statistically significant parameters indicating a pronounced relationship between CSV scores (dependent variable) and various financial indicators, including cash flow, rate of return, asset turnover, profit margin, leverage and other variables.

significant association with: cash flow returns ($t = 6.02$, $p = 0.000$); rate of return on assets ($t = 2.25$, $p = 0.025$); sales turnover ($t = 2.72$, $p = 0.007$); and profit margin that is tending towards significance ($t = 1.70$, $p = 0.089$). That is, companies scoring higher on their CSV scores generate a higher level of operating cash flows (as a percentage of total assets), utilise the total asset base more efficiently (as proxied by higher sales turnover and profit margin) and are more profitable overall. The forecasted EPS growth variable is positive, tending towards significance ($t = 1.73$, $p = 0.09$), indicating that future EPS growth is expected to be higher for higher CSV scoring firms. The model in Table 5 also indicates that higher CSV scoring companies have significant lower indebtedness as measured by the leverage ratio ($t = -4.80$, $p = 0.000$). The earnings management proxy measures the degree to which companies utilise the accounting process (i.e. accruals) to systematically manage earnings (Dechow *et al*., 1995). Table 5 indicates that the earnings management proxy is both significant and negative ($t = -2.33$, $p = 0.02$), suggesting that companies with higher CSV scores engage in less earnings management practices relative to companies with lower CSV scores, which is consistent with recent research literature (Kim *et al*. 2012). Table 5 also indicates that higher CSV scores are associated with higher levels of capital expenditure ($t = 13.16$, $p = 0.000$) and higher investment in intangible assets ($t = 3.03$, $p = 0.003$). Capital expenditures are costs incurred by companies acquiring or upgrading physical assets, such as property, plant and equipment, and hence represent an investment that creates future economic benefits and growth. It is noteworthy that there is a significant association between firms which engage more highly in CSV, and investment in intangibles.[13] Intangibles include resources such as scientific or technical knowledge, design and implementation of new processes or systems, licences, intellectual property, market knowledge and trademarks (including brand names and publishing titles). Discretionary investments, such as capital expenditure and investments in intangibles (such as research development and goodwill through business acquisitions), can be viewed as proxies for future growth opportunities (Myers, 1977; Adam and Goyal, 2008). As a discretionary investment, capital expenditure in particular is used extensively as a proxy for financial strength. Companies that are distressed or have low growth prospects typically cut or minimise their capital expenditure budgets to conserve free cash flow, even when such cuts (in the case of distressed companies) are costly, unexpected by the market and ultimately undesirable for the firm (see Asquith *et al*., 1994; Andrade and Kaplan, 1998).

[13] The Thomson-Reuters definition includes *identifiable intangibles* and goodwill from acquisitions. From 2006, Australia introduced more conservative rules for the recognition of identifiable intangible assets, which include criteria for identifiability (to distinguish identifiable intangibles from goodwill), measurability (costs need to be reliably measured) as well as the probable future economic benefits test.

It might be expected that the size of capital expenditure and investment in intangibles is positively associated with firm size and industry background. For instance, larger companies are more likely to invest in capital expenditure and certain types of intangibles (such as R&D and goodwill via acquisitions) by virtue of their size. Further, specific sectors such as energy and materials tend to be exploration intensive and typically make significant infrastructure investments at the production phase of operations. Hence, the industry dummy and size variables are important controls in the Table 5 regression results.

Table 5 indicates that companies with higher CSV scores tend to be larger, as proxied by market capitalisation ($t = 4.74$, $p = 0.000$). Considering that the model is based on Australia's largest public companies, the model is still picking up significant variations in CSV scores even within our large company sample. The industry dummy is also positive and significant ($t = 2.43$, $p = 0.015$), indicating that energy and material companies are statistically associated with higher CSV scores. Companies with higher CSV scores also tend to have lower levels of free cash flow ($t = -8.82$, $p = 0.000$) and lower levels of retained earnings to total assets ($t = -5.40$, $p = 0.000$). These results make intuitive sense in the context of the model reported in Table 5 as firms with higher levels of capital expenditure are expected to be associated with lower free cash flows (free cash flow is widely defined in the accounting literature as operating cash flows *less* capital expenditure). Further, companies making significant capital expenditure investments while maintaining conservative debt levels are more likely to be using internal funding sources to create future value and growth; hence, we would intuitively expect higher capital expenditure firms to have *lower* levels of retained earnings to total assets. While firms with higher CSV scores tend to have lower leverage ratios and superior cash flow performance and profitability, the annual investment returns are nevertheless lower ($t = -2.58$, $p = 0.01$), which could suggest that capital markets do not necessarily reward higher CSV performing companies in the shorter term. However, another interpretation is that the highest scoring CSV companies are the very largest (in terms of market capitalisation) and these companies have tended to underperform the broader market over the past few years in Australia. The negative correlation between sustainability performance and stock returns in Australia has been documented in previous research (Jones *et al.*, 2007) although there is some conflicting international evidence (Al-Tuwaijri *et al.*, 2004).

5.3. *Model diagnostics and robustness tests*

Regression models are particularly sensitive to violation of assumption which can diminish the value of any inferences drawn from the data (see Freedman, 2010). We find this particularly so in research examining the CSP–CFP relationship. As with any statistical modelling procedure, it is important to diagnose the model reported in Table 5 for potential problems arising from

autocorrelation, heteroscedasticity and multicollinearity in the data set. We find that the Durbin–Watson autocorrelation test for the model reported in Table 5 has a value of 0.94, indicating positive autocorrelation in the data set. The Breusch–Godfrey LM test, which is more general test than Durbin–Watson, is highly significant with a LM value of 166.68, indicating a potentially serious problem with autocorrelation. Table 5 displays variance inflation factors for all parameter estimates. Only two parameters have elevated variance inflation factors: cash flow returns (VIF = 8.46) and free cash flow per share (VIF = 7.50). While the variance inflation factors for these two particular variables are below the conventional threshold of 10 recommended in the literature (Kutner *et al*., 2004), they are nevertheless quite high. Furthermore, analysis of the residual versus fitted and normal Q–Q indicates some potential heteroscedasticity in the data set.

To correct any potential problems with autocorrelation and heteroscedasticity, one could simply correct the standard errors through the White's standard error correction or a Newey–West robust approach (Kutner *et al*., 2004; Andersen, 2008).[14] A more comprehensive procedure is to re-estimate the Table 5 parameters using a non-*IID* model such as a linear mixed-effects (LME) model. LME models (which combine fixed and random parameters) are designed to handle autocorrelation and heteroscedasticity in panel data, as well as uneven spacing between measurements and missing values (missing values are not case-wise deleted in LME models so long as they are deemed missing at random). Table 6 displays a LME model using Table 5 explanatory variables. Panel A of Table 6 provides estimates of fixed effects for Table 5 parameters with industry fixed effects for ten industry groups. Panel B of Table 6 displays the estimates of covariance (random) parameters. Random parameters in Panel B capture the autocorrelation structure of the panel data (the repeated measure variable is *year*) and is highly significant suggesting that the LME model is capturing significant autocorrelation in the data set. We also specify a firm-level random effect intercept term to capture any random variation in CSV scores across individual firms. The fact that the random intercept term is significant in Panel B suggests that there are other important explanatory variables that can affect an individual firm's CSV scores that are unmeasured or omitted from the model.

It can be seen from Table 6 that the LME model is broadly consistent with Table 5 both in terms of the signs and significance of parameters, although the significance of some parameter estimates is slightly weaker. For instance, in Table 6, the ROA variable is positive, tending towards significance ($t = 1.83$, $p = 0.068$). The earnings management proxy control is still negative but not

[14] We find the *t*-statistics for the robust regression model are slightly lower in some cases than standard OLS estimates in Table 5, but are nevertheless significant and consistent for all Table 5 parameters.

Table 6
Linear mixed-effects model

Fixed parameter	Estimate	SE	df	*t*-value	Sig.	95% Confidence interval	
						Lower bound	Upper bound
Panel A: Estimate of fixed effects							
Intercept	−15.966	3.530321	532.274	−4.523	0.000	−22.901868	−9.031725
Cash flow returns	0.588712	0.117722	446.274	5.001	0.000	0.357353	0.820070
Leverage	−0.041809	0.007548	497.569	−5.539	0.000	−0.056640	−0.026978
Log of CAPEX	5.496784	0.394675	512.695	13.927	0.000	4.721405	6.272163
Market capitalisation	0.000138	4.2E-005	523.955	3.281	0.001	5.5E-005	0.000221
Sales to total assets	0.031546	0.006711	520.075	4.701	0.000	0.018362	0.044730
Annual investment returns	−0.016813	0.007537	470.853	−2.231	0.026	−0.031624	−0.002002
Profit margin	0.006939	0.005640	447.529	1.230	0.219	−0.004145	0.018023
Free cash flow per share	−0.685516	0.089489	469.350	−7.660	0.000	−0.861365	−0.509666
Return on assets	0.118481	0.064753	397.455	1.830	0.068	−0.008820	0.245781
Log of intangibles	1.162503	0.236592	523.222	4.914	0.000	0.697717	1.627289
Earnings management proxy	−0.897433	0.560208	531.098	−1.602	0.110	−1.997929	0.203062
Retained earnings to total assets	−0.085035	0.015959	452.795	−5.328	0.000	−0.116398	−0.053673
Current ratio	−0.549015	0.805154	364.121	−0.682	0.496	−2.132351	1.034321
Forecasted EPS growth	0.002053	0.003439	469.733	0.597	0.551	−0.004704	0.008811
Industry fixed effects:							
[GICS = energy]	3.872499	3.329179	532.822	−1.163	0.245	−10.412426	2.667428
[GICS = materials]	9.113583	3.043334	529.788	2.995	0.003	3.135100	15.092066
[GICS = industrials]	0.552436	2.864708	528.217	0.193	0.847	−5.075183	6.180054
[GICS = consumer disc]	−3.062989	2.949354	529.115	−1.039	0.299	−8.856869	2.730891
[GICS = consumer staples]	3.694092	3.315171	526.669	1.114	0.266	−2.818490	10.206673
[GICS = health care]	1.367476	3.253554	531.462	0.420	0.674	−5.023929	7.758880

(continued)

Table 6 (continued)

Fixed parameter	Estimate	SE	df	*t*-value	Sig.	95% Confidence interval	
						Lower bound	Upper bound
[GICS = financials]	15.937041	3.133267	532.687	5.086	0.000	9.781966	22.092116
[GICS = information tech]	0.404581	3.471693	531.553	0.117	0.907	−6.415341	7.224503
[GICS = telecommunication]	−0.816833	3.862482	511.723	−0.211	0.833	−8.405105	6.771440

Random parameter	Estimate	SE	Wald *Z*	Sig.	95% Confidence interval	
					Lower bound	Upper bound
Panel B: Estimates of random parameters						
Repeated measures						
Var: [year = 2009]	118.254499	17.196998	6.876	0.000	88.926840	157.254283
Var: [year = 2010]	105.070264	13.466555	7.802	0.000	81.730424	135.075285
Var: [year = 2011]	89.046720	9.702141	9.178	0.000	71.924149	110.245564
Var: [year = 2012]	86.690958	9.910156	8.748	0.000	69.289578	108.462518
Intercept + subjects (firms)						
Var: Intercept	101.75023	18.79311	5.410	0.000	70.849100	146.095312

Utilities are removed to avoid the dummy variable trap.

Table 6 displays a linear mixed-effects model using Table 5 parameters. Panel A of Table 6 provides estimates of fixed effects for Table 5 parameters with industry fixed effects for ten industry groups. Panel B of Table 6 displays the estimates of covariance (random) parameters. Random parameters in Panel B capture the autocorrelation structure of the panel data (the repeated measure variable is *year*). The fact that the random intercept term is significant in Panel B suggests that there are other important explanatory variables that can affect an individual firm's CSV scores that are unmeasured or omitted from the model. It can be seen from Table 6 that the mixed-effects model is broadly consistent with Table 5 both in terms of the signs and significance of parameters, although the significance of some parameter estimates is somewhat weaker.

significant. The only other difference between Table 5 and Table 6 results is that the profit margin parameter is not significant although still positive.

Finally, many studies relying on the CSP–CFP frequently do not explicitly test for endogeneity. Endogeneity has many manifestations but as noted in Gippel *et al*. (2015: 146) 'endogeneity is [also] a problem of simultaneity, that is, when the dependent variable and one or more of the explanatory variables are jointly determined'. In econometric terms, endogeneity is also a problem of the IID (identical and independently distributed errors) assumption underpinning standard regression models (i.e. explanatory variables are correlated with the error structure). The linear mixed-effects model discussed above relaxes these highly restrictive assumptions; hence, endogeneity was not expected to be an issue in this study. This was confirmed further applying the Hausman–Wu test for endogeneity (see Gippel *et al*., 2015). Using one- and two-period lags of the financial variables as instrument variables produced a p-value greater than 0.1 (leading us to accept the null hypothesis that the IV estimates do not significantly improve on OLS model estimates).

5.4. Causality

A key question explored in the CSP–CFP literature is whether engaging in sustainability leads to improved performance or is some other relationship possible? The literature suggests that socially responsible behaviour can improve financial performance (for instance, by improving brand reputation, galvanising customer loyalty and so on). Jones *et al*. (2007) suggest the possibility that high-performing companies are better managed overall and have more strategic freedom and financial discretion to engage in sustainability activity. However, the direction of this relationship has not been tested formally in previous literature. The Granger causality tests (see Granger, 1969) were analysed on all explanatory variables for the model reported in Table 5 and the CSV dependent variable. With respect to market capitalisation, the results suggest that market capitalisation is statistically significant in predicting the future series of CSV scores ($F = 4.70$, $p = 0.03$) but CSV scores are not statistically significant in predicting the future pattern of market capitalisation ($F = 0.457$, $p = 0.49$). This result suggests that CSV scores do not appear to lead to higher market capitalisation, but rather higher levels of market capitalisation (i.e. firm size) lead to more CSV activity. A similar pattern was found with other key financial variables. For instance, with respect to cash flow returns, the results suggest that cash flow performance is statistically significant (marginally) in predicting the future series of CSV scores ($F = 2.39$, $p = 0.09$), but CSV scores are not significant in predicting the future level of cash flow returns (F-statistic = 0.69, $p = 0.40$). This result suggests that CSV scores do not lead to higher cash flows per se, but higher cash flow performance leads to more CSV activity. Similarly, higher profitability (ROA) appears to predict the future CSV scores ($F = 6.72$, $p = 0.001$), but CSV scores are not significant in

predicting future levels of ROA (*F*-statistic = 0.69, $p = 0.50$). We also find that leverage levels are statistically significant in predicting CSV scores ($F = 5.19$, $p = 0.02$) but CSV scores are not statistically significant in predicting future leverage (*F*-statistic = 0.0003, $p = 0.98$). Again, the results provide more evidence that financial performance leads to greater CSV activity, rather than CSV activity leading to improved financial performance. A similar result was found for most of the financial variables in the regression model.[15]

6. Concluding remarks

A key implication of our study relates to the potential motivations that may underlie the adoption of CSV by companies. Our findings suggest that it is already financially successful companies that are embracing CSV-type activities, rather than CSV generating financial success per se. This may imply successful companies see CSV activities as a way of further harnessing their performance in building new capabilities, efficiencies, products and markets, or more simply that they perceive CSV activities as what successful companies should be doing. Indeed, as noted earlier, the fashionability of CSV within the media, business schools and amongst executives and consultants suggests a process of normative isomorphism may already be in play (DiMaggio and Powell, 1983). That is, CSV may have come to be seen in a normative sense as 'good business practice' and adopted because of the high visibility and attention directed towards such practices. In this respect, CSV through its high visibility as a leading management fashion becomes associated with business success, irrespective of its actual contribution to further financial improvement (Abrahamson, 1996).

An important caveat for this study is based on the creation of a proxy for CSV-type activities based on Porter and Kramer's (2011) conceptualisation. As a relatively recent concept, CSV has yet to become a codified and universally recognised set of management practices. Hence, the true financial impact of CSV in companies may be yet to be seen as CSV is further articulated in business practice and academic research. Certainly, advocates of CSV at a company level are strongly of the opinion that such activities do succeed in driving improved financial performance through creating new products, markets and internal capabilities (Cadman and Bildfell, 2012). A second caveat is that the timing of our study may well have impacted upon the findings. In particular, the global financial crisis from 2008 has placed significant pressure on companies worldwide, and while the Australian economy largely avoided the economic downturn, nevertheless many large,

[15] With respect to capital expenditure, the results suggest a bidirectional relationship: the level of capital expenditure is statistically significant in predicting the future series of CSV scores ($F = 6.79$, $p = 0.009$), but CSV scores are also statistically significant in predicting the future level of capital expenditure ($F = 4.39$, $p = 0.03$).

global companies have reduced their expenditure on sustainability activities in recent years. Our study also highlights areas for future research. In particular, the motivations underlying companies' adoption of CSV-type practices need further analysis both at an aggregate and individual company level. Such research could help in understanding why companies are adopting CSV and their expectations with regard to the types of financial value they expect CSV to produce.

References

Abrahamson, E., 1996, Management fashion, *Academy of Management Review* 21, 254–285.

Adam, T., and V. K. Goyal, 2008, The investment opportunity set and its proxy variables, *Journal of Financial Research* 31, 41–63.

Al-Tuwaijri, S. A., T. E. Christensen, and K. E. Hughes, 2004, The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach, *Accounting, Organizations and Society* 29, 447–471.

Andersen, R., 2008, *Modern Methods for Robust Regression* (Sage, Thousand Oaks, CA).

Andrade, G., and S. N. Kaplan, 1998, How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed, *The Journal of Finance* 53, 1443–1493.

Asquith, P., R. Gertner, and D. Scharfstein, 1994, Anatomy of financial distress: an examination of junk-bond issuers, *The Quarterly Journal of Economics* 109, 625–658.

Barney, J., 1991, Firm resources and sustained competitive advantage, *Journal of Management* 17, 99–120.

Beck, C., G. Frost, and S. Jones, 2013, *Sustainability Reporting: Practices, Performance and Potential* (CPA/GRI, Sydney).

Benson, K., P. Clarkson, T. Smith, and I. Tutticci, 2015, A review of accounting research in the Asia Pacific region, *Australian Journal of Management* 40, 36–88.

Brown, N., and C. Deegan, 1998, The public disclosure of environmental performance information—a dual test of media agenda setting theory and legitimacy theory, *Accounting and Business Research* 29, 21–41.

Cadman, R., and D. Bildfell, 2012, Putting shared value into practice. *Stanford Social Innovation Review*.

Chesbrough, H., 2012, GE's ecomagination challenge: an experiment in open innovation, *California Management Review* 54, 140–154.

Clarkson, P., M. Overell, and L. Chapple, 2011, Environmental reporting and its relation to corporate environmental performance, *Abacus* 47, 27–60.

Cowan, S., and C. Deegan, 2011, Corporate disclosure reactions to Australia's first national emission reporting scheme, *Accounting & Finance* 51, 409–436.

Crane, A., G. Palazzo, L. J. Spence, and D. Matten, 2014, Contesting the value of "Creating Shared Value", *California Management Review* 56, 130–153.

Dechow, P. M., R. G. Sloan, and A. P. Sweeney, 1995, Detecting earnings management, *The Accounting Review* 70, 193–225.

Dhaliwal, D. S., S. Radhakrishnan, A. Tsang, and Y. Yong George, 2012, Nonfinancial Disclosure and Analyst Forecast Accuracy: International Evidence on Corporate Social Responsibility Disclosure, *The Accounting Review* 87, 723–759.

DiMaggio, P., and W. Powell, 1983, The iron cage revisited: institutional isomorphism and collective rationality in organizational fields, *American Sociological Review* 48, 147–160.

Eccles, R. G., I. Ioannou, and G. Serafeim, 2012, The impact of a corporate culture of sustainability on corporate behavior and performance, Working paper 12-035 (Harvard Business School).

Elkington, J., 2012, Sustainability should not be consigned to history by Shared Value. *The Guardian*.

Fombrun, C. J., and M. Shanley, 1990, What's in a name? Reputation building and corporate strategy, *Academy of Management Journal* 33, 233–258.

Freedman, D. A., 2010, *Statistical Models and Causal Inferences: A Dialogue with the Social Sciences*. (Cambridge University Press, Cambridge).

Friedman, M., 1970, The social responsibility of business is to increase its profits. *New York Times Magazine*, 13 September, 33.

Gilding, P., M. Hogarth, and D. Reed, 2002, *Single Bottom Line Sustainability: How A Value Centred Approach to Corporate Sustainability Can Pay Off For Shareholders And Society*. (Ecos Corporation, Sydney).

Gippel, J., T. Smith, and Y. Zhu, 2015, Endogeneity in accounting and finance research: natural experiments as a state-of-the-art solution, *Abacus* 51, 43–168.

Granger, C. W. J., 1969, Investigating causal relations by econometric models and cross-spectral methods, *Econometrica* 37, 424–438.

Hughes, S. B., A. Anderson, and S. Golden, 2001, Corporate environmental disclosures: are they useful in determining environmental performance, *Journal of Accounting and Public Policy* 20, 217–240.

Jensen, M. C., 2002, Value maximization, stakeholder theory, and the corporate objective function, *Business Ethics Quarterly* 12, 235–256.

Jones, S., and R. Belkaoui, 2010, *Financial Accounting Theory*, 3rd edn (Cengage, Sydney).

Jones, S., G. Forst, J. Loftus, and S. van der Laan, 2007, An empirical examination of the market returns and financial performance of entities engaged in sustainability reporting, *Australian Accounting Review* 17, 78–87.

Kim, Y., M. S. Park, and B. Wier, 2012, Is earnings quality associated with corporate social responsibility? *The Accounting Review* 87, 761–796.

Kothari, S. P., A. J. Leone, and C. Wasley, 2005, Performance matched discretionary accrual measures, *Journal of Accounting and Economics* 39, 163–197.

Kutner, M. H., C. J. Nachtsheim, and J. Neter, 2004, *Applied Linear Regression Models*, 4th edn (McGraw-Hill/Irwin, Boston).

Margolis, J. D., and H. A. Elfenbein, 2008, Do well by doing good? Don't count on It, *Harvard Business Review* 86, 19–20.

Margolis, J. D., and J. P. Walsh, 2003, Misery loves companies: rethinking social initiatives by business, *Administrative Science Quarterly* 48, 268–305.

Margolis, J. D., H. A. Elfenbein, and J. P. Walsh, 2007, Does it pay to be good? A meta-analysis and redirection of research on the relationship between corporate social and financial performance. In Academy of Management Annual Meeting. Philadelphia, PA.

McWilliams, A., D. S. Siegel, and P. M. Wright, 2006, Corporate social responsibility: strategic implications, *Journal of Management Studies* 43, 1–18.

Michelini, L., and D. Fiorentino, 2012, New business models for creating shared value, *Social Responsibility Journal* 8, 561–577.

Molina-Azorin, J. F., E. Claver-Cortes, M. D. Lopez-Gamero, and J. J. Tari, 2009, Green management and financial performance: a literature review, *Management Decision* 47, 1080–1100.

Moser, D. V., and P. R. Martin, 2012, A Broader Perspective on Corporate Social Responsibility Research in Accounting, *The Accounting Review* 87, 797–806.
Myers, S. C., 1977, Determinants of corporate borrowing, *Journal of Financial Economics* 5, 147–175.
Nestlé, 2010, *Creating Shared Value and Rural Development Summary Report* (Nestlé, Vevey).
Orlitzky, M., F. L. Schmidt, and S. L. Rynes, 2003, Corporate social and financial performance: a meta-analysis, *Organization Studies* 24, 403–441.
Patten, D. M., 2002, The relation between environmental performance and environmental disclosure: a research note, *Accounting, Organizations and Society* 27, 763–773.
Porter, M. E., and M. R. Kramer, 2011, Creating shared value, *Harvard Business Review* 89, 62–77.
Vogel, D. J., 2005, Is there a market for virtue? The business case for corporate social responsibility, *California Management Review* 47, 19–45.
Wood, D. J., 1991, Corporate social performance revisited, *Academy of Management Review* 16, 691–718.
Wright, C., and D. Nyberg, 2015, *Climate Change, Capitalism and Corporations: Processes of Creative Self-Destruction*. (Cambridge University Press, Cambridge).
Yang, Y., 2005, Can the strengths of AIC and BIC be shared? A conflict between model identification and regression estimation, *Biometrika* 92, 937–950.