The determinants of internet financial reporting in Jordan: financial versus corporate governance

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Abstract: The internet has become widely used as a channel to disseminate financial information by Jordanian listed companies in response to the cross-listing agreement among the Amman Stock Exchange (ASE), Abu Dhabi Securities Exchange (ADX) and Dubai Financial Market (DFM). This study aimed to investigate the determinants of internet financial reporting (IFR). The results should help policy makers and regulators in building a framework for mandating IFR. An IFR index was developed to measure the level of each firm's information content and format disclosures. IFR determinants were divided into financial characteristics and corporate governance mechanisms. The analysis determined that firms that are larger, profitable, and more leveraged, with a separation between chairperson and CEO positions, with larger board size numbers, and with fewer independent non-executive directors are more likely to engage in IFR. By extending the analysis using OLS and 2SLS regression, the findings suggest that IFR was predicted using size, liquidity, leverage, market-to-book ratio, chairperson/CEO separation, independent non-executive directors, board size, and shareholder number. Corporate governance mechanisms can predict IFR and its components, content and format more accurately than firms' financial characteristics.

Keywords: internet financial reporting; IFR; voluntary disclosure; corporate governance; CG; Jordan.

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1 Introduction

The rapid growth of internet technology has made it possible for companies to directly and instantly disclose their financial and non-financial information to fulfil user needs worldwide (Alarussi et al., 2013). In this new world of digital business, having a high quality and effective website has become one of the main strategic priorities for many organisations (Al-Debei, 2014). Many believe that, given technological advances, companies must provide more online, real-time financial information to ensure the availability of relevant information. Pascareno and Hermana (2015) mentioned that transparent information will become a background for various government regulations. Developing a high quality websites has become one of the main strategic priorities for organisations (Rocha, 2012). Most companies now use the power and reach of the internet to provide more useful information to the readers of financial statements (Kieso et al., 2011). Companies might be motivated to communicate information via the internet to gain benefits such as global marketing, to minimise the costs of distributing hard copy financial statements, to communicate information more broadly and rapidly and less expensively and to facilitate interactions with stakeholders (Xiao et al., 2002).

Internet financial reporting (IFR) is a voluntary financial disclosure practices. The IASB issued guidelines for IFR, indicating that the financial reports provided online should have the same scale and scope as the traditional hard copy versions; otherwise, any information lacking or additional information should be disclosed as such. The IASB aimed with these guidelines to provide legitimate, complete, usable, transparent and secure financial information online, to be utilised by different users (Lymer et al., 1999).

IFR refers to using firms' websites to disseminate information about their financial performance, which could be described as a marketing tool; organisations can market their businesses to shareholders and investors. In this way, websites are used for more than marketing standard products to customers (Poon et al., 2003).

In current practice, corporate disclosure of financial information via the internet is mostly voluntary. Lymer and Debreceny (2003) examined the regulations established by security regulators and audit standard setters, and they argued that the actual regulations are unable to respond to the challenges presented by current, as well future, internet reporting technologies. The content and format of the financial information disclosed via the internet differs greatly among countries and companies (Ashbaugh et al., 1999; Debreceny et al., 2002; Ettredge et al., 2002). Hanafi et al. (2009) argued despite this lack of uniformity, that decision-makers continue to use the information disclosed on corporate websites for decision-making purposes. Thus, IFR could also be regarded as an important tool for attracting investors.

Many factors have encouraged organisations to move toward IFR, including the following. First, the cost of disseminating web information is low, compared to that of disseminating printed information. Second, IFR allows organisations to communicate information to unidentifiable consumers, in contrast to the paper-based annual report, which communicates information to selected groups (Ashbaugh et al., 1999). Third, Lymer et al. (1999) indicated that decision making processes were accelerated by improving financial disclosure and by providing more timely information. For example, Jordan's petroleum refinery website provides daily stock prices. Fourth, IFR increases the frequency of financial disclosures (quarterly, monthly, and even daily in some cases). Fifth, organisations can increase the quantity of information and can disclose

disaggregate and incremental financial information on their websites (Ashbaugh et al., 1999). For example, the Arab Bank Corporation provides annual reports for 68 years. Sixth, the internet has introduced new technologies for reporting that make sites more interactive with investors (Lymer, 1997). Seventh, IFR increases the share liquidity and lowers the cost of capital by enhancing disclosures (Oyelere et al., 2003). Finally, Miniaoui and Oyelere (2013) argued that with IFR, users can choose to access information that meets their specific needs as the internet allows non-sequential access to information through the use of hyperlinks, interactive and search facilities.

Previous literature, such as that by Ashbaugh et al. (1999), Debreceny and Gray (1999), the FASB (2000) working group, Alam and Rashid (2014) have emphasised some of the barriers associated with IFR, such as the following. First, there is an absence of regulations and standards governing IFR. FASB (2000) indicated that the evolving information on the internet is limited to the imagination of the people who create it. Second, inadequate internet security can affect reliability of information. Third, disclosing unaudited financial information can also influence the reliability of information.

Despite these barriers, IFR is expected to bring significant benefits to organisations, including easy access to potential investors and stakeholders, the disseminating of information more quickly, more widely and at a lower cost, an increase in presentation flexibility, and the providing of small companies with opportunities for global marketing. Additionally, for the user, IFR offers a low cost solution to accessing corporate information, and it is potentially useful for providing flexibility in user models of data. Thus, the internet allows users to relate financial information easily to non-financial information, makes financial information more readily accessible to non-accounting users, improves equality of information access, and enables investors to purchase and sell securities more efficiently and at a lower transaction cost (Lymer et al., 1999).

The impact of corporate governance (CG) on the IFR is a fertile ground for scientific research in Jordan and the Middle East, where there were not serious efforts to research this area. Most of the Arab region's studies dealt with IFR as a function of firm's financial characteristics only, they did not address any form of CG mechanisms. Jordanian legislation placed CG restrictions on companies to enhance the transparency of financial reporting and the quality of disclosure, subsequently we assume that this legislation will affect the firm's behaviour towards IFR.

A number of significant motivations exist for this paper. First, in Jordan, little research has been conducted in the area of IFR. These efforts started – to the knowledge of the researcher – at the beginning of the 21st century, with attempts to determine the constraints that affect IFR in Jordan (Alkhalaileh et al., 2005; Momany and Al Shorman, 2006; Mahdi, 2009; Al-Hayale, 2010; Al-Htaybat et al., 2011; Al-Sakarneh, 2011; AbuGhazaleh et al., 2012). Most of these studies used a narrow range of variables to predict IFR: some were descriptive, and others explored the perceptions of users regarding IFR. Second, paragraph four of chapter five of the CG code for shareholding companies listed on the Amman Stock Exchange (ASE) states, "The firm shall use its Internet Web site to enhance disclosure and transparency and to provide information" (Jordan Securities Commission, 2015). Third, recent research has suggested that shareholders with better access to quality accounting information should be able to protect themselves more effectively against self-serving managers and to make better decisions concerning the purchase of new equity issues (Berglöf and Pajuste, 2005).

Accordingly, and based on the cross-listing agreement that was signed among the ASE, Abu Dhabi Securities Exchange (ADX) and Dubai Financial Market (DFM) to list Jordanian public shareholding companies on the ADX and DFM, IFR will be defined as the most useful tool for cross-border investors to obtain the needed information for making investment decisions.

Against this background, the purpose of this research is to answer the following research question: "What are the more explanatory determinants of IFR in the Amman Stock Exchange (ASE): Financial or Corporate Governance determinants?" More specifically, this research has the following objectives:

- to explore the development of voluntary IFR as a response to the governmental and regulatory body initiatives in Jordan to enhance transparency by encouraging the use of IFR
- to investigate the determinants of IFR in publicly traded companies on the ASE
- to test the explanatory power of the financial determinants of IFR versus the CG determinants of IFR.

That is, this research contributes to the scholarship with an explanatory comparative approach, using a range of financial and CG determinants to predict IFR, to determine the more predictable group. This study will provide indicators of the importance of financial characteristics versus the CG mechanisms as determinants of IFR. In addition, to the knowledge of the researcher, CG determinants were not tested to be IFR determinants, either in Jordan or elsewhere in the Middle East, except by Momany and Al-Shorman (2006) and Mahdi (2009), who tested a single variable and found contradicting results for the effects of ownership concentration on IFR. Additionally, AbuGhazaleh et al. (2012) studied a single CG variable and found a positive effect of the number of shareholders on IFR. Further, as Khan and Ismail (2013) reported, there remains a need for empirical studies on IFR determinants due to the dynamic and unique nature of IFR, and this research complements the efforts of the previous Jordanian research in this area. The findings of this research are expected to help practitioners in developing their companies' websites and enhancing IFR. Also policy makers and regulators will gain benefits concerning the current IFR practices because they are still voluntary.

The paper has five parts. First, it briefly describes the ASE and its position among the members of the Arab Federation of Exchanges (AFE). Second, it reviews the extant literature relevant to IFR and its determinants and develops hypotheses. Third, the research methodology is presented, and data analysis techniques are discussed. Fourth, the findings are discussed and summarised. Fifth, the paper concludes with a discussion of theoretical and managerial implications and directions for further research.

2 An overview of the ASE

The ASE was established in March 1999[1] as a non-profit, public institution. It is an active member of the AFE and of the Federation of Euro-Asian Stock Exchanges (FEAS) and is a full member of the World Federation of Exchanges (WFE) (http://www.ase.com.jo). For an emerging market economy such as Jordan, the ASE is unusually large in terms of

market capitalisation (almost 300% of GDP). The ASE plays an important role in channelling and intermediating capital in the Jordanian economy. It has diversified the types of financial instruments available to investors and has removed most restrictions on foreign participation in listed companies (Saadi-Sedik and Petri, 2006).

Table 1 A comparison between ASE and other Arab Stock Exchanges

Financial market	*Market capitalisation* (million USD)*	*Number of shares traded (million shares)*	*Value of shares traded (million USD)*	*Number of listed companies*
Abu Dhabi Securities Exchange (ADX)	62,434	15,855	6,745	67
Amman Stock Exchange (ASE)	*24,396*	*4,072*	*3,608*	*250*
Bahrain Bourse (BHB)	16,589	520	27	49
Beirut Stock Exchange (BSE)	10,252	78	511	10
Casablanca Stock Exchange (CASA)	61,070	184	6,081	76
Damascus Securities Exchange (DSE)	1,480	17,787	140	21
Dubai Financial Market (DFM)	30,273	25,164	8,708	62
Egyptian Exchange (EGX)	48,481	16,892	16,581	234
Iraq Stock Exchange (ISX)	4,109	492,371	784	87
Khartoum Stock Exchange (KHARTOUM)	2,638	106,512	75	56
Kuwait Stock Exchange (KSE)	87,147	38,423	21,987	229
Libyan Stock Market (LSM)	3,017	1,847	20	12
Muscat Securities Market (MSM)	26,862	2,366	2,549	114
Palestine Exchange (PEX)	2,532	184	366	46
Qatar Stock Exchange (QSE)	125,646	2,302	12,114	42
Saudi Stock Exchange (TADAWUL)	338,891	48,535	293,023	150
Tunis Stock Exchange (BVMT)	9,320	252	1,014	57

Note: * The market capitalisation is the total market value of domestic listed companies.

Source: AFE (2011)

The ASE includes a diverse set of financial instruments, although it focuses on equity investments. The market is organised into first and second markets for the trading of listed securities. The first market is governed by more stringent listing rules (e.g., publication of quarterly data), but otherwise, it differs little from the Second Market. Most securities trading involve equities, and most of the trading is conducted on the First Market (Saadi-Sedik and Petri, 2006).

According to the AFE statistics shown in Table 1, the ASE occupied the medium rank among the 17 Arab stock exchanges, while the members of the AFE, in terms of market capitalisation and number and value of shares traded, occupied first place in terms of the number of listed companies. This increase in the number of listed companies was facilitated by good market conditions, which could offer a potential opportunity for prospective investments.

Although the Jordanian Financial Securities Act indicated in article (43) paragraph (c) that financial reports could be published in a local daily newspaper or by mail or e-mail to the address of each stockholder, there are some initiatives that encourage the use of IFR. In 2006, the ASE signed a cross-listing agreement with ADX and DFM (Addustour Newspaper, 2007). Cross-listing is defined as a "process by which a firm incorporated in one country elects to list its equity on the public stock exchange of another country". The reasons that drive companies to seek a cross-listing of their shares are increasing of liquidity, lowering the cost of capital, marketing of shares, and motivating of growth (Ferris et al., 2009). In the Jordanian context, cross-listing provides companies an opportunity to access the high-liquidity markets that began to emerge over the last few years as a result of the rising prices of oil imports from these countries. In addition, cross-listing provides the opportunity to interact with an extensive network of investors in international exchanges (Hijazin, 2008).

3 Literature review and hypothesis development

Over the past ten years, many studies have investigated the key determinants of IFR, but there is not yet a standard method to test these determinants; Table 2 summarises the results achieved by these studies. To achieve the objectives of this study, the previous studies were divided into two groups according to the determinants' classifications: financial determinants and CG determinants. From Table 2, it can be observed that the CG is rarely tested in the IFR area in the Jordanian and Middle Eastern regions, while the financial constraints are covered intensively.

A framework that links CG with IFR is the agency theory for Jensen and Meckling (1976). "Agency theory shows that costs arise from the conflicts of interests between shareholders and managers. The economic benefits of any reduction in agency costs will be shared by shareholders and managers. As a result, managers often voluntarily undertake various actions, including disclosures and submissions to monitoring" [Xiao et al., (2004), p.197]. Corporate governance mechanisms are involved in monitoring and determining a firm's overall information disclosure policy (Kelton and Yang, 2008).

3.1 Financial determinants

Much of the research has addressed the financial factors tested to predict IFR around the world. The financial determinants have included firm-specific determinants, such as size, profitability, liquidity, and leverage, and market-based determinants, such as market-to-book (M/B) ratio.

Table 2 Literature review

Determinant	*Region*		
	Jordan	*Middle East*	*International*
Size	(+) AbuGhazaleh et al. (2012)	(+) Miniaoui and Oyelere (2013) – UAE	(+) Dyczkowska (2014) (+) Pozniak (2013) – Brussels and Paris
	(+) Al-Sakarneh (2011)	(+) Almtairi (2012) – Kuwait	(+) Sharma (2013) – Nepal
	(+) Mahdi (2009)	(No) Aly et al. (2010) – Egypt	(+) Damaso and Lourenco (2011) – London (FTSE350)
	(No) Alkhalaileh et al. (2005)		(+) Alarussi et al. (2009) – Malaysia
			(No) Cormier et al. (2008) – Canada
			(+/No) Pervan (2006) – Croatia/Slovenia
			(No) Laswad et al. (2005) – New Zealand
			(+) Oyelere et al. (2003) – New Zealand
			(+) Ettredge et al. (2002) – USA (AIMR)
Profitability	(No) AbuGhazaleh et al. (2012)	(+) Miniaoui and Oyelere (2013) – UAE	(–) Dyczkowska (2014) (No) Sharma (2013) – Nepal
	(+) Al-Sakarneh (2011)	(No) Almtairi (2012) – Kuwait	(No) Damaso and Lourenco (2011) – London (FTSE350)
	(No) Mahdi (2009)	(+) Aly et al. (2010) – Egypt	(No) Alarussi et al. (2009) – Malaysia
			(No) Cormier et al. (2008) – Canada
			(+/No) Pervan (2006) – Croatia/Slovenia
			(No) Oyelere et al. (2003) – New Zealand
Liquidity	(No) Mahdi (2009)	(+) Almtairi (2012) – Kuwait	(+) Oyelere et al. (2003) – New Zealand
		(No) Aly et al. (2010) – Egypt	

Table 2 Literature review (continued)

Determinant	*Region*		
	Jordan	*Middle East*	*International*
Leverage	(+) Al-Sakarneh (2011)	(+) Miniaoui and Oyelere (2013) – UAE	(No) Sharma (2013) – Nepal
	(+) Mahdi (2009)	(No) Aly et al. (2010) – Egypt	(–) Damaso and Lourenco (2011) – London (FTSE350)
	(+) Momany and Al-Shorman (2006)		(No) Alarussi et al. (2009) – Malaysia
			(–) Cormier et al. (2008) – Canada
			(+) Laswad et al. (2005) – New Zealand
			(No) Oyelere et al. (2003) – New Zealand
M/B			(No/+) Pervan (2006) – Croatia/Slovenia
			(+) Cormier et al. (2008) – Canada
Chairperson/ CEO			(+) Cheung et al. (2010) – China
Board independence			(+) Sharma (2013) – Nepal
			(+) Erer and Dalgic (2011) – Turkey
			(+) Yap et al. (2011) – Malaysia
			(+) Chau and Gray (2010) – Hong Kong
			(+) Kelton and Yang (2008) – USA (NASDAQ)
			(+) Xiao et al. (2004) – China
Board size			(+) Yap et al. (2011) – Malaysia
			(–) Haniffa and Hudaib (2006) – Malaysia

Table 2 Literature review (continued)

Determinant	*Region*		
	Jordan	*Middle East*	*International*
Ownership concentration	(–) Mahdi (2009)		(No) Sharma (2013) – Nepal
	(+) Momany and Al-Shorman (2006)		(No) Erer and Dalgic (2011) – Turkey
			(–) Damaso and Lourenco (2011) – London (FTSE350)
			(No) Cormier et al. (2008) – Canada
			(–) Kelton and Yang (2008) – USA (NASDAQ)
Number of shareholders	(+) AbuGhazaleh et al. (2012)		(+) Yap et al. (2011) – Malaysia
			(+/No) Pervan (2006) – Croatia/Slovenia
			(+) Oyelere et al. (2003) – New Zealand

3.1.1 Firm size

The size of a company can be measured in many ways, such as equity capital employed, sales turnover, number of employees, market value and others. There is no particular method that is superior to others (Alarussi et al., 2009). Jensen and Meckling (1976) argued that increased disclosures could reduce agency costs and information asymmetry; thus, larger companies seek to offer high-level, transparent, timely, and accurate disclosures to maintain their competitive advantage.

On an international level, Ettredge et al. (2002), Oyelere et al. (2003), Pervan (2006), Alarussi et al. (2009), Damaso and Lourenco (2011), Sharma (2013), Pozniak (2013), and Dyczkowska (2014) found that size statistically affects the IFR positively. In the regional context, the most recent studies have found the same effect (Almtairi, 2012; Miniaoui and Oyelere, 2013), but Aly et al. (2010) could not find this effect in Egypt. In Jordan, Momany and Al-Shorman (2006), Mahdi (2009), Al-Sakarneh (2011), and AbuGhazaleh et al. (2012) proved the effect of firm size on IFR, but Alkhalaileh et al. (2005) found that there was no effect, similar to Laswad et al. (2005) in New Zealand and Cormier et al. (2008) in Canada. Based on these, an alternative form hypothesis could be developed as follows.

H1 IFR is positively affected by firm size.

3.1.2 Profitability

Profitability motivates management to disclose more information to stakeholders. Profitability was assessed using different measurements, such as return on equity (ROE), return on assets (ROA), return on investment (ROI), and earnings per share (EPS). EPS is widely considered to be the most popular method of quantifying a firm's profitability (Alarussi et al., 2009).

Profitability was tested on a large scale, but the results were contrary to what was expected because profitability did not have any impact on IFR in most of the studies conducted worldwide, in the Middle East and even in the Jordanian context. Oyelere et al. (2003), Pervan (2006), Alarussi et al. (2009), Cormier et al. (2008), Damaso and Lourenco (2011), Sharma (2013), and Dyczkowska (2014) studied profitability as an IFR constraint, and their results were not statistically significant, except for those of Pervan (2006), who conducted his study in Croatia and Slovenia and found that profitability affected IFR only in Croatia but not in Slovenia, as in other studies. Also, Dyczkowska (2014) found a negative effect of profitability on IFR in Poland. However, in the Middle East, Aly et al. (2010) and Miniaoui and Oyelere (2013) – and also, in Jordan, Al-Sakarneh (2011) – found a significant positive effect for profitability on IFR.

Ahmed et al. (2002) provided two perspectives for interpreting the impact of profitability on IFR. On the one hand, more profitable firms tend to disclose more information because management likes to show off its achievements to others, to reflect a good reputation and to raise capital under the best terms. On the other hand, it is argued that less profitable firms can disclose more information to explain the reasons for low performance and therefore maintain their integrity. Based on the aforementioned discussion, the following is hypothesised.

H2 IFR is positively affected by firm profitability.

3.1.3 Liquidity

Very little literature has touched this area. On an international level, only Oyelere et al. (2003) and, in the Middle East region, Almtairi (2012) found a significant positive effect for liquidity on IFR.

Highly liquid companies might be motivated to inform stakeholders about their status, in agreement with current concerns, and this information would be transmitted by IFR, which would be an expression of management's confidence in a company's solvency and future prospects (Oyelere et al., 2003). This finding leads to the following hypothesis.

H3 IFR is positively affected by firm liquidity.

3.1.4 Leverage

Leverage was researched intensively in the previous literature from around the world. Leverage is the amount of debt used in financing assets. Leveraged companies have more financial costs, and creditors are interested in being informed. Damaso and Lourenco (2011) argued that firms with poor financial conditions should be unable to withstand the initial negative consequences that are needed to gain any benefits from more extensive

disclosure. Laswad et al. (2005) showed that firms perceive IFR as a potential means of facilitating monitoring by creditors. According to these findings, over the last decade, the findings have been interesting because the international studies and one Middle Eastern study have found that leverage had no effect on IFR (e.g., Oyelere et al., 2003; Alarussi et al., 2009; Aly et al., 2010; Sharma, 2013), except for the studies by Cormier et al. (2008) and Damaso and Lourenco (2011), which found a negative effect. However, all of the Jordanian studies, one Middle Eastern study, and one international, study found a positive effect of leverage on IFR (e.g., Laswad et al., 2005; Momany and Al-Shorman, 2006; Mahdi, 2009; Al-Sakarneh, 2011; Miniaoui and Oyelere, 2013). These results agreed with those of Xiao et al. (2004), who argued that leverage could positively or negatively affect IFR. The following is therefore hypothesised.

H4 IFR is positively affected by firm leverage.

3.1.5 M/B ratio

M/B ratio has rarely been tested as a determinant in the IFR literature. This ratio is the ratio of market capitalisation to the book value of equity. The greater the ratio is, the greater the company is overvalued by the market, which is reflected in a greater amount of intangibles that are not recorded in the company's accounts. Therefore, greater disclosure is required to enable the company to be valued properly (Larren and Giner, 2002). Over the last decade, only Cormier et al. (2008), in Canada, and Pervan (2006), in Slovenia, found a positive impact of the M/B ratio on IFR; these results support their arguments, which showed that it is possible to expect a higher M/B ratio for companies with more IFR because of the greater transparency, broader range of information, and consequently smaller investor risk. Accordingly, the following is posited.

H5 IFR is positively affected by firm M/B ratio.

3.2 CG determinants

IFR is affected by CG practices. A number of researchers have studied this relationship (e.g., Oyelere et al., 2003; Xiao et al., 2004; Alkhalaileh et al., 2005; Momany and Al-Shorman, 2006; Kelton and Yang, 2008; Cormier et al., 2008; Aly et al., 2010; Damaso and Lourenco, 2011; Erer and Dalgic, 2011; AbuGhazaleh et al., 2012; Sharma, 2013). Adopting good governance practices translates into a strong internal CG structure (Yap et al., 2011). Also, good CG requires companies to present information timely, clear, and comparable, especially concerning financial issues, management and company ownership (Almilia, 2015). Accordingly, the strong CG practices considered in this study include separation of the board chair and the CEO, a higher proportion of independent non-executive BOD members, smaller board size, less ownership concentration, and a larger number of shareholders.

3.2.1 Chairperson/CEO separation

Cheung et al. (2010) argued that companies with a separate CEO and board chairperson tend to have greater voluntary disclosure. Chau and Gray (2010) proved that the appointment of an independent chairperson is positively related to voluntary disclosure in

Hong Kong. When the CEO is also the board chairperson, the ability of the board to perform its governance role is likely to be weak because the chairperson will be able to control the board. The following hypothesis is thus stated.

H6 IFR is positively affected by Chairperson/CEO separation.

3.2.2 Independent non-executive directors

An independent non-executive director is a member of the board of directors of a company who is not part of the executive management team. Non-executive directors are the custodians of the governance process. They are not involved in the day-to-day running of businesses, but they monitor executive activities and contribute to the development of strategy. Managerial opportunism could be minimised by the existence of independent non-executive directors, also resulting in more effective board monitoring (Kelton and Yang, 2008). Therefore, greater disclosure is expected. Ghazali and Weetman (2006) found that a higher percentage of independent directors on the board would lead to a greater disclosure level by companies (Yap et al., 2011). Kelton and Yang (2008) indicated that firms with higher percentages of independent directors are more likely to engage in IFR. This hypothesis could be developed as follows.

H7 IFR is positively affected by independent non-executive directors.

3.2.3 Board size

Board size affects the performance of the board in monitoring and controlling managers. Haniffa and Hudaib (2006) suggested that a large board is seen as less effective in monitoring performance. In contrast, Gandia (2008) reported that board size would increase disclosure because this increase disclosure would result in a positive impression because it is the board members' decision. This result agreed with Yap et al. (2011). This study assumed a negative effect, in agreement with Haniffa and Hudaib (2006), because in the Arab world, including Jordan, the economy is dominated not by large corporate enterprises but by family-run businesses of varying size (Konrad-Adenauer-Stiftung: Jordan Office, 2012). This consideration leads to the following hypothesis.

H8 IFR is negatively affected by board size.

3.2.4 Ownership concentration

Jordanian public shareholding companies are characterised by high concentrated ownership. The opposite results were found in Jordan, in agreement with other international studies. Although Cormier et al. (2008), Erer and Dalgic (2011), and Sharma (2013) did not find any effect of ownership concentration on IFR, Mahdi (2009) found that ownership concentration negatively affects IFR, while Momany and Al-Shorman (2006) found a positive effect. Mahdi's (2009) results agreed with those of Kelton and Yang (2008) and of Damaso and Lourenco (2011), who argued that companies with higher ownership concentration are expected to have less voluntary IFR. Thus, the next hypothesis is as follows.

H9 IFR is negatively affected by ownership concentration.

3.2.5 Number of shareholders

Companies with larger number of shareholders are likely to disclose more by IFR as a response to the diversified needs of shareholders (Yap et al., 2011). The number of shareholders could be observed as a measurement of shareholder control dispersion. Therefore, the number of shareholders affects IFR positively, according to the findings of Oyelere et al. (2003), Pervan (2006), Yap et al. (2011) and, in the Jordanian context, AbuGhazaleh et al. (2012). Accordingly, the hypothesis is formulated as follows.

H10 IFR is positively affected by the number of shareholders.

4 Method

This section describes the sample characteristics, the data collection process, and the proxies used to measure dependent and independent variables.

4.1 Sampling

The target population for this study consisted of Jordanian public shareholding companies listed on the ASE at the end of 2011. The reason behind selecting this period was that the researcher started to search the target companies' websites for the dependent variable data in January 2013. At this time, the companies not yet issued their 2012 financials, and the latest company guidelines available on the ASE website consisted of the 2011 guide. The unit of analysis was the individual shareholding company. To generalise the results of this study, a comprehensive survey to include a 100% sample was performed for all 250 of the companies listed on ASE as of Dec. 31, 2011. Following Yap et al. (2011), this target population was considered under the assumption that listed companies provide more accessible, detailed, up-to-date and reliable information, compared to non-listed companies.

Table 3 provides the distribution of 250 companies according to the sectors to which they belong. The sample was clearly dominated by the financial sector (47%). Seven companies were excluded due to missing financial and CG disclosures. Fifteen companies were eliminated because they were excluded from listing on the ASE for the reasons of mergers or reductions of shareholding capital. The final sample consisted of 228 companies.

Table 3 Distribution of the final sample by sector

Sector sample	*Financial*		*Industrial*		*Service*		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Total†	117	47	68	27	65	26	250	100
Excluded companies‡	11	9	0	0	11	17	22	9
Final sample†	*106*	*46*	*68*	*30*	*54*	*24*	*228*	*100*
With website‡	56	53	41	60	52	96	149	65
Without website‡	50	47	27	40	2	4	79	35

Notes: †: Percentage is calculated horizontally.
‡: Percentage is calculated vertically.

4.2 Data collection

Data about the dependent variable (IFR) were collected in two stages. First, the websites of all of the target companies were searched for on the website of Securities Depository Center (SDC) and with the Google search engine to determine the availability of a website or not. Second, the companies with websites were investigated for IFR engagement. Referring to Table 3, it could be noted that 149 companies constituting a proportion of 65% of ASE-listed companies maintain websites, while 79 companies (35%) do not, indicating a moderate level of technology adopted by public shareholding companies in Jordan. The highest percentage of companies having websites was in the service sector (96%), followed by the industrial sector (60%), while the lowest percentage was in the financial sector (53%).

Data about the independent variables; financial and CG determinants were collected from two sources: the companies' websites and latest company guide available on the ASE website[2] because of the absence of some of these variables on the companies' websites or in their financial reports or the absence of a website for the non-IFR companies.

4.3 Measurements

An ordinary least square (OLS) regression model was used as the major statistical tool. Model (1) was used to test the effect of explanatory variables on the composite index of IFR, while models (2) and (3) were used to test the effects of the same independent variables on the content and format of IFR, respectively. The models are described below.

$$\begin{aligned} IFR_{i,t} &= \alpha_{i,t} + \beta_1 Size_{i,t} + \beta_2 Profit_{i,t} + \beta_3 Liquid_{i,t} + \beta_4 Lev_{i,t} \\ &+ \beta_5 MB_{i,t} + \beta_6 ChrCEO_{i,t} + \beta_7 NonEx_{i,t} + \beta_8 BrdSize_{i,t} \\ &+ \beta_9 OwnerCon_{i,t} + \beta_{10} ShrhldrNo_{i,t} + \varepsilon_{i,t} \end{aligned} \tag{1}$$

$$\begin{aligned} Content_{i,t} &= \delta_{i,t} + \gamma_1 Size_{i,t} + \gamma_2 Profit_{i,t} + \gamma_3 Liquid_{i,t} + \gamma_4 Lev_{i,t} \\ &+ \gamma_5 MB_{i,t} + \gamma_6 ChrCEO_{i,t} + \gamma_7 NonEx_{i,t} + \gamma_8 BrdSize_{i,t} \\ &+ \gamma_9 OwnerCon_{i,t} + \gamma_{10} ShrhldrNo_{i,t} + \omega_{i,t} \end{aligned} \tag{2}$$

$$\begin{aligned} Format_{i,t} &= \partial_{i,t} + \theta_1 Size_{i,t} + \theta_2 Profit_{i,t} + \theta_3 Liquid_{i,t} + \theta_4 Lev_{i,t} \\ &+ \theta_5 MB_{i,t} + \theta_6 ChrCEO_{i,t} + \theta_7 NonEx_{i,t} + \theta_8 BrdSize_{i,t} \\ &+ \theta_9 OwnerCon_{i,t} + \theta_{10} ShrhldrNo_{i,t} + \mu_{i,t} \end{aligned} \tag{3}$$

where

$IFR_{i,t}$ IFR index for company in *i* year *t*

$Content_{i,t}$ the content of IFR for company *i* in year *t*

$Format_{i,t}$ the format of IFR for company *i* in year *t*

$\varepsilon_{i,t}$, $\omega_{i,t}$, $\mu_{i,t}$ error terms.

All independent variables are described in Table 5.

In addition, we ran the regression using the two-stage least squares (2SLS) method. 2SLS regression is used as an alternative estimation method when there is a potential selection bias problem in the independent variables. OLS yields inconsistent parameter estimates due to the correlation of some of the explanatory variables with the equation error (Beatty et al., 1993). 2SLS was employed using instrumental variables z's that are correlated with endogenous variables x's Cov (z, x) but are unlikely to be correlated with residuals Cov (z, ε) in the second-stage regression (Chung and Zhang, 2011). To test this assumption, we first calculated the estimated IFR ($\widehat{IFR}$) using equation (1); then, we found the equation error through equation (4) as follows.

$$\varepsilon_{i,t} = IFR - \widehat{IFR} \tag{4}$$

Our OLS model included only one endogenous variable, that is, the number of shareholders (*ShrhldrNo*). The previous procedures were repeated for equations (2) and (3) separately, and no endogenous variables were found. Following Chung and Zhang (2011), in the first stage, the shareholder number was estimated using all of the exogenous variables from the same model, as shown in equation (5).

$$\begin{aligned} \widehat{ShrhldrNo} = {} & \phi_{,t} + \lambda_1 Size_{i,t} + \lambda_2 Profit_{i,t} + \lambda_3 Liquid_{i,t} + \lambda_4 Lev_{i,t} \\ & + \lambda_5 MB_{i,t} + \lambda_5 ChrCEO_{i,t} + \lambda_7 NonEx_{i,t} + \lambda_8 BrdSize_{i,t} \\ & + \lambda_9 OwnerCon_{i,t} + \psi_{i,t} \end{aligned} \tag{5}$$

Because the exogenous variables are assumed to be independent of the unobserved errors, the predicted value of the endogenous variable ($\widehat{ShrhldrNo}$) from the first stage is independent of the unobserved errors. The predicted value of the endogenous variable ($\widehat{ShrhldrNo}$) was adjusted using the natural logarithm of to achieve homogeneity of the data.

In the second stage, this adjusted instrument replaced the right-hand-side endogenous variable in equation (1), yielding consistent parameter estimates.

4.3.1 Dependent variables

Past studies have shown that disclosure transparency can be improved through the content and presentation format of internet disclosure because IFR allows for additional disclosures beyond the mandatory requirements, in addition to the dynamics of presenting extensive financial information (Yap et al., 2011).

Based on previous studies (e.g., Ettredge et al., 2001; Homayoun and Abdul Rahman, 2010; Budisusetyo and Almilia, 2011; Damaso and Lourenco, 2011; Yap et al., 2011; Sharma, 2013), an IFR index was developed and applied to each of the companies' websites. This index contained of 30 attributes (12 attributes measuring the content, and 18 attributes measuring the format) as shown in Table 4. Following Kelton and Yang (2008) and Homayoun and Abdul Rahman (2010), this study employed an un-weighted approach because it avoids weighting subjectivity and does not favour a particular set of users. This method assumes that each attribute has the same importance to all users of annual reports. The score was calculated based on a dichotomous scale from 0 and 1, where 1 denotes the existence of disclosure, while 0 represents no disclosure.

Table 4 Dependent variable – IFR index attributes

Rank	*Attribute*	*Websites at which item is found*	
		n	*%**
Content			
1	The annual report of the year	147	98.7
2	Financial highlights	135	90.6
3	Annual information form or link to ASE	132	88.6
4	Financial statements in PDF format	120	80.5
5	The annual report of the last three years	111	74.5
6	Share price information and history	107	71.8
7	Financial statements in excel format	106	71.1
8	Three-year summary (financial ratios, key statistics, or other information presented apart from the annual report)	88	59.1
9	Dividend payment history	81	54.4
10	Management discussion and analysis	75	50.3
11	Audio/video and transcripts of annual general and other meetings	70	47.0
12	Description of any available dividend reinvestment plan (DRIP)	62	41.6
	Overall content	*1,234*	*69.0*
Format			
1	Navigation is consistent throughout the site	91	61.1
2	Notes to financial statements and MD&A abstracts are linked to the financial statements	87	58.4
3	Information is presented in a timely fashion, is complete and up-to-date	85	57.0
4	Large PDF files are broken down into usable sections and clearly identified as PDFs with file sizes indicated	85	57.0
5	There is a useful search tool or site map	83	55.7
6	Hyperlinks connect the website with other useful third-party sites, such as ASE	83	55.7
7	Information is clear and logically organised	78	52.3
8	The financial statements are structured to facilitate easy online access	78	52.3
9	Material printed from the site is easily readable	75	50.3
10	The financial information pages of the site can be accessed quickly	73	49.0
11	Multiple ways exist to navigate the site/access information	71	47.7
12	The presentation is clear, well organised, intuitive and attractive	69	46.3
13	There is a summary of all PDF documents, especially as it relates to financial documents	59	39.6
14	The navigation is structured towards the most commonly requested pages	53	35.6
15	Analytical (spreadsheet) tools are provided	52	34.9

Note: * Percentage of the total sample with websites (149 companies).

Table 4 Dependent variable – IFR index attributes (continued)

Rank	*Attribute*	*Websites at which item is found*	
		n	*%**
Format			
16	File sizes are listed and presentations are easily downloadable	51	34.2
17	The site presents a message consistent with actual financial performance, important transactions, and company difficulties during the year	44	29.5
18	Information is archived (historical information is accessible to the user)	41	27.5
	Overall format	*1258*	*46.9*

Note: * Percentage of the total sample with websites (149 companies).

From Table 4, it could be noted that the overall average for content compliance was 69%, while it was approximately 47% for the format. This finding might reflect that the companies paid greater attention to the content over the format. Additionally, one might notice that disclosing the annual report of the year resulted in the highest score in the content group, with approximately 99%, indicating that the stakeholders paid greater attention to this report. While the dividend reinvestment plan (DRIP) reporting score was the lowest in the content group, with a score of approximately 42%, this score could have referred to the absence of such plans. Regarding the format, the consistency of navigation was the most important item that was disclosed on the web, scoring 61%, while archiving off historical information scored the lowest, with approximately 28%, which could indicate the modernity of IFR in Jordan.

Table 5 Independent variables

Type	*Variable (in the model)*	*Proxy*	*Expected sign*
Financial	Firm size (*Size*)	Natural logarithm of market capitalisation	+
	Profitability (*Profit*)	Earnings per share	+
	Liquidity (*Liquid*)	Current assets/current liabilities	+
	Leverage (*Lev*)	Total liabilities/total assets	+
	Market-to-book (M/B) ratio (*MB*)	Stock price/book value	+
Corporate governance	Chairperson/CEO separation (*ChrCEO*)	Dummy: (1) for separation, (0) Otherwise	+
	Independent non-executive directors (*NonEx*)	Percentage of independent board members to the total number of board members	+
	Board Size (*BrdSize*)	Total number of board members	–
	Ownership concentration (*OwnerCon*)	Top shareholders who own more than (5%)	–
	Number of shareholders (*ShrhldrNo*)	Total number of shareholders	+

4.3.2 Independent variables

The main purpose of this research is to predict the dependent variable (IFR) through the use of financial determinants and CG determinants. Table 5 provides a description of the independent variables employed in this research.

5 Results

5.1 Descriptive statistics

Univariate and multivariate analyses were used to identify the determinants of IFR. First, descriptive data analysis was performed to determine the tendencies of the collected data. The 228 companies were divided into two categories: companies with IFR and those without it (non-IFR). Descriptive statistics for the characteristics of these companies are presented in Table 6. These statistics show that all of the characteristics of the IFR and non-IFR companies are very close, but there are some differences.

Table 6 Descriptive statistics for characteristics

Variable	*All (n = 228)*		*IFR (n = 149)*		*Non-IFR (n = 79)*	
	Mean	*Std. dev.*	*Mean*	*Std. dev.*	*Mean*	*Std. dev.*
Size	16.39	1.57	16.78	1.61	15.58	1.17
Profit	.03	.36	.05	.42	–.03	.17
Liquid	4.07	10.29	3.92	11.62	4.36	6.97
Lev	.36	.27	.39	.27	.32	.26
MB	4.12	46.55	4.91	56.45	2.60	12.08
ChrCEO	.56	.50	.55	.50	.58	.50
NonEx	.77	.34	.70	.38	.90	.18
BrdSize	7.58	2.39	8.11	2.46	6.59	1.86
OwnerCon	.77	.16	.77	.18	.76	.13
ShrhldrNo	2,813.28	5,138.99	3,090.87	5,220.64	2,289.72	4,971.73
IFR_Index			.56	.20		
IFR_Content			.69	.15		
IFR_Format			.47	.27		

A financial comparison between IFR and non-IFR reveals that companies that engage in IFR are generally larger, more profitable, and more leveraged than non-IFR companies, but they are less liquid, and their stocks are over-priced. Regarding size, IFR companies' average market capitalisation of JD19.43 million was greater than the JD5.81 million of non-IFR companies. The IFR companies scored a slightly higher average EPS of 0.05, compared to non-IFR companies, which scored a negative EPS; this finding indicates that IFR companies are associated with higher levels of profitability than non-IFR companies. On average, IFR companies appear to be more leveraged than non-IFR companies (debt ratio: IFR = 39.17, Non-IFR = 31.77).

With regard to CG variables, it seems that IFR companies generally have lower percentages of separation between the chairperson and CEO positions (ChrCEO) and of independent non-executive directors (NonEx) than non-IFR companies, but they have higher numbers of board members and numbers of shareholders and approximately equal levels of ownership concentration.

Univariate analysis of the differences between the relevant independent variables pertaining to IFR and non-IFR companies was conducted, and the results of the independent sample t-tests for interval scale variables and Pearson's chi-square test for categorical scale variables are presented in Table 7. The results of the tests of the financial variables indicate the presence of statistically significant differences in size, profitability, and leverage. Differences in market capitalisation (size) are significant (at $p \leq 0.01$). Profitability and leverage appear to be statistically significantly different (at $p \leq 0.05$). On the CG variables side, it is evident that the difference between the average percentage of the independent non-executive directors in IFR companies (Mean = 0.702) and non-IFR ones (Mean = 0.897) is statistically significant (at $p \leq 0.01$), indicating that the number of independent directors is higher in the non-IFR companies. Additionally, the chi-square test results show that there is a significant difference (at $p \leq 0.01$) among the board size categories and (at $p \leq 0.1$) in the separation between the chairperson and CEO positions.

Table 7 Univariate analysis for differences between IFR and non-IFR companies

Panel A: t-test of variables on interval scale					
Variable	*Means*		*t-test for equality of means*		
	IFR (n = 149)	*Non-IFR (n = 79)*	*Mean difference*	*t-value*	*Sig.*
Size	16.78	15.58	–1.21	–5.884	.000***
Profit	0.05	–0.03	–0.08	–1.724	.033**
Liquid	3.92	4.36	0.43	.303	.726
Lev	0.39	0.32	–7.40	–1.981	.047**
MB	4.91	2.60	–2.30	–.358	.633
NonEx	0.70	0.90	0.20	4.255	.000***
OwnerCon	0.77	0.77	–0.01	–.365	.689
ShrhldrNo	3,090.87	2,289.72	–801.14	–1.121	.264
Panel B: Pearson's chi-square test of variables on categorical scale					
Variable	*Chi-square*		*Sig.*		
ChrCEO	3.44		0.064*		
BrdSize	217.08		0.000***		

Notes: *significant at ($p \leq 0.1$); **significant at ($p \leq 0.05$); ***significant at ($p \leq 0.01$).

In summary, the univariate analysis indicates that IFR companies are larger, relatively more profitable, and more leveraged. These results are consistent with the findings of Al-Sakarneh (2011), and Miniaoui and Oyelere (2013). Additionally, IFR companies have lower percentages of independent non-executive directors. This result contradicts

the findings of Chau and Gray (2010), Erer and Dalgic (2011), Yap et al. (2011), and Sharma (2013). There are slightly lower levels of separation between the chairperson and CEO positions in IFR companies, which contradicts Cheung et al. (2010), but large board size on average, consistent with Yap et al. (2011) but contradicting Haniffa and Hudaib (2006).

5.2 Multivariate analysis

As mentioned before, 149 companies were described as IFR companies, OLS regression analysis was employed to predict the IFR practices from the combination of financial and CG determinants.

Table 8 Correlation matrix – independent variables

		2	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1	Size	.396**	–.194*	.312**	.020	.026	.134	.372**	.095	.258**
2	Profit	1	.002	–.080	.020	.056	.083	.275**	.119	.013
3	Liquid		1	–.279**	–.030	.047	–.060	–0.175*	–.010	.013
4	Debt			1	–.024	.035	.049	.220**	.128	.128
5	MB				1	–.095	–.028	–.058	.026	–.052
6	Chr_CEO_Sep					1	–.338**	–.114	–.025	–.010
7	Ind_NonEx						1	.267**	.042	.084
8	Brd_Size							1	–.036	.103
9	Owner_Con								1	–.279**
10	Sharehldr_No									1

Notes: *significant at ($p \leq 0.05$); **significant at ($p \leq 0.01$).

Initially, the correlations among independent variables were examined, and they are presented in Table 8. Diagnostic procedures do not reveal a multicollinearity problem, and none of the VIFs are greater than 1.36, for which Kennedy (1998) cited a benchmark VIF of 10. The correlations were both positive and negative and small to moderate. This finding indicates that the variables are suitably correlated with the dependent variable through multiple regressions to be undertaken reliably for examination.

Table 9 reports the results of the OLS and 2SLS regression methods used to estimate three models: the composite measurement of IFR, the content, and the format of IFR, respectively. We will report the results of OLS estimation, followed by the 2SLS results.

Column (1) shows the results of the model (1) OLS estimation for the 149 IFR companies, which classifies 55.7% of the observations as statistically significant (at $p \leq 0.01$). These results indicate that IFR practices depend on liquidity, leverage, independent non-executive directors, and shareholder number, thus supporting H3, H4, H7, and H10. Liquidity is statistically significant (at $p \leq 0.1$), and leverage and shareholder number are significant (at $p \leq 0.05$), while independent non-executive directors is significant (at $p \leq 0.01$). All of other hypotheses were not supported as significant.

Table 9 OLS versus 2SLS regression results – all independent variables

	Model					
	1 – IFR		*2 – IFR content*		*3 – IFR format*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Variable	OLS	2SLS	OLS	2SLS	OLS	2SLS
(Constant)	0.360*	0.5**	.663***	.765***	.158	.323
	(1.693)	(2.149)	(4.123)	(4.314)	(0.562)	(1.046)
Size	.134	0.072*	–.025	.039**	.030*	.094***
	(1.246)	(3.346)	(–0.219)	(2.374)	(1.654)	(3.289)
Profit	.005	–.048	.016	–.034	.000	–.058
	(0.049)	(–0.976)	(0.163)	(–0.899)	(–0.004)	(–0.880)
Liquid	0.137*	0.003**	.128	.002*	.003	.004*
	(1.749)	(1.978)	(1.550)	(1.864)	(1.615)	(1.767)
Lev	0.196**	.002***	.210**	.002***	.002**	.002***
	(2.279)	(3.115)	(2.312)	(3.220)	(1.991)	(2.675)
MB	–.106	–0.008***	–.057	–.005***	–.001	–.009**
	(–1.422)	(–2.861)	(–.722)	(–2.642)	(–1.516)	(–2.578)
ChrCEO	–.112	–0.063*	–.046	–.024	–.068	–.089**
	(–1.408)	(–1.923)	(–0.541)	(–0.979)	(–1.572)	(–2.037)
NonEx	–0.370***	–0.145***	–.160*	–.025	–.288***	–.226***
	(–4.565)	(–3.123)	(–1.873)	(–0.699)	(–5.044)	(–3.649)
BrdSize	.098	–.002	.146	.001	.008	–.004
	(1.112)	(–.248)	(1.570)	(0.242)	(0.804)	(–0.404)
OwnerCon	–.086	–.475***	–.045	–.327***	–.142	–.573***
	(–1.084)	(–3.388)	(–0.536)	(–3.061)	(–1.163)	(–3.078)
ShrhldrNo	0.196**		.264***		.000*	
	(2.391)		(3.046)		(1.850)	
ln(*ShrhldrNo*)		.093**		.068**		.109**
		(2.506)		(2.402)		(2.224)
R-square	.263	.299	.177	.210	.266	.292
Durbin-Watson	1.602	1.614	1.809	1.767	1.515	1.559
F-value	4.865***	5.546***	2.923***	3.451***	4.919***	5.371***
Predicted value	55.7%	55.9%	68.9%	69%	46.9%	47.2%
Number of observations	147.000	147.000	147.000	147.000	147.000	147.000

Notes: *significant at ($p \leq 0.1$); **significant at ($p \leq 0.05$); ***significant at ($p \leq 0.01$).
Numbers in parenthesis are t-statistics

The IFR composite measurement was divided into two components: content and format. The same predictors were used, and the results, as indicated in column (3), related to the content of IFR, assured the findings in the previous model regarding the leverage, independent non-executive directors, and shareholder number, which were significant at $p \leq 0.05$, 0.1, and 0.01, respectively, while liquidity was not. These results support H4, H7, and H10. The overall IFR-content model confirmed that a higher percentage of observations are statistically significant at $p \leq 0.01$ because the predicted value was 68.9%, compared to the composite IFR in model (1).

The same findings were assured regarding the leverage, independent non-executive directors, and shareholder number when predicting the IFR format, as shown in column (5); they were significant at $p \leq 0.05$, 0.01, and 0.1, respectively. The company size was a new significant predictor in this model (at $p \leq 0.1$), but the overall predicted value scored the lowest among the three models; it represented that approximately 50% of the observations in this study are statistically significant (at $p \leq 0.01$).

A closer look at the R-squared shows that the explanatory power for models (1) and (3) are very close (approximately 26.5%), while it was approximately 18% for model (2).

Across the three models (1, 2, and 3) estimated, leverage and shareholder number are shown to have a significant and positive impact, while independent non-executive directors has a significant and negative impact on IFR practice.

The more leveraged firms are more likely to engage in IFR. This finding is consistent with Momany and Al-Shorman (2006), Mahdi (2009), and Al-Sakarneh (2011) in Jordan, with Miniaoui and Oyelere (2013) in the UAE, and with Laswad et al. (2005) in New Zealand, and it contradicts Damaso and Lourenco (2011) in London and Cormier et al. (2008) in Canada, while many other researchers found no effect. This result suggests that the managers of Jordanian companies, which are subject to relatively high debt burdens, perceive IFR as a potential means of facilitating monitoring by creditors. That is, leveraged companies have more financial costs, and creditors are interested in being informed (Damaso and Lourenco, 2011). All of these results conformed to those of Xiao et al. (2004), who argued that leverage could positively or negatively affect IFR.

The increased number of shareholders encourages the company to engage in IFR; this result was supported by many researchers, such as Oyelere et al. (2003) in New Zealand, Pervan (2006) in Croatia, Yap et al. (2011) in Malaysia, and AbuGhazaleh et al. (2012) in Jordan. Yap et al. (2011) argued that companies with larger numbers of shareholders are likely to disclose more IFR as a response to the need for disclosure transparency via internet reporting and to the diversified needs of shareholders. The number of shareholders could be observed as a measurement of shareholder control dispersion.

The unusual finding was that the lower the board independence was, the higher the IFR engagement was because managerial opportunism could be minimised through the existence of independent non-executive directors. This result contradicts all of the previous researchers who studied this hypothesis (such as Xiao et al., 2004; Kelton and Yang, 2008; Chau and Gray, 2010; Yap et al., 2011; Erer and Dalgic, 2011; Sharma, 2013). Interestingly, all of the previous studies were implemented internationally, while none was performed in Jordan or elsewhere in the Middle East. Although CG codes for listed companies on the ASE mentioned that, according to the principles of good

governance requirements, at least one third of the board members must be independent members, the last finding could be related to the idea that most of the Jordanian companies' boards of directors are characterised by family ownership structures, that is, the number of independent directors is small.

To address the endogeneity issue further, we employ the 2SLS method using the instrumental variable discussed earlier in the methodology. In the first stage, the number of shareholders was regressed on all of the exogenous variables. In the second stage, IFR was regressed on the predicted values, the number of shareholders (from the fist-stage regression) and all of other exogenous explanatory variables in regression model (1).

Columns (2), (4) and (6) of Table 9 show the results of the second-stage regressions. We also report the F-statistic for testing the joint statistical significance of the instruments. Consistent with our assumptions, the F-test increase assured the validity of the number of shareholders estimation in the first-stage regression (at $p \leq 0.01$).

More importantly, concerning the results of the model (1) 2SLS estimation, column (2) shows that IFR practices depend on liquidity, leverage, independent non-executive directors, and the instrument of the shareholder number, as in the OLS estimation; in addition, IFR was also dependent on size, M/B ratio, chairperson/CEO separation, and ownership concentration, thus supporting H3, H4, H7, and H10, as in OLS, in addition to H1, H5, H6, and H9.

Column (4), which predicted the content of IFR, assured the findings of OLS estimation regarding leverage and the instrument of the shareholder number, while the independent non-executive directors variable did not. In addition, IFR content was predicted by size, liquidity, M/B ratio, and ownership concentration. These results supported H4 and H10, in addition to H1, H3, H5, and H9.

When predicting the IFR format, as shown in column (6), it is indicated that IFR format is predicted by size, leverage, independent non-executive directors, and the instrument of the shareholder number, the same as in OLS; also, liquidity, M/B ratio, chairperson/CEO separation, and ownership concentration are additional predictors. These results support H1, H4, H7, and H10, in addition to H3, H5, H6, and H9.

A final finding regarding the 2SLS regression showed that the coefficients on the instrumented shareholder scores are statistically significant and positive in the second-stage regressions, indicating that the positive effects of shareholder number on IFR, IFR content, and IFR format remain intact even after controlling for the potential endogeneity problem.

OLS regression analysis was also employed to predict the IFR practices from the financial determinants only at one time and the CG determinants at another time. Table 10 summarises the regression results of the effects of financial determinants on IFR practices. It is clear from model (1) that firm size and liquidity were significant at $p \leq 0.1$), while leverage was significant at $p \leq 0.05$). These findings remained constant in model (3), but the significance of firm size faded in model (2), thus supporting H1, H3, and H4.

As found by many other researchers in Jordan, the Middle East, and the world, it was found that size was an important predictor of the composite-IFR index. IFR format was also predicted by firm size, but the IFR content was not. As Kelton and Yang (2008) argued, different sized firms encounter different risks. Larger, more complex firms might have larger information requirements and monitoring costs than smaller firms.

Table 10 Multivariate OLS regression results – financial independent variables

Variable	*Model*		
	(1)	*(2)*	*(3)*
	IFR	*IFR content*	*IFR format*
(Constant)	.068	0.472***	-.200
	(0.319)	(3.045)	(-0.705)
Size	0.200*	.109	0.212**
	(1.899)	(1.022)	(2.005)
Profit	-.046	-.031	-.047
	(-0.461)	(-0.307)	(-0.468)
Liquid	0.152*	0.142*	0.140*
	(1.817)	(1.677)	(1.667)
Lev	0.192**	0.219**	0.163*
	(2.113)	(2.379)	(1.782)
MB	-.103	-.072	-.103
	(-1.288)	(-0.897)	(-1.285)
R-square	.103	.077	.094
Durbin-Watson	1.182	1.644	1.074
F-value	3.254***	2.385**	2.951**
Predicted value	55.6%	68.9%	46.7%
Number of observations	148	148	148

Notes: * Significant at ($p \leq 0.1$); **significant at ($p \leq 0.05$); ***significant at ($p \leq 0.01$).
Numbers in parenthesis are t-statistics.

Liquidity has been examined by few a researchers, Mahdi (2009) and Aly et al. (2010) found liquidity to be not significant, while this paper found it was significant, in agreement with Oyelere et al. (2003) and Almtairi (2012). Additionally, this paper found that liquidity remained significant when predicting IFR content and format, in models (2) and (3); that is, as Oyelere et al. (2003) argued, the use of the internet to provide financial information could be an expression of management's confidence in a company's solvency and of the future prospects regarding a company's going concern status.

Among Jordanian listed companies, leverage appears to affect IFR positively. Table 10 reveals such a relationship across all three models. This result suggests that firms perceive IFR as a potential means of facilitating monitoring by creditors. The result is consistent with the finding of other research conducted in Jordan (e.g., Momany and Al-Shorman, 2006; Mahdi, 2009; Al-Sakarneh, 2011) and in other regions by Laswad et al. (2005) and Miniaoui and Oyelere (2013), but it contradicts the findings of Cormier et al. (2008).

As shown in Table 11, IFR was predicted using the CG determinants alone. It is clear that independent non-executive directors, board size, and shareholder number were statistically significant in the three models. Regarding board independence, the findings contradicted the international research results because this study found that independent non-executive directors were negatively significant, while other international studies found a positive significance, which also contradicts H7. This finding might be explained

by stewardship theory because theorists have argued that management would act in the interest of the company. A steward (manager) is influenced by mixed behaviour. He or she will have a high commitment to work harder to fulfil the principal's (shareholder's) interest. A principal who supports stewardship theory will authorise the steward to have the information, tools and authority to make good decisions for the organisation. Hence, controlling management through independent non-executive directors will affect the behaviour of the steward negatively.

Based on these findings, when there is a monitoring mechanism, management will act as an agent instead of being a steward (Donaldson and Davis, 1991); consequently, management will reduce IFR.

The findings of testing the board size also contradicted H8 because they showed that IFR is affected positively by the board size. This result is consistent with Gandia (2008), who reported that board size would increase disclosure because it would give a positive impression of the board members' decision.

The results regarding shareholder number supported H10, indicating that IFR is positively affected by the shareholder number. That is, companies with larger number of shareholders are more likely to disclose IFR as a response to the diversified needs of shareholders.

Table 11 Multivariate OLS regression results – corporate governance independent variables

Variable	*Model*		
	(1)	*(2)*	*(3)*
	IFR	*IFR content*	*IFR format*
(Constant)	0.568***	0.631***	0.526***
	(5.900)	(8.794)	(4.142)
ChrCEO	–.079	–.031	–.089
	(–0.984)	(-0.371)	(–1.107)
NonEx	–0.363***	–0.158*	–0.400***
	(–4.366)	(–1.834)	(–4.825)
BrdSize	0.189**	0.169**	0.177**
	(2.399)	(2.066)	(2.252)
OwnerCon	–.016	.000	–.020
	(–0.203)	(0.001)	(–0.256)
ShrhldrNo	0.266***	0.292***	0.230***
	(3.357)	(3.546)	(2.903)
R-square	.190	.126	.191
Durbin-Watson	1.452	1.645	1.411
F-value	6.652***	4.096***	6.726***
Predicted value	55.8%	69.0%	47.1%
Number of observations	148	148	148

Notes: *significant at ($p \leq 0.1$); **significant at ($p \leq 0.05$); ***significant at ($p \leq 0.01$).
Numbers in parenthesis are t-statistics.

By examining the R-squared in the three models in Table 9, columns (1), (3), and (5), respectively, it is clear that the IFR-format model has the greater explanatory power

because it scored 26.6%, while the lowest was for the IFR-content (17.7%), and the composite-IFR scored 26.3%. The R-square was generally low, but it was obvious that the format of IFR was most explained by the independent variables used.

Another area in this study was the division of the variables into two groups – financial variables and CG variables – and the testing of both groups to explain IFR and its components (content and format). By examining the R-squared across the three models in Table 10, which regressed the IFR and its components for the financial independent variables, one can note that the explanatory power of the composite-IFR, IFR-content, and IFR-format were less than the results of the CG independent variables shown in Table 11 because they scored 10.3%, 7.7%, and 9.4%, respectively, for the financial variables, while the CG variables R-squared scored 19%, 12.6%, and 19.1%, respectively, for the three models, indicating that CG mechanisms are more effective in driving IFR in Jordan than firms' financial characteristics.

To summarise, OLS results generally support H3 (liquidity), H4 (leverage), and H7 (independent non-executive), and this support was persistent in all of the tests. Additionally, the results support H1 (size), H8 (board size), and H10 (shareholders number) in of the some tests, but the results do not support H2 (profitability), H5 (M/B), H6 (chairperson/CEO separation), or H9 (ownership concentration). The 2SLS results support all of the hypotheses except for H2 (profitability) and H8 (board size).

Additionally, the results showed that the CG mechanism explains IFR more than firms' financial characteristics.

6 Conclusions

Although it is still voluntarily used in Jordan, as it is in other countries worldwide, the internet is used intensively by companies to disseminate financial information (Debreceny et al., 2002). Many researchers have studied the influential factors that affect the use of the internet as a medium for disseminating financial information (Ashbaugh et al., 1999). The number of investors who use the internet to search for investment opportunities and to conduct online stock trading is constantly growing, making IFR an important area of academic research (Kelton and Yang, 2008).

This study builds on prior IFR research by dividing the IFR determinants into financial determinants and CG determinants, and it tests the explanatory power of each group of determinants.

Approximately two-thirds of Jordanian companies maintain websites, and most of them use their websites to provide financial information. This paper divides the IFR practices into two components: content and format. In particular, it builds on the comprehensive literature on IFR and uses a different definition of IFR and different models of the determinants of IFR than previously employed in the literature.

The results of the univariate study to compare the IFR companies to the non-IFR companies indicate that size, profitability, leverage, independent non-executive directors, chairperson/CEO separation, and board size motivate the use of IFR. The larger a company is, the more likely it is to use IFR. This finding suggests that large companies benefit from providing financial information on the internet. Profitable and leveraged companies are also more likely to engage in IFR. This finding indicates that creditors could benefit from IFR to assess the creditworthiness of the company engaged. Similarly,

the board independence, indicated as the level of separation between chairperson and CEO positions, is a predictor of the company's likelihood of engaging in IFR. Additionally, companies with greater board sizes are encouraged to engage in IFR. A contradictory and surprising finding was that for the independent non-executive directors because it suggested that the lower the independence was, the higher the engagement in IFR was. This finding might be explained by stewardship theory; when there is a monitoring mechanism, the opposite behaviour is predicted because management will act as an agent instead of being a steward and consequently will reduce IFR.

Multivariate OLS and 2SLS approaches were applied to predict IFR using financial and CG determinants together. OLS found that the composite-IFR was predicted by using liquidity, leverage, independent non-executive directors, and shareholder number. By separating the IFR into content and format, both factors were predicted by leverage, independent non-executive directors, and shareholder number, in addition to the firm size, only for the IFR format.

The 2SLS found that the composite-IFR was predicted using size, liquidity, leverage, M/B ratio, chairperson/CEO separation, independent non-executive directors, ownership concentration, and the instrumented shareholder number.

Another approach to predict the IFR used financial determinants at one time and CG determinants at another time. Size, liquidity, and leverage remained the only predictors for IFR and its format, while size faded in the IFR content prediction. Independent non-executive directors, board size, and shareholder number are the CG determinants of IFR, its content and its format.

A final finding concerning the comparison between the CG determinants and financial determinants suggests that CG mechanisms can predict IFR and its components, content and format more than firms' financial characteristics.

Further research could employ different definitions of IFR and different determinants. The definition of IFR could be enlarged to include more variables that were not measured in this study. The determinants used in this study were internal determinants concerning the company itself. These determinants could be enlarged to include external factors, such as the environment.

Overall, the results provide empirical evidence for policy makers and regulators to start considering the building of a framework for mandating IFR instead of keeping its use voluntary because the internet is increasingly used by companies to disseminate financial information, XBRL (next generation) is spreading quickly around the world, and stakeholders benefit from IFR to make crucial decisions.

References

AbuGhazaleh, N., Qasim, A. and Roberts, C. (2012) 'The determinants of web-based investor relations activities by companies operating in emerging economies: the case of Jordan', *The Journal of Applied Business Research*, Vol. 28, No. 2, pp.209–226.

Addustour Newspaper (2007) 'Negotiations about the timing between the stock exchanges and the process of trading teams', 18 August, Year 41, No. 14754 [online] http://www.addustour.com (accessed 18 March 2014).

AFE – Arab Federation of Exchanges (2011) [online] http://arab-exchanges.org/ (accessed 9 April 2015).

Ahmed, A., Billings, B., Morton, R. and Stanford-Harris, M. (2002) 'The role of accounting conservatism in mitigating bondholder – shareholder conflicts over dividend policy and in reducing debt costs', *The Accounting Review*, Vol. 77, No. 4, pp.867–890.

Alam, Z. and Rashid, K. (2014) 'Corporate financial reporting on the internet: a survey of websites of listed companies in Pakistan', *IUP Journal of Corporate Governance*, July, Vol. 13, No. 3, pp.17–39.

Alarussi, A., Hanefah, M. and Selamat, M. (2009) 'Internet financial and environmental disclosures by Malaysian companies', *Issues in Social and Environmental Accounting*, Vol. 3, No. 1, pp.3–25.

Alarussi, A., Hanefah, M. and Selamat, M. (2013) 'The association between environmental disclosure and financial disclosure on the internet by Malaysian listed companies', *International Journal of Critical Accounting*, Vol. 5, No. 2, pp.156–172.

Al-Debei, M. (2014) 'The quality and acceptance of websites: an empirical investigation in the context of higher education', *International Journal Business Information Systems*, Vol. 15, No. 2, pp.170–188.

Al-Hayale, T. (2010) 'Financial reporting on the internet in the Middle East', *International Journal of Accounting and Finance*, Vol. 2, No. 2, pp.171–191.

Al-Htaybat, K., Alberti-Alhtaybat, L. and Hutaibat, K. (2011) 'Users' perceptions on internet financial reporting practices in emerging markets: evidence from Jordan', *International Journal of Business and Management*, Vol. 6, No. 9, pp.170–182, DOI: 10.5539/ ijbm.v6n9p170.

Alkhalaileh, M., Al-Qenae, R. and Abu Farha, H. (2005) 'A preliminary investigation on the use of the internet for business reporting: a case of companies listed on Amman Stock Exchange (ASE)', *Jordan Journal of Business Administration*, Vol. 1, No. 1, pp.167–179.

Almilia, L. (2015) 'Comparing internet financial reporting practices: Indonesia, Malaysia, Singapore, Japan and Australia', *International Journal of Business Information Systems*, Vol. 20, No. 4, pp.477–495.

Almtairi, G. (2012) *Factors Affecting the Level of Disclosure of Financial Information on the Internet in the Financial Statements Issued by Kuwaiti Corporation*, Master degree thesis, Middle East University, Jordan.

Al-Sakarneh, K. (2011) *A Study on the Internet Financial Reporting Disclosure: A Case of Companies Listed at Amman Stock Exchange*, Master degree thesis, Universiti Utara Malaysia.

Aly, D., Simon, J. and Hussainey, K. (2010) 'Determinants of corporate internet reporting: evidence from Egypt', *Managerial Auditing Journal*, Vol. 25, No. 2, pp.182–202.

Ashbaugh, H., Johnstone, K. and Warfield, D. (1999) 'Corporate reporting on the internet', *Accounting Horizons*, Vol. 13, No. 3, pp.241–257.

Beatty, A., Chamberlain, S. and Magliolo, J. (1993) *Managing Financial Reports of Commercial Banks: The Influence of Taxes, Regulatory Capital and Earnings*, Working paper Series, The Wharton School, University of Pennsylvania.

Berglöf, E. and Pajuste, A. (2005) 'What do firms disclose and why? Enforcing corporate governance and transparency in central and eastern Europe', *Oxford Review of Economic Policy*, Vol. 21, No. 2, pp.178–197.

Budisusetyo, S. and Almilia, L. (2011) 'Internet financial reporting on the web in Indonesian: not just technical problem', *International Journal of Business Information Systems*, Vol. 8, No. 4, pp.380–395.

Chau, G. and Gray, S.J. (2010) 'Family ownership, board independence and voluntary disclosure: evidence from Hong Kong', *Journal of International Accounting, Auditing and Taxation*, Vol. 19, No. 2, pp.93–109.

Cheung, Y., Jiang, P. and Tan, W. (2010) 'A transparency disclosure index measuring disclosures: Chinese listed companies', *Journal of Accounting and Public Policy*, Vol. 29, No. 3, pp.259–280.

Chung, K. and Zhang, H. (2011) 'Corporate governance and institutional ownership', *Journal of Financial and Quantitative Analysis*, Vol. 46, No. 1, pp.247–273.

Cormier, D., Ledoux, M. and Magnan, M. (2008) 'The use of websites as a disclosure platform for corporate performance', *International Journal of Accounting Information Systems*, Vol. 9, No. 3, pp.135–153, DOI: 10.1016/j.accinf.2008.04.002.

Damaso, G. and Lourenco, I. (2011) 'Internet financial reporting: environmental impact companies and other determinants', *8th International Conference on Enterprise Systems*, Accounting and Logistics, Greece.

Debreceny, R. and Gray, G. (1999) 'Financial reporting on the internet and the external audit', *The European Accounting Review*, Vol. 8, No. 2, pp.335–350.

Debreceny, R., Gray, G. and Rahman, A. (2002) 'The determinants of internet financial reporting', *Journal of Accounting and Public Policy*, Vol. 21, Nos. 4/5, pp.371–394.

Donaldson, L. and Davis, J. (1991) 'Stewardship theory or agency theory: CEO governance and shareholder returns', *Australian Journal of Management*, Vol. 16, No. 1, pp.49–65.

Dyczkowska, J. (2014) 'Assessment of quality of internet financial disclosures using a scoring system: a case of Polish stock issuers', *Accounting and Management Information Systems*, Vol. 13, No. 1, pp.50–81.

Erer, M. and Dalgic, O. (2011) 'The impact of corporate governance on internet financial reporting: evidence from Turkey', *International Journal of Business Research*, Vol. 11, No. 3, Accession Number: 272511073.

Ettredge, M., Richardson, V. and Scholz, S. (2001) 'The presentation of financial information at corporate websites', *International Journal of Accounting Information Systems*, Vol. 2, No. 2, pp.149–168.

Ettredge, M., Richardson, V. and Scholz, S. (2002) 'Dissemination of information for investors at corporate websites', *Journal of Accounting and Public Policy*, Vol. 21, Nos. 4–5, pp.357–369, DOI: 10.1016/S0278-4254(02)00066-2.

FASB (2000) *Business Reporting Research Project: Electronic Distribution of Business Information*, Steering Committee Report Series.

Ferris, S.P., Kim, K.A. and Noronha, G. (2009) 'The effect of cross listing on corporate governance: a review of the international evidence', *Corporate Governance: An International Review*, Vol. 17, No. 3, pp.338–352.

Gandia, J. (2008) 'Determinants of internet-based corporate governance disclosure by Spanish listed companies', *Online Information Review*, Vol. 32, No. 6, pp.791–817.

Ghazali, N. and Weetman, P. (2006) 'Perpetuating traditional influences: voluntary disclosure in Malaysia following the economic crisis', *Journal of International Accounting, Auditing and Taxation*, Vol. 15, No. 2, pp.226–248.

Hanafi, M., Bin Kasim, M., Bin Ibrahim, M. and Hancock, D. (2009) 'Business reporting on the internet: development of a disclosure quality index', *International Journal of Business and Economics*, Vol. 8, No. 1, pp.55–79.

Haniffa, R. and Hudaib, M. (2006) 'Corporate governance structure and performance of Malaysian listed companies', *Journal of Business Finance and Accounting*, Vol. 33, No. 7, pp.1034–1062.

Hijazin, M. (2008) 'Cross-listing: concept and dimensions', June [online] http://www.ammonnews.net/article.aspx?articleNO=25343 (accessed 30 April 2014).

Homayoun, S. and Abdul Rahman, R. (2010) 'Determinants of web-based corporate reporting among top public listed companies in Malaysia', *International Journal of Arts and Sciences*, Vol. 3, No. 13, pp.187–212.

Jenses, M. and Meckling, W. (1976) 'Theory of the firm: managerial behavior, agency costs and ownership structure', *Journal of Financial Economics*, October, Vol. 3, No. 4, pp.305–360.

Jordan Securities Commission (2015) *Corporate Governance Code for Shareholding Companies Listed on the Amman Stock Exchange* [online] https://www.sdc.com.jo/english/images/stories/pdf/corporate_companies.pdf (accessed 18 April 2015).

Kelton, A. and Yang, Y. (2008) 'The impact of corporate governance on internet financial reporting', *Journal of Accounting and Public Policy*, Vol. 27, No. 1, pp.62–87, DOI: 10.1016/j.jaccpubpol.2007.11.001.

Kennedy, P. (1998) *A Guide to Econometrics*, 4th ed., MIT Press, Cambridge, MA.

Khan, M. and Ismail, N. (2013) 'An empirical investigation of selected aspects on internet financial reporting in Malaysia', *Journal Teknologi*, Vol. 64, No. 3, pp.39–47.

Kieso, D., Weygandt, J. and Warfield, T. (2011) *Intermediate Accounting: IFRS Edition*, Vol. 1, p.50, John Wiley and Sons, USA.

Konrad-Adenauer-Stiftung: Jordan Office (2012) *Corporate Governance for Family Business* [online] http://www.kas.de/jordanien/en/publications/29875/ (accessed 3 May 2015).

Larren, M. and Giner, B. (2002) 'The use of the internet for corporate reporting by Spanish companies', *The International Journal of Digital Accounting Research*, Vol. 2, No. 1, pp.53–82.

Laswad, F., Fisher, R. and Oyelere, P. (2005) 'Determinants of voluntary internet financial reporting by local authorities', *Journal of Accounting and Public Policy*, Vol. 24, No. 2, pp.101–121, DOI: 10.1016/j.jaccpubpol.2004.12.006.

Lymer, A. (1997) 'The use of the Internet in company reporting: a survey and commentary on the use of the WWW in corporate reporting in the UK', *Journal of Financial Information Systems* [online] http://www.shu.ac.uk/schools/fsl/fisjnl//vol1996 (accessed 18 April 2015).

Lymer, A. and Debreceny, R. (2003) 'The auditor and corporate reporting on the internet: challenges and institutional responses', *International Journal of Auditing*, Vol. 7, No. 2, pp.103–120.

Lymer, A., Debreceny, R., Gray, G. and Rahman, A. (1999) 'Business reporting on the internet' [online] http://www.iasc.org.uk/ (accessed 18 April 2015).

Mahdi, I. (2009) *Using Internet as a Tool for Disclosing Financial Reports in Jordanian Listed Companies*, Master degree thesis, Yarmouk University, Jordan.

Miniaoui, H. and Oyelere, P. (2013) 'Determinants of internet financial reporting practices: evidence from the UAE', *Review of Pacific Basin Financial Markets and Policies*, Vol. 16, No. 4, pp.1–25, DOI: 10.1142/S0219091513500264.

Momany, M. and Al-Shorman, S. (2006) 'Web-based voluntary financial reporting of Jordanian companies', *International Review of Business Research Papers*, Vol. 2, No. 2, pp.129–139.

Oyelere, P., Laswad, F. and Fisher, R. (2003) 'Determinants of internet financial reporting by New Zealand companies', *Journal of International and Accounting*, Vol. 14, No. 1, pp.37–63.

Pascareno, B. and Hermana, B. (2015) 'Evaluating internet financial reporting index on the website of Indonesian insurance company', *Journal of Internet Banking and Commerce*, April, Vol. 20, No. 1, pp.1–14.

Pervan, I. (2006) 'Voluntary financial reporting on the internet – analysis of the practice of stock-market listed Croatian and Slovene joint stock companies', *Financial Theory and Practice*, Vol. 30, No. 1, pp.1–27.

Poon, P., Li, D. and Yu, Y. (2003) 'Internet financial reporting, information systems audit and control association' [online] http://www.isaca.org (accessed 26 February 2014).

Pozniak, L (2013) 'Internet financial communication: evidence from unregulated markets of Brussels and Paris', *International Journal Of Business and Finance Research (IJBFR)*, Vol. 7, No. 5, pp.107–122, Business Source Complete [online] http://EBSCOhost (accessed 19 February 2014).

Rocha, A. (2012) 'Three-dimensional model for the global quality of a website', *International Journal of Business Information Systems*, Vol. 10, No. 4, pp.436–446.

Saadi-Sedik, T. and Petri, M. (2006) *The Jordanian Stock Market – Should You Invest in It for Risk Diversification or Performance?*, International Monetary Fund Working paper No. WP/06/187.

Sharma, N. (2013) 'Web-based disclosures and their determinants: evidence from listed commercial banks in Nepal', *Accounting and Finance Research*, Vol. 2, No. 3, DOI: 10.5430/afr.v2n3p1.

Xiao, Z., He, Y. and Chow, C. (2004) 'The determinants and characteristics of voluntary internet-based disclosures by listed Chinese companies', *Journal of Accounting and Public Policy*, Vol. 23, No. 3, pp.191–225, Business Source Complete [online] http://EBSCOhost (accessed 26 February 2014).

Xiao, Z., Jones, M. and Lymer, A. (2002) 'Immediate trends in internet reporting', *The European Accounting Review*, Vol. 11, No. 2, pp.245–275.

Yap, K., Saleh, Z. and Abessi, M. (2011) 'Internet financial reporting and corporate governance in Malaysia', *Australian Journal of Basic and Applied Sciences*, Vol. 5, No. 10, pp.1273–1289.

Notes

1 The Amman Financial Market (AFM) was created in 1978. It served as the precursor to the ASE, into which it was merged in 1999.

2 Company guide contains the financial statements, stock trading information, and statistics for all listed companies on ASE.