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PERCEIVED ENVIRONMENTAL FACTORS AND THE INTENTION TO ADOPT A STANDARD BUSINESS REPORTING FACILITY: A SURVEY OF AUSTRALIAN CORPORATE CFOs

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ABSTRACT

The Australian government's extensible business reporting language (XBRL)-derived reporting facility, called Standard Business Reporting (SBR), went 'live' to companies in 2010. Its voluntary take-up by companies has been poor following a promotion that emphasised its technological benefits. This study seeks to identify a set of perceived environmental factors and examine how these factors influence managerial intention to adopt SBR. A survey instrument is developed to measure the extent of the competitive pressure, government pressure and external communication perceived by the Chief Financial Officers (CFOs) of listed companies as influences on their firms' intention to adopt SBR. Based on 54 usable responses by CFOs of relatively large listed companies, the survey results reveal that, contrary to the expectation, no significant association exists between perceived competitiveness in the industry and the intention to adopt SBR. However, CFOs regard becoming a leader or an early follower as a significant consideration influencing their firms' intentions to adopt SBR. As the paper reports, CFOs believe that they do not have adequate information about SBR from external sources. Communication about SBR is found to be significantly related to the intention to adopt SBR. Interestingly, government pressure is not found to relate to the intention to adopt SBR. Implications of these environmental influences for the successful voluntary take-up of SBR in Australia are discussed.

Keywords: standard business reporting, XBRL, competitive pressure, government pressure, communication

INTRODUCTION

The medium for processing and reporting corporate financial and business information through the supply chain from the manager-preparer to government regulators and to external users has evolved in recent years. In Australia, some major regulatory agencies of federal and state governments went 'live' with a coordinated on-line reporting facility called Standard Business Reporting (SBR)

in July 2010. As SBR is a relatively recent phenomenon in the Australian context, there is a lack of knowledge about its likely success (if any) in the medium term in relation to its take-up by Australian business entities. While the actual adoption of SBR during the first year of its availability has been minimal, the prospect of this facility being taken up by entities in the medium term can be gauged by the evidence of the intention to adopt. The purpose of this study is to investigate managements' intention to adopt SBR and its determinants to provide guidance to the Australian government and its regulatory agencies concerning the policy decision with regard to reporting via SBR in Australia.

Accounting disclosure plays an important role in decision-making for a wide range of stakeholders (Elsayed & Hoque, 2010). Government agencies, which are stakeholders, rely on accounting disclosure by entities to assist them with regulatory decision-making. Like other countries in the world, companies within Australia are required by law to lodge accounting reports with various public agencies. These reporting obligations result in an administrative burden for Australian companies, justifying the need to take an initiative (driven by government regulators) to seamlessly exchange accounting information between companies and public sector organisations in Australia. Following government-led initiatives in the US and European countries to implement an XBRL (extensible business reporting language)-based financial reporting medium between businesses and regulatory agencies, the Australian government, through a task group led by the Australian Treasury, developed a version of XBRL-facilitated on-line reporting, which has been called Standard Business Reporting (SBR). This SBR facility went live in July 2010, allowing reporting entities to submit their financial reports, tax returns and other required reports to the Australian Securities and Investments Commission (ASIC), Australian Taxation Office (ATO) and other regulatory agencies. To take up SBR, a reporting entity needs to adopt a version of XBRL as an interface with its accounting and financial and compliance reporting systems. The claim is that SBR will lead to improved data quality and integrity in compliance reporting. There is also potential for timelier reporting, as businesses will not need to transform their existing data sets to the same extent. These technological benefits are promoted by participating government agencies to induce their adoption by Australian entities. However, the voluntary nature of SBR means that it is ultimately in the hands of the business organisations to make SBR a success.

The examination of the determinants of disclosure in corporate annual reports represents one of the most systematic and sustained research efforts in the financial reporting literature (Asbaugh, Johnstone, & Warfield, 1999; Oyelere, Lasward, & Fisher, 2003). Oyelere et al. (2003) identified a gap by saying that future research should consider explanatory variables specific to the reporting environment, which may provide further insights into reporting practices. Such

factors should not be limited to only company size, profitability, etc. but should also extend to the age and levels of education of company directors/managers, the attitude of management to IT and new ideas, the age and strategic position of each company in its industry. These factors may influence the voluntary use of the Internet for financial reporting purposes (Oyelere et al., 2003). The study by Beyer, Cohen, Lys and Walther (2009) also leads to suggestions for future research on the reporting environment. They noted that the description of the corporate information environment highlights aspects of the environment that are still unknown. Haniffa and Cooke (2002) suggest that financial reporting practices reflect the underlying environmental influences that affect company accounting practices. Similar arguments are put forward by notable adoption theories (diffusion of innovation [DOI] and technology-organisation-environment [TOE] frameworks), which bear a particular relevance to the voluntary adoption of SBR because SBR is primarily a technology-intensive project. A closer investigation of those theories indicates that a number of factors for technology adoption relate to the outside environment of the organisations. The environmental forces may relate to (among others) relationships with business partners, competitors, industry associations, and governments and may influence the adoption decisions of organisations (DePietro, Wiarda, & Fleischer, 1990). As such, environmental factors have been tested empirically in the field of information technology adoption (see Dong, Xu, & Dresner, 2007; Huang, Janz, & Frolick, 2008). The increasing use of information technology in financial reporting practices indicates that there is a need to widen our understanding about how organisations would react to a new system by looking at possible external factors that influence the adoption of the new technology.

Several factors in the environment interrelate with each other and shape the decisions of managers/accountants. The discussion of this interrelationship has so far been ignored in the literature (Beyer et al., 2009). This paper contributes to the existing literature by investigating the influence of factors in the corporation's environment that affect the management's intention to adopt a new financial reporting medium: SBR. To this end, this paper aims to shift the attention from technical aspects of SBR to behavioural issues faced by Australian entities in response to the introduction of SBR. Although the field of behavioural research in accounting has, according to Sutton (2010), flourished over the past 40 years, the large majority of this research has excluded current technological developments that influence the behaviour of accounting professionals. Taking SBR as an adoption case, this paper aims to determine the extent of the influence of key environmental factors on the corporate management's intention to adopt a new technology to facilitate its entity's financial and other compliance reporting to government regulators and agencies. This paper uses empirical data gathered from Australian listed companies to report the findings concerning the association of perceived environmental factors with the level of intention to adopt

an alternative financial report medium (SBR). Previously, Troshani and Doolin (2005), Doolin and Troshani (2007) and Cordery, Fowler, and Mustafa (2011) published empirical research about the adoption of XBRL. These studies have taken a case study approach or conducted interviews of managers across a small number of businesses and regulators. The study by Henderson, Sheetz and Trinkle (2012), which attempts to explain the determinants of XBRL adoption, is predominantly based on US entities. Approximately 85% of the respondents in the Henderson et al. (2012) study are located in the US. The present study is more suited to the Australian perspective, as SBR was developed by the Australian government to streamline business reporting in Australia. Moreover, Henderson et al. (2012) recruited respondents from a range of sources. In contrast, the present study is based only on a sample of the preparers of corporate reports in Australia. The findings therefore provide new evidence of their relevance to Australian regulators, which might assist the regulators in transferring their implications to effective and market-oriented strategies to infuse the future take-up of the government's SBR facility.

Background on XBRL and Australia's SBR

The field of information and communication technology (ICT) has generated many innovative products in the past two decades. This has attracted a diverse body of theoretical and empirical work on the adoption of ICT-based innovations (Jeyaraj, Joseph, & Lacity, 2006). The pace of change in information technology (IT) can also be felt in the field of accounting, and it has been commented that IT has radically changed the manner in which accounting information is produced, disseminated and used (Sutton, 2010). The Internet enables the spread of this electronic information in an easy and economical way. The early step taken in the use of the Internet for electronic business reporting was the presentation of documents such as annuals in Hyper Text Mark-up Language (HTML) or Portable Document Format (PDF). However, as these communication media for presenting documents only provided text and multimedia for the human eye, important functions such as intelligent search and data exchange were not possible. It was argued that what the financial reporting supply chain needed was a new universal language in which to report information and a way to use that language that did not require years of study by preparers and users (DiPiazza & Eccles, 2002).

This language now exists. XBRL, a variant of XML, defines the financial data on the web with explicit semantics in a machine-readable format (Yoon, Zo, & Ciganek, 2011). Each financial item in XBRL documents is assigned a unique, predefined tag. These tags are established according to financial accounting standards. Using these tags, every data element is fully described in terms of its definition, format, location, calculation, and labelling (Li, Roge', Rydl, & Crews,

2006). XBRL can also tag non-financial, industry-specific, and company-specific information. It goes even further by facilitating the collection of information not only inside a company but outside it as well. The tagging structure of XBRL allows the interoperability of the data, and the overall objective of using XBRL is to improve the disclosure, management and analysis of corporate data (Bonson, Cortijo, & Escobar, 2009). The framework of XBRL facilitates the easily automated production of financial data (Debreceny, Farewell, Piechocki, Falden, & Graning, 2010), and the availability of software applications makes the analysis of such information possible (Silveria, Abreu, & Fatima, 2007). Due to its apparent advantages, XBRL is gaining widespread acceptance, support and advocacy from a range of key constituencies in some parts of the world, including the accounting, software, regulatory and industrial sectors (Jones & Willis, 2003).

Considering the benefits that XBRL provides, several regulatory bodies worldwide have already adopted or plan to adopt XBRL in their reporting infrastructure. While some governments or their agencies have already mandated XBRL report filings, a few others have started voluntary XBRL programs (Cordery et al., 2011). Examples of countries that have adopted XBRL-based reporting facilities include the US, Canada, the UK, Singapore, the Netherlands, Spain, and China. The emergence of XBRL gave the Australian government an impetus to take an initiative to reduce reporting burdens faced by Australian entities. An Australian federal task force report (titled "Rethinking Regulation") indicated that the aggregate total cost to businesses as a result of adhering to government-reporting requirements (in Australia) was in the range of 2.5% of gross domestic product (GDP) per annum because it diverted time and resources from core business activities (Madden, 2009). Some submissions to the taskforce indicated that compliance activities could occupy up to 25% of senior management's time. In response, the Australian Government approved the development of an SBR program through an SBR Steering Group with the Australian Treasury as the lead agency and participation from the Australian Securities and Investments Commission (ASIC), the Australian Taxation Office (ATO) and the Australian Bureau of Statistics (ABS), and State and Territory revenue offices (SROs). It closely considered the Dutch Taxonomy project that aimed to standardise the reporting of financial accounts, taxes and financial statistics and move to XBRL reporting in all of these areas (Madden, 2009). There has been extensive consultation and collaboration with stakeholder groups, including business and business intermediaries such as commercial accounting and business software developers. These 'business intermediaries' are a large group that includes accountants, tax agents, financial advisors, payroll specialists and bookkeepers as well as business and industry associations (Madden, 2009). Together, a single set of reporting definitions was developed that makes it possible to map government reporting terms directly to the appropriate

information in a business's financial/accounting or payroll system. From July 2010, companies within Australia can voluntarily use the SBR platform to submit their statutory reports to the major participating government agencies.

Theoretical Perspectives and Hypotheses

The SBR facility presents a change in the Australian financial reporting landscape and, if adopted by Australian entities, has the potential to develop into a more innovative and informative financial disclosure practice by entities in Australia. It has been suggested that financial disclosure practices do not develop in a vacuum (Haniffa & Cooke, 2002), and company disclosure practices are influenced by external factors, such as market uncertainty, culture, and corporate governance, among others (Armitage & Marston, 2008; Belkaoui & Al Najjar, 2006; Khanna, Palepu, & Srinivasan, 2004). Decisions on company reporting practices are primarily made by internal management. Contingency theory offers help to explain actions of managers. Contingency theory contends that what constitutes effective management is situational depending upon the unique characteristics of each circumstance (Elsayed & Hoque, 2010). Therefore, managers' choice of financial reporting practices is influenced by outside contingencies. While the application of contingency theory in accounting research is not common, several researchers have found the theory useful in explaining the development of international accounting practices (e.g., Elsayed & Hoque, 2010; Tan & Tower, 1999). Previously, Thomas (1986) established that the environment of an entity affects the entity's reporting practices, which led the author to comment that the contingency perspective has the potential to capture the determinants of adopting a new reporting practice by entities. The literature informs that environmental contingencies are outside of the control of the managers of an organisation but affect a manager's decision-making process. Schweikart (1985) develops a model that treats the environment as an external contingency affecting the organisational decision-making process. More specifically to financial reporting, Lopes and Rodrigues (2007) state that variations in the environment (in which companies operate) lead to differing decisions as to the optimal methods of corporate reporting. SBR adoption is a decision case for Australian managers, and it is likely that their decisions would be affected by factors in the environment in which entities operate. Drawing on the theoretical perspectives of contingency theory, a research model has been developed for this study to investigate the impact of environmental factors on potential adoption of SBR in Australia. Figure 1 presents the research model used in this study.

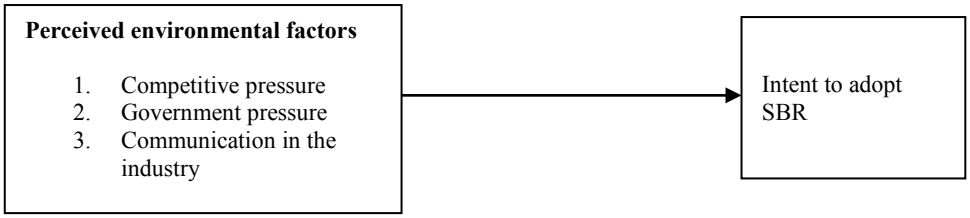

Figure 1. Research model of the study

As seen in Figure 1, the model used in this study takes into account the influence of three perceived environmental factors (competitive pressure, government pressure and communication in the industry) on the intention to adopt SBR in Australia. Adoption studies normally use the intention to adopt to predict the adoption pattern. This study does the same. There is also another reason why the intention to adopt SBR has been included in the conceptual model as the dependent variable. The data collection period for this study is just before the initial rollout of voluntary SBR in Australia. No actual adoption would have occurred at the time of data collection. This makes the "intention to adopt" the focal point of the investigation.

Competitive Pressure and the Intention to Adopt SBR

The impact of competitive pressure on the adoption of a new system is widely discussed in the literature (Teo, Tan, & Wei, 1995; Chwelos, Benbasat, & Dexter, 2001). Kuan and Chau (2001) believe that in many cases, a company may adopt a technology (or system) due to influences exerted by its competitors, and this decision has nothing to do with the technology or organisation per se. Similarly, a firm may also feel pressure when it sees more and more companies in the industry adopting SBR (or XBRL) and therefore feels the need to adopt SBR to remain competitive. Competitive pressures are examined in the adoption studies of Internet reporting. Debreceny and Gray (1999) indicate that given the possibility for firms to make on-line information available for a broad array of stakeholders, it may not be surprising that the Internet can give these firms a competitive advantage over competitors who do not provide Internet disclosures (Debreceny & Gray, 1999). Ashbaugh et al. (1999) found out that firms generally agree that an important reason for establishing website reporting is the need to keep pace with their competitors. Therefore, these researchers are convinced that companies are (partly) inspired by their competitors. The same result is found in the IT literature. Some researchers (Webster & Trevino, 1995) believe that social influence can affect the intention to adopt a new technology. This is because adoption decisions may be influenced by socialisation forces due to the desire to align one's behaviour with the rest of the group (Songpol, Burner, & Al-Shuridah, 2009). Wang, Wang and Yang (2010) found the adopters of new technology

perceived significantly higher competitive pressure than non-adopter firms. Russel and Brown (2007) and Fosso, Keating and Michael (2009) reached the same finding. It can be explained that demand uncertainty or competitiveness tends to increase a firm's incentives to adopt new systems (Zhu & Weyant, 2003). The findings from these studies indicate that the competitive pressure is an important environmental stimulator for the adoption of a new technology-based system, and therefore, competitive pressure has long been recognised as an adoption motivator in the innovation adoption literature (Grover, 1993; Iacovou, Benbasat, & Dexter, 1995; Crook & Kumar, 1998; Lin, 2008). It is only logical because when competitors implement a new technology, they would try to reap competitive benefits from the technology; similarly, the other firms will feel pressure and be more receptive towards the technology. Porter and Millar (1985) suggested that by adopting a new information system (or a new technology), firms might be able to alter the rules of competition, affect the structure of the industry, and leverage new ways to outperform their competitors, thereby changing the competitive environment. Thus, new technology adopters (especially the voluntary adopters) are more concerned about the competitive differentiation than are non-adopters. The positive relationship between competitive pressure and the adoption of technology can be extended to the adoption of SBR in Australia.

H_1: Competitive pressure is positively related to an organisation's intention to adopt SBR.

Perceived Government Pressure and the Intent to Adopt SBR

Another factor of the external environment that influences the adoption of a new system, especially in a regulated environment, is government pressure. Teo et al. (1995) argued that a government can exert significant pressure on organisations to adopt a new technology, which sometimes is enough to induce its adoption. Government pressure to adopt a new technology comes with a cost to comply. However, Delmas (2002) noted that even though firms may experience higher transaction costs to meet governmental requirements, non-compliance may produce additional transaction costs. From this suggestion, it might be assumed that if government makes the objectives and benefits clear to organisations, it might lead to the quicker adoption of the technology by the organisations (Lippert & Govindarajulu, 2006). This argument is supported by Xu et al. (2004), who assert that governments can encourage adoption by taking appropriate action. A survey of Korean companies by Hovav and Kim (2006) provides some interesting findings on the adoption of an Internet protocol in Korea. The protocol was advocated by the Korean government in the same way that SBR is being advocated by the Australian government. It was found that few organisations agree that the Korean government provides enough information

regarding the benefits (38%), technical issues (23%) and risks (23%) associated with the adoption of the protocol. However, 42% of the organisations surveyed felt that the involvement of the Korean government would affect their adoption decision. The surveyed organisations also felt that they are not provided with enough information regarding the risks involved in adopting the new standard. These findings indicate that organisations increasingly evaluate government actions before adopting a new technology when it is advocated by government. The topic of this study bears a considerable relevance to SBR in Australia. SBR in Australia is being advocated by regulators, and therefore, it is only logical to assume that Australian entities would evaluate government actions before they decide on the large-scale adoption of SBR. This is supported by Lin (2008), who suggests that the government can draw up public policies to encourage companies adopt a new system by seeing the benefits in the system. Therefore, it is hypothesised that perceived government pressure is positively related to the intention to adopt SBR.

H_2: Perceived government pressure is positively related to an organisation's intention to adopt SBR.

Communication in the Industry and the Intent to Adopt SBR

For an innovation to be adopted, information about it must be available to potential adopters (Premkumar, Ramamurthy, & Nilakanta, 1994; Rogers, 2003). The extent of information available will depend on the level and nature of communication within the industry (Frambach, 1993). An environment with success stories and pioneering adopters can also raise awareness and encourage innovation adoption (Elliot, 2002; Gharavi, Love, & Cheng, 2004). Proper and adequate communication in the external environment makes the decision maker aware of the new technology. Researchers view the communication as vital to encourage the voluntary adoption of a new technology. That communication may come from regulatory agencies, vendors or even other organisations. Ellis and Belle (2009) demonstrated that the key problem areas in regard to the selection of a new technology (software in their study) is the fact that decision makers are not adequately informed about the alternative solutions available (Johnston & Seymour, 2005). In the same study, it was revealed that organisations in general feel more confident about the technology to which they have had more exposure. This factor feeds directly into product knowledge and is a fundamental barrier to the widespread use of the new technology. The study by Hovav and Kim (2006) provides some insight into the role of communication, leading to the adoption of a new technology. The study found that Korean firms actively searched for information regarding the new Internet protocol before adopting it. They found that government did not provide enough information. More organisations agree that local trade magazines provide enough information about the protocol

(44%–50%), while international trade magazines provide less information (ranging from 15% to 35%). In addition, the survey indicates a lack of information regarding adoption patterns in other countries. This lack of information can increase concerns of interoperability and deter adoption, especially for global companies (Hovav & Kim, 2006). These findings show that companies need enough information about the technology if the technology is advocated by government. In a voluntary environment, the lack of information might prompt the organisations to view the technology as risky, which works against their adoption. It is not necessary that the communication only come from the regulators or professional bodies, although they may be a major source. The communication may come from peers and other companies in the industry, depending on how the network system is working. Direct and frequent communication strengthens attitudes and behavioural similarity between two companies (Erickson, 1988). Marsden and Friedkin (1993) suggest that in situations of uncertainty, decision makers unintentionally rely upon inter-organisational network ties to gather information. Therefore, if the network is cohesive, it will speed up the pattern of innovation adoption (Davis & Greve, 1997; Ahuja, 2000). While Gibbons (2004) suggests that different network structures affect the diffusion of innovation differently, it is clear that communication plays a vital role in shaping the adoption pattern. On the issue of previous XBRL adoption (in Australia), the interviews conducted by Doolin and Trohani (2007) suggest that the availability of information and its benefits are important during the early stage of adoption. SBR in Australia is pioneered by the Australian treasury with the involvement of several other regulators (ATO, state revenue offices, etc.). Professional bodies such as CPA Australia recommend its use. The level of communication received from these parties or any other party would have an impact on the organisational intention to adopt SBR.

H_3: The level of communication received about SBR is positively related to an organisation's intention to adopt SBR.

RESEARCH METHOD

This study investigates the adoption of SBR by addressing the relationship between the three environmental factors and the intention to adopt SBR in Australia. Because there is very little published research as a result of the newness of the SBR project, the study was designed to be descriptive to enable the researcher make a commentary on the hypothesised relationships. This study meets the requirements for the use of a quantitative research design. To overcome the difficulties with data collection from a geographically dispersed population, a standard instrument (self-administered questionnaire) was developed and used as a data collection medium. This approach makes use of primary data collected

from field surveys. The data are cross-sectional from a sampled population of listed organisations in Australia. This study restricted its empirical investigation to the top 500 (based on market capitalisation) listed companies in Australia. While the SBR initiative is available to all business entities in Australia, this study restricts its empirical investigation to listed companies only because these entities have more complex and comprehensive reporting requirements to be processed. To avoid confounding effects due to different legal, institutional and cultural factors, the study is concentrated on companies listed in one country, i.e., Australia. The names of the listed companies were collected from the "Connect 4" database (www.connect4.com.au), which has a list of all listed companies and their annual report information.

In deciding to use the top 500 companies from the ASX (Australian Securities Exchange) as the sample, several factors were considered. First, due to the lack of a similar study in Australia, the researcher was unable to seek help from previous research. Troshani and Doolin (2005) investigated the XBRL situation in Australia by sending open-ended questions to and interviewing organisations who were members (27 in total) of XBRL Australia at that time. This study has sought to use a larger sample. Second, larger companies are chosen because the SBR medium is a new concept in Australia, and it requires knowledge and investment by companies to implement SBR. The information systems literature suggests that larger companies are more interested than smaller companies in adopting IT innovations. Therefore, the researcher decided that the sample for this project would be top 500 companies listed in the ASX.

The data collection method employed for this study is self-administered questionnaire surveys sent to the CFO (or nominated senior manager) of each company. A mailed questionnaire was developed as the survey instrument. The researcher has taken care when developing the instrument for this study. The preparation of the questionnaire involved several drafts to seek the information required and avoid possible problems. To ensure the satisfactory measurement of the variables, previous technology adoption studies were carefully reviewed, and the items used in those studies were selected. All core questions (to measure variables) were anchored on a six-point Likert scale with 1 denoting "strongly disagree" and 6 denoting "strongly agree". The questionnaire was first pilot-tested (to ensure content validity) by sending it to 10 organisations. Based on the feedback from their responses, necessary modifications were performed before the data collection.

Data collection was carried out between February and May 2010. To increase the response rate, reminders were sent to the organisations. At the end of data collection period, 54 usable responses (which included 10 responses received after sending the reminder) were received, which constitutes more than

10% of the sample. The researcher acknowledges that the number of responses is low for this type of study. As SBR was a new project yet to be launched at the time of data collection and because there had not been a significant story in the media concerning a case of XBRL adoption in Australia, it was probable that many recipients of the questionnaire felt that they had insufficient knowledge about the technology to make an attempt to complete the questionnaire. However, the results of factor analyses and sampling adequacy tests presented in the next section will reveal that this dataset is sufficient for the construct validity tests and multiple regression analysis that will be applied. As the reminder produced 10 additional responses, a time response bias test was carried out, which revealed no significant differences between the two batches of responses. Given that late respondents are deemed to be representative of non-respondents, the response bias test results suggest that there is not a systematic non-response bias due to the low response rate.

RESULTS AND DISCUSSION

The quantitative data for this study are analysed using the recent version of SPSS. A range of statistical procedures is adopted to test the hypotheses. Initially, a descriptive analysis is undertaken to explore the results prior to an in-depth analysis to test the hypotheses. Before proceeding to other analyses, confirmatory factor analyses are conducted on the attributes of the variables to test for their construct validity. A linear correlation analysis is adopted to explore the relationships between the independent variables and the intention to adopt SBR. As the variables in this study are measured as means of scales from multiple items, the data become continuous, allowing for a parametric analysis using Pearson's product-moment correlation. The correlation analysis also provides an initial indicator of the presence of multicollinearity between the independent variables. Finally, a multiple regression analysis is carried out to test the hypotheses.

Sample Characteristics

The organisations that make up the sample are listed companies and domiciled in Australia. The respondents were either CFOs or their nominated senior managers, who are involved in the strategic decision-making of the organisation. Most of the respondents are male (more than 80%). More than 75% of the respondents fall into the age group of over 40. On a scale, the average SBR (or XBRL) familiarity with the respondent is 2.48, which means that they are slightly more than vaguely familiar, while only 25% reported somewhat familiarity or better. Of these respondents, less than 25% represented companies with fewer than 100 employees, approximately 50% represented companies with 100 to 1,000

employees, and the rest of the respondents represented companies with more than 1,000 employees. Almost all of the respondents reported that they use "PDFs" as the main electronic medium of reporting financial results.

Validity and Reliability of Measurement Instrument

Due to the low number of responses received, it was necessary to observe the communalities of the items to ensure a good recovery of factors. MacCallum, Widaman, Zhang and Hong (1999) and Hogarty, Hines, Kromrey, Ferron and Mumford (2005) state that when communalities are consistently high (most likely all greater than 0.6), then the sample size has little effect on the good recovery of factors and that the factors can be achieved with a small sample (even when the number of responses is well below 100). The communalities of the items in the variables/factors used in this study were all found to be higher than 0.7. This goes to show that the good recovery of factors is possible, and accordingly, a factor analysis is carried out. Table 1 presents the results of the principal components factor analysis (including Kaiser-Mayer-Olkin [KMO] and Bartlett's Test of Sphericity) as tests of the construct validity of the multi-item variables. The factor analysis is a convergent validity test of each construct. Table 1 also presents the Cronbach's Alpha reliability test in the last column.

Table 1
Construct validity and reliability tests for the variables

Latent variable and items	KMO measure of sampling adequacy	Bartlett's sphericity test		Factor analysis		Cronbach's alpha
		Chi-sq.	Sig.	% variance explained	Loadings on component 1	
Competitiveness	0.741	92.604	.000	66.359		0.828
Requires fast access and analysis of data to remain competitive					.898	
Requires more sophisticated systems to remain competitive					.877	
Requires timely and reliable information to make decisions					.741	

(*continued on next page*)

Table 1 *(continued)*

Latent variable and items	KMO measure of sampling adequacy	Bartlett's sphericity test		Factor analysis		Cronbach's alpha
		Chi-sq.	Sig.	% variance explained	Loadings on component 1	
Industry force	0.5	27.357	.000	82.098		0.777
Become a leader in introducing innovation					.906	
Follow important competitors if they adopt					.906	
Government pressure	0.5	20.220	.000	78.492		.726
Requests by government agencies have high priority for the organisation					.886	
The company monitors changes initiated by government					.886	
Communication	.684	60.021	.000	74.005		.823
Our organisation has: Received considerable information					.812	
Attended information seminars					.904	
Would make reporting to the government simple					.863	
Intention to Adopt SBR	.736	98.59	.000	83.291		.899
Has a strong intention to adopt					.885	
Asked for a preparation of proposed plans					.919	
Has a very positive view					.933	

The confirmatory factor analysis of the independent variables of "Government pressure" (after an adjustment discussed later) and "Communication in the industry" yields two distinct factors and the dependent variable of "Intention to adopt" gave rise to one factor. One item in the questionnaire measuring "Government pressure" had to be dropped because of the low value compared to other items in the variable. The remaining items in "Government pressure" delivered better results in the factor analysis, and one factor is extracted for this variable. The original independent variable of "Competitive pressure" gave rise to two separate factors. The first four items resulted in one factor, hereafter termed "Competitiveness", and the other two items resulted in another factor, hereafter termed "Industry force". To validate the appropriateness of the factor analysis, several measures are applied to the entire correlation matrix. Here, Bartlett's test of sphericity (p ¼ 0:000) indicates the statistical probability that the correlation matrix has significant correlations among at least some of the items, and the Kaiser-Meyer-Olkin measure of sampling adequacy showed acceptable sampling adequacy. The Cronbach's Alpha coefficient was used to assess the reliability of the measures. As shown in Table 1, reliability coefficients were acceptable for all of the variables. The Appendix contains the detailed results.

Correlation and Regression

SPSS is used to perform the regression analysis of the data. The results are presented in the Appendix. It has already been mentioned that the variables were measured on a 6-point Likert scale with 1 being "strongly disagree" and 6 being "strongly agree". The mean values of all of the variables are as shown in Table 2.

Table 2
Mean values of variables

Variable	Mean	Std. Deviation
Intent to adopt	2.3951	1.021
Competitiveness	4.2870	1.036
Industry force	2.7037	1.172
Communication	2.1667	0.940
Government pressure	4.1296	1.095

Pearson's correlation coefficients suggest there is a significant correlation between Industry force and Communication and the intention to adopt (see Table 3) but no significant correlation between "Competitiveness" and "Government pressure" and the intention to adopt.

Table 3
Latent variable correlations

	Intention	Competitiveness	Industry force	Communication
Intention	1			
Competitiveness	0.011			
Industry force	.609 *	.235		
Communication	.537 *	.202	.451	
Government	.161	.087	.078	.257

Note: *Sig at 0.05

Table 4 contains the results of the regression analysis. The value of "R" is positive, and the value of R-squared is 0.488 when the predictors are competitiveness, industry force, government pressure, and communication in the industry (Model 1 and Model 2 in Table 4). The regression analysis is extended to include the control variables (Respondent's Age, Familiarity with SBR or XBRL, and Company Size) to understand the effect (if any) of the control variables on the test results. R-squared increases to 0.535. Two variables are found to have significant relationships with the "intention to adopt SBR": "communication in the industry" and "industry force". There is no concern about multicollinearity (assessed by the variance inflation factor [VIF] results) among the variables.

The low mean value of the intention to adopt SBR is evidence of the hesitance by CFOs to adopt SBR purely on the espoused technical advantages it could provide for the company's financial and other compliance reporting. The survey suggests that the voluntary adoption of SBR is not expected to happen on a large scale, as the intention is quite low. Troshani and Doolin (2005) suggests that Australian managers are more reactive than proactive in that they tend to take a "wait-and-see" approach in regard to adopting a new system. This view is supported by the respondents' comments given in the open-ended section of the questionnaire. One respondent indicated. "*Voluntary adoption would be limited due to other revenue-based initiatives that take priority*". Another respondent expressed a scepticism about voluntary SBR as, "*XBRL (has) been considered for a long time without gaining too much traction*". It is difficult to draw conclusions from the Australian experience with SBR, as the SBR rollout is still in its early stage. However, early signs of SBR adoption are not encouraging because only very few listed companies have registered with one or more of the participating government regulatory agencies because SBR became available in July 2010, according to the Australian Treasury. The findings in this study from the survey data obtained shortly prior to this SBR activation date, confirm the low take-up, as seen in the low mean score for the "intention to adopt".

Table 4
Regression results

Model 1					Model 2				
	R^2	β	t-value	VIF		R^2	β	t-value	VIF
Intention to adopt SBR	0.488				Intention to adopt SBR	0.535			
Competitiveness		0.177	1.67(n/s)	1.07	Competitiveness		0.140	1.32(n/s)	1.11
Industry force		0.495	1.26*(sig)	1.29	Industry force		0.538	4.59*(sig)	1.36
Government pressure		0.052	.489(n/s)	1.08	Government pressure		0.010	.096(n/s)	1.12
Communication in the industry		0.336	2.83**(sig)	1.35	Communication in the industry		0.413	3.31**(sig)	1.35
					Age		–0.03	–0.28(n/s)	1.10
					SBR familiarity		–0.047	–.426(n/s)	1.23
					Size (number of people)		–.252	–2.04(n/s)	1.52
*p<0.001					*p<0.001				
**p<0.007					**p<0.002				

The regression analysis suggests that environmental factors describe 48.8% of the variance in the intention to adopt SBR. The inclusion of control variables leads the value to increase to 53.5%. The study confirms that environmental factors were more prominent in explanations of the prospective limited adoption of SBR in Australia. This result is in line with the conclusions drawn by Doolin and Troshani (2007) and Cordery et al. (2011) on the limited adoption of XBRL in Australia and New Zealand. The regression analysis suggests that two external factors (Industry force and Communication) are significantly associated with the level of intention. A detailed discussion of each of the environmental forces is given in the following sections.

Competitive Pressure and the Intention to Adopt SBR (H_1)

Two distinct factors of competitive pressure are identified in this study: (1) Competitiveness and (2) Industry force. The effects of each factor are discussed below.

Competitiveness and the intention to adopt SBR

The argument is that when a company faces keen market competition, there are strong incentives for it to search for new innovations to help maintain or enhance its competitive edge (Chewols et al., 2001; Huang et al., 2008; Cordery et al., 2011). This study, however, shows that there is no significant relationship

between competitiveness and the intention to adopt SBR. This result is true for both the bivariate analysis (non-significant correlation) and multivariate analyses (non-significant 't' value). Therefore, it might be asked: Does SBR add anything extra into the existing infrastructure of the entities to extend or maintain their competitiveness? Perhaps entities in Australia believe they have well-established accounting and business reporting systems. The addition of the XBRL language and SBR requirements to their system might help entities extend their competitiveness in the long term, but that does not appear to be a reason for these entities to induce adoption, at least that is what the results in this study suggest. Perhaps this lack of effect is due to the management's belief that an innovation to the medium for reporting to government regulatory agencies is a project that is remote from core value-generating strategies for the company.

Industry force and the intention to adopt SBR

The variable 'Industry force' measures whether an entity seeks to be leader or fast follower in regard to adopting innovation. With a correlation coefficient of 0.609, industry force is significantly correlated with the intention to adopt SBR on a bivariate basis. That correlation is further confirmed in the multivariate analysis, as the regression result reveals that unlike competitiveness, this factor is significantly associated with entities' intention to adopt SBR ($t = 4.26$, sig 0.001). When the model is controlled for respondents' age, familiarity and company size, the variable 'industry force' remains significant at the 0.001 level. Therefore, a positive relationship has been found between industry force and the intention to adopt SBR.

Earlier, it was found that competitiveness is not a significant predictor of SBR adoption. However, being recognised as leader or fast follower is found to be significantly related to SBR adoption. What rationale can be given for these two findings? SBR is based on XBRL and, as indicated in the 'Background' section, XBRL promises to make financial reporting more timely, more reliable (with fewer errors) and more easily verifiable. When an entity starts to report using that technology, that entity might be viewed by regulators (and possibly by investors) as more reliable. This would be viewed by some CFOs as being in their best interest and in the interest of the business entity as well as recognised favourably by corporate regulators. CFOs with such a view would want their company to become a quick follower if not a leader over their important industry competitors in adopting SBR. Therefore, it is not surprising that 'Industry force' in this study is significantly associated with Australian entities' intention to adopt SBR. A delphi investigation by Bonson et al. (2009) found that being a pioneer with information technologies is an important factor for many of the companies participating in a voluntary XBRL program in the US. Along the same line, it can be argued that companies in Australia may join the voluntary SBR program to

improve their image with regulators; therefore, 'industry force' in this study is found to be positively related to the intention to adopt SBR.

Some earlier studies on the use of Internet reporting offered evidence of this industry effect. Lymer, Debreceny, Gray and Rahman (1999) report that the trend to follow the sector suggests that companies are very aware of what their rivals are using the Web for and are likely to respond more to what industry competitors do than to the community as a whole. The study by the FASB (2000) found that almost all of the companies interviewed at least occasionally monitor other organisations' websites to stay abreast of what others are providing and to generate ideas about what should be included on their website. However, the regularity and the profoundness of these activities are dependent on the philosophy of the company (Lybaert, 2002). This study suggests that the philosophy is now directed more towards becoming a pioneer or quick follower of the adoption of the SBR medium for business-to-government data exchange to gain a superior reputation and a sound working relationship between the top management of the entity and its various government regulators.

Government pressure and the intention to adopt SBR (H_2)

Financial and other business information reporting operates in a highly regulated environment, and the government plays a large role in that regulation. Several adoption studies (Teo et al., 1995; Zhang, Cui, Huang, & Zhang, 2007) suggested that Government influence can strongly affect the take up of technology by entities. It is therefore assumed in this study that government pressure is likely to influence Australian entities' intention to adopt SBR. The bivariate and multivariate results indicate that the variable 'Government Pressure' is not a significant predictor of SBR adoption. Therefore, H_2 is not supported. No significant relationship is found between government pressure and the intention to adopt SBR. This is an unexpected finding, given that SBR has been initiated by the Australian Government and its major agencies (even though SBR adoption has not been made mandatory by the Australian Government). Locke and Lowe (2007) argue that a government push to obtain the widespread voluntary adoption of XBRL (technology enabler of Australian SBR) by managers-preparers is less likely to succeed unless software tools for XBRL-based data extraction are widely available to all preparers. However, software vendors would push for the government to mandate the adoption of XBRL by preparers rather than try to help the government succeed with a voluntary approach, to create an assured market for software vendor services. Therefore, there is a circular argument according to Locke and Lowe (2007), which would undermine the government's attempt to convince preparers to voluntarily adopt XBRL. This problem with the role of software vendors/service providers in supporting the government's push

for voluntary adoption is reflected in the following comments by respondents from the open-ended question of this study:

> *"A set of tools to support the development of XBRL-based facilities is required (from the Government) for the uptake of SBR".*
> *"Software vendors have done little (to make XBRL a reality)".*
> *"Getting the government to settle on a single set of definitions will be impossible. XBRL will require an explosion of info points so that every micro piece of information can be provided – just look at how the automated tax return process has gone".*

Communication and the intention to adopt SBR

The survey shows that the general level of communication about SBR is very low in Australia. The mean figure is 2.167, which does not even reach the 'slightly agree' scale.

The lack of communication is also evident from the respondents' comments. These comments are reproduced as follows:

> *"Education information/resources are (needed) for up-skilling".*
> *"I find it disappointing that there is no active campaign to improve awareness (of SBR)".*
> *"Haven't seen much information (about SBR)".*
> *"This (SBR) needs to be communicated if it (SBR) is intended for any company other than large companies".*

This study finds that the level of communication is significantly correlated with the intention to adopt SBR. The regression analysis also shows a significant association between the level of communication and the intention to adopt SBR (see Table 2). Therefore, Hypothesis 3 is accepted: communication in the industry is positively related to the intention to adopt SBR.

This finding is not surprising, given that the importance of communication is found in other parts of the world where XBRL is advocated to entities. Dunne, Helliar, Lymer, & Mousa (2009) found that there was a significant lack of communication about XBRL with UK entities. The same study also reports that only a handful of organisations have consciously adopted XBRL in the UK (Dunne et al., 2009). One of the voluntary adopters of Securities and Exchange Commission's (SEC) XBRL initiative in the US is AGL Resources. When asked for his views on XBRL adoption, the senior vice president of AGL, Bryan Seas, stated that the frustrating part about making the transition to XBRL was the lack of information provided to users (Compliance Week, 2008). Similar

concerns were voiced by other early adopters of XBRL in the US (for complete interviews, see www.complianceweek.com). The interview-based study by Doolin and Troshani (2007) reports that the availability of information about XBRL is important for the diffusion of XBRL in Australia.

From the findings in this study, it can be said that the degree of communication of information to managers-preparers about the SBR facility in Australia that is able to revolutionise the financial reporting medium is an important determinant of the intention to adopt it. However, not enough information about the SBR project is reaching the relevant management in business entities. The reason for this perceived poor communication may stem from respondents' view that SBR is technically difficult as an innovation (Dewar & Dutton, 1986; Nilakanta & Scameel, 1990) and that it is necessary to form a technical group to help gather knowledge from their counterparts in the industry. However, it seems that organisational networks are not sufficiently effective in distributing information about SBR. In terms of sources of information about SBR, this is currently left mainly to the Australian Government with some help from professional bodies, such as CPA Australia. The website for SBR, www.sbr.gov.au, indicates that the main vehicles used to distribute information are industry consultations, Webinars, and government media reports. The respondent comments from the survey suggest that these information sources are not effective enough to raise awareness among managers-preparers. This is evident from the low rating given on the scale for communication about SBR. SBR is still at the initiation stage of implementation. Therefore, improved communication strategies are required to induce adoption (Nilakanta & Scameel, 1990).

CONCLUSION

The Australian Government is moving one step closer to real-time reporting by introducing SBR in Australia. The success of SBR depends on how quickly the system is adopted by Australian entities. Adoption theories agree that the external environment plays a role in predicting the adoption of a new system. In the field of behavioural accounting, the results of this study contribute to an understanding of the implications of the relationship between environmental factors and the adoption of SBR. While the mean value for the intention to adopt SBR is found to be relatively low, the interest in this study is in the factors that can explain the variation in this construct. The regression model used in this study provides results on the independent variables that are related to the dependent variable: the intention to adopt SBR.

Two out of the four variables (industry force and communication) related to the external environment were significantly related to the intention to adopt SBR.

This study contributes to the field of adoption research with specific relevance to the field of corporate financial reporting. As identified by Sutton (2010), one aspect that has largely been ignored by the financial accounting research is the rapidly increasing impact of IT on financial/accounting managers in organisations (Sutton, 2010). Taking the recent major SBR initiative led by the Australian Treasury as its point of reference, this study has sought to fill this research gap. It is found that manager-preparers are influenced by factors from an environmental perspective, namely, industry forces (i.e., being recognised as an industry leader or fast follower of technology adoption by the key regulators and possibly by shareholders and securities analysts) and communication (i.e., receiving knowledge and advice about SBR and its consequences for the company's control over its own proprietary data). The practical implication of these conclusions is that a focused strategy to improving the success rate of voluntary SBR adoption by listed companies should be considered by the Australian Treasury's SBR Group and the participating regulatory agencies. This focused strategy suggested by the findings is that the business case for organisations to adopt SBR needs to be communicated more effectively, perhaps through industry networks and software developers/consultants and accounting/auditing firms providing more expert advice to their corporate clients. This communication strategy should be targeted at high-profile/leading companies in different industries by the regulatory agencies to secure their adoption of SBR. If successful, the 'industry force' factor suggests that others in the industry would quickly follow.

This study is subject to several limitations. The first limitation is the low response rate, which has resulted in a relatively small dataset for the multivariate statistical analysis. However, the data satisfied the tests for non-response bias and sampling adequacy. Second, the study focuses only on the "intention to adopt SBR" (and the likelihood of adoption) but not on post-adoption "implementation". A future longitudinal study is required to determine the implementation issues associated with SBR adoption. Third, this is a cross-sectional study. Therefore, the findings are true at the point of data collection. Similar studies in future might show how the intention has changed (from the definition used in this study) to obtain a fresh perspective on SBR adoption in Australia. Fourth, the scope of companies included in the sample is limited to the top 500 listed companies in Australia. Other listed companies and private entities are omitted from the sample. The perceptions of these companies may well differ from the perceptions of the companies used in the sample. Any future research might target these other companies to complement the findings in this study.

Future research might also consider a replication of this study in a setting that includes public-sector entities to understand their views on SBR. A cross-country study (e.g., in the Netherlands) can also be carried out in future. This sort of cross-country study might point to the differences that Australia experiences when compared to a place in which a similar initiative is taken. Finally, the survey instrument used in this study was self-administered and based largely on questions that required the perceptions and opinions of the respondents. This can cause biases in the data due to respondent fatigue, acquiescence error or a halo effect. The 'soft' nature of the survey data due to such limitations means that replication studies are desirable before the conclusions are firmly established. As this is basically a descriptive study, explanations and recommendations that logically emerged in the discussion should be treated with caution considering the limitations of the study.

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