

CORPORATE CHARACTERISTICS OF LISTED COMPANIES ENGAGING IN WEB-BASED FINANCIAL REPORTING IN EMERGING ECONOMIES

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Abstract

We investigate the key corporate characteristics of using the web for voluntary disclosure of financial information in an emerging economy by companies listed in the United Arab Emirates (UAE). The 132 companies listed on two stock exchanges were investigated to ascertain whether they engage in web-based financial reporting (IFR) or not. Eighty-eight of the companies (about 67%) were found to use their websites for IFR. Similar to prior studies in this area, logistic multiple regression was used to isolate the key corporate characteristics of IFR companies (IFRC) from non-IFR companies (N-IFRC). Results indicate firm size and leverage to be the key determinants of voluntary IFR adoption. Surprisingly, other traditional firm characteristics, such as profitability, industry and liquidity do not explain IFR practices. Policy implications of these findings, as well as the limitations of the study, which provide potential areas for future research, are also discussed.

Keywords: Internet Financial Reporting, Voluntary Disclosure, Emerging Economy, UAE, Middle East

1. INTRODUCTION

The world-wide web (Internet) has matured as a powerful tool for corporate communication in recent times. Web-based financial reporting has become the norm, rather than the exception, in most western countries (Gowthorpe, 2004). However, the same cannot be said of most transitional and emerging economies such as those in the Middle East region, where some empirical evidence of the phenomenon is only just emerging (Aly *et al.*, 2010). Until early 2000, hard copies (paper) were the primary means for communicating financial information to shareholders and other interested corporate stakeholders. Technological advancement has made the Web a useful, timely and cost-effective tool for the communication of this information to stakeholders. The Internet has the potential power to revolutionise financial reporting, with companies being able to include the traditional annual reports together with additional financial and non-financial information in multiple formats (Jones and Xiao, 2004). In this study, we investigate and report on the key corporate characteristics of voluntary use of the Web for the communication of financial information by companies listed on two stock exchanges in the United Arab Emirates (UAE).

Despite advances in many areas of human endeavour, questions persist as to whether corporate organisations in the Middle East are availing themselves adequately of the range of opportunities provided by the Internet to communicate financial information to their stakeholders. There is little doubt about the benefits of the Web as a tool for the communication of financial information, even as it raises a variety of challenging issues. This paper is an important step

in further gauging the extent to which such benefits are being captured in the Middle East region, and in particular the factors that drive listed companies to communicate in this manner. Given the increasing importance of IFR and the lack of comprehensive body of knowledge on IFR practices in the Middle East region, and other emerging economies, this paper provides an important contribution to filling the gap in our knowledge of the subject. This is of particular importance at a time when there is so much interest in investment opportunities in the region.

Data was collected from the websites of the 132 companies listed in the UAE. About 87 percent (115 out of 132) of UAE-listed companies were found to maintain websites; of these, only 88 (about 67%) engage in IFR, in a variety of formats, types and volume. From the results of this study, it is possible to preliminarily conclude that IFR is still at an embryonic stage in the UAE, providing lots of opportunities and challenges for all stakeholder parties in corporate reporting. The results of our analysis indicate that firm size and leverage are the primary determinants of IFR practices among UAE companies. Surprisingly, other firm characteristics associated with voluntary reporting, such as liquidity, profitability and industry were not found to be associated with IFR in this study.

The remainder of this paper is structured as follows. The next section provides a review of the literature on determinants of corporate disclosure and literature that describes the IFR environment. Section 3 develops and states the research hypotheses. This is followed by a discussion of the institutional framework of the proposed research. Section 5 presents a description of the research design, including the population and data collection.

Data analysis and results are then presented and discussed. Summary and conclusions, including possible limitations and areas for future research are presented in the final section.

2. LITERATURE REVIEW

In most transition and emerging economies, IFR is yet to be mandated by regulatory authorities. Hence, companies that use the Internet as a channel for financial disclosure are doing so on a voluntary basis. Under such circumstances, IFR is viewed as a component of company voluntary disclosure practices (Ashbaugh *et al.*, 1999; Oyelere *et al.*, 2003). In this section, we draw on the stream of research on voluntary corporate financial disclosure and extend the theories and models implicit in this literature to the new corporate reporting environment created by the Internet. We also provide, in the section, a review of the literature that examines practices and issues relating to the recent development of the Internet as a medium for dissemination of corporate financial information, and the determinants of such practices.

2.1. Corporate Financial Reporting Literature

Cerf (1961) represents a seminal empirical work on the key determinants of print-based corporate disclosure, with a succession of studies in various countries contributing to making this one of the most systematic and sustained research subject in the financial reporting literature. A comprehensive review of extant literature in this area is provided in Oyelere *et al.* (2003). Various potential determinants of disclosure have been examined in the literature, including firm size, profitability, listing status, leverage, ownership structure, auditor size and degree of internationality. Research in this area has been motivated by various objectives, including the potential for inadequate disclosure and the cost and benefit of mandating disclosure through regulation. There is an ever-present need for research to identify the most important factors that drive corporate voluntary disclosure. Oyelere *et al.* (2003) identified the most frequently investigated determinants in the literature as firm size, listing status, profitability, leverage, industry and firm's auditor size, with a wide range of theoretical underpinnings such as agency costs, political costs, signalling and information asymmetry, capital needs, litigation costs, and audit firm reputation, being used to argue for their enduring predictive ability (Ahmed and Curtis, 1999).

Agency costs tend to increase with *firm size* (Hossain *et al.*, 1995). As disclosure can reduce monitoring costs, a significant agency cost, one would expect to find greater disclosure among large firms relative to small ones. Firm size is a proxy for a number of corporate characteristics. Larger firms generally have a more diverse product range and more complex distribution networks than smaller firms. As a result, larger and more complex management information systems and databases are required for corporate control purposes. Also, larger firms can increase the marketability of their securities in capital markets, and obtain capital more easily and cheaply through more extensive disclosure (Singhvi and Desai, 1971; Buzby, 1975). While Hossain *et al.* (1995) and Wallace and Naser (1995) use agency theory to explain the positive association between size and disclosure, Cooke

(1989a), Wallace *et al.* (1994) proffer political costs as an explanation, arguing that larger companies are vulnerable to political costs, such as regulation, nationalization, expropriation, or the breakup of the entity or industry (Jensen and Meckling, 1976). As noted by Oyelere *et al.* (2003), there is a wealth of empirical evidence supporting the association between size and greater levels of disclosure including, to cite a few, Singhvi, 1968; Curtis, 1979; Cooke, 1989a,b, Wallace *et al.*, 1994; Owusu-Ansah, 1998; Craven and Marston, 1999; Ettredge *et al.*, 2002; Oyelere *et al.*, 2003; Xiao *et al.*, 2004; Al-Shammari, 2007; Boubaker *et al.*, 2011; and Mendez-Da-Silva and Onusic, 2014, who all found positive association between size and levels of voluntary financial disclosure. However, there are a number of notable exceptions including Lau (1992); Ahmed (1996); and Aly *et al.*, 2010.

A number of studies have investigated the association between *corporate profitability* and disclosure, arguing that disclosure is used by managers of profitable firms to signal the firm's profitability to investors, and to help support management's continuation and compensation (Singhvi and Desai, 1971; Malone *et al.*, 1993). However, Wallace *et al.* (1994) and Lang and Lundholm (1993) caution that disclosure may be related to variability of a firm's performance, where performance serves as a proxy for information asymmetries between investors and managers. Empirical findings on this issue have, generally, been conflicting, with some studies such as Singhvi and Desai, 1971; Owusu-Ansah, 1998; and Elsayed *et al.*, 2010, finding a positive relationship; while others, such as Wallace and Naser, 1995 found a negative relationship. Yet other studies, such as Lau, 1992; Xiao *et al.*, 2004; Al-Shammari, 2007; and Alali and Romero, 2012 found no relationship.

The *industrial sector* in which a firm operates has also been identified as a factor associable with voluntary financial disclosure. Wallace and Naser (1995) argue that differential levels of disclosure of similar items in financial reports published by firms in different industries may arise from the adoption of industry-related disclosures. Differences in disclosure levels between industries could also be attributed to the high level of voluntary disclosure by a dominant firm within an industry, which leads to a bandwagon effect (Cooke, 1989a). Empirical studies examining the association between industry and disclosure have yielded mixed results, with industry being found to be a determinant of disclosure levels by Curtis (1979), Cooke (1989a, 1991), Oyelere *et al.* 2003, Al-Shammari, 2007; and Aly *et al.*, 2010, whilst no relationship was found in Wallace *et al.* (1994).

Another factor that has been investigated as a possible determinant of voluntary financial disclosure is leverage. Agency theory has largely been used to explain the relationship between this variable and levels of disclosure. It is argued that as leverage increases, there are wealth transfers from fixed claimants to residual claimants. As debenture holders are able to "price-protect" themselves, managers and shareholders have an incentive to voluntarily increase the level of monitoring, such as by increasing the disclosure of additional information about the firm activities (Myers, 1977). Empirical evidence regarding the association between leverage and voluntary disclosure is inconclusive, with Curtis (1979), Lau (1992), Malone *et al.* (1993), and Al-Shammari, 2007 finding a

positive relationship between leverage and corporate disclosure, while Wallace *et al.* (1994), Raffournier (1995), Oyelere *et al.* (2003), Aly *et al.* (2010), and Alali and Romero, 2012 found no association between the two variables.

2.2. Internet Financial Reporting Literature

Evidence of IFR practices in various countries have been presented by a number of academic and professional studies – see, for example, Craven and Marston (1999); Lymer *et al.* (1999); Pirchegger and Wagenhofer (1999); Marston (2003); Oyelere *et al.* (2003); Fisher *et al.* (2004); Marston and Polei (2004); Xiao *et al.* (2004); Laswad *et al.* (2005); Smith and Peppard (2005); Chan and Wickramasinghe (2006); Al-Shammari (2007); Oyelere *et al.* (2007); Mohamed *et al.* (2009); Aly *et al.* (2010); Elsayed *et al.* (2010); Boubaker *et al.* (2011); Alali and Romero (2012); Hossain *et al.* (2012); Dolinšek *et al.* (2014) and Mendez-Da-Silva and Onusic (2014). Most of the studies in this area have covered IFR practices in specific countries and are on specific IFR issues. A summary of main issues investigated and key findings of some of these studies are presented in Table 1. They indicate the growing use of the Web for corporate dissemination, including providing annual reports on the Internet, and that the extent and sophistication of IFR practices vary across countries. They also document some evidence of potential predictors of corporate engagement in IFR in different countries. The current paper provides evidence of IFR and its determinants in the United Arab Emirates (UAE).

The Internet provides a useful communication tool for corporate organizations. One of the main benefits of IFR is the potential large savings in the cost of production and distribution of financial information. The Web allows companies to reach a much wider category and variety of stakeholders at relatively lower costs, with reduction in incidental requests from non-shareholder financial statement users (Allam and Lymer, 2002; SEC, 2002, 2003a, 2003b; Kelton and Yang, 2008). The literature also documents a number of other benefits that may accrue from IFR (Ettredge *et al.*, 2001; Debreceeny, *et al.*, 2002; Wagenhofer, 2003; Boritz and No, 2005). These include more equitable information dissemination among stakeholders as a result of improved accessibility to information. With IFR, users can choose to access information that meets their specific needs as the Web allows non-sequential access to information through the use of hyperlinks, interactive and search facilities. IFR also presents companies with the opportunity to provide more information than those available in annual reports. Potentially, the internet provides an opportunity for going beyond what is available in hard copy corporate financial statements to communicate additional financial information to users, possibly on real-time and interactive bases (McCafferty, 1995; FASB, 2000; Ettredge *et al.*, 2002; Wickramasinghe, 2006). IFR provides corporate organisations with a real opportunity to extend financial disclosure beyond the reproduction of a hard copy annual report and improve on the timeliness, scope, and interactivity of financial reporting, with multimedia, such as sound, animation and video, being used to potentially increase the understanding of information (Louwers *et al.*, 1996; Ravlic, 2000; Wickramasinghe and Lichenstein, 2006).

More recently, some studies have provided evidence on the corporate characteristics motivating the IFR behaviour of companies around the world. Given the voluntary nature of IFR, these studies sought to establish the reason why companies engage in IFR and the extent of such engagement. Majority of these studies have found corporate size to be a major factor, with IFR likely to provide greater economies of scale cost savings for larger firms (Ashbaugh *et al.*, 1999; Craven and Marston, 1999; Pirchegger and Wagenhofer, 1999; Debreceeny *et al.*, 2002; Ettredge *et al.*, 2002; Oyelere *et al.*, 2003; Kelton and Yang, 2008; Trabelsi *et al.*, 2008; Boubaker *et al.*, 2011; and Mendez-Da-Silva and Onusic, 2014). Evidence on other variables examined is largely inconclusive.

While majority of empirical evidence in this area has been from developed and advanced western economies, some evidence of IFR practices and determinants are now emerging from transitional and emerging economies. Perhaps the earliest and most significant of this is Xiao *et al.* (2004), which investigate the determinants of 300 listed Chinese companies' voluntary IFR practices and find that their IFR disclosure choices are responsive to specific attributes of their environment. Their results indicate that size is a key predictor of IFR, with larger firms more likely to disclose financial information through the Internet. Profitability was negatively associated with IFR, while auditor and industry are also significant predictors. Similar to Ettredge *et al.* (2002), they also find significant and positive relation between mandated and voluntary financial disclosure.

The evidence of size, being a key predictor of IFR in companies in transitional and emerging economies is corroborated by the findings of Momany and Al-Shorman (2006), Al-Shammari (2007), Hossain *et al.* (2012), and Mendez-Da-Silva and Onusic (2014). Momany and Al-Shorman (2006) examine the extent of IFR by Jordanian companies listed on the Amman Stock Exchange (ASE) and find that, on average, companies that engage in IFR are larger. In addition, they are more leveraged, with concentrated ownership, have more international investors and are more recently incorporated than non-IFR companies. Al-Shammari (2007) also report company size to be a key determinant of IFR in another emerging economy. He investigate the IFR practices of Kuwaiti-listed companies in 2005 and find that, in addition to company size, liquidity, auditor and industry are the key predictors of IFR by these companies. Larger Kuwaiti-listed companies with lower levels of liquidity, and audited by Big Four audit firms affiliates were more likely to engage in IFR than others. Hossain *et al.* (2012) examined the IFR practices of 42 Qatar-listed companies. They found that firm size, assets in-place, and business complexity are variables which are significant in explaining the level of IFR practices, while age, profitability, and liquidity are not significant. Mendez-Da-Silva and Onusic (2014) studied the IFR practices of 314 non-financial companies listed on the São Paulo Stock Exchange in Brazil. They found that larger companies tend to provide more financial and corporate governance information than smaller companies, but that companies listed for a longer period were less likely to engage in IFR. They also found that companies recognized as adopting the best governance practices provided more corporate information on their websites.

Table 1. Summary of Key Studies on Internet Financial Reporting

Author(s)	Location	Key Issues/Findings
Al-Shammari (2007)	Kuwait	Investigated IFR by Kuwaiti-listed companies in 2005 and found that 77% of them had websites and 70% use their websites for IFR. Also found company size, liquidity, auditor and industry to be the key predictors of IFR by Kuwaiti-listed companies. Larger companies with lower levels of liquidity, and audited Big Four audit firms affiliates were more likely to engage in IFR. Also, insurance companies were more likely to engage in IFR.
Alali and Romero (2012)	Argentina	Examined IFR practices of 84 companies listed on the Buenos Aires Stock Exchange. Using content analysis, they found that companies in the financial and insurance, services and mining industries disclose more financial and non-financial information on their websites than companies in other industries. They also reported about 71% of their sample are in the financial and insurance industry, are audited by Big 4 audit firms, are larger in size, but less profitable than companies in other industries. They found growth to have a negative effect on IFR, while profitability and leverage have no significant effect.
Allam and Lymer (2003)	Five countries	Studied the common factors influencing online reporting practices in five countries. Found no relationship between size and IFR levels in any of the five countries except Australia. Also found significant differences in IFR practices between the countries except in the case of US, UK and Canada.
Aly <i>et al</i> (2010)	Egypt	Examined the determinants of IFR practices of Egyptian listed companies and found that profitability, foreign listing and industrial type (communications and financial services) to be the key determinants of IFR by Egyptian companies. However, other firm characteristics, such as firm size, leverage, liquidity and auditor size, did not provide adequate explanation for IFR.
Beattie and Pratt (2003)	UK	Studied the views of various user groups, preparers and auditors on proposals for change and newly emerging practices and found that users favour many of the expansions of scope made possible by the internet. A range of navigational aids, search aids and file formats are found by all groups to be at least fairly useful, while preferences regarding file formats vary across the groups.
Bonson and Escobar (2002)	Europe	Made a comparative analysis of the information provided on the internet by companies in leading European countries and found that they voluntarily disclose information on the internet and that the information provided depends on size, sector and country of origin.
Boubaker <i>et al</i> (2011)	France	Investigated the determinants of IFR by 529 French-listed companies. Using OLS regression framework, they found that large-sized firms, large-audited firms, firms featuring a dispersed ownership structure, those that have issued bonds or equities and IT industry firms are involved extensively in IFR.
Chatterjee and Hawkes (2008)	New Zealand and India	Investigated the differences in the accessibility of website information between New Zealand and Indian companies to demonstrate across countries and within the same reporting structure. Found that IFR provides an illusion of comparability but reveals variation in level at which information items are disclosed, terminology used on websites, and the information items provided on corporate websites.
Craven and Marston (1999)	UK	Examined the extent of IFR practices by UK companies. Found size to be a major determinant of the use and extent of IFR, but did not find the same relationship for industry type.
Debrecey <i>et al.</i> (2002)	International	Study of IFR practices of 660 large companies in 22 Countries and found disclosure environment to be an important environmental driver for IFR presentation and content. Also found presentation of IFR to be more associated with certain identified determinants than the content of IFR.
Debrecey and Rahman	Asia & Europe	Examined firm-specific determinants of continuous disclosure, and found that the frequency and regularity of online disclosure is positively associated with agency costs, earnings, and analysts following and is inversely related to the length of the product cycle of a firm. Also found variations in the frequency of disclosures by countries.
Deller <i>et al.</i> (1999)	US, UK and Germany	Compared the IFR activities of US, UK and German companies and found IFR to be more common in the USA. Also found that although Internet technology offers a variety of possibilities for communication with investors, only a fraction of the possibilities is used in all three countries.
Dolinšek <i>et al</i> (2014)	Slovenia	Studies IFR practices of Slovenian companies. They established the intensity and direction of impact of six factors on the IFR index: size, profitability, the company's legal form, ownership concentration, age and sector. Factors which impact practices included company size, ownership concentration, legal form and sector of operation. Larger companies, companies with a lower ownership concentration, public limited companies and financial sector companies disclose financial information to a greater extent compared to other companies.
Elsayed <i>et al</i> (2010)	Egypt	Investigated corporate governance and firm characteristics effects on the IFR practices of Egyptian listed companies. They found significant relationship between three components of IFR (TOTAL, CONTENT and PRESENTATION) and firm size, ownership diffusion, type of business, profitability, audit type, institutional ownership and board size.
Ettredge <i>et al</i> (2001)	US	Evaluation and comparison of IFR practices of US companies found several practices of potential concern for the accounting profession.
Ettredge <i>et al</i> (2002)	US	Investigated whether IFR can be explained by mandatory and voluntary disclosure theories, and found size and information asymmetry to be significantly associated with IFR, while voluntary information item disclosure is associated with variables size, information asymmetry, demand for external capital, and companies' traditional disclosure reputations.
Fisher <i>et al.</i> (2004)	New Zealand	The exploratory study identified the key audit implications of IFR and analysed the contents of all listed company Websites in New Zealand. The results of their content analysis of auditor Web-related practices revealed several significant concerns for the auditing profession with respect to the presentation, context, and content of the audit report in a Web-based environment.
Gandia (2008)	Spain	Analyzed the corporate governance information disclosed by Spanish listed companies on the internet to assess the extent and influence of several corporate characteristics on the level of voluntary disclosure. Found that disclosure levels depend on the degree to which firms are followed by analysts, their listing age, their "visibility" and industrial affiliation.

Table 1. Summary of Key Studies on Internet Financial Reporting - Continued

Author(s)	Location	Key Issues/Findings
Gowthorpe (2004)	UK	Examined communication issues relating to IFR practices of smaller listed companies in the UK. Found the assessment of stakeholder requirements to be haphazard, but informed by an intention to correct long standing inequities in the provision of corporate information. Also found that the additional medium of communication offered by the Internet has not so far radically changed the essential nature of the dialogue between company and stakeholder, which remains asymmetrical.
Gowthorpe and Amat (1999)	Spain	Reported of IFR practices of Spanish companies quoted on the Madrid Stock Exchange, placing IFR in context by reporting extent of Internet access and the actual and potential development of the Internet as a means of establishing corporate dialogue with stakeholders.
Hedlin (1999)	Sweden	Reported the results of a survey of 60 companies listed on the Stockholm Stock Exchange and found larger companies to be more advanced in their use of IFR as a tool for communication with corporate investors.
Hossain <i>et al</i> (2012)	Qatar	Examined the extent of voluntary financial and non-financial information disclosed on the Internet by 42 listed companies in Qatar. They found that firm size, assets in-place, and business complexity are variables which are significant in explaining the level of IFR practices, while age, profitability, and liquidity are not significant.
Jones and Xiao (2004)	UK	The future of IFR: Delphi study of corporate financial reporting by 2010 found that financial reporting would evolve into a core of general purpose, standardised information in both the hard copy and Internet versions, together with a non-core of general purpose and customized information, and that radical changes such as real-time reporting and disclosure of raw data will not occur. IFR will need to be either standardised or customized.
Khadaroo (2005)	Malaysia	Examined IFR practices of Malaysian companies, with emphasis on auditing implications. Found increase in quantity, but little improvement in quality of internet reporting information to users. Highlighted the issue of auditors having little control over web contents and changes that could be made to audited information.
Laswad <i>et al.</i> (2000)	Not country-specific	Examined the opportunities and challenges of IFR practices, and provided recommendations for increasing the effectiveness of the use of the Internet for the reporting of corporate financial information.
Laswad <i>et al.</i> (2005)	New Zealand	Examined the voluntary Internet financial reporting practices of local authorities and found leverage, municipal wealth, press visibility, and type of council to be associated with the Internet financial reporting practices of local authorities in New Zealand.
Lymmer and Debreceeny (2003)	International	Reviewed the state of guidance provided on IFR by regulators and standard-setters, and found that, despite a clear recognition of the challenges posed by IFR, actual enactments fall far short of requirements.
Marston (2003)	Japan	Surveyed the Internet reporting practices of top Japanese companies in 1998 and 2001, and found that the majority of these companies (about 79%) had a website in English, with about 69% reporting some financial information on their website in 1998. She also found size to be the main determinant of the existence of a corporate website.
Marston and Polei (2004)	Germany	Examined the IFR practices of German companies between 2000 and 2003 and found significant improvements in the quantity and presentation of financial information at corporate Websites. They also found firm size to be the only explanatory factor for the quantity of information disclosed for both periods. Foreign listing status was found to be a significant explanatory in 2003, while free float was significant for 2000.
Mendez-Da-Silva and Onusic (2014)	Brazil	Investigated the determinants of IFR practices of 314 non-financial companies listed on the São Paulo Stock Exchange, BM&FBOVESPA in Brazil. They found that larger companies tend to provide more financial and corporate governance information than smaller companies, but that companies listed for a longer period were less likely to engage in IFR. They also found that companies recognized as adopting the best governance practices provided more corporate information on their websites.
Mohamed <i>et al.</i> (2009)	Oman	Investigated the extent and variety of practices of IFR by companies listed in Oman and found that only 84 of the sample were found to operate websites, out of which only 31 engaged in IFR. Also found that companies disclose both annual reports and financial highlights.
Momany and Al-Shorman (2006)	Jordan	Studied the extent of IFR by Jordanian companies listed on the Amman Stock Exchange (ASE). They found that, on average, companies that report financial information on their websites are larger, more leveraged, with concentrated ownership, having more international investors and are more recently incorporated than non-IFR companies. Many companies also provide timely information on stock prices and trading history.
Oyelere <i>et al.</i> (2003)	New Zealand	Examined the determinants of voluntary IFR practices by New Zealand companies and found that some determinants of traditional financial reporting such as size, liquidity, industrial sector and spread of shareholding are also determinants of voluntary adoption of IFR. However, other firm characteristics, such as leverage, profitability and internationalization, do not explain IFR practices.
Pirchegger and Wagenhofer (1999)	Austria and Germany	Analysed the IFR practices of Austrian companies and compared them to those of German listed companies. Found that larger Austrian companies and those with higher free float percentage scored higher on measures of IFR disclosure.
Smith and Pierce (2005)	Europe	Studied the integrity of IFR by reference to the adequacy of underlying corporate governance procedures. Found a trend towards increasing Internet usage to replicate paper-based financial information, but the integrity of the current IFR environment is questionable, given the limited knowledge of IFR at individual level, and the lack of coherent corporate governance procedures at organizational level.
Trabelsi, <i>et al.</i> (2008)	Canada	Examined the incremental impact of the internet and the determinants and consequences of IFR on firms' financial reporting. Found that the nature of firms' investor base and financial reporting, the "good news" hypothesis and level of competition all influence IFR choices and decisions.
Xiao <i>et al.</i> (2004)	China	Analysed the determinants of 300 Chinese listed companies' voluntary IFR practices and found that the companies IFR disclosure choices are responsive to specific attributes of their environment.

While initial evidence appear to indicate some similarities between the findings on IFR firm characteristics in developed and advanced western economies as compared to those of transitional and emerging economies such as those in the Middle East region, such evidence, as shown by the review of extant literature above, is relatively sparse. It is predicted that IFR is likely to overtake hard-copy print form of financial information disclosure in the near future. It is therefore surprising that evidence on the variety of issues associated with this form of financial disclosure is currently not being deposited in the public domain. Such evidence will depend on the outcome of in-depth and thorough investigation and analysis, such as is being undertaken in the current study.

3. INSTITUTIONAL FRAMEWORK

This paper investigates the corporate characteristics of IFR by listed companies in the emerging economy of the UAE. The population for the study includes all companies listed on two stock exchanges in the UAE - the Abu Dhabi Stock Exchange (ADX) and the Dubai Financial Market (DFM). The environment and institutional framework of the location of the proposed study are discussed in this section.

3.1. Dubai Financial Market (DFM)

The DFM commenced operations in March 2000. It is one of three stock exchanges in the UAE. The other two are the Abu Dhabi Securities Exchange (ADX), which, like the DFM, mostly lists UAE companies; and the Nasdaq Dubai (formerly Dubai International Financial Exchange - DIFX), which was set up to trade international stocks. The DFM was established as a public institution having its own independent corporate body by a Resolution from the Ministry of Economy No 14 of 2000. Its majority shareholder is Borse Dubai. Its objectives include the provision of investment opportunities in securities in a manner that benefits the national economy, the regulation of securities trading processes, the creation of the highest possible level of liquidity in the marketplace by matching demand to supply, the organisation of securities ownership transfer in an efficient and timely manner, the implementation of rules of professional conduct and discipline, and the provision of proper training for investors and DFM staff to ensure and maintain a high level of integrity. The DFM grew impressively from inception, and by 2006, it accounted for about 0.3% of the world's trade in stocks and shares. At the end of 2006 there were 63 companies listed on the DFM, with over 90 stock brokers serving investors and traders. The number of listed companies at the time of this study stood at 65.

3.2. Abu Dhabi Securities Exchange (ADX)

The government of Abu Dhabi established the Abu Dhabi Securities Exchange (ADX; originally established as the Abu Dhabi Securities Market) in November 2000 as a legal entity of autonomous status, independent finance and management. It was established by Local Law No. (3) of 2000, which gives the ADX the necessary supervisory and executive powers to exercise its functions, which

include the provision of opportunities to invest savings and funds in securities for the benefit of the national economy, the assurance of the soundness and accuracy of transactions and interactions between demand and supply in the determination of prices, the development of viable trading methods to ensure liquidity and stability of prices of listed securities, and the imposition of controls over securities transactions to ensure sound and proper procedure. Other functions of the Exchange are the protection of investors through the establishment of fair and proper dealing principles, and the development of investment awareness among various stakeholders. The Law establishing the ADX authorises it to establish centers and branches in and outside Abu Dhabi Emirate, and the Exchange currently has such in Fujairah, Ras al Khaimah, Sharjah and Zayed City. Sixty-seven companies were listed on the ADX during the period of this study.

3.3. Emirates Securities and Commodities Authority (ESCA)

The UAE regulatory authority for both the DFM and the ADX is the Emirates Securities and Commodities Authority or ESCA (sometimes referred to as SCA). The third Exchange in the UAE, the Nasdaq Dubai, has a separate and independent regulator - the Dubai Financial Services Authority (DFSA). ESCA was established by a Federal Government of UAE decree of January 29, 2000 as a legal entity, with financial and administrative independence, as well as executive powers necessary for the discharge of its regulatory functions. The Authority's functions include the licensing and monitoring of the securities market, the acceptance, listing, cancellation or suspension of the listing of any securities or commodities as deemed necessary, the regulation of brokers and their functioning or otherwise in the market, and regulating market processes such as trading, clearance, settlement, transfer of ownership and custody of securities. Other functions of the Authority include regulation of market memberships, arbitration of disputes arising from trading in securities and commodities in the markets, and the regulation of disclosure and transparency in the markets. The Authority is managed by a BOD chaired by the Minister of Economy and five members nominated by the Chairman and the CEO. Board membership term is four years renewable once only except in the case of the CEO. The BOD is expected to meet at least four times a year or as invited by the Chairman.

4. HYPOTHESES DEVELOPMENT AND STATEMENT

In most emerging economies, including the UAE, IFR practices are still generally non-mandatory and unregulated. Hence, the disclosure of financial information through the Internet is being done by companies on a voluntary basis, possibly reflecting the trade-off between the perceived costs and benefits of using the Internet as an additional channel of communicating financial information to stakeholders. The literature reviewed in Section 2 provides the basis for the following research hypotheses relating to IFR.

4.1. Company size

As discussed in Section 2, agency costs tend to increase with firm size (Hossain *et al.*, 1995). Disclosure can help reduce monitoring costs, a significant agency cost. Hence, one would expect to find greater disclosure among large firms relative to small firms. IFR provides great economies of scale for distribution of financial information (Lymer *et al.*, 1999), as the cost of voluntary disclosure through the Internet is likely to be largely unrelated to firm size (Pirchegger and Wagenhofer, 1999). As a consequence, the first hypothesis (stated in alternative form) is:

H_1 : There is a positive association between company size and corporate engagement in IFR.

4.2. Profitability

Profitability is expected to influence a company's financial reporting behavior (Owusu-Ansah, 1998). Companies with successful results (good news) are more likely to engage in voluntary financial disclosure than those with failing operations or that have sustained losses (bad news), since the performance of a company has a signalling effect on both the markets for corporate securities, and for corporate managerial skills (Fama, 1980; Watts and Zimmerman, 1986). One explanation, based on signalling theory, is that in such situations management is keen to raise shareholder confidence and support management compensation contracts (Singhvi and Desai, 1971; Malone *et al.*, 1993). Poorer performing firms may avoid using voluntary disclosure techniques, such as IFR, preferring instead to "... restrict access to accounting information to more determined users" (Craven and Marston, 1999, p. 323). We hypothesize, in alternative form, that:

H_2 : There is an association between company profitability and corporate engagement in IFR.

4.3. Leverage

Agency theory explains why the potential for wealth transfers from fixed claimants to residual claimants increases with leverage (Jensen and Meckling, 1976; Watts, 1977), since highly leveraged companies have the incentive to reinvest sub-optimally. It suggests that agents will increase disclosure to their principals to reduce information asymmetry and, thus, agency costs. To constrain the activities of management, debt-holders of highly leveraged companies typically include clauses in debt contracts requiring prompt and frequent reporting by management. To mitigate the effects of price-protection by fixed claimants, highly leveraged firms have an incentive to voluntarily increase the level of corporate disclosure to such stakeholders through traditional financial statements, and other media, such as the Internet (Debrecey *et al.*, 2002) as expressed in the following hypothesis:

H_3 : There is a positive association between leverage and corporate engagement in IFR.

4.4. Industrial Sector

As suggested by political cost theory, industry membership may affect the political vulnerability of firms (Inchausti, 1997; Craven and Marston, 1999). Firms in industries that are more politically vulnerable may try to use voluntary disclosure to minimize their political costs. Signaling theory also suggests variation in the level of disclosure as a result of industrial classification. If a company within an industry fails to follow the disclosure practices, including Internet disclosures, of others in the same industry, then it may be interpreted that the company is hiding bad news (Craven and Marston, 1999). Ettredge *et al.* (2001) and Xiao *et al.* (2004) provide evidence supporting an association between industry and IFR, which leads to the following hypothesis:

H_4 : There is an association between industry type and corporate engagement in IFR.

4.5. Ownership Diffusion

Agency theory explains and predicts that managers of companies whose ownership is diffuse have an incentive to disclose more information to assist shareholders in monitoring their behaviour (Raffournier, 1995). IFR allows companies to provide users with more comprehensive, indepth, and timely information than that included in traditional financial statements, and in a manner which may reduce the users' information costs (Ashbaugh *et al.*, 1999). This is expressed in the following hypothesis:

H_5 : There is a positive association between diffuseness of ownership and corporate engagement in IFR.

4.6. Liquidity

Management may use the Internet to provide financial information as an expression of their confidence in the company's solvency and future prospects. Highly liquid companies may want to make their high levels of liquidity known through voluntary disclosures on the Internet to allay the concern that regulators, investors, and other users may have regarding their going concern status (Wallace and Naser, 1995; Owusu-Ansah, 1998). Furthermore, initial decisions to set up a corporate website and eventual use of the website to engage in IFR may by themselves indicate a high level of available liquidity. This leads us to state the following hypothesis:

H_6 : There is a positive association between company liquidity and corporate engagement in IFR.

5. RESEARCH DESIGN AND METHODOLOGY

5.1. Population Sample

The research design of this study, including population sample description and data collection, is described in this section. The purpose of the study is to investigate the key corporate characteristics of UAE-listed companies engaging in

IFR. A list of all publicly listed companies was first compiled from the websites of the ADX and DFM. Subsequently, information about whether these companies have a website or not were determined at the first instance via the hyperlinks at the websites. Where there were no links to the corporate websites, an internet search was made for the company using the www.google.com search engine. Finally, the companies were contacted by telephone to determine if they have a website and to ascertain their address. A similar sequence for identifying corporate websites was used by Craven and Marston (1999) and Fisher *et al* (2004), and is an improvement on the typical method of identifying websites through search engines only (Oyelere *et al.*, 2003).

For companies with corporate websites, we moved on to the next stage of the data collection process by investigating whether they engage in IFR through their website or not. A total of 132 companies were listed on the two stock exchanges. The number of companies listed on each exchange is approximately the same with 67 companies listed on the ADX and 65 on the DFM. Table 2 shows the industry classification of companies on both exchanges.

More than half (53.8%) the listed companies are either from the Banking, Investment & Finance (BIF) or Insurance sectors. Approximately 19 percent are from the Real Estate & Construction sector, while about 11 percent are in the Consumer & Healthcare sector. The Energy & Transport sector has about 5 percent (7 companies) of the population.

Table 2. Industry Classification of UAE-listed Companies

<i>Industry</i>	<i>Frequency</i>	<i>Percent</i>
Banking, Investment & Finance	43	32.6
Insurance	28	21.2
Real Estate & Construction	25	18.9
Consumer & Healthcare	15	11.4
Materials/Industrial	8	6.1
Utilities & Telecom	6	4.5
Transport	4	3.0
Energy	3	2.3
Total	132	100.0

Eighty-seven percent of the UAE-listed companies maintain corporate websites, while the remaining 13 percent do not have websites. This is presented in greater detail in Table 3 below, which shows a high incidence of corporate websites among UAE-listed companies. There is a 100 percent uptake in two of the seven industrial sectors (Materials/Industrial and Energy & Transport). The

two sectors with the highest number of companies, BIF and Insurance, are next with 93 percent and about 86 percent of their numbers having websites respectively. Real Estate & Construction is the sector with the least proportion (76%) of its members having websites. Only 19 of the 25 members of this sector have websites.

Table 3. Companies With and Without Websites by Industry

<i>Industry</i>	<i>Without website</i>		<i>With website</i>		<i>Total</i>
	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>	
Banking, Investment and Finance	3	7.0	40	93.0	43
Insurance	4	14.3	24	85.7	28
Materials/Industrial	0	0.0	8	100.0	8
Real Estate & Construction	6	24.0	19	76.0	25
Consumer and Healthcare	3	20.0	12	80.0	15
Utilities and Telecom	1	16.7	5	83.3	6
Energy & Transport	0	0.0	7	100.0	7
Total	17	13.0	115	87.0	132

Table 4. Types of Information on UAE Corporate Websites

<i>Industry</i>	<i>Company History</i>		<i>Products & Services</i>		<i>Financial Information</i>		<i>Total</i>
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	
Banking, Investment and Finance	39	90.7	39	90.7	37	86	43
Insurance	24	85.7	24	85.7	17	60.7	28
Materials/Industrial	7	87.5	8	100	5	62.5	8
Real Estate & Construction	18	72	19	76	12	48	25
Consumer and Healthcare	8	53.3	11	73.3	6	40	15
Utilities and Telecom	4	66.7	5	83.3	4	66.7	6
Energy & Transport	7	100	7	100	7	100	7
Total	107	81.1	113	85.6	88	66.7	132

Table 4 summarizes the types of information provided on the corporate websites of UAE-listed companies, including historical and background information, provided by 107 companies (about 81%) and products and services information provided by

about 86% of the companies. Of particular interest for this study is the level of disclosure of financial information on corporate websites by UAE-listed companies. Table 4 reveals that only about 67 percent (88 out of 132) of UAE-listed companies

made voluntary financial disclosures on their websites. For the purpose of this research and similar to the classifications in Oyelere *et al.* (2003), the 132 UAE-listed companies were classified into two types: (1) companies with a website and engaging in IFR ($n = 88$), and (2) companies not engaging in IFR irrespective of whether they have a website or not ($n = 44$). The companies in the first category are classified as Internet financial reporting companies (IFRC), while those in the second category are referred to as non-Internet financial reporting companies (N-IFRC).

5.2. Data Collection

For companies engaging in IFR, relevant data variables for this study were collected from their corporate websites. For N-IFRC, data were collected from the depository section of the website of the ESCA, the stock market regulatory authority (www.sca.ae). Where these two sources failed to yield the required data, hard copies of the company's annual reports and accounts were consulted. Also, various publications of the ADX and the DFM were consulted for additional descriptive data. The data collected are then analysed and summarised. The results of the analysis are presented and discussed in the next section.

6. DATA ANALYSIS AND RESULTS

This study utilized both univariate and multivariate statistical techniques to isolate and examine the corporate characteristics of IFR firms in the UAE. Descriptive statistics for the independent variables used are presented in Table 5.

The natural log of market capitalization and the natural log of total assets were used as a proxy for corporate size. An analysis of the log of market capitalization across N-IFRC and IFRC shows that companies engaging in IFR are larger than companies that do not engage in IFR. The average market capitalization for IFRC is 22.062, which is in contrast with 19.941 for N-IFRC. This size difference is also consistent with the natural log of total assets, which is the second variable used to proxy for corporate size. Although IFRC appear to be less profitable than N-IFRC, they are much more liquid. In addition, IFRC are more leveraged than N-IFRC.

In order to determine the statistical significance of the differences across N-IFRC and IFRC, independent sample *t-tests* and *chi-square tests* were utilized. These results are presented in Table 6, which shows that company size is statistically significant at the 1% level. Specifically, both the logs of market capitalization and total assets are significantly different across N-IFRC and IFRC. This provides preliminary support for Hypothesis 1 that there is a positive association between company size and the engagement in IFR. The preliminary results do not support Hypothesis 2, 5 and 6, which test for a positive association between engagement in IFR

and profitability, ownership diffusion and liquidity respectively. However, Hypothesis 3, that leverage has a positive association with the engagement in IFR, is supported. Similarly, Hypothesis 4 that industry sector have a positive association with engagement in IFR is supported, as indicated by the significance of the Pearson's Chi-square test.

The univariate analysis, in summary, indicates that IFRC are larger and more leveraged than N-IFRC. Industry category also has a statistically significant bearing on IFR practices. These results are consistent with the findings of Craven and Marston (1999), Ashbaugh *et al.* (1999), Oyelere *et al.* (2003) and Xiao *et al.* (2004).

Further to the univariate analysis which shows statistically significant differences between certain variables across N-IFRC and IFRC, a multivariate logistic regression is utilised, with the dependent variable classified as a binary choice between N-IFRC and IFRC. Two binary logistic models, A and B, were specified incorporating the variables initially used in examining the developed hypotheses. The variables represent company size, profitability, leverage, industrial sector, ownership diffusion and liquidity. The logit models were of the form:

$$Y_i = \alpha + \beta_1(\text{Size})_i + \beta_2(\text{Profitability})_i + \beta_3(\text{Leverage})_i + \beta_4(\text{Industry})_i + \beta_5(\text{Ownership})_i + \beta_6(\text{Liquidity})_i + \mu_i \quad (1)$$

Where, for the i th firm in Model A:

Y = IFR practice; 0 for N-IFRC and 1 for IFRC

α = the constant of the equation

Size = log of market capitalisation

Profitability = return on total assets

Leverage = total debt to equity ratio

Industry = industry sector

Ownership spread = proportion of shares held by the top 5 investors

Liquidity = cash to total assets

μ = error term

The covariates in Model B are identical to those in Model A above, except that the log of total assets was used to proxy for the size variable and return on equity was used to proxy for profitability.

The correlations among the covariates are presented in Table 7 to examine possible multicollinearity issues. The log of total assets is negatively associated with ROA (profitability) and positively associated with both the log of market capitalisation and share spread. Leverage is negatively associated with ROE (profitability). These associations are statistically significant. The results indicate that as firm size increases, the lower the level of profitability. In addition, as firm size increases, the share spread increases. As expected, increases in leverage also results in lower profitability. Despite these significant associations, collinearity diagnostics show that multicollinearity is not a concern for the logistic regression.

Table 5. Descriptive Statistics

Variable		Statistics	N-IFRC*	IFRC*
Size	Market Capitalization	Minimum	.02	9.69
		Maximum	24.74	29.01
		Mean	19.9412	22.0619
		Median	20.3243	22.1815
		Std. Deviation	3.51850	2.43065
		Skewness	-4.441	-1.241
		Kurtosis	25.238	8.553
	Total Assets	Minimum	16.68	17.98
		Maximum	23.83	26.26
		Mean	20.4324	22.2404
		Median	20.3584	22.3455
		Std. Deviation	1.30134	1.78856
		Skewness	-.243	-.107
		Kurtosis	1.361	-.209
Profitability	Return on Equity	Minimum	-1.71	-863.13
		Maximum	70.84	69.32
		Mean	18.5499	-3.4667
		Median	14.5440	17.2972
		Std. Deviation	13.182	126.696
		Skewness	1.716	-6.267
		Kurtosis	4.701	38.935
	Return on Assets	Minimum	-1.46	-11.38
		Maximum	36.27	179.88
		Mean	11.6758	8.3343
		Median	10.5074	5.2103
		Std. Deviation	7.06409	19.917
		Skewness	1.173	8.062
		Kurtosis	2.499	70.095
Liquidity	Cash by Total Assets	Minimum	-63.06	-.30
		Maximum	29.82	10.65
		Mean	.4525	1.0558
		Median	.4221	.4038
		Std. Deviation	2.18405	2.12392
		Skewness	-4.206	3.259
		Kurtosis	27.972	10.372
Share Spread	Proportion of shares held by the top 5 investors	Minimum	5.00	5.46
		Maximum	96.74	100.00
		Mean	41.5205	39.5573
		Median	34.3300	31.6850
		Std. Deviation	25.251	26.840
		Skewness	.734	.867
		Kurtosis	-.411	-.274
Leverage	Debt to Equity Ratio	Minimum	.05	.05
		Maximum	3.08	132.31
		Mean	.7649	4.0994
		Median	.5041	1.4496
		Std. Deviation	.71772	14.630
		Skewness	1.205	8.518
		Kurtosis	1.191	75.321
Industry Count	Banking, Investment & Finance		5	38
	Insurance		13	15
	Materials & Industrial		3	5
	Energy & Transport		0	7
	Real Estate & Construction		14	11
	Consumer & Healthcare		9	6
	Utilities & Telecom		2	4

* N-IFRC = non-internet financial reporting companies; IFRC = Internet financial reporting companies

Table 6. Univariate Sample Test of Independent Variables for N-IFRC* and IFRC*

Panel A. T-test of variables on interval scale				
Variable		Mean Difference (Standard errors of mean)	t-value	Significance
Size	Market Capitalization (Log)	2.07362	3.969	.000***
	Total Assets (Log)	1.68430	6.064	.000***
Profitability	Return on Equity	-21.60842	-1.133	.259
	Return on Total Assets	-3.40276	-1.101	.273
Liquidity	Cash assets by total assets	4.81353	.803	.424
Share spread		-8.7474	-.181	.856
Leverage	Debt to Equity Ratio	4.15409	2.292	.024**
Panel B. Pearson's Chi-square test of variables on categorical scale				
Variable	Value	Df	Asymp. Sig (2-sided)	
Industry	24.746	6	.000	

* N-IFRC = non-internet financial reporting companies; IFRC = Internet financial reporting companies

*** = Significant at the 1% level; ** = Significant at the 5% level.

Table 7. Pearson's Correlation Matrix of Independent Variables

	ROA	ROE	Log of Total Assets	Log of Market Capitalization	Leverage	Liquidity	Share Spread
Return on Assets (ROA)	1	.117	-.250**	-.045	-.108	-.070	-.060
Return on Equity (ROE)	.117	1	.079	.026	-.515**	-.002	.118
Log of Total Assets	-.250**	.079	1	.589**	-.004	-.135	.217*
Log of Market Capitalization	-.045	.026	.589**	1	-.016	-.031	.156
Leverage	-.108	-.515**	-.004	-.016	1	-.026	-.084
Liquidity	-.070	-.002	-.135	-.031	-.026	1	-.016
Share Spread	-.060	.118	.217*	.156	-.084	-.016	1

* and ** indicate significance at the 5% and 10% levels respectively.

The results of the logistic models are presented in Table 8. Out of the initial six covariates for Model A, size (log of market capitalisation) and leverage (debt to equity ratio) are statistically significant at the 1% level. Model A was able to accurately predict 83% of companies engaging in IFR and 63% of companies not engaging in IFR to yield an overall accuracy of 76%. Variables

representing profitability, liquidity, share spread and industry were not significant in the model. The estimated model is satisfactory given that the Hosmer and Lemeshow Test has a p-value exceeding 0.05, which indicates an overall good fit for a binary logistic regression model. This is also reaffirmed by the significance of the Chi-square value for the Omnibus tests of model coefficients.

Table 8. Multivariate Logistic Regression Results

	Model A	Significance	Model B	Significance
Size	0.3922	0.0046***	0.6689	0.0011***
Profitability	-0.002	0.8573	-0.0407	0.0720*
Liquidity	0.0413	0.4622	0.0414	0.5452
Share Spread	-0.010	0.2839	-0.0068	0.4864
Industry		0.2612		0.3468
indus_sector(1)	1.3076	0.2567	2.2322	0.0883*
indus_sector(2)	0.6901	0.5556	1.5197	0.2397
indus_sector(3)	0.0197	0.9878		0.5993
indus_sector(4)	20.359	0.9988	21.0755	0.9988
indus_sector(5)	-0.5887	0.5993	0.3623	0.7673
indus_sector(6)	-0.0290	0.9813	1.6079	0.2578
Leverage	0.9811	0.0054***	0.8299	0.0180**
Constant	-8.7671	0.0109**	-14.9159	0.0024***
-2 Log likelihood	107.119		104.556	
Nagelkerke R Square	.483		.505	
Chi-square	53.794	.000	57.197	.000
Degrees of freedom	11		11	
Hosmer and Lemeshow Test	4.478	.812	11.473	.176
Number of observations	125		126	
Correctly predicted: N-IFRC	62.8%		62.8%	
Correctly predicted: IFR	82.9%		83.1%	
Overall Accuracy	76.0%		76.2%	

***, ** and * indicate significance at the 1%, 5% and 10% levels respectively.

Similar results are obtained for Model B, which used the log of total assets for the size variable and return on equity for the profitability variable. Consistent with Model A, size and leverage are found to be statistically significant at the 1% level. The model also exhibits similar accuracy rates compared to Model A. The model accurately predicts 83% of companies engaging in IFR and 63% of companies not engaging in IFR, with an overall accuracy of 76%. The estimated model also shows a good overall fit, with the p-value for the Hosmer and Lemeshow Test exceeding 0.05. The Chi-square value for the Omnibus tests of model coefficients is also statistically significant, which reaffirms the Hosmer and Lemeshow Test.

In both Models A and B, company size is significant. Similar results are obtained for Model B, which used the log of total assets for the size variable and return on equity for the profitability variable. Consistent with Model A, size and leverage are found to be statistically significant at the 1% level. The model also exhibits similar accuracy rates compared to Model A. The model accurately predicts 83% of companies engaging in IFR and 63% of companies not engaging in IFR, with an overall

accuracy of 76%. The estimated model also shows a good overall fit, with the p-value for the Hosmer and Lemeshow Test exceeding 0.05. The Chi-square value for the Omnibus tests of model coefficients is also statistically significant, which reaffirms the Hosmer and Lemeshow Test. This finding is significantly associated with the presence of IFR. This finding is consistent with earlier research by Ashbaugh *et al.*, (1999) in the US, Pirceggar and Wagenhofer (1999) in Austria, Craven and Martston (1999) in the UK, Oyelere *et al.*, (2003) in New Zealand, Al-Shammari (2007) in Kuwait, Boubaker *et al.*, 2011 in France; and Mendez-Da-Silva and Onusic, 2014 in Brazil. It is likely that larger companies are able to derive scale benefits from voluntarily using the Internet as a medium to disseminate financial information. At the same time, they are less likely to be competitively disadvantaged by engaging in such incremental reporting (Oyelere *et al.*, 2003).

The significance of leverage as a predictor of whether a company engages in IFR is also logical. In order to restrain the activities of management, creditors of highly leveraged companies typically include clauses in debt covenants requiring frequent reporting by management. Furthermore, to mitigate

the effects of price-protection by fixed claimants, highly leveraged firms have an incentive to voluntarily increase the level of corporate disclosure to such stakeholders through media such as the Internet (Debreceeny *et al.*, 2002).

To summarize, the multivariate analysis supports Hypothesis 1 (size) and Hypothesis 3 (liquidity). These findings are also consistent with the univariate analysis. The results do not support the other hypothesis examining profitability, industry classification, ownership diffusion and liquidity as determinants of IFR.

7. SUMMARY AND CONCLUSION

There has been tremendous growth in corporate and market activities in transitional and emerging economies in recent times. As the funding requirements of companies in these economies grow to match their increased business activities, so does the requirement for greater financial disclosure. IFR provides an additional cost-effective channel for companies in these economies to voluntarily deposit financial information in the market place. This research has examined the extent to which companies listed in the UAE are taking advantage of the opportunity afforded by the World-wide Web to communicate their financial information. Specifically, we examined the corporate characteristics of UAE-listed companies engaging in IFR as against those that do not, focusing on six independent variables - company size, profitability, leverage, liquidity, ownership diffusion, and industry - that has been identified in the literature as potential predicted characteristics of IFR firms.

We found that only 67 percent of UAE-listed companies are currently engaging in IFR. While this proportion is similar to the rate of IFR uptake in other emerging economies in the region such as Bahrain, Kuwait and Oman, it falls behind the rate of uptake in developed and advanced western economies such as New Zealand, the UK and the USA, where the rate of uptake is currently about 100 percent. The role of new media channels such as the Internet in promoting transparency and efficient transmission of information in the global business landscape cannot be overemphasized. It is important that companies in emerging economies become fully engaged in the use of tools and technologies that promote capital market efficiency.

The results of our statistical analysis reveal size and leverage to be the most important predictors of IFR adoption by UAE-listed companies. Larger companies with greater leverage are more likely to set up a website and to use it for IFR than smaller less leveraged ones. As in previous studies, this finding suggests that large companies are deriving benefits from setting up websites and providing financial information through this medium. This result generally mimics prior findings on IFR in developed economies, as well as traditional print-based disclosure studies. A major departure from norm is our finding of leverage as a predictor of IFR practices. UAE-listed companies with higher level of leverage are more likely to engage in IFR than less leveraged ones. Highly geared companies may be exploiting the opportunity provided by the Internet to lower agency and monitoring costs. This suggests some

difference in the IFR environment and culture in emerging economies, as compared to advanced ones.

Although considerable literature on print-based financial disclosure suggests that disclosure levels are associated with other firm characteristics, no significant relationship was found in this study between IFR on the one hand, and profitability, liquidity, industry and ownership diffusion, on the other. This also contradicts the findings of some IFR studies of association between IFR practices, on the one hand, and liquidity and industry, on the other. It is however noteworthy that a significant relationship was found between industry and IFR at the univariate level, with its influence being possibly subsumed within those of size and leverage at the multivariate level.

Our study investigates IFR as a voluntary disclosure practice in the UAE, a dynamic emerging economy with growing influence on the global economic landscape, for the first time. We expect the results to have policy implications by drawing the attention of listed companies in the UAE, and other emerging economies in the region to the benefits of using the Internet to facilitate fast and cost-effective communication of financial information. Prior research on the determinants of IFR practices have largely focused on developed economies, with the exception of a few recent studies. The identification of leverage as a significant predictor of voluntary IFR is a major contribution given the current prominence of debt as a major contributing factor in global financial and economic crisis. Currently, to the best of our knowledge, there is little by way of regulatory guidance or pronouncement on IFR in the UAE and perhaps in most countries of the Middle East region. This situation needs to be remedied in advance. Regulatory guidance needs to cover issues such as the general responsibility of companies to shareholders; whether IFR is a direct substitute or complement for hard copy financial statements that companies are required by law to provide to shareholders; rules regarding the publication of audited and non-audited financial information on the Internet; the responsibility of external auditors for audited and non-audited financial information published on the Internet (Fisher *et al.*, 2004); corporate governance issues related to IFR (Oyelere *et al.*, 2006); etc. Such regulation may also aim to streamline web-reporting practices to avoid the problem of excessive variety of non-standardised practices currently available in many countries.

As with all studies of this nature, the limitations of the current study offers some opportunity for future research in this area. As the current study is cross-sectional, future longitudinal studies should provide us with some understanding of the causal relationships between the factors under study. Furthermore, the generalisability of the findings of this study may be limited given the limited number of variables and the unique nature of the country under study. Future research may consider including other explanatory variables specific to the IFR environment, such as the age and levels of education of company directors/managers, attitude of management to IT and new ideas, the age and strategic position of each company in its industry, and the stage in the life cycle of the

company's major products. Researchers may also consider investigating other disclosure-related issues such as the frequency and timeliness of IFR and the level of stakeholder interests and needs for IFR, possibly measured by frequency of visits to corporate websites to download or view financial information. Our study is based on companies listed in the UAE, one of six oil exporting member countries of the Gulf Cooperation Council in the Middle East region. A more comprehensive study could extend the investigation across other countries in the region, and perhaps undertake a concurrent comparison with practices and predictors in advanced economies, to facilitate the development of a more comprehensive predictive model for IFR choices.

REFERENCES

- Ahmed, K., "Disclosure Policy Choice and Corporate Characteristics: A Study of Bangladesh," *Asia-Pacific Journal of Accounting* (June 1990), pp. 183-200.
- Ahmed, K. and J. K. Courtis, "Associations between Corporate Characteristics and Disclosure Levels in Annual Reports: A Meta-analysis," *British Accounting Review* 31, (1999), pp. 35-61.
- Al-Shammari, B. (2007), "Determinants of Internet financial reporting by listed companies on the Kuwait Stock Exchange", *Journal of International Business and Economics*, 7(1), pp. 162-178.
- Alali, F. and S. Romero (2012), "The use of the Internet for corporate reporting in the Mercosur (Southern common market): The Argentina case", *Advances in Accounting, incorporating Advances in International Accounting*, 28(2012), pp. 157-167.
- Allam, A. and Lymer, A. (2002), "Benchmarking Financial Reporting Online: The 2001 Review", *Working Paper*, University of Birmingham, Birmingham, UK.
- Allam, A. and Lymer, A. (2003), "Developments in IFR: Review and Analysis across Five Developed Countries", *The International Journal of Digital Accounting Research*, 3(6), pp.165-199.
- Aly, D., J. Simon, and K. Hussainey (2010), "Determinants of corporate internet reporting: Evidence from Egypt", *Managerial Auditing Journal*, 25(2), pp. 182-202.
- Ashbaugh, H., Johnstone, K. and Warfield, T. (1999), "Corporate reporting on the Internet", *Accounting Horizons*, 13(3), pp. 241-257.
- Beattie, V. and Pratt, K. (2003), "Issues concerning Web-based Business Reporting: An Analysis of the views of interested parties", *British Accounting Review*, 35(2), pp 155-187.
- Bonson, E. and Escobar, T. (2002), "A Survey on Voluntary Disclosure on the Internet. Empirical Evidence from 300 European Union Companies", *International Journal of Digital Accounting Research*, 2(1), pp. 27-51.
- Boritz, J. and No, W. (2005), "Security in XML-Based Financial Reporting Services on the Internet", *Journal of Accounting and Public Policy*, 24(1), pp. 11-35.
- Boubaker, S., F. Lakhal, and M. Nekhili (2011), "The determinants of web-based corporate reporting in France", *Managerial Auditing Journal*, 27(2), pp. 126-155.
- Buzby, S. L., "Company Size, Listed versus Unlisted Stocks, and the Extent of Financial Disclosure," *Journal of Accounting Research* 13, (1975), pp. 16-37.
- Cerf, A. R., *Corporate reporting and investment decisions* (Berkeley, CA: University of California Press, 1961).
- Chan, W.K. and Wickramasinghe, N. (2006), "Using the Internet for Financial Disclosures: The Australian Experience", *International Journal of Electronic Finance*, 1(1), pp. 118-150.
- Chatterjee, B. and Hawkes, L. (2008), "Does Internet Reporting improve the accessibility of Financial Information in a global world? A Comparative Study of New Zealand and Indian Companies", *Australasian Accounting Business and Finance Journal*, 2(4), pp. 33-56.
- Cooke, T., "Voluntary Corporate Disclosure by Swedish Companies," *Journal of International Financial Management and Accounting* 1, (1989a), pp. 171-195.
- Cooke, T., "Disclosure in the Corporate Annual Reports of Swedish Companies," *Accounting and Business Research* 19, (1989b), pp. 113-124.
- Cooke, T., "An Assessment of Voluntary Disclosure in the Annual Reports of Japanese Corporations," *The International Journal of Accounting* 26, (1991), pp. 174-189.
- Courtis, J. K., "Annual Report Disclosure in New Zealand: Analysis of Selected Corporate Attributes," Research Study No. 8, (Auckland: University of New England, 1979).
- Craven, B. and Marston, C. (1999), "Financial reporting on the Internet by leading UK companies", *The European Accounting Review*, 8(2), pp. 321-333.
- Debreceeny, R., Gray, G. and Rahman, A. (2002), "The determinants of Internet financial reporting", *Journal of Accounting and Public Policy*, 21(4/5), pp. 371-394.
- Debreceeny, R. and Rahman, A. (2005), "Firm-specific Determinants of Continuous Corporate Disclosures", *International Journal of Accounting*, 40, pp. 259-278.
- Deller, D., Stubenrath, M. and Weber, C. (1999), "A Survey on the Use of the Internet for Investor Relations in the USA, the UK and Germany", *The European Accounting Review*, 8(2), pp. 351-364.
- Dolinšek, T., P. Tominc, and A.L. Skerbinjek (2014), "The determinants of internet financial reporting in Slovenia", *Online Information Review*, 38(7), 842-860.
- Elsayed, A.N.E, A.A. El-Masry, A.A., and I.M. Elbeltagi (2010), "Corporate governance, firm characteristics and internet financial reporting: Evidence from Egyptian listed companies" *Corporate Ownership and Control*, 7(4), 397-426.
- Ettredge, M., Richardson, V., and Scholz, S. (2001), "The Presentation of Financial Information at Corporate Websites", *International Journal of Accounting Information Systems*, 2, pp. 149-168.
- Ettredge, M., Richardson, V., and Scholz, S. (2002), "Dissemination of information for investors at corporate Web sites", *Journal of Accounting and Public Policy*, 21(4/5), pp. 357-369.
- Fama, E.F. (1980), "Agency problems and the theory of the firm", *Journal of Political Economy*. 88(2), April: 228-307.
- FASB (Financial Accounting Standard Board) (2000), *Electronic Distribution of Business Reporting Information*, Business Reporting Research Project, available at: <http://accounting.rutgers.edu/raw/fasb/brpp1.pdf>
- Fisher, R., Oyelere, P. and Laswad, F. (2004), "Corporate Reporting on the Internet: Audit Issues

- and Content Analysis of Practices”, *Managerial Auditing Journal*, 19(3), pp. 412-139.
32. Gandia, J.L. (2008), “Determinants of Internet-based Corporate Governance Disclosures By Spanish Listed Companies” *Online Information Review*, 32(6), pp.791-817.
 33. Gowthorpe, C. (2004), “Asymmetrical Dialogue? Corporate Financial Reporting Via the Internet”, *Corporate Communication : An International Journal*, 9(4), pp. 283-293.
 34. Gowthorpe, C. and Amat, O. (1999), “External Reporting of Accounting and Financial Information via the Internet in Spain”, *The European Accounting Review*, 8(2), pp. 365-371.
 35. Hedlin, P. (1999), “The Internet as a Vehicle for Investor Relations: the Swedish Case”, *The European Accounting Review*, 8(2), pp. 373-381.
 36. Hossain, M., M.A. Momin, and S. Leo (2012), “Internet financial reporting and disclosure by listed companies: Further evidence from an emerging country”, *Corporate Ownership and Control*, 9(4), 351-364.
 37. Hossain, M., M. H. B. Perera and A. R. Rahman, “Voluntary Disclosure in Annual Reports of New Zealand Companies,” *Journal of International Financial Management and Accounting* 6, (1995), pp. 69-85.
 38. Inchausti, B. G., “The Influence of Company Characteristics and Accounting Regulation on Information Disclosed by Spanish Firms,” *The European Accounting Review* 6, (1997), pp. 45-68.
 39. Jensen, M. C. and W. H. Meckling, “Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure,” *Journal of Financial Economics* 3, (1976), pp. 305-360.
 40. Jones, M. and Xiao, J. (2004), “Financial Reporting on the Internet by 2010: A Consensus View”, *Accounting Forum*, 24, pp. 237-263.
 41. Kelton, A.S. and Y.-w. Yang (2008), “The impact of corporate governance on Internet financial reporting” *Journal of Accounting and Public Policy*, 27(1), 62-87.
 42. Khadaroo, I. (2005), “Corporate Reporting on the Internet: Some Implications for the Auditing Profession”, *Managerial Auditing Journal*, 20(6), pp. 578-591.
 43. Lang, M. and R. Lundholm, “Cross-sectional Determinants of Analyst Ratings of Corporate Disclosures,” *Journal of Accounting Research* 31, (1993), pp. 246-271.
 44. Laswad, F., Fisher, R. and Oyelere, P. (2005), “Determinants of voluntary Internet financial reporting by Local Government Authorities”, *Journal of Accounting and Public Policy*, 24, pp. 101-121.
 45. Laswad, F., Oyelere, P. and Fisher, R. (2000), “Internet Financial Reporting, Opportunities and Challenges”, *African Finance Journal*, 2(2), pp. 40-46.
 46. Lau, A., “Voluntary Financial Disclosure by Hong Kong Listed Companies,” *Hong Kong Manager* (May/June 1992), pp. 10-19.
 47. Louwers, T., Pasewark, W. and Typo, E. (1996), “Silicon Valley meets Norwalk”, *Journal of Accountancy*, No.186, pp. 20-24.
 48. Lymer, A., Debreceeny, R., Gray, G. and Rahman, A. (1999), *Business Reporting on the Internet*, International Accounting Standards Committee, London, November.
 49. Lymer, A., and Debreceeny, R. (2003), “The Auditor and Corporate Reporting on the Internet: Challenges and Institutional Responses”, *International Journal of Auditing*, 7(2), pp. 103-120.
 50. Malone, D., C. Fries and T. Jones, “An Empirical Investigation of the Extent of Corporate Financial Disclosure in the Oil and Gas Industry,” *Journal of Accounting, Auditing and Finance* 8, (1993), pp. 249-273.
 51. Marston, C. (2003), “Financial Reporting on the Internet by Leading Japanese Companies”, *Corporate Communication: An International Journal*, 8(1), pp. 23-34.
 52. Marston, C. and Polei, A. (2004), “Corporate Reporting on the Internet by German Companies”, *International Journal of Accounting Information Systems*, 5, pp. 285-311.
 53. McCafferty, J. (1995), “Investor Relations: How Much to Reveal Online”, *CFO*, December, 12.
 54. Mendes-Da-Silva, W., and L.M. Onusic (2014), “Corporate e-disclosure determinants: Evidence from the Brazilian market”, *International Journal of Disclosure and Governance*, 11(1), 54-73.
 55. Mohamed, E.K., Oyelere, P. and Al-Busaidi, M. (2009), “A Survey of Internet Financial Reporting in Oman”, *International Journal of Emerging Markets*, 4(1), pp 56-71.
 56. Momany, M.T. and Al-Shorman, S.A. (2006), “Web-based Voluntary Financial Reporting of Jordanian Companies”, *International Review of Business Research Papers*, 2(2), pp. 127-139.
 57. Myers, S. C., “Determinants of Corporate Borrowing,” *Journal of Financial Economics* 5, (1997), pp. 147-175.
 58. Owusu-Ansah, S., “The Impact of Corporate Attributes on the Extent of Mandatory Disclosure and Reporting by Listed Companies in Zimbabwe,” *The International Journal of Accounting* 33, (1998), pp. 605-631.
 59. Oyelere, P. and Mohamed, E. (2007), “Internet Financial Reporting in Oman,” *Global Journal of Business Research*, 1(2), pp. 45-54.
 60. Oyelere, P., Laswad, F. and Fisher, R. (2003), “Determinants of Internet Financial Reporting by New Zealand Companies”, *Journal of International Financial Management and Accounting*, 14(1), pp. 26-63.
 61. Oyelere, P., Mohamed, E. and Al Shidi, S. (2006), “Accountability and Transparency through the Internet: A Study of GCC Corporate Governance Practices”, *Proceedings of the 6th Annual Hawaii International Conference on Business*, 25-28 May, Honolulu, Hawaii, USA.
 62. Pirchegger, B. and Wagenhofer, A. (1999), “Financial Information on the Internet: A Survey of the Homepages of Austrian Companies”, *The European Accounting Review*, 8(2), pp. 383-395.
 63. Raffournier, B., “The Determinants of Voluntary Financial Disclosure by Swiss Listed Companies”, *The European Accounting Review* 4, (1995), pp. 261-280.
 64. Ravlic, T. (2000), “Wild Wild Web”, *Australian CPA*, August, pp. 26-30.
 65. SEC (Securities and Exchange Commission) (2002), *Final Rule: Acceleration of Periodic Report Filing Dates and Disclosure Concerning Website Access to Reports*, Securities and Exchange Commission, available at: www.sec.gov.
 66. SEC (Securities and Exchange Commission) (2003a), *Final Rule: Disclosure Required by Sections 406 and 407 of the Sarbanes-Oxley Act of 2002*, Securities and Exchange Commission, available at: www.sec.gov.
 67. SEC (Securities and Exchange Commission) (2003b), *Final Rule: Mandated Electronic Filing and Website Posting for Form 3,4 and 5*, Securities and Exchange Commission, available at: www.sec.gov.

68. Singhvi, S.S., "Characteristics and Implications of Inadequate Disclosure: A Case Study of India," *The International Journal of Accounting Education and Research* 3, (1968), pp. 29-43.
69. Singhvi, S.S. and H.B. Desai, "An Empirical Analysis of the Quality of Corporate Financial Disclosure," *The Accounting Review* 46, (1971), pp. 120-138.
70. Smith, B. and Peppard, D. (2005), "Internet Financial Reporting: Benchmarking Irish PLCs Against Best Practice", *Accountancy Ireland*, 37(6), pp.22-24.
71. Smith, B and Pierce, A. (2005), "An Investigation of the Integrity of Internet Financial Reporting", *International Journal of Digital Accounting Research*, 5(9), pp 47-78.
72. Trabelsi, S., Labelle, R. and Dumontier, P. (2008), "Incremental Voluntary Disclosure on Corporate Web Sites, Determinants and Consequences, *Journal of Contemporary Accounting and Economics*, 4(2).
73. Wagenhofer, A. (2003), "Economic Consequences of Internet Financial Reporting", *Schmalenbach Business Review*, 55, October, pp. 262-279.
74. Wallace, R. S. O. and K. Naser, "Firm Specific Determinants of Comprehensiveness of Mandatory Disclosure in the Corporate Annual Reports of Firms on the Stock Exchange of Hong Kong," *Journal of Accounting and Public Policy* 14, (1995),pp. 311-368.
75. Wallace, R. S. O., K. Naser and A. Mora, "The Relationship between Comprehensiveness of Corporate Annual Reports and Firm Characteristics in Spain," *Accounting and Business Research* 25, (1994), pp. 41-53.
76. Watts, R. L., "Corporate Financial Statements, a product of the Market and Political Process," *Australian Journal of Management* 2, (1977), pp. 53-75.
77. Watts, R.L. and Zimmerman, J.L. (1986), *Positive Accounting Theory*. Englewood Cliffs, New Jersey; Prentice-Hall.
78. Wickramasinghe, N. and Lichtenstein, S. (2006), "Supporting Knowledge Creation With E-mail", *International Journal of Innovation and Learning*, 3(4), pp. 416-426.
79. Wickramasinghe, N. (2006), "Knowledge Creation: A Meta-Framework", *International Journal of Innovation and Learning*, 3(5), pp. 558-573.
80. Xiao, J., Yang, H. and Chow, C. (2004), "The Determinants and Characteristics of Voluntary Internet-Based Disclosures by Listed Chinese Companies", *Journal of Accounting and Public Policy*, 23(3), pp. 191-225.