

DETERMINANTS AND CONSEQUENCE OF WEB-BASED
INVESTOR RELATIONS IN MALAYSIA

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INVESTOR RELATIONS IN MALAYSIA

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DEDICATION

This thesis is dedicated to my dear husband, daughter and parents which their support guided me throughout ups and downs of my Ph.D. journey. Without their encouragement and understanding, the fulfilment of this work would have been impossible for me.

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ABSTRACT

The need to compete effectively for investment funds has become increasingly crucial for publicly listed companies in a stock exchange. In this regard, investor relations (IR) function plays a vital role in engaging with the investment community to expand the shareholder base. The advancement in internet technology has enabled companies to use the corporate website as an alternative medium for IR. However, given the voluntary nature of IR activities on the Web, prior web-based investor relations (WIR) studies evidenced substantial cross-sectional variation in the extent of WIR across companies as well as across countries. Given this and the limited WIR studies in Malaysia, the current study seeks to assess the extent to which the corporate websites are used for IR activities. This study also aims to examine the cross-sectional variation in the WIR practice by examining the influence of four groups of variables, namely, ownership structure, board characteristics, environment and company characteristics. Besides, this study also analyses the impact of WIR on firm value. The extent of WIR is measured using a disclosure index that comprises 152 items. Using a sample of 258 non-financial companies listed on the Main Market of Bursa Malaysia in 2015, the mean for overall WIR disclosure is 40%, which indicates that the extent of WIR is still limited. Generally, the finding suggests that companies mostly lack the information to help investors in their investment decision process. Further, this study employs a multi-theoretical approach. Several theories, namely, agency, signalling, capital need, legitimacy, institutional and diffusion of innovation theory was used in developing the testable hypotheses. The multivariate analysis shows that board independence, board size, media exposure, membership in IR association and listing age are significantly associated with the extent of WIR of the surveyed companies. In addition to identifying the determinants of WIR, this study examines the relationship between WIR and performance of the companies, using market-based measures. The findings indicate that WIR has a positive and significant relationship with firm value as measured by Tobin's Q ratio. Such findings provide evidence that should be of interest mainly to public listed companies in Malaysia regarding the importance of WIR as an alternative medium of information disclosure. Notably, the findings should motivate the companies to differentiate themselves by self-adapting better WIR practices, which in turn have the potential to enhance their market performance. For the market regulators, the findings would provide a benchmark to improve comparability of IR information on the websites.

ABSTRAK

Keperluan untuk bersaing secara efektif untuk dana pelaburan menjadi semakin penting kepada syarikat awam yang tersenarai di pasaran saham. Dalam hal ini, fungsi hubungan pelabur (IR) memainkan peranan penting dalam menjalinkan hubungan dengan komuniti pelaburan untuk mengembangkan asas pemegang saham. Kemajuan teknologi internet telah membolehkan syarikat menggunakan laman web korporat sebagai medium alternatif untuk IR. Namun memandangkan aktiviti IR di laman web bersifat sukarela, kajian-kajian hubungan pelabur berasaskan web (WIR) sebelum ini menunjukkan perbezaan tinjauan keratan rentas (*cross-sectional*) yang ketara dalam tahap WIR antara syarikat dan juga antara negara. Berhubung perkara ini dan kajian WIR yang terhad di Malaysia, kajian ini cuba untuk menilai sejauh mana laman web korporat digunakan untuk aktiviti IR. Kajian ini juga bertujuan untuk mengkaji perbezaan tinjauan keratan rentas dalam amalan WIR dengan mengkaji pengaruh empat kumpulan pemboleh ubah, iaitu struktur pemilikan, ciri lembaga pengarah, persekitaran dan ciri syarikat. Selain itu, kajian ini juga mengkaji pengaruh WIR ke atas nilai firma. Tahap WIR diukur menggunakan indeks pendedahan yang terdiri daripada 152 item. Dengan menggunakan sampel sebanyak 258 syarikat bukan kewangan yang disenaraikan di Pasaran Utama Bursa Malaysia pada tahun 2015, purata keseluruhan pendedahan WIR adalah 40%, yang menunjukkan tahap WIR masih terhad. Secara keseluruhan, dapatan menunjukkan syarikat-syarikat tersebut kurang menyediakan maklumat untuk membantu pelabur dalam proses keputusan pelaburan. Selanjutnya, kajian ini menggunakan pendekatan pelbagai teori. Beberapa teori, iaitu, agensi, isyarat, keperluan modal, legitimasi, institusi dan teori penyebaran inovasi telah digunakan dalam membangunkan ujikaji hipotesis. Analisis multivariat menunjukkan bahawa terdapat hubungan yang signifikan di antara kebebasan lembaga pengarah, saiz lembaga pengarah, pendedahan media, keanggotaan dalam persatuan IR dan umur penyenaian dengan WIR syarikat yang dikaji. Di samping mengenal pasti penentu WIR, kajian ini mengkaji hubungan antara WIR dengan prestasi syarikat, menggunakan ukuran berasaskan pasaran. Dapatan menunjukkan bahawa WIR mempunyai hubungan yang positif dan signifikan dengan nilai firma yang diukur oleh nisbah Tobin Q. Dapatan ini memberikan bukti yang dapat menarik minat syarikat tersenarai awam di Malaysia mengenai kepentingan WIR sebagai medium pendedahan alternatif. Yang penting, dapatan ini dapat memberikan motivasi kepada syarikat untuk membezakan mereka dengan mengamalkan amalan WIR yang lebih baik, yang mana seterusnya, berpotensi untuk meningkatkan prestasi pasaran mereka. Untuk pengawal selia pasaran, dapatan ini dapat dijadikan sebagai penanda aras untuk mengurangkan perbezaan maklumat IR di laman-laman web.

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LIST OF ABBREVIATIONS

CIR	-	Corporate Internet Reporting
CMM	-	Capital Markets Malaysia
CMP	-	Capital Market Masterplan
CSR	-	Corporate Social Responsibility
FASB	-	Financial Accounting Standards Board
GCC	-	Gulf Cooperation Council
IASC	-	International Accounting Standards Committee
IFR	-	Internet Financial Reporting
IPO	-	Initial Public Offering
IR	-	Investor Relations
IRS	-	Investor Relations Society
KLSE	-	Kuala Lumpur Stock Exchange
MCCG	-	Malaysia Code on Corporate Governance
MIRA	-	Malaysian Investor Relations Association
NIRI	-	National Investor Relations Institute
OLS	-	Ordinary Least Square
PLC	-	Public Listed Company
SC	-	Securities Commission
VIF	-	Variance Inflation Factor
WCR	-	Web-Based Corporate Reporting
WIR	-	Web-Based Investor Relations

LIST OF SYMBOLS

B	-	Beta
Chi ²	-	Value on the chi-square distribution that specifies the probability of obtaining the chi-square value from chance
F value	-	Value on the F distribution
N	-	Number of sample
Adjusted R ²	-	Corrected goodness-of-fit (model accuracy) measure for linear models
R ²	-	Coefficient of determination
<i>t</i>	-	T-value
<i>p</i>	-	P-value
%	-	Percentage

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

The globalisation of capital markets and decreased confidence of investors due to corporate scandals have led to the investment community stakeholders increasingly demanding greater transparency, more comprehensive and timely information about publicly listed companies. With these evolutionary changes in the investor environment, investor relations (IR) function has become an important tool for managing communication with the investment community. Emerging from a disclosure and reporting function, IR has evolved into a strategic communication function that involves not only relationship management but also two-way communication with the investors and other investment community stakeholders (Alhtaybat and Al-Htaybat, 2016; Hoffmann, Tietz, and Hammann, 2018; Kelly, Laskin, and Rosenstein, 2010). Importantly, effective IR communication between a company and the investing public is perceived as able to reduce information asymmetry and increase the company's visibility (Argenti, 2013; Bushee and Miller, 2012; Hoffmann et al., 2018; Vlittis and Charitou, 2012), and thus have the potential to boost the company's performance (Agarwal, Taffler, Bellotti, and Nash, 2016; Jiang, Raghupathi, and Raghupathi, 2009; Laskin, 2011). Indeed, these key elements are important in building trust and sustainable values in a company, which in turn would help foster an understanding of the valuation of the markets ascribe to the company's share (Jiang et al., 2009; Vlittis and Charitou, 2012).

As the call for greater information disclosure becomes more prevalent, companies have moved further to change the way they disseminate and communicate corporate information to the public and investment community. From traditionally disseminating financial information to users through hard copies of financial statements in the annual reports, companies can now take advantage of the Internet to

provide a wider range of corporate information on their websites. With the advancement in communication technology via the Internet and the World Wide Web (the Web¹), attention has been drawn to the Web as a powerful communication medium for public listed companies (PLCs). In this regard, as noted by IR researchers, the emerging importance of the Internet as a communication medium suggests that a firm's website content is reflective of its IR policy as a whole (Chang, Murphy, and Wee, 2006; Llopis, Gonzalez, and Gasco, 2019; Nel, Smit, and Brummer, 2019). Therefore, it is important for companies to increase their effort in providing a promising platform for transparency and consistency of information, and also dialogic communication with the investment community via the Web. With the advancement in the Internet technology, the innovation in IR communication has led to the use of social media applications which enable dialogue and interaction not only between investors and companies but also amongst investors themselves (Alhtaybat and Al-Htaybat, 2016; Bonson and Flores, 2011; Brennan and Merkl-Davies, 2018; Manetti and Bellucci, 2016; Nel et al., 2019). As noted by FASB (2000), the use of internet technology would enhance the efficiency of capital markets through the availability of more timely, frequently, and relevant financial information to the investment community. It is also argued that dissemination of financial information via the Web enables democratisation of shareholder information in a way that even the smallest individual shareholder is able to access the same information as the largest institution (Ahmed, Mardini, Burton, and Dunne, 2018; Alvarez, Sanchez, and Dominguez, 2008; Bowrin, 2015; Garay, Gonzalez, Guzman, and Trujillo, 2013; Hoffmann and Aeschlimann, 2017). In this context, the use of the Web for IR can be viewed as consistent with the companies' needs to communicate relevant information to the investment community and potentially improve the quality of their IR practices.

While numerous studies have been conducted on corporate reporting, IR, as part of voluntary reporting, is an under-researched area particularly in developing countries (Alhtaybat and Al-Htaybat, 2016; Hoffmann et al., 2018). In this respect,

¹ In this study, "the Web" refers to shorthand for Internet-based-related forms of communication. Throughout this study the terms "the Internet" and "the Web" are used interchangeably.

studies that addressed the extent of web-based investor relations (WIR) in developing economies are even more limited (AbuGhazaleh, Qasim, and Roberts, 2012; Alhtaybat and Al-Htaybat, 2016; Yanjie and Wan, 2013). In Malaysia, despite the development of the Malaysian capital market and the current liberalised stock market, little is currently known about WIR practices by Malaysian listed companies. Although in recent years listed companies in Malaysia have used the Internet as a channel for business reporting, the extent to which these companies utilise this medium for IR activities is still unclear. Importantly, with the Malaysian government and market regulators efforts to improve the Malaysian capital market to make it more attractive to foreign investors, corporate IR activities can play an important role in gaining more exposure in the market. The upgrading of Malaysia's classification in the FTSE Global Equity Index Series from Secondary Emerging Market status to Advanced Emerging Market status in June 2011 indicates a positive change in the country's investment regulatory environment and openness to foreign investors. In line with this, there should be added focus on strengthening the IR function within Malaysian listed companies, that in turn able to promote transparency and corporate governance as well as to enhance shareholder value. Furthermore, with the globalisation of capital markets, the need to compete effectively for the investment funds has become increasingly important for PLCs. Malaysian businesses and corporations, in common with companies globally, need to interact openly with investors, and effectively communicating strategy, management and performance to the market to make the investment climate more attractive to domestic and foreign capital funds. In this regard, it is important for companies' management to recognise the strategic role of IR activities, and be mindful of the extent to which WIR practice is significant.

Research on WIR within Malaysian listed companies is very limited, and it is unclear to what extent the findings of prior studies translate to the current state of WIR practice in Malaysia. Motivated by the lack of empirical research on WIR in general and Malaysia in particular, the current study undertakes a comprehensive assessment of the extent of WIR in four dimensions – content, design, timeliness, and interactivity within top 258 non-financial companies (by market capitalisation) listed on the Main Market of Bursa Malaysia. The current study also examines cross-sectional variation in the companies' WIR practices using four groups of explanatory variables, namely, ownership structure (number of shareholders, foreign ownership, director ownership

and ownership concentration), board characteristics (board independence, board size and independent chairman), environment (media exposure and membership in IR association), and company characteristics (listing age and company growth). Also, the current study seeks to investigate the influence of WIR on firm value. These investigations thus provide additional empirical evidence on the extent and determinants of WIR as well as the direct relationship between WIR and firm value in the Malaysian context, an advanced emerging market.

1.2 Problem Statement

The use of the Web as a communication medium in IR is widely acknowledged as an innovative way of communicating financial and other investor-related information to the investment community (Alhtaybat and Al-Htaybat, 2016; Hoffmann et al., 2018; Nel et al., 2019). With the use of WIR, publicly traded companies are not only able to disseminate information to a wider audience but also provide timely reporting in various presentation formats that are able to satisfy investors' information needs (AbuGhazaleh et al., 2012; Sandhu and Singh, 2019; Yanjie and Wan, 2013; Yassin, 2017). In this regard, as suggested by many researchers the availability of investor information on corporate websites can bring significant benefits to companies in terms of better securities valuation, increased liquidity and trading volume (Gajewski and Li, 2015; Hoffmann et al., 2018; Nel et al., 2018), which consequently enhance the efficiency of capital markets (Bowrin, 2015; FASB, 2000; Hoffmann et al., 2018). Thus, with the opportunities offered by the Internet that are able to supplement and enhance traditional ways of investor communication, WIR has become an indispensable communication tool for companies (AbuGhazaleh et al., 2012; Alhtaybat and Al-Htaybat, 2016; Hoffmann and Aeschlimann, 2017; Hoffmann et al., 2018; Laskin, 2018; Stolowy and Paugam, 2018).

Despite the advantages and beneficial aspects of web IR disclosure, WIR practices are generally voluntary and unregulated (AbuGhazaleh et al., 2012; Bollen et al., 2006; Hoffmann et al., 2018; Nel et al., 2019; Yanjie and Wan, 2013). As such, the extent and quality of financial and other IR-related information on corporate

websites tend to vary across companies as well as across countries (Abdi, Kacem, and Omri, 2018; Ahmed, Burton, and Dunne, 2017; Bin-Ghanem and Ariff, 2016a; Bollen, Hassink, and Bozic, 2006; Bowrin, 2015; Mendes-Da-Silva and Onusick, 2014; Samaha and Abdallah, 2012; Samaha, Dahawy, Abdel-Meguid, and Abdallah, 2012; Sanchez, Dominguez, and Alvarez, 2011; Sandhu and Singh, 2019; Turmin, Abdul Hamid, and Mohd Ghazali, 2016; Yanjie and Wan, 2013). It is argued that companies not only do not partition and use website sections in a uniform and structured way (Beattie and Pratt, 2003; FASB, 2000; Keliwon, Shukor and Hassan, 2018; Mendes-Da-Silva and Onusick, 2014; Sanchez et al., 2011) but also provide information which varies greatly in terms of the content, usability and user support (Abdelsalam, Bryant, and Street, 2007; AbuGhazaleh et al., 2012; Samaha and Abdallah, 2012; Sandhu and Singh, 2019; Yanjie and Wan, 2013; Yassin, 2017).

As noted by prior researchers, the variation in web-based reporting has created problems to users, securities regulators and standard setters. The users face difficulty in searching information due to variations in how companies use the sections in their websites (Ahmed et al., 2018; Debreceeny, Gray, and Mock, 2001; Hanafi, Kasim, Ibrahim, and Hancock, 2009; Uyar, 2012), whilst securities regulators and standard setters have difficulty in performing their monitoring function and providing recommendations for best practices (Ahmed et al., 2017; Debreceeny et al., 2001; Dolinsek, Tominc, and Skerbinjek, 2014; Mendes-Da-Silva and Onusick, 2014; Sanchez et al., 2011; Sandhu and Singh, 2019). As argued by researchers including Uyar (2012), Yanjie and Wan (2013) and Ahmed et al. (2018) the lack of uniformity in the companies' web-based reporting is somewhat related to the developments in internet-related technologies. As such, the information available on the corporate websites is dynamic in nature and the information assessed is relevant for the time period during which it has been accessed (Ahmed et al., 2017; Sandhu and Singh, 2019; Yanjie and Wan, 2013; Yassin, 2017). In view of the corporate websites that are increasingly becoming widely used information source for investors, its importance as an IR communication channel can create a far more immediate impact than traditional means of reporting (Ahmed et al., 2018; Brennan and Merkl-Davies, 2018; Dolinsek et al., 2014; Lodhia, Allam, and Lymer, 2004; Mendes-Da-Silva and Onusick, 2014). Given the prevalence of WIR in communicating financial and other investor

information, more research is needed to better understand the dynamics of why some companies engage extensively in voluntary WIR whilst others do not.

Given the voluntary nature of WIR, the decision to engage thus remains at the discretion of managers (Ahmed et al., 2017; Ahmed et al., 2018; Bin-Ghanem and Ariff, 2016a; Botti, Boubaker, Hamrouni, and Solonandrasana, 2014; Kelton and Yang, 2008, Nel et al., 2019; Sanchez et al., 2011, Uyar, 2012). The discretion over the information provided on corporate websites has raised concerns about the quality and reliability of the disclosed information for outsiders as managers may tend to engage in selective reporting such as disclosing some information while keeping others (Bin-Ghanem and Ariff, 2016a; Botti et al., 2014; Uyar, 2012). Thus, boards of directors as an internal governance mechanism have the role and responsibility of ensuring a high quality corporate disclosure policy. Importantly, good corporate governance mechanisms can influence companies to shape the extent of WIR, thus provide a more effective monitoring through enhanced WIR level. In general, WIR practice seems to increase the level of corporate transparency but is also likely to be subject to greater managerial discretion over voluntary disclosure. Accordingly, in the context of this study, corporate governance mechanisms may be important in explaining the differences in the levels of WIR among Malaysian listed companies.

The limited scope of WIR research in developing countries (AbuGhazaleh et al., 2012; Alhtaybat and Al-Htaybat, 2016; Nel et al., 2019; Yanjie and Wan, 2013) renders focusing on developing countries especially with emerging markets very important. In particular, lack of a comprehensive study about WIR in Malaysia, an advanced emerging market, is the main motivation for this study. In Malaysia, despite the increasing use of the corporate website as a communication channel for financial and other investor information, little is currently known about the WIR practices amongst Malaysian listed companies. Although there has been encouragement and focus on best practice in WIR over recent years by the Malaysian market regulator

(Bursa Malaysia) and association of practitioners (MIRA)², there is still lack of guidelines about the content and user support for a more informative and interactive website. The fact that the web-based disclosure guidelines including ‘Investor Relations Put Into Practice’ manual and ‘Corporate Disclosure Guide (Best Practices Contents on Website)’ issued in 2006 and 2012, respectively³, are not as comprehensive as other developed markets such as the UK, Australia and Canada, determining where the Malaysian listed companies stand in terms of WIR helps to improve corporate transparency and disclosure quality to further enhance the Malaysian capital market’s competencies. Thus, in an emerging market like Malaysia a greater understanding of the voluntary WIR practice is vital to ensure that investors are protected and their information needs are satisfied.

Also, the distinctive and important differences related to the Malaysian environment including the efficiency of the corporate governance system make it very informative to further explore WIR in Malaysia. In this regard, although there is growing importance placed by the Malaysian Code on Corporate Governance (MCCG) on listed companies concerning the IR function, literature providing evidence of the extent of WIR is still substantially under-researched in Malaysia. Thus, investigating the determinants of WIR using broad group of variables including corporate governance mechanisms (ownership structure and board characteristics), environmental characteristics and company characteristics for the Malaysian listed companies is a second motivation for this study. Lastly, with the increasing role of the Malaysian capital market to reduce agency problem that centres on asymmetric information, it is vital for listed companies to be more transparent and provide IR information disclosure on corporate websites to benefit from the value relevance of such disclosure. Thus, examining whether companies with more WIR disclosure are

² In Malaysia, Investor Relations Association (known as MIRA) was established in 2007. MIRA is the first and only IR professional association in Malaysia.

³ Investor Relations Put Into Practice 2006 and Corporate Disclosure Guide (Best Practices Contents on Website) 2012 [Online], Bursa Malaysia, Available: <http://www.mira.com.my/> and <https://www.bursamalaysia.com/>

better to those with less WIR disclosure in terms of firm performance is another important motivation for this study.

There are a number of research gaps that have been identified and need to be addressed in order to provide a better explanation for the extent of WIR, the relationship between a relevant set of corporate governance, environmental and company characteristics and WIR, and also the effect of WIR on firm performance. These gaps are explained as follows:

First, reviewing the literature indicates that most of the studies which investigate WIR and its determinants have been conducted in developed countries. These include studies the US, the UK, and several European countries (Bollen et al., 2006; Brennan and Kelly, 2000; Deller, Stubenrath, and Weber, 1999; Geerings et al., 2003; Hedlin, 1999; Marston and Polei, 2004; Yanjie and Wan, 2013). While very few studies have been conducted in developing countries (Hamid, 2005; Hamid and Salleh, 2005; AbuGhazaleh et al., 2012). Although the studies show that the importance of WIR has increased over time, the findings are largely based on studies carried out in developed countries with developed capital markets. In Malaysia, studies that focused on internet IR were conducted by Hamid (2005) and Hamid and Salleh (2005)⁴, which suggests lack of recent evidence on WIR practices among Malaysian listed companies. While other internet reporting studies in Malaysia (Ali Khan and Ismail, 2014; Hodayoun and Rahman, 2010; Turmin et al., 2016; Yap, Salleh, and Abessi, 2011) tend to consider IR information as only one of the disclosure index categories. The empirical evidence on WIR in Malaysia thus seems to be limited. It is unclear to what extent the findings can be generalised to the current context of WIR practice in Malaysia, considering the dynamic nature of web reporting. Thus, further research on WIR is needed to investigate not only the extent to which corporate websites are

⁴ Hamid (2005) and Hamid and Salleh (2005) used a sample of 100 index-linked companies listed on the Kuala Lumpur Stock Exchange (KLSE). KLSE is the former name for Bursa Malaysia. On April 14, 2004 KLSE was renamed Bursa Malaysia Berhad.

utilised for IR but also the potential determinants of WIR, which highlights the need for more in-depth research regarding WIR in the Malaysian context.

Second, while prior studies provide evidence that web IR is common among listed companies in broad range of countries (AbuGhazaleh et al. 2012; Ahmed et al., 2017; Bollen et al., 2006; Geerings et al., 2003; Hamid and Salleh, 2005; Marston and Polei, 2004; Rowbottom et al., 2005; Sandhu and Singh, 2019; Yanjie and Wan, 2013), the assessment is mainly based on disclosures of financial and other investor-related information presented on corporate websites. It is worth noting that IR via the Web not only involves dissemination of information but also broader activities which include two-way communication directed at interactive dialogue and relationship building (Alhtaybat and Al-Htaybat, 2016; Hoffmann and Aeschlimann, 2017; Hoffmann et al., 2018; Kelly et al., 2010). In this regard, the use of the Web for IR interactive activities such as social media applications have not been explored in-depth in academic research. Specifically, in Malaysia, although prior studies suggest that corporate reporting on the Internet is emerging, little is currently known about the use of the Web for IR interactive and dialogic communication among Malaysian listed companies. Thus, the current study seeks to further explore the extent of WIR by assessing not only the use of the website for information dissemination but also for communication directed at interactive dialogue. This interactive dimension of WIR can be considered, in part, to be an update to prior studies as it includes disclosure items that were not examined at the time the studies were carried out. Notably, this study assesses the WIR practices from a perspective that was ignored in prior studies.

Third, motivated by the lack of empirical evidence on the determinants of WIR, this study undertakes to further examine the cross-sectional variation in WIR by employing broader explanatory variables which comprises four groups of variables, namely, ownership structure, board characteristics, environmental characteristics and company characteristics. Reviewing the literature shows that studies on internet financial reporting (IFR) have mainly used company-specific characteristics and ownership structure variables to explain the extent and quality of the practice. It is worth noting that although prior IFR studies have employed the company characteristics and ownership structure variables, and the fact that IFR is the main

activity of WIR, the findings may not fully explain the variation in WIR practices. This is because in practice, WIR covers a broader scope of activities than financial reporting. Moreover, apart from the inconsistent results reported in prior studies, which requires further research, certain company-specific characteristics (such as company growth and listing age) have provided very little empirical evidence regarding WIR particularly in the Malaysian context. While, with regard to the ownership structure variables (such as number of shareholders, foreign ownership, director ownership and ownership concentration), although the variables have been tested in prior web-based reporting studies, the findings may not explain the variation in WIR especially in the Malaysian context. Also, with the concentrated ownership structure (the dominance of blockholders) in Malaysian listed companies (AlQadasi and Abidin, 2018; Ghazali and Weetman, 2006; Mustapha and Che Ahmad, 2011), it would be interesting to examine the effect of the ownership structure variables on WIR practices in Malaysia. In light of varying institutional settings, the findings of prior studies in developed countries in particular may not be relevant in the Malaysian context. Thus, there is a need to further examine the effect of the ownership structure variables on WIR, considering the inconsistent findings and the lack of examination on certain characteristics of the variables in prior studies particularly in the Malaysian context.

This study extends the potential determinants of WIR to include board characteristics (board independence, board size and independent chairman) and environmental characteristics (media exposure and membership in IR association), unlike the previous studies that mainly focused on company-specific characteristics and ownership structure to explain the variation in the levels of WIR. It is worth noting that although many studies have examined the association between corporate governance and voluntary disclosure, the effect of corporate governance on web-based reporting especially WIR still needs further examination, particularly in developing countries. The association between corporate governance mechanisms (such as board characteristics) and WIR may vary between developed and developing countries due to the efficiency of the corporate governance structure. Therefore, it is important to examine the nature of the relationship between corporate governance mechanisms in particular board characteristics and the level of WIR in the Malaysian context, where studies are limited, to give insight about the effect of board independence, board size and independent chairman on WIR.

With regard to the environmental variables, limited studies have examined the effect of the firm's external environment on web-based reporting. A number of internet reporting researchers including Debreceeny, Gray, and Rahman (2002), Gandia (2008) and Cormier, Ledoux, and Magnan (2009) argue that the firm's external environment is an important factor in web-based disclosure decisions. It is imperative that the needs of the users of financial and other investor information be met by the firm if the firm intends to reduce the costs of financing its activities (Cormier et al., 2009; Debreceeny et al., 2002). Moreover, since the environment external to the firm is a significant influence on a medium for disclosure such as IFR (Debreceeny et al., 2002 in country grouping of Emerging, Latin, Franco-German-Japanese, Asia-Colonial, Nordic and Anglo-American) and WCR (Cormier et al., 2009 in Canada; Gandia, 2008 in Spain), it is worth testing in the context of WIR in Malaysia. Also, given the national setting of this study, explanatory environmental variables that relate the listed companies' environment to WIR are particularly relevant in Malaysia due to the MIRA's role in promoting WIR to Malaysian PLCs and also the investors that rely more on public information (through public media) for their trades. The environmental characteristics employed in this study may provide some insights to both national (Malaysia) and international policy makers and will help them to understand additional drivers related to WIR practices.

This study employs two variables that relate the firm's environment to WIR, namely, membership in IR association and media exposure. With respect to the first environmental variable, as far as the literature is concerned, no previous research on WIR has considered membership in IR association as a potential determinant of the practice. This is particularly relevant as in recent years, there has been growing interest on the rising importance of the role of IR association in improving the relationship between listed companies and the investment community (Argenti, 2013; Hoffmann and Aeschlimann, 2017; Hoffmann et al., 2018; Manetti and Bellucci, 2016). With this new variable, the relationship between membership in IR association and WIR is tested in the emerging market context of Malaysia. As for the second environmental variable, a very limited number of studies have employed media exposure as a potential factor influencing the extent of web-based reporting amongst listed companies (Cormier et al., 2009 in Canada; Gandia, 2008 in Spain). The lack of empirical evidence which is an obvious shortcoming in the internet reporting literature requires further

investigation in different national context and market environment. By exploring the relationship empirically in Malaysia, the current study will contribute to filling the gap in the literature regarding the influence of media exposure on WIR in the emerging market context.

Fourth, many prior studies on corporate disclosure have focused either on investigating the relationship between voluntary disclosure levels and liquidity, or the relationship between voluntary disclosure levels and cost of capital (debt and equity capital). Despite the value relevance of corporate voluntary disclosure (Abdullah et al., 2015; Ahmed et al., 2015; Lai et al., 2010; Vlittis and Charitou, 2012), there is very little empirical evidence in relation to the direct relationship between voluntary disclosure and firm performance discussed in the literature in general. However, in comparison with studies examining the relationship between voluntary disclosure in the annual report and firm performance, studies that have investigated the effect of web-based disclosure on firm performance are even more limited. The few existing studies that examine the direct relationship between IFR and firm performance were conducted in the Middle East and Latin American countries. As such, it is unclear to what extent the findings from prior studies on the influence of web-based reporting on firm performance can be generalised to the Malaysian context. As such, research on the effect of WIR on the performance of listed companies in developing country and emerging market such as Malaysia is important and needed. Hence, this study undertakes to examine the direct relationship between WIR and firm performance of Malaysian listed companies using market-based measures.

In order to fill the above gaps in research, this study aims to study the extent of WIR, the relationship between WIR and a relevant set of ownership structure, board characteristics, environmental and company-specific characteristics, and also the effect of WIR on firm performance. To the best of the researcher's knowledge, no prior study comprehensively investigates the determinants of WIR using the four groups of variables and the effect of WIR on firm performance in the Malaysian context. As such, the findings may provide new evidence on the determinants of WIR and the effect of WIR on firm performance in an emerging market that has not been widely examined.

1.3 Research Questions

The focus of this study is to investigate the extent of WIR amongst Malaysian non-financial listed companies. This study aims to assess the extent of WIR and identify factors that influence WIR practices amongst non-financial listed companies in Malaysia. Further, the current study aims to examine the influence of WIR on the firm value of non-financial listed companies in Malaysia.

This study is undertaken with the following three research questions:

1. To what extent do Malaysian non-financial listed companies use their corporate website for IR?
2. Is there a relationship between ownership structure, board characteristics, environment, company characteristics and the extent of WIR amongst Malaysian non-financial listed companies?
3. Is there any influence of WIR on the firm value of Malaysian non-financial listed companies?

1.4 Research Objectives

The following research objectives are relevant in addressing the research questions.

1. To assess the extent to which the corporate websites are used by Malaysian non-financial listed companies for IR activities.
2. To examine the relationship between ownership structure, board characteristics, environment, company characteristics and the extent of WIR amongst Malaysian non-financial listed companies.
3. To examine the influence of WIR on the firm value of Malaysian non-financial listed companies.

1.5 Scope of the Study

The focus of this study is to investigate web-based corporate IR practices in Malaysia. Specifically, the current study aims to firstly, provide a comprehensive overview of the use of corporate websites for IR; secondly, explain cross-sectional variation in the extent of WIR, and thirdly, examine the influence of WIR on firm value. Importantly, the investigations involved in the current study would not only provide insight about WIR in Malaysia but also whether the investment community particularly investors value such information when making investment decisions.

The survey of corporate websites for IR carried out in this study involves a sample of companies that consists of the 258 largest Malaysian non-financial listed companies on the Main Market of Bursa Malaysia (in terms of market capitalisation as at 31 March 2015). The collection of WIR data is based on content analysis of the sample companies' websites on the presence of IR information items. A disclosure index (WIR Index) comprising 152 unweighted IR-related items (divided into content, design, timeliness and interactivity dimensions) is employed for the purpose. Furthermore, the data used in this study have been obtained from several sources including companies' websites and annual reports, Bursa Malaysia Library database as well as newspaper online portal and the official website of Malaysian Investor Relations Association (MIRA).

Apart from descriptive evidence on the current state of WIR practice among Malaysian non-financial listed companies, this study also seeks to explain cross-sectional variation in WIR by employing a number of explanatory variables grouped into ownership structure, board characteristics, environment and company-specific characteristics which are derived from the literature of voluntary disclosure. Further, this study extends the investigation on WIR by examining the effect of WIR disclosure on firm value. In this regard, the findings may provide evidence that should be of interest to PLCs concerning their decisions whether to provide additional IR information disclosure or avoid disclosing the information on their websites.

Importantly, by assessing the extent to which Malaysian non-financial listed companies used their corporate websites for WIR activities and examining factors that influence the WIR disclosure as well as the effect of WIR on firm value, the current study adds to the relatively limited empirical evidence on IR (particularly WIR practices), one of the corporate reporting subject area.

1.6 Significance of the Study

This study sets out to make contributions to the body of knowledge as well as the industry.

a) To the Body of Knowledge

This study investigates the extent of WIR by using a substantially larger sample of listed companies compared to existing published studies. In Malaysia, studies that specifically focused on investigating IR activities on the Web have used companies within the 100 index-linked (Hamid, 2005; Hamid and Salleh, 2005). In the context of this study, the survey of IR disclosure on corporate websites includes a broader cross-section of companies in terms of market capitalisation. This therefore offers a broader insight into the state of WIR practices in Malaysia.

Another contribution of this study is the use of a disclosure index (WIR Index) to measure the extent of WIR. Importantly, the descriptive results on the state of WIR which is based on four dimensions of WIR (content, design, timeliness and interactivity) offers additional evidence not only on the communication medium but also interactive and dialogic communication tools used in WIR. The findings thus contribute to the limited empirical evidence on the extent to which WIR have developed in recent years.

Given the voluntary nature of WIR, prior studies that investigate IR disclosure on the Web evidenced a variation in the use of companies' websites for IR both within and across countries (Abdi et al., 2018; AbuGhazaleh et al., 2012; Ahmed et al., 2017;

Bollen et al., 2006; Geerings et al., 2003; Hamid and Salleh, 2005; Marston and Polei, 2004; Samaha and Abdallah, 2012; Sandhu and Singh, 2019; Turmin et al., 2016; Yanjie and Wan, 2013; Yap et al., 2011). Besides the differences in sample size and the comprehensiveness of disclosure index, the variations in WIR can be attributed to differences in research settings, business environments, levels of technological development and culture (Al-Htaybat, 2011; Aly, Simon, and Hussainey, 2010). Thus, by utilising a broad set of explanatory variables, several of which have received limited attention in previous studies, and others which show inconclusive findings would provide important insight into the variations in WIR practices among listed companies. This study which seeks to explain cross-sectional variation in WIR using four groups of explanatory variables (ownership structure, board characteristics, environment and company characteristics variables derived from the literature of voluntary disclosure) contributes to a greater understanding of the determinants of WIR particularly in Malaysia.

To date and to the researcher's knowledge, no prior studies have investigated the relationship between membership in IR association and WIR or IFR. Furthermore, very few studies have investigated the relationship between media exposure and web-based reporting (Cormier et al., 2009; Gandia, 2008). The use of these two explanatory variables in the current study thus contribute to the broader literature of voluntary disclosure and IR.

In addition to examining the determinants of WIR, the study seeks to examine the influence of WIR on firm value. It is worth noting that there are only few studies that examine the direct relationship between voluntary disclosure (both in annual report and websites) and firm value. As such, the empirical findings of this study may provide a justification for the need for additional IR information disclosure on companies' websites, and thus, contribute to a better understanding of the value relevance of WIR.

b) To the Practitioners

In Malaysia, market regulator and industry body, namely, Bursa Malaysia and MIRA have jointly issued the Investor Relations Manual and Workbook in 2007 which outline a framework for IR practice and to guide PLCs on principles and management of IR. In this regard, the findings from this study (based on the data gathered from the companies' websites in 2015) which represent the eighth year since the IR manual was launched, are particularly relevant as the IR manual very much demonstrates how Bursa Malaysia strives to encourage PLCs to voluntarily provide stakeholders with timely and transparent information beyond what is required by the listing requirements. Specifically, the current study could benefit Bursa Malaysia and MIRA in terms of the comprehensive investigation of the use of corporate websites for IR. Accordingly, the findings of this study would be of interest to Bursa Malaysia and MIRA as they are indicative of the level to which listed companies utilise their corporate websites to increase accessibility to companies' information.

The WIR index used in this study may also provide a benchmark for assessing web IR practice in other emerging markets. The WIR index which includes not only a mechanism for dissemination of information but also dialogic communication and interactive dialogue tools can serve as a checklist or template for executives' intent on enhancing their WIR.

With regard to the influence of WIR on firm value, the findings may motivate the market regulator to encourage Malaysian listed companies to provide more voluntary disclosure on their websites. The findings which may provide a justification for the additional voluntary disclosure on corporate websites, may also enable the market regulator to identify areas of web-based disclosure that require improvement.

1.7 Definition of the Study Variables

Four groups of explanatory variables, namely, ownership structure, board characteristics, environment and company characteristics are used to explain cross-sectional variation in the extent of WIR. The definition of each variable is as follows:

Web-Based Investor Relations (WIR) refers to the integration of Internet technology in the disclosure-reporting of IR activities on companies' websites.

Ownership Structure:

Number of shareholders refers to the number of shareholders holding the total number of shares issued in the company.

Foreign ownership refers to the proportion of shares held by foreign shareholders to total shares outstanding.

Director ownership refers to the proportion of shares held by directors to total number of shares issued in the company.

Ownership concentration refers to the proportion of shares held by 10 largest shareholders to total number of shares issued in the company.

Board Characteristics:

Board independence refers to the proportion of independent non-executive directors to total directors on the board.

Board size refers to the number of directors on the board.

Independent chairman refers to the chairman who is non-executive director.

Environment:

Media exposure refers to the number of articles (news items) on a company.

Membership in IR association refers to the company which is a member of Malaysian Investor Relations Association (MIRA).

Company Characteristics:

Listing age refers to the number of years from the company's listing to 2015 (the difference between the year of data collection for WIR and the year in which the company was listed).

Company Growth refers to the proportion of market capitalisation to book value of total assets of the company.

The investigation of the effect of WIR on the firm value includes the following variables:

Tobin's Q Ratio refers to the market value of equity plus book value of total debt divided by book value of total assets of the company.

Market-to-Book Value Ratio refers to the market value of equity divided by book value of equity of the company.

Web-Based Investor Relations (WIR) refers to the integration of Internet technology in the disclosure-reporting of IR activities on companies' websites.

Table 1.1 presents the summary of research gaps, research questions, research objectives and contributions of the current study.

Table 1.1 Summary of research gaps, research questions, research objectives and contributions

Research Gaps	Research Questions	Research Objectives	Contributions
<p>1. Lack of research addressing the extent of WIR in developing countries (and emerging markets) (Hamid, 2005; Hamid and Salleh, 2005; AbuGhazaleh et al., 2012)</p> <p>2. The majority of prior studies used only content and presentation categories (dimensions) to assess the extent of financial and other IR-related information on corporate websites</p> <p>3. Very few studies used timeliness dimension</p> <p>4. Interactivity dimension has been overlooked in past studies (interactive capabilities and two-way communication directed at interactive dialogue)</p>	<p>1. To what extent do Malaysian non-financial listed companies use their corporate website for IR?</p>	<p>1. To assess the extent (level) to which the corporate websites are used by Malaysian non-financial listed companies for IR activities.</p>	<p><u>Methodological</u></p> <p>1. Uses a comprehensive WIR disclosure index, categorised into four main dimensions, namely, content, design, timeliness and interactivity</p> <p>2. The first study that uses interactivity as one of the main dimensions of the WIR</p> <p>3. Provides insights into the use of interactive tools (including two-way communication) and other potentially important elements of WIR such as social media</p> <p>4. Extends the existing literature on WIR by using a sample of a broader range of companies that consists of the top 258 non-financial companies (by market capitalisation) listed on the Main Market of Bursa Malaysia</p>

Table 1.1 Summary of research gaps, research questions, research objectives and contributions (continued)

Research Gaps	Research Questions	Research Objectives	Contributions
<p>5. Past studies in Malaysia that specifically focused on investigating WIR used index-linked companies as study sample (Hamid, 2005; Hamid and Salleh, 2005)</p> <p>6. The existing WIR studies in Malaysia were conducted based on the data prior to the Bursa Malaysia's new requirement for Main Market and ACE Market regarding the setup of corporate websites, which took effect from 3 August 2009 (Hamid, 2005; Hamid and Salleh, 2005)</p>			<p><u>Empirical</u></p> <p>5. The findings provide an update for the existing evidence in Malaysia</p>

Table 1.1 Summary of research gaps, research questions, research objectives and contributions (continued)

Research Gaps	Research Questions	Research Objectives	Contributions
<ol style="list-style-type: none"> 1. Most prior studies examined the extent of web-based financial and other IR disclosures by employing only company-specific characteristics 2. Studies that use ownership structure and board characteristics variables are still limited 3. Very few studies considered environmental influences/ characteristics as explanatory variables (Debreceeny et al., 2002; Bollen et al., 2006; Gandia, 2008; Cormier et al., 2009; Yap et al., 2011) 4. Very limited environmental characteristics being examined (disclosure environment in the country, internet penetration, public media (media exposure), and internet visibility) 	<ol style="list-style-type: none"> 2. Is there a relationship between ownership structure, board characteristics, environment, company characteristics and the extent of WIR amongst Malaysian non-financial listed companies? 	<ol style="list-style-type: none"> 2. To examine the relationship between ownership structure, board characteristics, environment, company characteristics and the extent of WIR amongst Malaysian non-financial listed companies. 	<p><u>Theoretical</u></p> <ol style="list-style-type: none"> 1. Examines the determinants of WIR using a multi-theoretical approach (economics-based theories, diffusion of innovation theory, and institutional theory) 2. Provides evidence on the applicability of: <ol style="list-style-type: none"> i. Legitimacy theory on the environmental characteristic variable (media exposure); ii. Institutional theory on the environmental characteristic variable (membership in IR association); iii. Diffusion of innovation theory and capital need theory on company characteristic variable (listing age); and iv. Agency theory on board characteristics variables (board independence and board size)

Table 1.1 Summary of research gaps, research questions, research objectives and contributions (continued)

Research Gaps	Research Questions	Research Objectives	Contributions
			<p><u>Empirical</u></p> <p>3. Employs not only ownership structure, board characteristics and company characteristics variables but also the environmental characteristics to explain the extent of WIR amongst Malaysian non-financial listed companies</p> <p>4. Employs two environmental characteristics variables to add to the literature in explaining cross-sectional variation in WIR amongst Malaysian non-financial listed companies:</p> <ul style="list-style-type: none"> i. media exposure – developing countries as well as emerging markets literature ii. membership in IR association – international literature

Table 1.1 Summary of research gaps, research questions, research objectives and contributions (continued)

Research Gaps	Research Questions	Research Objectives	Contributions
<p>1. Very few empirical studies on the direct relationship between voluntary web-based disclosure and firm performance (Silva and Alves, 2004; Hunter and Smith, 2009; Lai et al., 2010; Garay et al., 2013; Ahmed et al., 2015)</p> <p>2. In Malaysia, as far as the literature is concerned, no prior studies have examined the direct relationship between WIR and firm performance</p> <p>3. The few existing studies focused on Latin American countries (Silva and Alves, 2004; Garay et al., 2013), emerging markets of Brazil, India, Indonesia, Russia and South Africa (Hunter and Smith, 2009), Taiwan (Lai et al., 2010) and Egypt (Ahmed et al., 2015)</p>	<p>3. Is there any influence of WIR on the firm value of Malaysian non-financial listed companies?</p>	<p>3. To examine the influence of WIR on the firm value of Malaysian non-financial listed companies.</p>	<p><u>Empirical</u></p> <p>1. Adds to the empirical literature on the direct relationship between WIR and firm performance (using market-based measures of performance) in Malaysian and emerging markets contexts</p>

1.8 Organisation of the Thesis

Chapter 1 provides an overview of the arguments for assessing IR practices via the Web among public listed companies, which clarifies the importance of the current study. IR-related issues including the extent of IR information disclosures and activities on companies' websites are discussed, and clearly, there is a lack of academic evidence on WIR in Malaysia. This explains the motivation for the current study, which aims at explaining cross-sectional variation in the extent of WIR and the influence of WIR on firm value among Malaysian non-financial listed companies. The research questions and research objectives addressed in the study are presented in this chapter. The chapter concludes by presenting the significance of the study and definition of the study variables.

Chapter 2 presents an overview of the Malaysian capital market and regulatory framework, as well as the role of IR to effectively control the flow of information between a public company and its investors. The chapter highlights the main aspects of IR including objectives, interdisciplinary function and the changing environment that affects its practice. The chapter further presents a review of the relevant academic literature relating to the study of WIR. This includes a critical assessment of the descriptive and explanatory web-based reporting studies, and the relationship between firm value and web-based reporting. The identified gap in the literature presents the emphasis of the current study and is to be addressed accordingly. In addition, the chapter provides discussions on the theories underlying voluntary disclosure in IR, including economics-based, diffusion of innovation and institutional theories. Lastly, the chapter presents the hypotheses that are developed to explain cross-sectional variation in the extent of WIR, and the influence of WIR on firm value among Malaysian non-financial listed companies.

Chapter 3 presents the methods and procedures employed for the purpose of the current study, which are (1) to assess the extent of WIR; (2) to explain cross-sectional variation in the extent of WIR; and (3) to examine the influence of WIR on firm value amongst Malaysian non-financial listed companies. The chapter describes the sample of the study, collection of data, definition and measurement of the

dependent and independent variables used to test the hypotheses developed in Chapter 2. It also provides the details of the research instrument used in the current study, including developing and scoring the WIR disclosure index, and reliability and validity of the WIR index. The chapter further illustrates the research models of the current study. Finally, the chapter outlines the data analysis procedure which includes the relevant statistical techniques and procedures for testing the research hypotheses.

Chapter 4 presents the results for the three research questions. With regard to the first research question, using the WIR index developed for the current study, the chapter provides the findings of the extent of WIR (overall) and its dimensions (content, design, timeliness and interactivity) by the sample companies of the Malaysian non-financial listed companies. Further, using relevant statistical tests, the chapter provides the empirical results of the relationships between four groups of independent variables (ownership structure, board characteristics, environment and company characteristics) and WIR, which answers the second research question. Furthermore, additional analyses and robustness tests are carried out to check and support the results of the main regression analysis. The chapter also presents the findings of the relationship between WIR and firm value, which answers the third research question. The chapter concludes by presenting the summary of the findings.

Chapter 5 concludes the current study with a discussion of the results. The chapter also highlights the current study's contributions in terms of theoretical, methodological and empirical. Further, the chapter outlines the limitations of the current study and suggestions for future research. The suggestions thus provide the opportunity for future researchers to contribute in this area of study. The chapter concludes by providing the implications of the study.

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Appendix A FTSE Country Classification of Equity Markets

Developed	Advanced Emerging	Secondary Emerging	Frontier
Australia	Brazil	Chile	Argentina
Austria	Czech Republic	China	Bahrain
Belgium/Luxembourg	Greece	Columbia	Bangladesh
Canada	Hungary	Egypt	Botswana
Denmark	Malaysia	India	Bulgaria
Finland	Mexico	Indonesia	Cote d'Ivoire
France	South Africa	Kuwait	Croatia
Germany	Taiwan	Pakistan	Cyprus
Hong Kong	Thailand	Peru	Estonia
Ireland	Turkey	Philippines	Ghana*
Israel		Qatar	Jordan
Italy		Russia	Kazakhstan
Japan		UAE	Kenya
Netherlands			Latvia
New Zealand			Lithuania
Norway			Macedonia
Portugal			Malta
Singapore			Mauritius
South Korea			Morocco
Spain			Nigeria
Sweden			Oman
Switzerland			Palestine
UK			Romania
USA			Serbia
			Slovakia
			Slovenia
			Sri Lanka
			Tunisia
			Vietnam

FTSE country classifications of equity markets (as at September 2018) consist of Developed (24 markets), Advanced Emerging (10 markets), Secondary Emerging (13 markets) and Frontier (29 markets). Malaysia promoted from Secondary Emerging to Advanced Emerging on 20 June 2011.

Source: <https://www.ftse.com/products/downloads/FTSE-Country-Classification-Update-2018.pdf>

Appendix B Summary of Studies on Company-Specific Characteristics and WCR

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Ashbaugh et al. (1999)	US 290 non-financial companies (identified/ reviewed by AIMR)	November 1997 - January 1998	3	IFR	<ul style="list-style-type: none"> • Comprehensive set of financial statements Link to annual report • Link to the U.S. SEC's EDGAR system 	<ul style="list-style-type: none"> • Company size • Profitability • AIMR highly ranked companies • Ownership structure 	<ul style="list-style-type: none"> • Company size (+) • Profitability (+) • AIMR highly ranked companies (+) 	<ul style="list-style-type: none"> • This study provides a benchmark for IFR studies.
Debreceeny et al. (2002)	22 countries 660 large companies (30 companies from each country, with the highest market capitalisation, listed on the DowJones Global Index countries)	November 1998 – February 1999	2	IFR	<p>Two main dimensions of IFR (based on FASB 2000):</p> <ul style="list-style-type: none"> • Content (IFR-C) • Presentation (IFR-P) 	<ul style="list-style-type: none"> • Company size • Foreign listing • US listing • Technology level • Growth prospects • Company-specific market risk (beta) • Leverage • Disclosure Environment • Internet penetration 	<p>IFR-C:</p> <ul style="list-style-type: none"> • Company size (+) • US listing (+) • Growth prospects (-) <p>IFR-P:</p> <ul style="list-style-type: none"> • Company size (+) • Foreign listing (-) • US listing (+) • Technology level (+) • Disclosure Environment (+) 	<ul style="list-style-type: none"> • This study undertakes a comparative analysis of IFR of 22 countries. • Extends the work by Ashbaugh et al. (1999) by providing a theoretical framework. • The first study that examines the effects of environmental influences.

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Marston (2003)	Japan Top 99 Japanese listed companies	Early 1998 (and updated in May 2001)	11	Existence of websites and financial reporting in an English version	(Unweighted checklist) <ul style="list-style-type: none"> • Existence of a company's website • Financial information - 11 items 	<ul style="list-style-type: none"> • Company size • Profitability • Industry type • Foreign listing 	<ul style="list-style-type: none"> • Company size (+) • Industry type (+) (both results for existence of website only) 	<ul style="list-style-type: none"> • This study extends the literature on financial disclosure on the Internet, particularly in the Japanese context
Oyelere et al. (2003)	New Zealand 229 companies listed on New Zealand Stock Exchange (NZSE) (123 companies had websites)	End 1998	8	Determinants of IFR practices	<ul style="list-style-type: none"> • Financial and non-financial information published at companies' websites 	<ul style="list-style-type: none"> • Company size • Profitability • Liquidity • Internationalisation • Ownership diffusion • Industry type • Leverage 	<ul style="list-style-type: none"> • Company size (+) • Liquidity (+) • Ownership diffusion (-) • Industry type (+) (oil and gas, and forestry industries) 	<ul style="list-style-type: none"> • This study extends the literature on voluntary financial reporting on the Internet. • It uses a more comprehensive model of the determinants than previously employed in the IFR literature.

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Marston and Polei (2004)	Germany 50 companies (top 25 and last 25 DAX 100 companies by market capitalisation)	July 2000 and May 2003 – June 2003	53 (2000) 71 (2003)	The use of the Internet for the disclosure of financial and investor-related information	(Weighted checklist) • Content 29 items (2000) 45 items (2003) • Presentation 24 items (2000) 26 items (2003)	<ul style="list-style-type: none"> • Company size • Profitability • Ownership structure (% of free float) • Systematic risk (beta) • Foreign listing 	<p>Year 2000:</p> <ul style="list-style-type: none"> • Company size (+) • % Free float (+) <p>Year 2003:</p> <ul style="list-style-type: none"> • Company size (+) • Foreign listing (+) 	<ul style="list-style-type: none"> • Comprehensive checklist is used to evaluate the websites for the disclosure of financial and investor-related information (between two points of time)
Xiao et al. (2004)	China Largest 300 Chinese listed companies (in terms of total assets) (203 of the companies have a website)	August 2002	82	Voluntary adoption of Internet-based financial reporting and the extent of companies' disclosure	Disclosure Index: (Unweighted and Weighted Index) • Content – 58 items • Format (Presentation) - 24 items	<ul style="list-style-type: none"> • Ownership structure <ul style="list-style-type: none"> • Government agencies • State-owned corporations • Legal persons • Foreign investors • Independent Director • Big5 Auditor • IT industry <p>Control variables:</p> <ul style="list-style-type: none"> • Company size • Profitability • Leverage 	<ul style="list-style-type: none"> • Ownership structure <ul style="list-style-type: none"> • State-owned corporations (-) • Legal persons (+) • IT industry (+) • Company size (+) • Leverage (+) 	<ul style="list-style-type: none"> • This study includes both factors relevant to voluntary disclosure in the advanced market economies, and ones unique to the Chinese environment • Make use of both economics-based and institutional theories of disclosure

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
						<ul style="list-style-type: none"> • Leverage • Equity issuance • Fixed Assets 		
Hamid and Salleh (2005)	Malaysia 100 Malaysian index-linked counters (CIs) listed on KLSE	Not specified	14	The extent of IR information and communication via the web and factors influencing the level of IR information disclosure	<ul style="list-style-type: none"> • Disclosure index (the extent of IR disclosure i.e. IR scores - ISCORE) 	<ul style="list-style-type: none"> • Company size • Profitability • Industry type (classification) • Foreign ownership 	<ul style="list-style-type: none"> • Company size (+) • Industry type (+) 	<ul style="list-style-type: none"> • This study extends the literature on IR practices (in the Malaysian context) • Extends the study by Hamid (2005) by considering the explanatory variables of IR on the websites
Bonson and Escobar (2006)	Eastern Europe 266 companies (13 countries - Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia and Turkey)	Mid February 2005 – Mid March 2005	44	The use of the Internet for voluntary disclosure of information and factors explaining the attitude of companies toward using the Internet for IR	<ul style="list-style-type: none"> • Disclosure index (Transparency Index) 	<ul style="list-style-type: none"> • Company size • Industry type • Country (origin of company) • Audit firm size (Big4 Auditor) 	<ul style="list-style-type: none"> • Company size (+) • Industry type (+) • Audit firm size (Big4 Auditor) (+) 	<ul style="list-style-type: none"> • This study undertakes a comparative analysis of voluntary disclosure on the Internet of 13 countries • This study extends the literature on voluntary disclosure on the Internet (the transparency of Eastern European companies)

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Bollen et al. (2006)	6 countries: Australia, Belgium, France, the Netherlands, South Africa and the UK (Largest 270 companies based on market capitalisation)	December 2001 – October 2002	29	Quality and determinants of IR websites	(Unweighted and Weighted checklist) Quality of IR websites: <ul style="list-style-type: none"> • Annual and interim reports – 9 items • Press releases – 6 items • Presentation advantages – 7 items • Direct contact via email and mailing list – 4 items • Video/audio recordings and online participation in meetings – 3 items 	<ul style="list-style-type: none"> • Company size • Internationalisation level • Proportion of shares available to individual investors • Leverage • Company performance • Technology level (industry) • Company growth rate • Disclosure environment 	<ul style="list-style-type: none"> • Company size (+) • Internationalisation level (+) • Proportion of shares available to individual investors (+) • Disclosure environment (+) • Technology level (industry) (-) • Company growth rate (-) 	<ul style="list-style-type: none"> • A detailed assessment of the quality of IR websites, using both an unweighted and a weighted scoring index • Comparative study of IR websites of 6 countries and determinants of the quality of IR websites

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Celik et al. (2006)	Turkey 253 companies listed on the Istanbul Stock Exchange (ISE)	May 2004 and June 2004	162	Analyses the impact of firm characteristics on the web based reporting practices	Disclosure index: <ul style="list-style-type: none"> • Total disclosure • Financial disclosure – 87 items 	<ul style="list-style-type: none"> • Industry type • Technology level • Company size • Ownership diffusion • Internationalisation • Institutional investors • Financial performance • Leverage (risk) • Intangibles 	Financial and total disclosure: <ul style="list-style-type: none"> • Industry type (+) • Company size (+) • Internationalisation (+) Total disclosure: <ul style="list-style-type: none"> • Technology level (+) • Profitability (+) • Risk (+) 	<ul style="list-style-type: none"> • The effects of firm characteristics on financial and non-financial information disclosed on the web
Alvarez et al. (2008)	Spain 117 non-financial companies listed on the Madrid Stock Exchange	2005	44	Disclosure of voluntary and compulsory information on companies' websites	Disclosure index: (Unweighted Index) <ul style="list-style-type: none"> • Compulsory information – 22 items • Voluntary information – 22 items 	<ul style="list-style-type: none"> • Industry concentration • Company size • Industry type • Profitability • Leverage 	Compulsory: <ul style="list-style-type: none"> • Company size (+) • Industry type: Energy (+) Voluntary: <ul style="list-style-type: none"> • Industry concentration (+) • Company size (+) • Industry type: Energy (+) Transportation (-) 	<ul style="list-style-type: none"> • The first study to examine the effect of industrial concentration on the disclosure of information online

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Cormier et al. (2009)	Canada 189 non-financial companies listed on the Toronto Stock Exchange (TSX) 300 Index	2002	119	The use of the Web as a disclosure platform for corporate performance	Performance disclosure: <ul style="list-style-type: none"> • Business-related disclosure • Social-related disclosure • Financial-related disclosure 	<ul style="list-style-type: none"> • Capital market • Profitability • Leverage • Concentrated ownership • Systematic risk (Beta) • Reliance on capital markets • Product markets • Short-term and Long-term customer relations, • Monopolistic relations • Industry concentration ratio • Capital investment intensity • Public media • Firms' earnings valuation 	<ul style="list-style-type: none"> • Leverage (-) • Systematic risk (Beta) (+) • Reliance on capital markets (+) • Short-term customer relations (-) • Industry concentration ratio (-) • Capital investment intensity (+) • Market-to-book value (ratio) (+) • SEC registration (+) • Number of employees (+) 	<ul style="list-style-type: none"> • Adopted a comprehensive and qualitative view of performance disclosure, and considered both, financial and non-financial information • Proposed an integrated framework that maps the economics of corporate performance disclosure into firm value

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
						<ul style="list-style-type: none"> • Control variables <ul style="list-style-type: none"> - Company size - Market-to-book value - SEC registration - Employees 		
Al Arussi et al. (2009)	Malaysia 201 companies listed on the Bursa Malaysia's Main and Second Boards	2005	60	Examination of the relationship between the extent of financial and environmental disclosure on the internet and variables as in conventional reporting	Disclosure index <ul style="list-style-type: none"> • Financial disclosure – 24 items • Environmental disclosure – 36 items 	<ul style="list-style-type: none"> • CEO Ethnicity • Leverage • Technology level • CEO role duality • Profitability • Company size 	Financial and environmental: <ul style="list-style-type: none"> • CEO Ethnicity (+) • Technology level (+) • Company size (+) Financial: <ul style="list-style-type: none"> • CEO role duality (-) 	<ul style="list-style-type: none"> • The findings provide evidence which support the argument that financial and environmental disclosures via the Internet have similar determinants
Aly et al. (2010)	Egypt 62 companies of the top 100 most active-traded companies listed on the Egyptian Stock Exchange (EGX)	October 2005 – January 2006	90	To explore the association between key firm characteristics and the level of internet reporting	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Content – 59 items • Presentation – 31 items 	<ul style="list-style-type: none"> • Company size • Profitability • Leverage • Liquidity • Industry type • Auditor size • Foreign listing 	<ul style="list-style-type: none"> • Profitability (+) • Foreign listing (+) • Industry type: communication and financial services (+) 	<ul style="list-style-type: none"> • The first study (in Egypt) to examine factors affecting CIR • It contributes to the limited literature on CIR in developing countries

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Al-Htaybat (2011)	Jordan 272 companies listed on the Amman Stock Exchange (ASE) (Only 175 of the companies with accessible and active websites)	April 2010	70	Investigates the current status (2010) of online reporting	Disclosure index: (Unweighted Index) <ul style="list-style-type: none"> • Presentation – 20 items • Content of online annual report – 50 items 	<ul style="list-style-type: none"> • Company size • Industry type • Foreign ownership • Company performance • Online company familiarity 	<ul style="list-style-type: none"> • Company size (+) • Foreign ownership (+) • Company performance (+) • Online company familiarity (+) 	<ul style="list-style-type: none"> • The first study (in Jordan) to examine companies' characteristics • The first study to examine the 'online company familiarity' as a potential factor affecting COR
AbuGhazaleh et al. (2012)	Jordan 187 companies listed on the Amman Stock Exchange (ASE)	October 2007	70	The extent of web-based investor relations (WIR) – disclosure of IR related information Examine the determinants of WIR disclosures and activities	Disclosure index: (Weighted Index) <ul style="list-style-type: none"> • General – 13 items • Financial report – 45 items • Internet technology – 12 items 	<ul style="list-style-type: none"> • Company size • Profitability • Government ownership • Institutional ownership • Number of shareholders • Growth prospects • Company age (Listing age) • Industry type • Auditor type (Big-4) • Equity need 	<ul style="list-style-type: none"> • Company size (+) • Government ownership (+) • Institutional ownership (+) • Number of shareholders (+) • Listing age (-) • Industry type (financials) (+) 	Extends the literature on IFR in developing countries in general and in Jordan in particular, by examining the determinants of WIR activities in the Jordanian context using a multi-theoretical approach

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Alali and Romero (2012)	Argentina 84 companies listed on the Buenos Aires Stock Exchange (BCBA)	Mid-March 2009 – Mid-June 2009	53	Examine internet reporting practices (the extent and nature of information provided on the Internet)	Disclosure Index: (Unweighted Index) Financial and non-financial information – 53 items	<ul style="list-style-type: none"> • Company size • Profitability • Leverage • Growth • Audit firm size (Big4) • Ownership concentration • Industry effect 	<ul style="list-style-type: none"> • Company size (+) • Ownership concentration (+) • Industry effect (financial and insurance, services and mining industries) (+) 	<ul style="list-style-type: none"> • Extends the literature on voluntary disclosure of financial and non-financial information on the Internet in emerging markets
Boubaker et al. (2012)	France 529 French-listed companies (non-financial companies) with an active website	October 2005 - November 2005	101	Examine the determinants of web-based corporate reporting	Disclosure index: (Unweighted Index) Divided into: <ul style="list-style-type: none"> • Content – 69 items • Presentation – 32 items 	<ul style="list-style-type: none"> • Company size • Ownership dispersion (free float) • Company performance (profitability) • Cross listing • Audit firm size (Big-4) • Leverage • IT industry • Issuance (shares/ bonds in 2004 - 2005) 	<ul style="list-style-type: none"> • Company size (+) • Ownership dispersion (free float) (+) • Audit size (Big-4) (+) • IT industry (+) • Issuance (shares/ bonds in 2004 -2005) (+) 	<ul style="list-style-type: none"> • This is the first published study on the use of the Internet for corporate reporting in the French context • The use of a comprehensive set of items to measure the extent of web-based corporate reporting

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Bozcuk (2012)	Turkey 311 companies (all companies listed on the Istanbul Stock Exchange (ISE))	December 2009	12	Explores 1) the IFR disclosure presentation format (sophisticated web technologies) used in corporate websites and 2) firm- specific drivers	Disclosure index: (Unweighted Index) Presentation format – 12 items	<ul style="list-style-type: none"> • Company size • Profitability • Growth prospects • Ownership structure (% of free float) • Corporate governance environment • Industry effects 	<ul style="list-style-type: none"> • Company size (+) • Corporate governance environment (+) (Audit firm (Big-4) and companies under ISE-CG Index) 	<ul style="list-style-type: none"> • The first study in Turkey that addresses the variation in online presentation • Extends the literature on IFR
Nurunnabi and Hossain (2012)	Bangladesh 285 companies listed on the Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE) (83 companies with an active website)	December 2009	56	The extent of voluntary disclosure of IFR Examines the determinants of IFR	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Contents on financial statements – 14 items • Other financial information – 24 items • Presentation and user support – 18 items 	<ul style="list-style-type: none"> • Ownership diffusion • Audit committee • Control variables <ul style="list-style-type: none"> - Company age - Profitability - Industry type - Company size • Audit firms (Big-4) 	<ul style="list-style-type: none"> • Audit firms (Big-4) (+) • Ownership diffusion (non-family ownership) (+) 	<ul style="list-style-type: none"> • Provides insight into IFR in Bangladesh

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Ali Khan and Ismail (2014)	Malaysia 182 companies listed on the main board of Bursa Malaysia	2008	87	Examines the determinants of IFR amongst Malaysian listed companies	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Content – 67 items • Presentation – 20 items 	<ul style="list-style-type: none"> • Risk (Beta) • Technology • Company size • Leverage • Ownership structure • Listing period • Profitability • Liquidity • Audit firm • Listing status • Industry type 	<ul style="list-style-type: none"> • Company size (+) • Listing period (+) • Profit margin (-) • Return on equity (+) 	<ul style="list-style-type: none"> • Investigates the relationship between contingency factors, firm-specific characteristics and IFR
Dolinsek et al. (2014)	Slovenia 110 largest Slovenian companies (by number of employees, total sales revenue and total assets)	January 2012	50	Establish/determine the level of IFR of Slovenian companies	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Content – 32 items • Presentation – 18 items 	<ul style="list-style-type: none"> • Company size • Profitability • Company legal structure • Ownership concentration • Company age • Sector type 	<ul style="list-style-type: none"> • Company size (+) • Company legal structure (+) • Ownership concentration (-) • Sector type (financial) (+) 	<ul style="list-style-type: none"> • Provides insight into IFR of Slovenian companies.
Mendes-Da-Silva and Onusic (2014)	Brazil 314 non-financial companies listed on the Sao Paulo Stock	August 2011 -October 2011	40	Examines the associations between firm characteristics and voluntary disclosure on	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Financial – 17 items 	<ul style="list-style-type: none"> • Company size • Profitability • Leverage • Stock return • Firm age 	<ul style="list-style-type: none"> • Company size (+) • Firm age (-) • Governance (+) 	<ul style="list-style-type: none"> • Provides verification of the associations between firm characteristics and voluntary

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
	Exchange			corporate website	<ul style="list-style-type: none"> • Corporate Governance – 23 items 	<ul style="list-style-type: none"> • Control variables - Stock exchange liquidity - Voting power - Company market value - Governance trading segment 		disclosure corporate information on corporate website amongst Brazilian non-financial companies
Bowrin (2015)	Caribbean 65 companies listed on the Caribbean Stock Exchanges	November 2009	107	Examines the comprehensiveness and determinants of corporate internet reporting (CIR)	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Content – 69 items • Web site usability – 16 items • Timeliness – 8 items • Advanced CIR features – 14 items 	<ul style="list-style-type: none"> • Company size • Industry affiliation • Listing status • CEO role duality • Control variables - Public equity financing - Company age - Profitability 	<ul style="list-style-type: none"> • Company size (+) • Industry affiliation (+) only for usability • Listing status (+) • Public equity financing (-) only for content and timeliness 	<ul style="list-style-type: none"> • The first study to examine the comprehensiveness and determinants of internet reporting by publicly listed Caribbean companies

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist/ Disclosure Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Ahmed et al. (2017)	Egypt 172 non-financial companies listed on the Egyptian Stock Exchange (EGX)	December 2010 & December 2011	110	Provides a detailed descriptive account of CIR practices amongst companies listed on the EGX and investigates the factors that affect companies' decisions to engage in CIR	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Content – 69 items • User support - 29 items • Presentation – 12 items 	Company characteristics: <ul style="list-style-type: none"> • Company size • Profitability • Leverage • Liquidity • Auditor type • Foreign listing status • Industry type 	In 2010: <ul style="list-style-type: none"> • Company size (+) • Foreign listing (+) • Industry type (+) In 2011: <ul style="list-style-type: none"> • Company size (+) • Foreign listing (+) 	<ul style="list-style-type: none"> • Uses a comprehensive checklist of items to measure the extent of CIR • The study adds to the literature by exploring the factors that influence companies' online disclosure (at two points in time)

Appendix C Summary of Studies on Corporate Governance and WCR

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Abdelsalam and Street (2007)	UK 115 companies (Top quartile of companies by market capitalisation) listed on the London Stock Exchange (LSE)	February 2006	11	Examines CIR timeliness and the impact of corporate governance characteristics and firm-specific characteristics on the timeliness of CIR disclosure	Disclosure Index: (Unweighted Index) CIR timeliness index - 11 items	Corporate governance: <ul style="list-style-type: none"> • Board independence • CEO role duality • Board experience <ul style="list-style-type: none"> - Board cross-directorship - Average age of directors - Average length of service of executive directors - Average length of service of non-executive directors • Ownership structure <ul style="list-style-type: none"> - number of shareholders - number of major shareholders 	<ul style="list-style-type: none"> • Board independence (-) • CEO role duality (-) • Board experience <ul style="list-style-type: none"> - Board cross-directorship (-) - Average age of directors (+) - Average length of service of executive directors (-) 	<ul style="list-style-type: none"> • Comprehensive examination of CIR timeliness • The first study to provide a comprehensive examination of the association between corporate governance characteristics and CIR timeliness • Extends the emerging body of literature on the association between corporate governance characteristics and CIR timeliness

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
						<p>- proportion of block ownership</p> <p>Control variables:</p> <ul style="list-style-type: none"> • Technology industry • Sales concentration ratio • US listing • Audit fees paid • Leverage • Analysts following 		
Abdelsalam et al. (2007)	UK 110 companies (Top quartile of companies by market capitalisation) listed on the London Stock Exchange (LSE)	Mid-2005	143	CIR comprehensiveness (in terms of content and usability) and its determinants	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Content – 74 items • Usability – 69 items 	Corporate governance: <ul style="list-style-type: none"> • Ownership diffusion – major shareholding and director holding • Director independence • CEO role duality 	<ul style="list-style-type: none"> • Director independence (+) • Analyst following (+) • Director holding (-) • CEO role duality (-) 	<ul style="list-style-type: none"> • Provides insight into the comprehensiveness of disclosures and highlights the need for improvement in CIR • Extends the literature linking corporate governance measures to CIR

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
						Other factor: <ul style="list-style-type: none"> Analyst following Control variables: <ul style="list-style-type: none"> Company size Profitability Industry type High growth prospects/intangibles 		
Abdelsalam and El-Masry (2008)	Ireland 44 Irish-listed companies (the Irish Stock Exchange (ISE))	Not specified	13	Assessment of the timeliness of corporate internet reporting (CIR)	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> Timeliness of financial reporting Timeliness of posting annual report Timeliness of posting interim report Interim audit report lag Annual audit report lag 	Corporate governance: <ul style="list-style-type: none"> Board independence CEO role duality Ownership structure Control variables: <ul style="list-style-type: none"> Company size Audit fees Profitability 		<ul style="list-style-type: none"> One of the first comprehensive examinations of the important dimension of the timeliness CIR The findings reveal the timeliness dimension that needs improvement

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Ezat and El-Masry (2008)	Egypt Most active 50 companies listed on the Cairo and Alexandria Stock Exchange (CASE)	December 2006	11	Examines the key factors that affect the timeliness of corporate internet reporting (CIR)	Disclosure Index: (Unweighted Index) CIR Timeliness Index (i.e. TIDI consisting of 11 criteria)	Corporate Governance: <ul style="list-style-type: none"> • Ownership structure • Board composition • Role duality • Board size Company-specific characteristics: <ul style="list-style-type: none"> • Company size • Industry type • Profitability • Leverage • Liquidity • Issue of shares 	<ul style="list-style-type: none"> • Company size (+) • Industry type (+) • Liquidity (+) • Ownership structure (% of free float) (+) • Board composition (+) • Board size (+) 	<ul style="list-style-type: none"> • Examination of the potential effect of the corporate governance variables on CIR timeliness particularly in the Egyptian context
Kelton and Yang (2008)	US 284 non- financial companies traded on the NASDAQ National Market	October 2004 – November 2004	36	Examines the association between corporate governance variables and disclosure transparency (IFR)	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Presentation – 12 items • Content – 24 items 	Corporate governance: <ul style="list-style-type: none"> • Shareholder rights • Ownership structure - managerial ownership - block ownership 	<ul style="list-style-type: none"> • Shareholder rights (+) • Block ownership (-) • % of independent directors (+) • Audit committee (+) 	<ul style="list-style-type: none"> • The first study (in the US) to investigate the impact of corporate governance mechanisms on IFR (specific to the US context)

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
						<ul style="list-style-type: none"> • Board composition <ul style="list-style-type: none"> - % of independent directors - CEO duality • Audit committee <ul style="list-style-type: none"> - financial expertise - diligence (meeting frequency) Control variables: <ul style="list-style-type: none"> • Company size • Profitability • Company Growth • Equity issuance • Earnings and returns correlation • Auditor firm (Big-4) • Industry 	Additional analysis of company size (apart from control variable) <ul style="list-style-type: none"> • Company size (+) 	

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Homayoun and Rahman (2010)	Malaysia Top 100 companies listed on Bursa Malaysia (by market capitalisation)	January 2009 – April 2009	87	Investigates the factors influencing Internet Corporate Reporting (ICR) and disclosure	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Content – 61 items • Presentation – 26 items 	Corporate governance: <ul style="list-style-type: none"> • Board size • Board Independence • Role Duality Company-specific characteristics: <ul style="list-style-type: none"> • Company size • Profitability • Leverage • Liquidity • Industrial sector 	<ul style="list-style-type: none"> • Profitability (+) • Board size (+) 	<ul style="list-style-type: none"> • Extends the literature on internet corporate disclosure by examining the effects of corporate governance mechanisms on ICR
Yap et al. (2011)	Malaysia 254 companies listed on Bursa Malaysia	September 2008	270	Examines the association between corporate governance mechanisms, ownership structure, internet visibility and internet financial reporting (IFR)	Disclosure Index: (Unweighted Index) (based on FASB (2000)) and timeliness: <ul style="list-style-type: none"> • General attributes of website • IR and financial information • Timeliness 	Corporate governance: Board composition <ul style="list-style-type: none"> • Duality • Board independence • Board competency • Board size • Board diligence Audit committee <ul style="list-style-type: none"> • Audit committee independence 	<ul style="list-style-type: none"> • Board independence (+) • Board competency (+) • Board size (+) • Number of shareholders (+) 	<ul style="list-style-type: none"> • Uses a comprehensive checklist of items to measure the level of IFR • Extends the literature linking corporate governance variables to IFR • This study provides insights into the applicability of institutional theory- which

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
						<ul style="list-style-type: none"> • Audit committee financial expert • Audit committee activity <ul style="list-style-type: none"> - Frequency of meetings - Size of audit committee <p>Ownership structure</p> <ul style="list-style-type: none"> • Ownership concentration • Bumiputra shareholding • Number of shareholders <p>Other variable: Internet visibility</p>		has only limitedly been applied in the study of web-based reporting

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Sanchez et al. (2011)	Spain 117 non- financial companies listed on the Madrid Stock Market	December 2005	8	Voluntary disclosure of strategic information on the Internet and factors determining these practices	Disclosure Index: (Unweighted Index) Strategic information on the websites – 8 items	<p>Corporate governance:</p> <ul style="list-style-type: none"> • Board activity (meeting frequency) • Board size members) • Independence of the Board of Directors (% of outside Board members and CEO duality) • Blockholders <p>Company-specific characteristics:</p> <ul style="list-style-type: none"> • Company size • Industrial sector • Profitability • Leverage • Ownership diffusion 	<ul style="list-style-type: none"> • Board activity (-) • CEO duality (+) • Industrial sector (transportation industry) (-) • Leverage (+) 	<ul style="list-style-type: none"> • Extends the literature on corporate disclosure by examining the relationship between corporate governance variables and disclosure of strategic information • Supported by empirical evidence and voluntary disclosure theories framework – Agency Theory and Proprietary Costs Theory)

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Samaha and Abdallah (2012)	Egypt and UK 66 Egyptian listed companies (EGX 100) 100 UK listed companies (FTSE 100)	June 2010	72	Assess the developments in web- based corporate disclosures (WCD) in Egypt comparison with the practices adopted by the top UK companies (FTSE 100)	Disclosure Index: (Unweighted Index) • WCD content – 52 items • WCD presentation – 20 items	Corporate governance: • Blockholder ownership • Managerial ownership • Board independence • CEO-Chair duality • External auditor • Audit committee Company-specific characteristics: • Company size • Leverage • Liquidity • Growth prospects	• Managerial ownership (+) • Board independence (+) • CEO-Chair duality (+) • Company size (+) • Leverage (+)	• Extends the literature on WCD in an emerging market (particularly in the Egyptian context)
Samaha et al. (2012)	Egypt Top 100 companies listed on the Egyptian Exchange (EGX)	January 2009	87	Examine the effect of corporate governance characteristic on the propensity (adoption) and comprehensiveness (quality) of CIR practices	Disclosure Index: (Unweighted Index) • Propensity • Content – 67 items • Presentation – 20 items • Overall	Corporate governance: Ownership structure • Free float • Block ownership • Managerial ownership	CIR propensity: • Free float (+) • Managerial ownership (+) • Government ownership (+) CIR overall: • Free float (+)	• This study extends the relatively limited studies on effects of corporate governance characteristics on CIR in emerging markets

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
						<ul style="list-style-type: none"> • Government ownership Board structure <ul style="list-style-type: none"> • Board size • Board independence • CEO-chair duality Control variables: <ul style="list-style-type: none"> • Company size • Leverage • Profitability • Industry type • Audit firm type (Big4) • Internationality 	<ul style="list-style-type: none"> • Government ownership (-) • Board size (+) 	
Sanad and Al-Sartawi (2016)	Bahrain 38 companies listed in Bahrain Bourse	2014	89	Investigate the relationship between corporate governance and internet financial reporting (IFR) in Bahrain	Disclosure Index: (Unweighted Index) categories: <ul style="list-style-type: none"> • Content - 71 items • Presentation - 18 items 	Corporate governance: <ul style="list-style-type: none"> • CEO duality • Board size • Board independence • Director ownership • Ownership concentration 	<ul style="list-style-type: none"> • Board size (+) • Auditor type (+) 	<ul style="list-style-type: none"> • An examination of corporate governance determinants in relation to IFR amongst companies listed in Bahrain Bourse

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
						Control variables: <ul style="list-style-type: none"> • Firm size • Profitability • Leverage • Sector type • Auditor type 		
Kamalluarifin (2016)	Malaysia 95 top companies (by market capitalisation) listed on Bursa Malaysia	2012	10	Investigate the influence of corporate governance and firm characteristics on the timeliness of corporate internet reporting (CIR)	Disclosure Index: Timeliness checklist – 10 items	Corporate governance: <ul style="list-style-type: none"> • Board independence • Board experience • Role duality Company-specific characteristics: <ul style="list-style-type: none"> • Company size • Profitability • Leverage 	<ul style="list-style-type: none"> • Board independence (+) • Board experience (+) • Leverage (+) • Profitability (+) 	<ul style="list-style-type: none"> • An examination of corporate governance and firm characteristics determinants in relation to CIR timeliness amongst Malaysian listed companies
Turmin et al. (2016)	Malaysia 310 companies listed on Bursa Malaysia	December 2008 – February 2009	41	Investigate the factors influencing corporate internet reporting (CIR)	Disclosure Index: (Unweighted Index) <ul style="list-style-type: none"> • Accounting and Financial – 2 items • Investor Relations - 20 items 	Corporate governance: Ownership structure Board structure <ul style="list-style-type: none"> • Board independence 	<ul style="list-style-type: none"> • Company size (+) • Profitability (+) • Economic (activity) sector (Industrial Products) (-) 	<ul style="list-style-type: none"> • Extends the literature on internet corporate disclosure by examining the effects of corporate governance mechanisms on CIR

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
					<ul style="list-style-type: none"> • Forward Looking Data – 4 • Technological Advantage – 11 • User Support – 5 	Company-specific characteristics: <ul style="list-style-type: none"> • Company size • Liquidity • Profitability • Leverage • Economic (activity) sector • Auditor type 		
Yassin (2017)	Jordon 149 companies listed on the Amman Stock Exchange (ASE)	2012	30	Examines the determinants of IFR based on financial characteristics and corporate governance mechanism	Disclosure Index: (Unweighted Index) IFR index divided into two categories: <ul style="list-style-type: none"> • Content – 12 items • Format - 18 items 	Corporate governance: <ul style="list-style-type: none"> • Chairperson/CEO separation • Independent non-executive directors • Board size • Ownership concentration • Number of shareholders Financial: <ul style="list-style-type: none"> • Firm size • Profitability • Liquidity • Leverage • Market-to-book ratio 	<ul style="list-style-type: none"> • Firm size (+) • Liquidity (+) • Leverage (+) • Market-to-book ratio (-) • Chairperson/CEO separation (-) • Independent non-executive directors (-) • Ownership concentration (-) • Number of shareholders (+) 	<ul style="list-style-type: none"> • An explanatory comparative approach, using a range of financial and corporate governance determinants to predict IFR amongst Jordanian listed companies

Author(s)	Country(s) Sample	Date of Data Collection	No. of Checklist Items	Focus of study	Dependent Variables	Independent Variables	Significant Independent Variables	Contribution
Sandhu and Singh (2019)	India 140 companies listed on the Bombay Stock Exchange (BSE)	2015	136	Investigates the impact of board composition on the level of CIR practices	Disclosure Index: (Unweighted Index) CIR index divided into two categories: • Content – 83 items • Navigation - 53 items	Corporate governance: Board characteristics • Board size • Board independence • Board activity • Family members on the board • CEO duality • Audit committee size • Audit committee independence • Audit committee meeting Control variables: • Firm size • Profitability • Leverage • Industry type	<ul style="list-style-type: none"> • Firm size (+) • Leverage (-) • Board size (+) • Family members on the board (-) • Audit committee meeting (+) 	<ul style="list-style-type: none"> • Extends prior CIR research by demonstrating the effectiveness of corporate governance mechanisms in particular board characteristics in adopting CIR practices for Indian companies

No.	Company name	Sector	Web address
44	UMW Oil & Gas Co	Trading/Services	http://www.umw-oilgas.com
45	QL Resources	Consumer	http://www.ql.com.my/
46	Boustead Holdings	Trading/Services	http://www.boustead.com.my/
47	Cahaya Mata Sarawak	Industrial Products	http://www.cmsb.com.my
48	Berjaya Sports	Trading/Services	http://www.berjaya.com.my
49	KPJ Healthcare	Trading/Services	http://www.kpjhealth.com.my
50	Guinness Anchor	Consumer	http://www.gab.com.my
51	Press Metal	Industrial Products	http://www.pressmetal.com
52	Carlsberg Brewer	Consumer	http://www.carlsbergmalaysia.com.my
53	Oriental Holdings	Consumer	http://www.ohb.com.my
54	AEON Co (M) Bhd	Trading/Services	http://www.aeonretail.com.my
55	Mah Sing Group	Properties	http://www.mahsing.com.my
56	Magnum	Trading/Services	http://www.magnum.com.my
57	DRB-HICOM	Industrial Products	http://www.drb-hicom.com
58	IGB Corp	Properties	http://www.igbcorp.com
59	ECO World Dev	Properties	http://ecoworld.my/
60	Berjaya Land	Trading/Services	http://www.berjaya.com.my
61	Kossan Rubber Ind	Industrial Products	http://www.kossan.com/
62	Kulim Malaysia	Plantation	http://www.kulim.com.my
63	MSM Malaysia	Consumer	http://www.msmholdings.com
64	TIME DOTCOM	IPC	http://www.time.com.my
65	Top Glove Corp	Industrial Products	http://www.topglove.com.my
66	My EG Services	Trading/Services	http://www.myeg.com.my
67	GAS Malaysia	Trading/Services	http://www.gasmalaysia.com
68	Bintulu Port Hld	Trading/Services	http://www.bintuluport.com.my/
69	UOA Dev	Properties	http://www.uoadev.com.my
70	TSH Resources	Plantation	http://www.tsh.com.my
71	Berjaya Auto	Trading/Services	http://www.bauto.com.my
72	Dutch Lady Milk	Consumer	http://www.dutchlady.com.my
73	Shangri-La Hotel	Hotels	http://www.shangri-la.com
74	IJM Plantations	Plantation	http://www.ijm.com/plantation/
75	Yinson Hldgs	Trading/Services	http://www.yinson.com.my
76	Pos Malaysia	Trading/Services	http://www.pos.com.my
77	UEM Edgenta	Trading/Services	http://uemedgenta.com/
78	Eastern & Orient	Properties	http://www.easternandoriental.com
79	Inari Amertron	Technology	http://www.inari-amertron.com
80	Parkson Holdings	Trading/Services	http://www.lion.com.my/parkson
81	Sarawak Oil Palm	Plantation	http://www.sop.com.my/
82	Malaysian Resources Corp	Properties	http://www.mrcb.com.my/
83	Boustead Plantation	Plantation	http://www.bousteadplantations.com.my
84	Hap Seng Plantation	Plantation	http://www.hapsengplantations.com.my
85	KSL Holdings	Properties	http://www.ksl.my
86	Karex Bhd	Consumer	http://www.karex.com.my
87	Dayang Enterprise	Trading/Services	http://www.desb.net

No.	Company name	Sector	Web address
88	Tasek Corp Bhd	Industrial Products	http://www.tasekcement.com
89	GD Express Carrier	Trading/Services	http://www.gdexpress.com
90	Tan Chong Motor	Consumer	http://www.tanchonggroup.com/
91	7-Eleven Malaysia	Trading/Services	http://www.7eleven.com.my
92	Keck Seng (Malaysia) Bhd	Industrial Products	http://www.my.keckseng.com
93	Malaysia Marine	Trading/Services	http://www.mhb.com.my
94	Lingkarans Trans	IPC	http://www.litrak.com.my
95	Selangor Props	Properties	http://www.selangorproperties.com.my
96	Berjaya Corp Bhd	Trading/Services	http://www.berjaya.com.my
97	Media Prima Bhd	Trading/Services	http://www.mediaprima.com.my
98	Amway Malaysia	Trading/Services	http://www.amway.my/
99	Star Publication	Trading/Services	http://starmediagroup.my/
100	TA Global Bhd	Properties	http://www.taglobal.com.my/
101	Hume Industries	Industrial Products	http://www.humeind.com/
102	WCT Holdings	Construction	http://www.wct.com.my
103	Jaya Tiasa Hldg	Industrial Products	http://www.jayatiasa.net
104	Pharmaniaga Bhd	Trading/Services	http://www.pharmaniaga.com/
105	Coastal Contract	Industrial Products	http://www.coastalcontracts.com
106	Datasonic Group	Trading/Services	http://datasonic.com.my
107	Scientex Bhd	Industrial Products	http://www.scientex.com.my
108	Globetronics Tec	Technology	http://www.globetronics.com.my
109	Unisem (M) Bhd	Technology	http://www.unisemgroup.com
110	Tropicana Corp Bhd	Properties	http://www.tropicanacorp.com.my
111	Shell Refining	Industrial Products	http://src.shell.com/
112	Goldis Bhd	Consumer	http://www.goldis.com.my
113	TA ANN Hldgs Bhd	Industrial Products	http://www.taann.com.my
114	JCY International	Technology	http://www.jcyinternational.com
115	Hong Leong Inds	Consumer	http://www.hli.com.my
116	Supermax Corp	Industrial Products	http://www.supermax.com.my
117	Panasonic Manufacturing	Consumer	http://pmma.panasonic.com.my
118	TH Plantations	Plantation	http://www.thplantations.my
119	Malaysian Pac Inds	Technology	http://www.mpind.my
120	Kian Joo Can Fac	Industrial Products	http://www.KJCF.net
121	United Malacca	Plantation	http://www.unitedmalacca.com.my
122	Matrix Concepts	Properties	http://www.mchb.com.my
123	MBM Resources	Trading/Services	http://www.mbmr.com.my
124	Prestariang Bhd	Trading/Services	http://www.prestariang.com.my
125	Atlan Hldg Bhd	Trading/Services	http://www.atlan.com.my/
126	Scomi Energy Ser	Trading/Services	http://www.scomienergy.com.my
127	Malaysian Bulk	Trading/Services	http://www.maybulk.com.my
128	Far East Holdings	Plantation	http://www.fehb.com.my/
129	TDM Bhd	Plantation	http://www.tdmberhad.com.my/
130	NCB Holdings	Trading/Services	http://www.ncb.com.my/
131	MKH Bhd	Properties	http://www.mkhberhad.com

No.	Company name	Sector	Web address
132	Puncak Niaga	Construction	http://www.puncakniaga.com.my
133	AirAsia X Bhd	Trading/Services	http://www.airasiax.com
134	CB Industrial	Industrial Products	http://www.cbip.com.my
135	KNM Group Bhd	Industrial Products	http://www.knm-group.com
136	Kumpulan Europlus	Construction	http://www.keb.com.my
137	Taliworks Corp	Trading/Services	http://www.taliworks.com.my/
138	Berjaya Food Bhd	Trading/Services	http://www.berjaya.com/berjaya-food/
139	Hock Seng Lee	Construction	http://www.hsl.com.my
140	SEG International	Trading/Services	http://www.segi.edu.my
141	Padini Hldgs	Consumer	http://corporate.padini.com/
142	Wah Seong Corp	Industrial Products	http://www.wahseong.com
143	Muhibbah Engr	Construction	http://www.muhibbah.com
144	Berjaya Assets Berhad	Properties	http://www.berjaya.com/berjaya-assets/
145	Zhulian Corp Bhd	Consumer	http://www.zhulian.com
146	Perdana Petroleum	Trading/Services	http://www.perdana.my/
147	Ekovest Bhd	Construction	http://www.ekovest.com.my/
148	APM Automotive	Industrial Products	http://www.apm-automotive.com
149	Bonia Corp Bhd	Consumer	http://www.bonia.com
150	Kim Loong Resources	Plantation	http://www.kimloong.com.my/
151	V.S. Industry Bhd	Industrial Products	http://www.vs-i.com
152	Pestech Intl Bhd	Trading/Services	http://www.pestech.com.my/
153	Chin Teck Plants	Plantation	http://www.chinteck.com.my
154	Kretam Holdings	Plantation	http://www.kretam.com
155	DKSH Holdings Malaysia Bhd	Trading/Services	http://www.dksh.com.my
156	Iskandar Waterfront City Bhd	Properties	http://www.iwcity.com.my
157	NTPM Holdings	Consumer	http://www.ntpm.com.my
158	Mulpha Intl Bhd	Trading/Services	http://www.mulpha.com.my
159	Malayan Flour Mills	Consumer	http://www.mfm.com.my
160	Guocoland Malaysia	Properties	http://www.guocoland.com.my
161	LBS Bina Group	Properties	http://www.lbs.com.my
162	Rimbunan Sawit	Plantation	http://www.rsb.com.my/
163	Reach Energy Bhd	SPAC	http://www.reachenergy.com.my
164	TMC Life Science	Trading/Services	http://www.tmclife.com
165	ICON Offshore	Trading/Services	http://www.iconoffshore.com.my
166	Mudajaya Group	Construction	http://www.mudajaya.com
167	YNH Property Bhd	Properties	http://www.ynhb.com.my
168	BLD Plantation	Plantation	http://www.bldpb.com.my
169	Sumatec Resource	Trading/Services	http://www.sumatec.com
170	Vitrox Corp Bhd	Technology	http://www.vitrox.com/
171	BoilerMech	Industrial Products	http://www.boilermech.com
172	SKP Resources	Industrial Products	http://www.skpres.com
173	Old Town	Trading/Services	http://www.oldtown.com.my

No.	Company name	Sector	Web address
174	SHL Consolidated Bhd	Properties	http://www.shlcb.com.my/
175	Tambun	Properties	http://www.tambunindah.com
176	Asia File Bhd	Consumer	http://www.asia-file.com
177	Kumpulan Perangsang	Trading/Services	http://www.kps.com.my/
178	Hup Seng Industries Berhad	Consumer	http://www.hupseng.com
179	Petron Malaysia	Industrial Products	http://www.petron.com.my
180	Glomac Bhd	Properties	http://www.glomac.com.my
181	Scicom (MSC) Bhd	Trading/Services	http://www.scicom-intl.com
182	Hibiscs	Industrial Products	http://www.hibiscuspetroleum.com
183	Titijaya Land Bhd	Properties	http://www.titijaya.com.my
184	PJ Development	Properties	http://www.pjdh.com.my/
185	Malayan Utd Inds	Trading/Services	http://www.muiglobal.com
186	Barakah Offshore	Trading/Services	http://www.barakahpetroleum.com
187	Mitrajaya Hldg	Construction	http://www.mitrajaya.com.my
188	GHL Systems Bhd	Technology	http://www.ghl.com
189	Wellcall Hldgs	Industrial Products	http://wellcallholdings.com/
190	Suria Capital	Trading/Services	http://www.suriagroup.com.my/
191	Pintaras Jaya	Construction	http://www.pintaras.com.my
192	Paramount Corp	Properties	http://www.pcb.com.my
193	Perisai Petroleum	Trading/Services	http://www.perisai.biz/
194	YTL Land & Development	Properties	http://www.ytlland.com
195	Pelikan International	Consumer	http://www.pelikan.com/
196	Teo Seng Capital	Consumer	http://www.teoseng.com.my
197	Benalec	Construction	http://www.benalec.com.my
198	Sarawak Plant	Plantation	http://www.spbgroup.com.my
199	Naim Holdings	Properties	http://www.naim.com.my
200	Alam Maritim Res	Trading/Services	http://www.alam-maritim.com.my
201	Plenitude Bhd	Properties	http://www.plenitude.com.my
202	Latitude Tree Hldgs	Consumer	http://www.lattree.com
203	Evergreen Fibreboard	Industrial Products	http://www.evergreengroup.com.my
204	Deleum Berhad	Trading/Services	http://www.deleum.com
205	Eversendai Corp	Construction	http://www.eversendai.com
206	Favelle Favco Bhd	Industrial Products	http://www.favellefavco.com
207	Landmarks Berhad	Hotels	http://www.landmarks.com.my
208	FIMA Corp Bhd	Industrial Products	http://www.fimacorp.com
209	Sona Petroleum	SPAC	http://www.sonapetroleum.com
210	Tanah Makmur Bhd	Plantation	http://www.tanahmakmur.com
211	Kwantas Corp Bhd	Plantation	http://www.kwantas.com.my
212	Muda Holdings	Industrial Products	http://www.muda.com.my
213	Shin Yang Shipping Corporation Berhad	Trading/Services	http://www.syshippingcorp.com.my/
214	Crescendo Corp Bhd	Properties	http://www.crescendo.com.my/
215	UCHI Tech Bhd	Industrial Products	http://www.uchi.net
216	WTK Hldgs Bhd	Industrial Products	http://www.wtkholdings.com
217	Mega First Corp	Trading/Services	http://www.mega-first.com

No.	Company name	Sector	Web address
218	UZMA Bhd	Trading/Services	http://www.uzmagroup.com
219	Kumpulan FIMA	Trading/Services	http://www.fima.com.my/
220	Boustead Heavy Ind	Industrial Products	http://www.bhic.com.my
221	Hua Yang Bhd	Properties	http://www.huayang.com.my
222	Daiman Develop	Properties	http://www.daiman.com.my
223	CCM Duopharma	Consumer	http://www.duopharma.com.my
224	Wing Tai Malaysia	Properties	http://www.wingtai.com.my
225	Land & General	Properties	http://www.land-general.com
226	Protasco Bhd	Construction	http://www.protasco.com.my
227	Hunza Properties	Properties	http://www.hunzagroup.com
228	Southern Acids	Industrial Products	http://www.southernacids.com
229	Econpile Holdings	Construction	http://www.econpile.com
230	TAHPS Group Bhd	Properties	http://www.tahps.com.my
231	Amcorp Properties	Properties	http://www.amcorpproperties.com
232	Salcon Bhd	Trading/Services	http://www.salcon.com.my
233	P.I.E Industrial	Industrial Products	http://www.pieib.com.my
234	MK Land Hldgs	Properties	http://www.mkland.com.my
235	White Horse Bhd	Industrial Products	http://www.whitehorse.com.my
236	Daibochi Plastic	Industrial Products	http://www.daibochiplastic.com/
237	Ann Joo Resource	Industrial Products	http://www.annjoo.com.my
238	Power Root Bhd	Consumer	http://www.powerroot.com
239	Gabungan AQRS	Construction	http://www.gbg.com.my/
240	Chemical Co Malay	Industrial Products	http://www.ccemberhad.com
241	Sentoria Group	Properties	http://www.sentoria.com.my
242	Ho Hup Constr Co	Construction	http://www.hohupgroup.com.my/
243	Tiong Nam Logistics	Trading/Services	http://www.tiongnam.com
244	OCK Group Bhd	Trading/Services	http://www.ock.com.my
245	Sarawak Cable Bhd	Industrial Products	http://www.sarawakcable.com
246	Destini Bhd	Trading/Services	http://www.destinigroup.com
247	I - Bhd	Properties	http://www.i-bhd.com
248	Rapid Synergy	Industrial Products	http://www.rapidsynergy.com.my
249	Apex Healthcare	Consumer	http://www.apexpharmacy.com
250	DutaLand Bhd	Construction	http://www.dutaland.com.my/
251	Petra Energy	Trading/Services	http://www.petraenergy.com.my
252	Chin Well Holdings	Industrial Products	http://www.chinwell.com.my
253	Pantech Group	Trading/Services	http://www.pantech-group.com
254	Hai-O Enterprise	Trading/Services	http://www.hai-o.com.my
255	Can-One Bhd	Industrial Products	http://www.canone.com.my
256	Selangor Dredging	Properties	http://www.sdb.com.my
257	Perusahaan Sadur Timah Malaysia (Perstima) Berhad	Industrial Products	http://www.perstima.com.my
258	Pesona Metro	Construction	http://www.pesona.com.my

Appendix E List of Companies for Pilot Study

No.	Company name	Web address
1	Tenaga Nasional	http://www.tnb.com.my
2	Axiata Group	http://www.axiata.com
3	Sime Darby	http://www.simedarby.com
4	Maxis	http://www.maxis.com.my
5	IHH Healthcare	http://www.ihhhealthcare.com/
6	DIGI.COM	http://www.digi.com.my
7	Petronas Gas	http://www.petronasgas.com
8	Petronas Chemicals	http://www.petronaschemicals.com
9	MISC	http://www.misc.com.my/
10	Genting Bhd	http://www.genting.com
11	IOI Corp	http://www.ioigroup.com
12	Telekom	http://www.tm.com.my
13	Kuala Lumpur Kepong	http://www.klk.com.my
14	Genting Malaysia	http://www.gentingmalaysia.com
15	Petronas Dagangan	http://www.mymesra.com.my
16	BATM	http://www.batmalaysia.com
17	PPB Group	http://www.ppbgroup.com
18	YTL Corp	http://www.ytl.com.my/
19	Nestle (Msia)	http://www.nestle.com.my/
20	Astro (Msia)	http://www.astromalaysia.com.my
21	Sapura Kencana	http://www.sapurakencana.com
22	Westports Holdings	http://www.westportsmalaysia.com
23	UMW Holdings	http://www.umw.com.my
24	Gamuda	http://www.gamuda.com.my
25	Malaysia Airport	http://www.malaysiaairports.com.my
26	IJM Corp	http://www.ijm.com/
27	YTL Power Intl	http://www.ytlpowerinternational.com
28	Hap Seng Cons	http://www.hapseng.com.my
29	SP Setia	http://www.spsetia.com.my
30	Lafarge Malaysia	http://www.lafargemalayancement.com
31	IOI Properties Group	http://www.ioiproperties.com.my
32	Dialog Group	http://www.dialogasia.com
33	Felda Global Venture	http://www.feldaglobal.com/
34	Genting Plantation	http://www.gentingplantations.com
35	MMC Corp	http://www.mmc.com.my
36	Batu Kawan	http://www.bkawan.com.my
37	Hartalega Holdings	http://www.hartalega.com.my/
38	Fraser & Neave	http://www.fn.com.my
39	Air Asia Bhd	http://www.airasia.com
40	Sunway Bhd	http://www.sunway.com.my
41	UEM Sunrise	http://www.uemsunrise.com
42	Bumi Armada	http://www.bumiarmada.com
43	United Plantation	http://www.unitedplantations.com
44	UMW Oil & Gas Co	http://www.umw-oilgas.com
45	QL Resources	http://www.ql.com.my/
46	Boustead Holdings	http://www.boustead.com.my/
47	Cahaya Mata Sarawak	http://www.cmsb.com.my
48	Berjaya Sports	http://www.berjaya.com.my
49	KPJ Healthcare	http://www.kpjhealth.com.my
50	Guinness Anchor	http://www.gab.com.my

Appendix F Web-Based Investor Relations (WIR) Index

WIR Content		No. of companies	% of sample
Financial Information			
a. Accounting Reports			
1	Annual report of current year	256	99.2
2	Annual report of past years	251	97.3
3	Quarterly report of current year	247	95.7
4	Quarterly report of past years	247	95.7
5	Financial highlights/summary	134	51.9
6	Statement of financial position of current year (excerpt/summary)	56	21.7
7	Statement of financial position of past years (excerpt/summary)	58	22.5
8	Statement of profit or loss (income statement) of current year (excerpt/summary)	56	21.7
9	Statement of profit or loss (income statement) of past years (excerpt/summary)	58	22.5
10	Statement of changes in equity of current year (excerpt/summary)	20	7.8
11	Statement of changes in equity of past years (excerpt/summary)	21	8.1
12	Statement of cash flows of current year (excerpt/summary)	42	16.3
13	Statement of cash flows of past years (excerpt/summary)	43	16.7
14	Notes to current year financial statements excerpts/summary	2	0.8
15	Notes to past years financial statements excerpts/summary	3	1.2

WIR Content		No. of companies	% of sample
b. Shareholdings			
16	Number of share issue	87	33.7
17	Number of shareholders	57	22.1
18	Size of shareholdings	54	20.9
19	Classification of shareholdings	7	2.7
20	Percentage holdings of substantial shareholders	52	20.2
21	Percentage of foreign shareholdings	16	6.2
22	List/percentage of top 30 largest shareholders	67	26.0
23	Directors' shareholdings	29	11.2
c. Share and Dividend Information			
24	Stock name and code	181	70.2
25	Current share price	136	52.7
26	Day's range of share price	129	50.0
27	52 Weeks range of share price	97	37.6
28	Historical share price performance/stock trends (graph)	129	50.0
29	Historical share prices	91	35.3
30	Share price performance against the market and/or sector	29	11.2
31	Current share trading volumes	133	51.6
32	Historical share trading volumes	89	34.5
33	Dividend information	226	87.6

WIR Content		No. of companies	% of sample
Non-Financial Information			
a. Company Information			
Company Profile/Overview			
34	Business activities (nature of business)	258	100.0
35	Corporate history/milestones	240	93.0
36	Stock exchange listing(s)	252	97.7
37	Organisation chart	19	7.4
38	Corporate structure	171	66.3
39	Company vision	154	59.7
40	Company mission	140	54.3
41	Awards and recognitions	199	77.1
42	Industry/sector overview	98	38.0
Board and Senior Management			
43	Board of directors	243	94.2
44	Photos of directors	150	58.1
45	Profile/biographical details of directors	185	71.7
46	Speeches/messages by board member (including chairman statement)	62	24.0
47	Board of directors interviews	4	1.6

WIR Content		No. of companies	% of sample
48	Senior management team	120	46.5
49	Photos of senior management team	84	32.6
50	Profile/biographical details of senior management team	63	24.4
51	Speeches/messages by senior management team	49	19.0
52	Senior management team interviews	18	7.0
Other Information			
53	Head/corporate office contact details	257	99.6
54	Company secretary	141	54.7
55	Auditors	106	41.1
b. Shareholder Information			
56	Announcements made to stock exchange	253	98.1
57	Analyst briefings/results presentation slides	59	22.9
58	Transcript of analyst briefing/results presentation	1	0.4
59	Webcast (audio/video) of analyst briefing/results presentation	3	1.2
60	Other audio/video file of analyst briefing/results presentation	3	1.2
61	Notice (and agenda) of Annual General Meeting (AGM)	229	88.8
62	Proxy form	8	3.1
63	Minutes of AGM	46	17.8

WIR Content		No. of companies	% of sample
64	Voting results/outcome of AGM	227	88.0
65	Slides of AGM presentations	28	10.9
66	Transcript of Questions and Answers (Q&A) from AGM	3	1.2
67	Webcast (audio/video) of AGM	3	1.2
68	Slides of other investor relations presentations/meetings	24	9.3
69	Webcast (audio/video) of other investor relations presentations/meetings	1	0.4
70	Other audio/video file of other investor relations presentations/meetings	3	1.2
71	Circulars/notice to shareholders	221	85.7
72	News releases (press releases)	125	48.4
73	Newspaper coverage/clippings	148	57.4
74	Share registrar contact details	123	47.7
75	Investor relations contact person	144	55.8
76	Investor relations contact details	183	70.9
77	Investor relations/shareholders' communication policy	60	23.3
78	Analyst listings/coverage	69	26.7
79	Analyst report	46	17.8
80	Financial calendar	73	28.3
81	Corporate event calendar	7	2.7
82	Frequently Asked Questions (Investor's FAQs)	24	9.3

WIR Content		No. of companies	% of sample
83	Newsletter/fact sheet/updates	49	19.0
84	A glossary of standard/industry-specific financial terms	1	0.4
85	A glossary of industry-specific/other non-financial terms	6	2.3
c. Corporate Governance			
86	Code of business conduct	157	60.9
87	Statement of compliance with Corporate Governance Code	154	59.7
88	Board Charter	208	80.6
89	Members of audit committee	180	69.8
90	Members of nomination and/or remuneration committee	177	68.6
91	Terms of reference of audit committee	104	40.3
92	Terms of reference of nomination and/or remuneration committee	118	45.7
93	Overview of directors' remuneration policy	148	57.4
94	Overview of appointments to the board	170	65.9
95	Information on corporate risk management	130	50.4
96	Information on whistleblowing policy	125	48.4

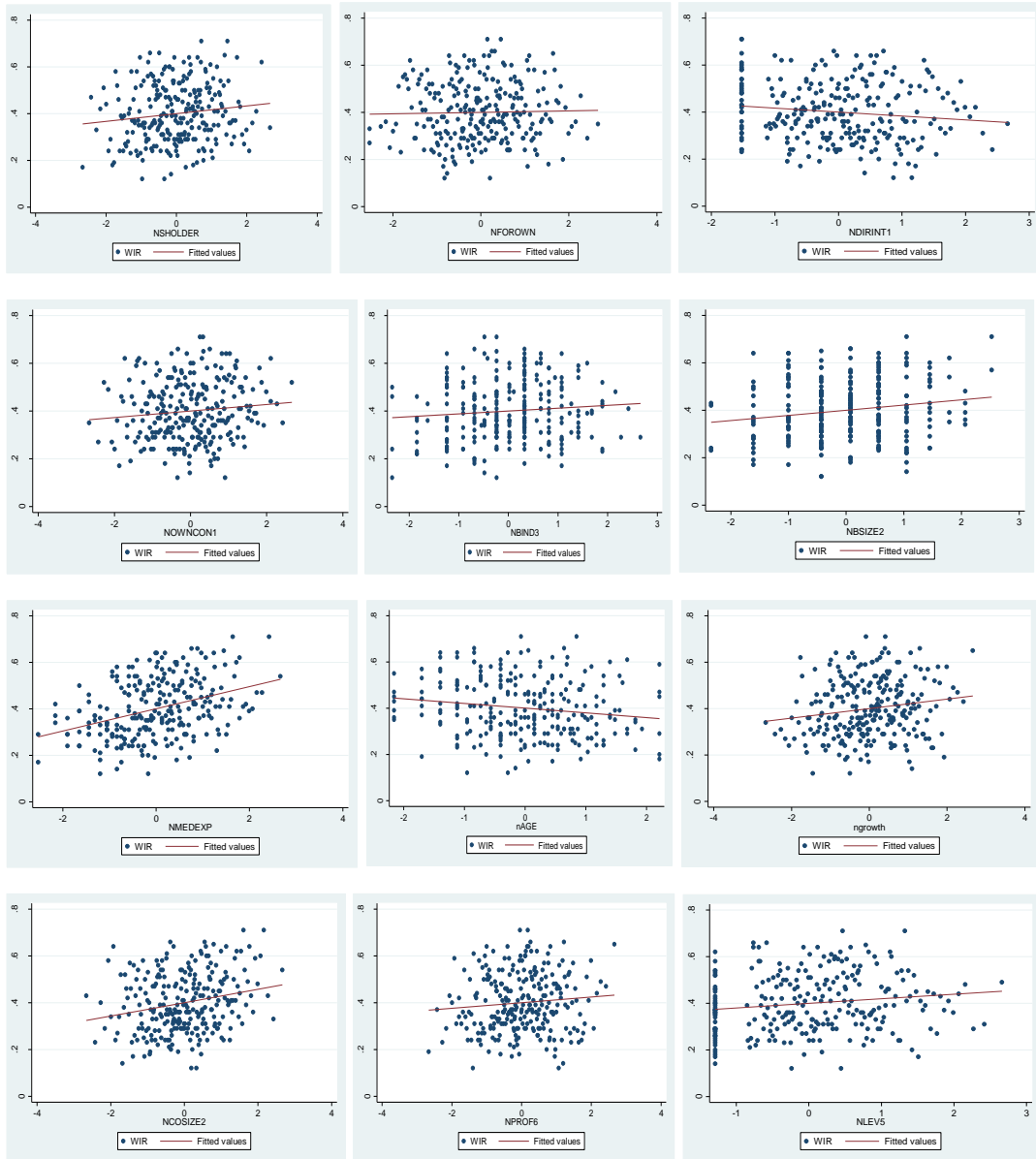
WIR Content		No. of companies	% of sample
d. Corporate Responsibility			
97	Statement of company policy on corporate responsibility	200	77.5
98	Summary of internal arrangements for implementing corporate responsibility policies	180	69.8
99	Statement of compliance with any CSR (social and/or environmental) guidelines/certifications	112	43.4
100	Highlights of corporate responsibility report	139	53.9
101	Images/photos of CSR activities	145	56.2
102	Audio/video file of sustainability/corporate responsibility	24	9.3
WIR Design		No. of companies	% of sample
Usability and Accessibility			
103	Website/webpage in English	258	100.0
104	Website/webpage in multiple language	19	7.4
105	Quick links	107	41.5
106	Font/text size option	3	1.2
107	Annual report file size indicator	118	45.7
108	Quarterly report file size indicator	145	56.2
109	Annual report in English version	257	99.6
110	Annual report in multiple language version	11	4.3
111	Annual report in PDF format	257	99.6

WIR Design		No. of companies	% of sample
112	Annual report in HTML format	46	17.8
113	Software download support	64	24.8
114	Download library/Investor kit/Investors' briefcase	30	11.6
115	Downloads of financial data in processable formats	34	13.2
116	Webcast synchronised with presentation slides	3	1.2
117	Email page/information	61	23.6
118	Printable pages	94	36.4
119	'Share' page/link (via social media share buttons/icons)	80	31.0
120	QR Code (Quick Response Code)	21	8.1
121	Bookmark webpage	16	6.2
122	Terms of use (legal disclaimer)	166	64.3
123	Privacy policy	158	61.2
124	Cookies	75	29.1
Navigation			
125	One click to investor relations section	237	91.9
126	Search engine (internal/on site)	99	38.4
127	Site map/table of content	136	52.7
128	Help site/section	5	1.9
129	Top/bottom page navigation	100	38.8

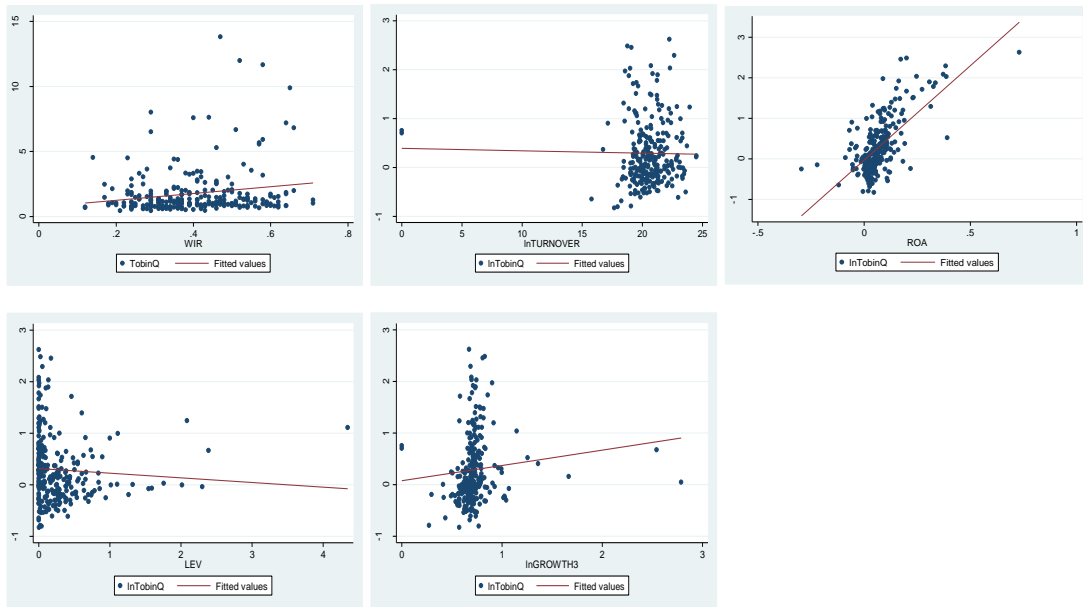
WIR Design		No. of companies	% of sample
130	Next and previous page option	103	39.9
131	Pull-down menu	212	82.2
132	Highlights (news/updates) on homepage	134	51.9
133	Filter options for announcements releases (made to stock exchange)	46	17.8
134	Links to relevant sections/pages of the website	218	84.5
135	Links (hyperlinks) to external websites (third-party sites)	153	59.3
WIR Timeliness		No. of companies	% of sample
136	Date information on the latest update of website	4	1.6
137	Date information on the latest update of investor relations information	256	99.2
138	Share price ticker bar/tape	41	15.9
139	Updated financial/IR calendar with Outlook (for upcoming events)	6	2.3
140	Email alerts	87	33.7
141	RSS content feeds	33	12.8
142	Option to unsubscribe from email alert	74	28.7

WIR Interactivity		No. of companies	% of sample
a. Interactive Analytical Tools			
143	Interactive stock chart	81	31.4
144	Investment calculator	57	22.1
b. Interactive Feedback Tools			
145	Online investor information order service (online request form)	31	12.0
146	Online request for IR meeting (online request form)	1	0.4
147	Online feedback option/comment section	118	45.7
c. Interactive Dialogue			
148	Email to investor relations (email address/email form)	176	68.2
	Social media channels		
149	Twitter	26	10.1
150	Facebook	48	18.6
151	YouTube	53	20.5
152	Blogs	3	1.2

Appendix G Linearity Assumption (The WIR Regression)



Appendix H Linearity Assumption (The Firm Value Regression)



LIST OF PUBLICATIONS

Indexed Journal

Halim, N. A., Basiruddin, R., and MohdAli, R. (2018). Web-Based Investor Relations Practices in Malaysian Listed Companies. *International Journal of Academic Research in Business and Social Sciences*. 8(9), 1346-1369. (Human Resource Management Academic Research Society) (Indexed by ERA)

Indexed Conference Proceedings

Halim, N. A., Basiruddin, R., and MohdAli, R. (2015). Measuring the Extent of Investor Relations on the Web: A Multi-Dimensional Approach. *Procedia Economics and Finance*. 100(31), 714-721. (ELSEVIER) (Indexed by SCOPUS)