“The relationship between corporate forward-looking disclosure and stock return volatility”

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THE RELATIONSHIP BETWEEN CORPORATE FORWARD-LOOKING DISCLOSURE AND STOCK RETURN VOLATILITY

Abstract

The study assesses corporate forward-looking disclosure by measuring four attributes, namely disclosure quantity, disclosure coverage, disclosure concentration and disclosure quality, through a sample of 34 listed firms in the Bahrain Bourse from 2014 to 2017. The study also investigates the relationship between these attributes and stock return volatility. Regression analysis has been employed with five different models to examine the relationship between the four attributes of corporate forward-looking disclosure and stock return volatility. The main finding of this study agrees with the results of Bravo et al. (2009) who found that the selection of a specific disclosure index could influence crucially the results of the analysis. In addition, stock return volatility has a statistically significant negative association with the three attributes of forward-looking disclosure, namely disclosure quantity, disclosure coverage and disclosure quality. In contrast, it has a non-significant association with the fourth attribute of forward-looking disclosure, disclosure concentration. This study provides a novel contribution to disclosure quality studies by being the first study to examine forward-looking disclosure quality attributes in the Kingdom of Bahrain.

Keywords forward-looking disclosure, stock return volatility, quality of disclosure, quantity of disclosure

JEL Classification M41, M10

INTRODUCTION

Disclosure novels have attracted a great interest in accounting literature. Theoretical arguments in literature (Lang & Lundholm, 1993; Cormier et al., 2010) suggested that the increase of corporate disclosure, in particular, disclosure quality, has a positive influence on capital markets in different ways, such as it reduces cost of capital, information asymmetry, and stock return volatility (SRV). However, questions on the measurement of disclosure quality and types of the information disclosed are still open (Bravo et al., 2009). Hussainey (2004) classified information disclosed in corporate annual report into "backward-looking information" and "forward-looking information". The first one refers to disclosures on the past financial results. "Forward-looking information is the class of information that refers to future forecasts and current plans that enable different users to assess a future corporate performance" (Aljifri & Hussainey, 2007, p. 882). "The role of corporate forward-looking disclosure in capital markets is today crucial since the economic environment is too dynamic to rely on historical in-

formation only" (Menicucci, 2013, p. 1667). Such disclosure enables users to predict company's future financial performance (Athanasakou & Hussainey, 2014). Bravo (2016, p. 123) stated that "forward-looking information has become crucial, since historical information could be insufficient for investors. Both organizations and researchers have stated the significance of forward-looking information in order to improve the forecasts about a company and ease decision-making processes in capital markets". Prior studies offered answers to the question why disclosure can affect SRV. For example, Bushee and Noe (2000) pointed out that more disclosure leads to reduced information asymmetries, consequently, decreases surprises about a firm and helps to make its stock price have low volatility. Easley and O'Hara (2004) showed that disclosure quality affects corporate stock volatility and its cost of capital.

The current study has two objectives. First, it measures a specific type of disclosure, forward-looking disclosure (FLD), by assessing four attributes, namely disclosure quantity, disclosure coverage, disclosure concentration and disclosure quality, for a sample of 34 Bahraini listed firms from 2014 to 2017. Second, it examines the effect of the four attributes of FLD on SRV.

The importance of this study builds on the unique demand for forward-looking information and its impact on critical matters such as SRV. Such importance has two streams. First, several studies documented the importance of future information for investors (AICPA, 1994; FASB, 2001; ICAEW, 2002). For example, AICPA (1994) identifies five categories of information that companies should disclose in their financial reports, such as "the management's analysis of financial and nonfinancial data; information on managers and stakeholders; forward-looking information; and finally company background". Other professional bodies (IASB, 2010; ICAEW, 2000, 2002) argued that different users of financial reports need future information that helps them to improve their expectations about business performance. International Accounting Standards Board (IASB) in its study titled "Management Commentary: A Framework for Presentation" pointed out that "forward-looking information might present an over-optimistic picture of the entity" (IASB, 2010, par. BC 39), the IASB points out that "management should disclose the assumptions used in providing forward-looking information" (IASB, 2010, p. 18). Beretta and Bozzolan (2008) argued that FLD can help in explaining future earnings, therefore, such disclosure is considered useful for users of companies' financial reports. The authors found a significant positive relationship between the quality of corporate disclosure and the analysts' forecasts for a sample of Italian firms.

Second stream reflects the association between FLD and SRV. Prior studies such as Hussainey and Walker (2009) provided evidence that the quality of disclosure can play a critical role to improve stock market decisions and to provide better expectations about future earnings. In the light of scarcity of studies on emerging markets, the current study has a high value, since it is based on one of these markets, namely the Kingdom of Bahrain as a member of the Gulf Cooperation Council (GCC).

This study contributes to the current literature on FLD by assessing such disclosure in Bahraini capital market. To the best of the authors' knowledge, this study is the first to assess such disclosure in the Bahraini capital market , as well as it investigates the effect of FLD on SRV. The results of our study imply practical implications for a number of interested parties, such as managers, investors and regulators.

The paper is organized as follows. Section 1 presents an overview on agency theory. Section 2 reviews the relevant literature and develops the hypotheses of the study. Section 3 presents background on Bahraini capital market. The research method is provided in section 4. Last section shows the empirical analysis of the study.

1. AGENCY THEORY (AS A THEORETICAL FRAMEWORK OF THE STUDY)

Different theories can be used to explain managers' motivations for voluntary disclosures. The present study adopted agency theory to explain the potential association between the four attributes of FLD and SRV. From an agency perspective (Core, 2001; Barako et al., 2006; Lundholm & Van Winkle, 2006), the corporate disclosure is a mechanism that can be used by managers to reduce the agency costs. Abraham and Cox (2007) pointed out that firms can show their interest to maximize the benefits of shareholders and investors, consequently, they confirm their accountability by reducing uncertainty and information asymmetry. At the same time, they convince those groups that they are acting in a good way (Watson et al., 2002). Companies can adopt an agency perspective by increasing voluntarily disclosure to reduce conflicts of interest between managers and investors (Jensen & Meckling, 1976). Moreover, a number of studies (Leuz & Verrecchia, 2000; Cormier et al., 2010) used SRV as a proxy for information asymmetry. A company can keep its stock price less volatile by reducing information asymmetry (Bushee & Noe, 2000). Prior studies (Bushee & Noe, 2000; Rajgopal & Venkatachalam, 2011) argued that the risk of a company and the cost of capital will rise with the increase of SRV. Easley and O'Hara (2004) found a significant relationship between corporate financial reporting quality, cost of capital and SRV.

In line with agency theory, Aljifri and Hussainey (2007) argued that FLD can help decision makers and reduce information asymmetry. Disclosure strategies and selecting specific information to be disclosed can be seen as a corporate mechanism that can reduce the uncertainty about a company and, therefore, can affect SRV. Schleicher and Walker (1999) pointed out that FLD can improve the prediction of future earnings, and the future corporate performance (Hussainey & Aal-Eisa, 2009).

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Corporate forward-looking disclosure studies

Although several academic (Aljifri & Hussainey, 2007; Menicucci, 2013; Bravo, 2016) and professional studies (AICPA, 1994; IASB, 2010; ICAEW, 2000, 2002) have documented the usefulness of FLD for different stakeholder groups that can use it to anticipate future corporate performance. There is no specific classifications for forward-looking information. For example, Aljifri and Hussainey (2007, p. 883) pointed out that "FLD is the class of information that refers to current plans and future forecasts that enable investors and other users to assess a company's future financial performance. Such FLD involves financial forecasts such as next years earnings, expected revenues, and anticipated cash flows". At the same time, Hussainey (2004) argued that it is difficult in many cases to classify different types of information into past and future. Some information related to past event may be useful for prediction. Based on previous discussion, the current study has adopted a broad definition for the concept "FLD" that includes different contents of disclosure, such as future events, decisions, analysts' forecasts, opportunities, and risks, therefore, different studies that include these contents are included in this section of the study as follows.

Prior studies empirically focus on FLD in annual reports, such as Abed et al. (2016) who used different methods to measure the FLD of 30 UK non-financial companies, Hussainey et al. (2003) examined the relationship between FLD and the earnings of the UK-listed firms. While, in China, Tan et al. (2015) found that the quality of FLD improves firms' investment decisions by using a sample of 926 listed firms from 2005 to 2011. In Spain, Bravo et al. (2009) used three different indices, namely quality index, scope index and quantity index, to measure the FLD through a sample of 36 listed firms. The authors found that the companies' ranks changed dramatically based on the index.

Moreover, in Italy, Beretta and Bozzolan (2008) reported a significant positive relationship between FLD and the quality of analysts' forecasts in a sample of 85 industrial listed firms. In the United Arab Emirates, Aljifri and Hussainey (2007) reported a significant positive association between FLD and leverage, in contrast, profitability has a negative association with FLD. In Bahrain, Mousa and Elamir (2018) investigated the factors that affect FLD. The authors showed that some firm characteristics, such as liquidity, sector type and profitability, have no significant relationship with FLD, while firm size and financial leverage have significant relationships with FLD.

2.2. The attributes of forward-looking disclosure (FLD)

Beretta and Bozzolan (2008, pp. 336-337) state that "the quantity and quality of voluntary disclosures are closely intertwined therefore quantity disclosure determines the quality". A number of studies (as Beattie et al., 2001, 2002a, 2002b, 2004) documented a relationship between quality and quantity of disclosures. For example, Beattie et al. (2004) considered explicitly the richness of disclosure content and its quantity. Beretta and Bozzolan (2008) suggested a number of disclosure quality characteristics such as the richness and coverage dimensions. Following Beretta and Bozzolan (2008), the current study adopted four attributes to measure FLD, namely quantity, coverage, concentration and quality.

2.2.1. Disclosure quantity attribute

The current study followed Bravo (2016, p. 125) who measured the quantity disclosure (*QUTD*) "as the amount of forward-looking information disclosed by companies taking into account only number of units (sentences), as a coding unit, with forward-looking information". Every sentence with forward-looking information is considered (Mousa & Elamir, 2018). The current study used "a simple index that only captures absolute quantity of disclosure" that was suggested by Bravo et al. (2009, p. 264), as shown in the following equation:

$$QUTD_i = \frac{F_i - Min_i}{Max_i - Min_i}, \quad (1)$$

where F_i is number of sentences with forward-looking information disclosed by company i. Max_i is the maximum number of sentences with forward-looking information disclosed by company i across the sample. Min_i is the minimum number of sentences with forward-looking information disclosed by company i across the sample (Bravo et al., 2009, p. 264).

2.2.2. Disclosure coverage attribute

Prior studies, such as Beattie et al. (2001, 2002a, 2002b, 2004), Beretta and Bozzolan (2008) reported that the quantity of corporate disclosure is not enough to help different stakeholder groups to make their decision, but also what and how a firm is disclosed. Beretta and Bozzolan (2008, p. 344) suggested the richness dimension as one character of disclosure quality. Beretta and Bozzolan (2008, p. 344) measured this dimension "by considering together the width and the depth of disclosure. Width depends on both the coverage of relevant topics (or subtopics) of the framework and the dispersion of disclosure across different topics (or subtopics)". The current study used the approach of Beretta and Bozzolan (2008, p. 344) to measure disclosure coverage (*COVD*), which "ranges from 0 to 1 and assumes its maximum value when a company makes disclosure over each of the topics (subtopics) considered".

$$COVD_i = \frac{1}{st}\sum_{j=1}^{st} INF_{ij}, \quad (2)$$

where $INF_{ij} = 1$: the annual report of company i discloses information about the subtopic, 0 otherwise" (Beretta & Bozzolan, 2008, p. 344; as quoted also by Bravo et al., 2009, p. 260).

2.2.3. Disclosure concentration attribute

At the same time, Beretta and Bozzolan (2008, p. 344) suggested concentration of disclosure (*COND*) as another dimension that should be considered in measuring disclosure quality. Beretta and Bozzolan (2008, p. 344) pointed out that *COND* "refers to how concentrated disclosed items are and corresponds to the standardized entropy index (*COND*)"

$$COND_i = \frac{-\sum_{j=1}^{st} P_{ij} \ln P_{ij}}{\ln st}, \quad (3)$$

where P_{ij} – number of information disclosed in sub-topic j divided by total disclosure of company i, st – number of topics (or sub-topics), ln is a natural logarithm" (Beretta & Bozzolan, 2008, p. 344; as quoted also by Bravo et al., 2009, p. 260).

2.2.4. Disclosure quality attribute

Disclosure quality (*DQA*) is measured as the average of the above three attributes (*QUTD*, *COVD* and *COND*) as:

$$DQA_i = \frac{QUTD_i + COVD_i + COND_i}{3}. \quad (4)$$

2.3. Corporate forward-looking disclosure and stock return volatility

The topic of SRV has attracted the attention of many stakeholder groups in financial markets, as well as researchers and professional associations. Question about whether corporate disclosure can mitigate SRV is still open (Rajgopal & Venkatachalam, 2011). "Disclosure helps to reduce information asymmetry and has an economically important impact on the corporation's stock returns at time of announcement" (Mohamed & Schwienbacher, 2016, p. 71). In India, Sahore and Verma (2017) reported that voluntary disclosure can help to reduce stock volatility using a sample of listed firms. Bushee and Noe (2000) and Jayshree (2012) showed similar findings.

The literature on the relationship between FLD and SRV lacks any provision of evidence. Such association remains unexplored. Several studies, such as Fama and French (1993, 1996), Coles et al. (1995), argued that SRV can be affected by disclosure level. For example, Hussainey and Mouselli (2010) provided evidence on disclosure quality that can be seen as a useful tool in explaining the variation of UK stock returns. Espinosa and Trombetta (2007) argued that corporate disclosure can help in reducing risks of stocks by increasing the demand on stock, consequently, increase stock liquidity, therefore, returns on the stock can be reduced. Bravo (2016) examined the effect of financial FLD on SRV for 73 USA firms. His results showed that FLD reduces SRV.

Based on the theoretical framework of the study, an agency perspective expects a significant association between SRV and FLD, since it is associated with improving the anticipation of future earnings and reducing information risk, consequently, FLD affects SRV. In the current study, FLD was measured by four attributes (QUTD, COVD, COND and DQA) therefore, the following hypotheses (*H*) are formulated:

H1: There is a significant relationship between QUTD and SRV.

H2: There is a significant relationship between COVD and SRV.

H3: There is a significant relationship between COND and SRV.

H4: There is a significant relationship between DQA and SRV.

3. WHY BAHRAINI CAPITAL MARKET

The Kingdom of Bahrain has a distinct geographical place between Asia and Europe. It is seen as the financial capital of the Middle East. In 2010, by Law No. 60, Bahrain Bourse[1] (BHB) was established as a shareholding company. Annual Trading Bulletin of BHB (2017, p. 11) reports that "market capitalization of the Bourse stood at BD 8.15 bn by the end of the year, increasing from BD 7.25 bn in 2016 by 12.39%. Bahraini investors accounted for 68.22% of the total value of traded shares in 2017, while the foreign investors accounted for 31.78%". Since BHB is one of the emerging markets, which seeks efficiently and effectively to achieve progress and to attract several foreign investors, it was selected to be the focus of the current study.

The Central Bank of Bahrain (CBB) has the legislative authority and supervision of BHB in 2002. CBB Capital Market Regulations in 2003 comprise a number of articles on corporate disclosure. For example, Article no. 5 states that "the firm should disclose information on different factors such as the nature of the business in which it is engaged or

1 Source of all information in this section is Bahrain Bourse (www.bahrainbourse.com.bh).

proposes to engage; the absence of profitable operations in recent periods; the financial position of the issuer and the possible absence of a liquid trading market for the issuer's securities", while, Article no. 7 in CBB (2003) requires "the firm to provide information on operating and financial reviews and prospects which to have a material effect on the issuer's financial conditions and results of operations in the same future period". It can be noted that previous articles require from companies to disclose information on future performance. A detailed history and description of the BHB is well beyond the scope of this study.

4. RESEARCH METHOD

4.1. Coding, reliability tests and analysis

This study has used two approaches for coding data analysis (manual method and QDA Miner software package). Content analysis categorizes a large amount of qualitative data in order to analyze them based on a specific schema of interest (Bowman, 1984). Applying content analysis approach requires a researcher to select the coding unit. Following several studies, such as Mousa and Elamir (2013, 2014, and 2018), and Linsley and Shrives (2006), the current study selected a sentence as the coding unit.

So, the first objective of the current study is to assess FLD by measuring four attributes (QUTD, COVD, COND and DQA) in annual reports for 34 listed firms in the BHB from 2014 to 2017. The FLD index suggested by Mousa and Elamir (2018) was used to analyze the total number of 136 annual reports. In this index, items were grouped into three main categories, namely "Opportunities and Risks", "Strategic information" and "Management analysis". The FLD index (see Appendix A) is an unweighted index, measuring items depends on the dummy variable, item takes one if the firm disclosed it, otherwise zero, in other words, all items have an equal importance (similar to a number of researchers such as Desoky & Mousa, 2012; Aly & Simon, 2008).

Following Linsley and Shrives (2006) and Weber (1990), all sentences that include FLD were considered, while other sentences without reference to FLD were ignored. Any repetition for a FLD is also considered. A preliminary test was conducted by two researchers independently to examine the homogeneity of coding rules among coders (inter-coder reliability) by coding 4 annual reports as an initial sample. A Scott's measure of inter-rater reliability was calculated with 0.83. Beattie et al. (2004) pointed out that "an estimate of 0.75 or more is considered a satisfactory level of inter-rater reliability for this interclass correlation coefficient". Moreover, QDA Miner software package is used for coding and large collections of documents.

As the current study used two approaches to analyze forward-looking information, namely QDA Miner software package analysis and the manual content analysis, Pearson and Spearman correlation analyses had been adopted to evaluate the linear correlation between the two approaches. Strong significant positive correlations at 1% level were found between the two types of analyses (Pearson correlation is 0.92 and Spearman correlation is 0.91). Such results provide evidence on the reliability of using the QDA Miner software package.

4.2. Definition of the study's variables

To investigate the relationship between FLD and *SRV* as the second aim of the study, multiple regression analyses were conducted. The dependent variable, *SRV* was measured similar to Bravo (2016). On the other hand, four independent variables were included (*QUTD*, *COVD*, *COND*, *DQA*) to reflect the attributes of FLD. Moreover, in line with several studies, seven control variables were selected to include in the regression models to control for potentially omitted relationships, namely leverage, foreign ownership, financial performance of the firm, the firm age, firm size and independence of the board. For example, concerning financial leverage (*LEV*), some studies report a positive association between *LEV* and *SRV* (Bushee & Noe, 2000; Rajgopal & Venkatachalam, 2011). Foreign ownership (*FOWN*), agency theory expects that *FOWN* has significant positive effects on voluntary disclosure general, which can help to reduce *SRV* (Bokpin & Isshaq, 2009). In line with Rajgopal and

Table 1. Definitions of the study's variables

Variables	Description	Measurement
		Dependent variable
SRV	Stock return volatility	Following Bravo (2016), "SRV is measured as one plus the natural logarithm of the standard deviation of daily stock returns".
		Independent variables
OUTD	Disclosure quantity	$QUTD_i = \frac{F_i - Min_i}{Max_i - Min_i}$, where F_i is the number of sentences with FLD. Max_i is the maximum number of sentences with FLD, while Min_i is the minimum number of sentences with FLD across the sample (Bravo et al., 2009, p. 264).
COVD	Disclosure coverage	$COVD_i = \frac{1}{st}\sum_{j=1}^{st} INF_{ij}$, where $INF_{ij} = 1$ if the annual report of company i discloses information about the subtopic, 0 otherwise (Beretta & Bozzolan, 2008, p. 344 as quoted also by Bravo et al., 2009, p. 260)
COND	Disclosure concentration	$COND_i = \frac{-\sum_{j=1}^{st} P_{ij} \ln P_{ij}}{\ln st}$, where P_{ij} – number of information disclosed in sub-topic j divided by total disclosure of company i, st – number of topics (or sub-topics), $\ln$ is a natural logarithm (Beretta & Bozzolan, 2008, p. 344, as quoted also by Bravo et al., 2009, p. 260).
DQA	Disclosure quality	DQA was measured as the average of the three measures as $DQA_i = \frac{STRQT_i + COVD_i + COND_i}{3}$.
		Control variables
LEV	Financial leverage	Total debt/total assets
FOWN	Foreign ownership	The percentage of foreign ownership
ROA	Firm performance	Net profit to total assets
AGE	The age of the firm	Number of years of corporate establishment
BoD	Independence of the board	The percentage of external members to total board members
FSIZE	Firm size	The natural logarithm of firm total assets
TYPE	Type of industry	Takes 1 if a firm belongs to banks and financial firms and zero if it is a nonfinancial firm (such as industrial, tourism and services firms)

Venkatachalam (2011) who argued that better financial performance helps to reduce *SRV*, old firms have experience that can help them to reduce *SRV* (Xu & Malkiel, 2003), thus, age of firm (*AGE*) was included as a control variable. Several studies (see, for example, Aljifri & Hussainey, 2007; Desoky & Mousa, 2013) provided evidence with mixed results on the impact of firm size (*FSIZE*), type of industry (*TYPE*) and independence of the board (*BoD*) on corporate disclosure. Therefore, it is expected that these variables affect the FLD, which may influence *SRV*. The following Table 1 summarizes variables of the study.

5. SAMPLE AND DATA COLLECTION

By the end of 2017, 43 companies were listed in the "Bahrain All Share Index" as the main index of the BHB. Table 2 shows the distribution of these firms by sectors. The current study applied a number of criteria to include any company in the sample: (1) companies had to be Bahraini firms that were listed on BHB from 2014 to 2017 continuously; (2) availability of complete annual reports. In addition, closed company sector and non-Bahraini companies are excluded. After applying previous

criteria, the final sample is 34 firms (which represents 85% of total listed firms) divided into 17 banks and financial firms and 17 non-financial firms (such as industrial, tourism and services firms) covering the period 2017–2014. Total observations in the current study is 136 firm-year observations. A list of Bahraini listed firms included in the current study (34 firms) is presented in Appendix C.

Table 2. Summarized firms' distribution by sectors

Sectors	Number of firms
Commercial bank	7
Investment	11
Services	10
Insurance	5
Industrial	3
Hotels and tourism	4
Closed company	2
Non-Bahraini companies	1
Total	43

6. RESULTS

6.1. Descriptive statistics

The results of the descriptive statistics for the current study are shown in Table 3, the four attributes of FLD, and seven control variables. *COND* has maximum mean (0.937) among four attributes of FLD, while *QUTD* has minimum mean (0.533). With respect to the standard deviation, *QUTD* has the highest variation (0.254) among them, while *COVD* (0.054) has the lowest variation.

6.2. Correlation analysis

6.2.1. The assessment of FLD across the sample of the study

To achieve the first objective of our study, FLD with four attributes was assessed through 34 listed firms in BHB (from 2014 to 2017), as shown in Table 4 and Tables B1, B2 and B3 in Appendix B. To investigate the effect of using the four attributes of FLD on the rank-orderings of companies, the ranking of companies (year by year) was presented in Tables 4, B1, B2 and B3 based on the values of each index. It can be noted that rank-orderings of companies differ among different indices. For example, in Table 4, AUB (United Ahli Bank) comes first in the ranking when using the quantity index (*QUTD*) and it comes second in other indices, while CPARK (non-financial company) comes number 24 when using *QUTD* index, number 30 in *COVD* index, number 34 in *COND* index and number 18 in *DQA* index.

In the same vein, in Table B1 (see Appendix B),, BANDER comes number 31 in the three indices (*QUTD*, *COND* and *DQA*) and it comes number 22 with *COVD*. CPARK comes 20 in the ranking when using both *QUTD* and *DQA* indices, while it comes 34 and 27 in the *COVD* and *COND* indices, respectively. In Table B2, in 2015, NBB (National

Table 3. Descriptive statistics

Variables	Mean	Standard deviation	Min	Max
SRV	–1.265	2.871	–14.075	3.287
QUTD	0.533	0.254	0	0.868
COVD	0.804	0.157	0.462	0.997
COND	0.937	0.054	0.823	0.998
DQA	0.708	0.121	0.492	0.916
LEV	0.452	0.354	0.043	2.013
FOWN	2.376	13.579	0.0002	92.43
ROA	3.451	7.421	–35.38	26.17
AGE	31.441	13.176	7	61
BoD	0.801	0.169	0.300	1
FSIZE	5.287	0.964	3.158	7.107

Note: Stock return volatility (*SRV*), disclosure quantity (*QUTD*), disclosure coverage (*COVD*), disclosure concentration (*COND*), and disclosure quality (*DQA*), financial leverage (*LEV*), foreign ownership (*FOWN*), firm performance (*ROA*), the age of the firm (*AGE*), independence of the board (*BoD*), firm size (*FSIZE*), type of industry (*TYPE*). Number of firms 34 covering the period from 2014 to 2017 (136 firm-year observations).

Table 4. Company ranking in year 2017

Type of company	Company code	QUTD	Rank	COVD	Rank	COND	Rank	DQA	Rank
Banks and financial firms	AUB	0.86770	1	0.87184	2	0.99407	2	0.91120	2
	SALAM	0.85674	5	0.86434	4	0.98814	4	0.90307	4
	BISB	0.86107	2	0.87068	3	0.98844	3	0.90673	3
	BBK	0.85677	4	0.86434	4	0.98755	5	0.90288	5
	KHCB	0.84997	6	0.82684	8	0.98694	6	0.88791	7
	NBB	0.85989	3	0.89343	1	0.99512	1	0.91614	1
	ITHMR	0.83801	9	0.83434	7	0.98622	7	0.88619	8
	BARKA	0.84802	7	0.83934	6	0.98563	8	0.89100	6
	ABC	0.84553	8	0.82184	9	0.97999	9	0.88245	9
	BCFC	0.80110	16	0.81934	10	0.97584	10	0.86543	10
	BMB	0.80554	14	0.80934	11	0.96917	13	0.86135	11
	ESTERAD	0.81457	11	0.76434	15	0.96457	15	0.84782	14
	GFH	0.80685	13	0.77184	13	0.96406	16	0.84758	15
	INOVEST	0.80534	15	0.75684	17	0.96347	17	0.84188	16
	INVCORP	0.81002	12	0.77184	13	0.97112	11	0.85099	13
	UGB	0.81574	10	0.77184	12	0.97112	14	0.85805	12
	UGIC	0.77760	17	0.78934	16	0.96908	12	0.83608	17
Non-financial firms (such as industrial, tourism and services firms)	BFM	0.37277	25	0.46250	34	0.84436	33	0.55987	30
	POLTRY	0.09285	33	0.62500	21	0.84720	32	0.52168	33
	ALBH	0.61167	18	0.53750	33	0.91557	19	0.68825	19
	FAMILY	0.15310	32	0.62500	21	0.85720	31	0.54510	32
	BANDER	0.24324	28	0.58750	28	0.91346	20	0.58140	27
	NHOTEL	0.45577	20	0.55000	31	0.89857	26	0.63478	23
	BHOTEL	0.19430	31	0.62500	21	0.85848	30	0.55926	31
	BASREC	0.33018	26	0.60000	25	0.86592	29	0.59870	26
	CINAMA	0.39830	22	0.56250	29	0.95923	18	0.64001	22
	DUTY	0.39402	23	0.55000	31	0.90133	22	0.61511	25
	SEEF	0.20758	29	0.60000	25	0.89811	27	0.56856	28
	TRAFCO	0.01539	34	0.62500	21	0.88848	28	0.50962	34
	Zain.BH	0.47905	19	0.63250	20	0.89879	24	0.67011	20
	BATELCO	0.45446	21	0.63750	19	0.89937	23	0.66370	21
	NASS	0.31035	27	0.66250	18	0.89879	24	0.62388	24
	BMMI	0.19901	30	0.60000	25	0.90563	21	0.56821	29
	CPARK	0.38220	24	0.55200	30	0.82300	34	0.70573	18

Note: Disclosure quantity (*QUTD*), disclosure coverage (*COVD*), disclosure concentration (*COND*), and disclosure quality (*DQA*). Total number of firms is 34 (17 bank and financial firms and 17 non-financial firms).

Bahrain Bank) comes first in all four indices. CINAMA comes at the bottom when using *COVD* index, while the same company comes 17 for *QUTD* and 18 for both *COND* and *DQA* indices.

In Table B3, AUB bank has score 1 for three indices (*QUTD*, *COND* and *DQA*), while it has score 2 in *COND*. However, some companies have a high score in one index and, at the same time, they have a low score in other indices. Finally, it should be noted that through the ranking in Table 4 and Tables B1, B2 and B3 (see Appendix B for more details), banks and financial firms ranked first in the rankings order within the four different indices of FLD (*QUTD*, *COVD*, *COND* and *DQA*). Our main finding of the study agrees with the results of Bravo et al. (2009) who found that the selection of a specific disclosure index influences crucially the results of the analysis.

6.2.2. Corporate forward-looking disclosure and stock return volatility

Correlation analysis

Table 5 presents the correlation coefficients of the variables of the current study. Most correlations are statistically significant. The highest correlation is 0.97, which exists between *QUTD* and

Table 5. Correlation matrix of the variables of the study

Variables	SRV	QUTD	COVD	COND	DQA	LEV	FOWN	ROA	AGE	BoD	FSIZE
SRV	1	–	–	–	–	–	–	–	–	–	–
QUTD	–0.17**	1	–	–	–	–	–	–	–	–	–
COVD	–0.11*	0.28***	1	–	–	–	–	–	–	–	–
COND	–0.04	0.82***	0.36***	1	–	–	–	–	–	–	–
DQA	–0.14**	0.97***	0.33***	0.86***	1	–	–	–	–	–	–
LEV	0.17**	0.03	0.35	0.05	0.02	1	–	–	–	–	–
FOWN	0.03	0.06	0.17**	0.11*	0.03	0.01	1	–	–	–	–
ROA	–0.15**	–.02	–0.26***	0.03	0.03	–0.49***	–0.21**	1	–	–	–
AGE	–0.05	–0.22**	–0.25***	–0.23**	–0.27***	–0.15*	0.21**	0.19**	1	–	–
BoD	–0.02	0.07	–0.03	0.07	0.08	–0.21**	0.20**	0.09	0.28**	1	–
FSIZE	0.18**	–0.05	0.62**	0.01	–0.04	–0.22**	–0.02	–0.03	0.02	0.07	1
TYPE	0.11*	–0.15**	0.83**	–0.05	0.16^	0.38***	0.17*	–0.30***	–0.08	–0.07	0.69***

Notes: 1. Stock return volatility (*SRV*), disclosure quantity (*QUTD*), disclosure quality (*DQA*), disclosure coverage (*COVD*) and disclosure concentration (*COND*), financial leverage (*LEV*), foreign ownership (*FOWN*), firm performance (*ROA*), the age of the firm (*AGE*), independence of the board (*bod*), firm size (*FSIZE*), type of industry (*TYPE*)]. 2. Number of firms 34 covering the period from 2014 to 2017 (136 firm-year observations). 3. * Correlation is significant at the 0.10 level (two-tailed); ** at the 0.05 level (two-tailed); *** correlation is significant at the 0.01 level (two-tailed).

DQA. The lowest correlation is –0.04, which exists between *SRV* and *COND*. *QUTD* has significant positive correlations at the 1% level with the three attributes of FLD (*COVD*, *COND* and *DQA*). Table 5 reveals that *SRV* has significant negative correlations (at the 5% level) with *QUTD* and *DQA* (–0.17**and –0.14**, respectively), while it has a significant correlation with *COVD* (at the 10% level). In contrast, *SRV* has no significant negative correlation with *COND* (at the 10% level). Concerning control variables, *LEV*, *ROA* and *FSIZE* have statistically significant associations with *SRV* at the 5% level, while *TYPE* has a significant association with *SRV* at the10% level. This result is inconsistent with Bravo (2016) who found that *LEV* has a negative association with *SRV* (–0.088), but not significant. Other control variables, such as *ROA* and *FSIZE*, are statistically significant with *SRV* similar to the findings that were reported by Aljifri and Hussainey (2007) and Bravo (2016).

Regression analysis

To test the hypotheses developed earlier in this study, different statistical models were performed to examine problems, such as multicollinearity and heteroscedasticity. Results revealed that these problems do not exist for all the models. To study the effect of the variables of the study on *SRV*, Table 6 presents five models, including four attributes of FLD and seven control variables. The following models were proposed, in which *SRV* is a function in all of these variables:

$$SRV = \begin{pmatrix} QUTD,\ COVD,\ COND,\ DQA, \\ LEV,\ FOWN,\ ROA,\ AGE, \\ BoD,\ FSIZE,\ TYPE \end{pmatrix}.$$

Model 1:

$$SRV = \alpha + \beta_1 LEV + \beta_2 FOWN + \beta_3 ROA + \\ + \beta_4 AGE + \beta_5 BoD + \beta_6 FSIZE + \beta_7 TYPE + \varepsilon.$$

Model 2:

$$SRV = \alpha + \beta_1 QUTD + \beta_2 LEV + \beta_3 FOWN + \\ + \beta_4 ROA + \beta_5 AGE + \beta_6 BoD + \beta_7 FSIZE + \\ + \beta_8 TYPE + \varepsilon.$$

Model 3:

$$SRV = \alpha + \beta_1 COVD + \beta_2 LEV + \beta_3 FOWN + \\ + \beta_4 ROA + \beta_5 AGE + \beta_6 BoD + \beta_7 FSIZE + \\ + \beta_8 TYPE + \varepsilon.$$

Model 4:

$$SRV = \alpha + \beta_1 COND + \beta_2 LEV + \beta_3 FOWN + \\ + \beta_4 ROA + \beta_5 AGE + \beta_6 BoD + \beta_7 FSIZE + \\ + \beta_8 TYPE + \varepsilon.$$

Model 5:

$$SRV = \alpha + \beta_1 DQA + \beta_2 LEV + \beta_3 FOWN + \\ + \beta_4 ROA + \beta_5 AGE + \beta_6 BoD + \beta_7 FSIZE + \\ + \beta_8 TYPE + \varepsilon.$$

Table 6. Regression analysis of the study

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
	Coefficients (Beta)	Coefficients (Beta)	Coefficients (Beta)	Coefficients (Beta)	Coefficients (Beta)
Intercept	–4.89	–4.583	–4.365	–1.075	3.912
STRQT	–	–0.879**	–	–	–
COVD	–	–	–0.893*	–	–
COND	–	–	–	–4.265	–
DQA	–	–	–	–	–1.600**
LEV	0.9923	1.078	1.013	1.090	1.062
FOWN	0.0077	0.0093	0.008	0.009	0.008
ROA	–0.0418	–0.0401	–0.042*	–0.0389	–0.040
AGE	–0.0055	–0.0101	–0.008	–0.038	–0.010
BoD	0.0747	0.2891*	0.154	–0.010	0.283*
FSIZE	0.7276	0.7551**	0.743**	0.316**	0.757**
TYPE	–0.8519	–0.983	–0.645	0.748	–0.977
R^2	18%	27%	26%	23%	24%
R^2_{adj}	9%	13%	14%	11%	12%
F value	1.29	2.88**	2.47**	1.97*	2.25**

Notes: 1. Stock return volatility (*SRV*), disclosure quantity (*QUTD*), disclosure quality (*DQA*), disclosure coverage (*COVD*) and disclosure concentration (*COND*), financial leverage (*LEV*), foreign ownership (*FOWN*), firm performance (*ROA*), age of the firm (*AGE*), independence of the board (*BoD*), firm size (*FSIZE*), type of industry (*TYPE*)]. 2. Number of firms 34 covering the period from 2014 to 2017 (136 firm-year observations). 3. * Significant at the 0.10 level (two-tailed); ** at the 0.05 level (two-tailed); *** correlation is significant at the 0.01 level (two-tailed).

Model 1 presents seven control variables for *SRV* based on previous literature, which have been considered. Model 1 is not statistically significant and it has R^2 (18%). Model 2 considers *QUTD* as an independent variable, and control variables. This model explains the effect of *QUTD* individually on *SRV* beyond the control variables. The R^2 in model 2 is 27%. There is an increase about 9% compared with model 1. *QUTD* variable has a negative association with *SRV* (significant at 5% level). Findings of model 2 reveal that the increase of *QUTD* results in an incremental reduction in *SRV*. These findings confirm theoretical perspective of agency theory, which expected that the more the increase of *QUTD*, the more the decrease in *SRV*, which reflects the impact of FLD on financial markets. Hence, hypothesis *H1* is accepted. This finding agrees with the results reported by Mousa and Elamir (2018).

In Table 6, model 3 includes *COVD* plus the control variables. The model is statistically significant (at the 5% level). The regression analysis shows how this variable, *COVD*, alone helps to explain the changes in *SRV* beyond that of the control variables. The explanatory power for this model is 26% with an increase 8% than model 1. In addition, the new independent variable, *COVD*, has a significant negative effect on SVR. This finding supports the hypothesis *H2*, consequently, it is accepted.

Concerning model 4, *COND* variable plus the control variables are considered. The model is significant at the 10% level. The regression analysis shows how *COND* helps to explain the changes in *SRV* beyond that of the control variables. The explanatory power for this model is increased by 5% than model 1. The variable *COND* has a non-significant negative effect on *SRV* (–4.265), hence, the hypothesis *H3* is rejected.

Model 5 includes DQA variable plus the control variables. Model 5 is statistically significant at the 5% level with the *F* value 2.25**. *DQA* is statistically significant at the 5% level. The R^2 for model 5 is 24%. In general, we can conclude that the

increase in *DQA* will decrease the *SRV*. A significant negative relationship (at 5% level) was reported between *DQA* and *SRV*. This finding supports the hypothesis *H4* that was developed earlier in the study. Our results are consistent with Espinosa and Trombetta (2007), Hussainey and Mouselli (2010), Bravo (2016) and Mohamed and Schwienbacher (2016) who found that the quality of FLD can reduce *SRV*.

Regardless control variables, results of all models (2, 3, 4 and 5) indicate that the four attributes of FLD, namely *OUTD*, *COND* and *DQA* have significant negative associations with *SRV*. Prior literature argues that investors gain a number of benefits from FLD, such that it can mitigate instability in share price (Bravo, 2016). In line with agency theory, FLD can be a useful tool to reduce information asymmetry or agency costs, which can play a unique role in having an impact on stakeholders' perception from the stakeholders' perspective. The overall results of the current study support that FLD has significant effects on capital markets and helps to reduce *SRV*. Our results are consistent with prior studies such as Sahore and Verma (2017) and Jayshree (2012) who argue that more disclosure of information helps investors to take reliable decisions and avoids confusion. Unclear information or no information often leads to wrong decisions.

CONCLUSION

The current study has measured FLD by considering four attributes (*QUTD*, *COVD*, *COND* and *DQA*) in annual reports for a sample of listed firms in BHB from 2014 to 2017. The study's results revealed that firms have different score in each index. Consequently, their rankings differ in the four indices related to FLD attributes, which supports the argument on using different disclosure indices impacts on the results of disclosure studies. Banks and financial firms obtained the first 17 positions in the four FLD indices in most cases. This is due to the vital role played by banks and financial firms in the economies of countries and the importance they represent to a large number of investors. Therefore, especially banks are subjected to strict control by governments and international legislation. Moreover, the current study investigated the relationship between the four attributes of FLD and *SRV*. The main findings of the regression analyses showed significant negative relationships between *SRV* and three attributes of FLD (namely *QUTD*, *COVD* and *DQA*), which supported the hypotheses *H1*, *H2* and *H4*, in contrast, *H3* was rejected, because, in model 4, the coefficient of the variable *COND* (–4.265) is not statistically significant with *SRV*.

This study contributes to the current literature on FLD by assessing FLD in Bahraini capital market. It implies practical implications for a number of interested parties, such as managers, investors and regulators. Since several studies have documented the importance of future information for different stakeholder groups, this study meets the unique demand for FLD and its impact on critical matters, such as *SRV* for these groups.

The study is not free of limitations. Firstly, the sample size is small, which can be increased in future research by including other countries. The results of the study cannot be generalized to other countries. Since each country has different economic status and regulations. Finally, the study has used content analysis, which is inevitably subjective. The current study suggests several trends for future studies. For example, studying the effect of other factors, such as economic and corporate governance factors, on FLD can be a promising avenue. Other directions are exploring the effect of legal environments and stockholders' rights on FLD.

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APPENDIX A

Table A1. Forward-looking disclosure index

Source: Mousa and Elamir (2018).

Opportunities and risks
1. Brief discussion and analysis of a company's financial position
2. Discussion of the company's liquidity position and about additional financing
3. Qualitative forecast of earnings
4. Discussion of overall risk management philosophy and policy
5. Discussion on risks and how risks are managed
6. Discussion on how hedges and derivates are used to manage risks
7. Information on risk management committee/information on risk management structure
8. Contingent gains and losses related to a company's rights and obligations, including legal proceedings
9. Nature and cause of risks
10. Nature and cause of opportunities
11. Effects of opportunities and risks on future core earnings and cash flows
12. Risks related to deal with data and information
13. Opportunities and risks resulting from participation in additional industries
14. Opportunities and risks resulting from changes in a segment's industry structure
15. Change in the intensity of competition and the bargaining power of customers or suppliers)
16. Opportunities and risks that result from concentrations (for example, concentrations in assets, customers, or suppliers)
17.Contingent gains and losses related to a company's rights and obligations, including legal proceedings
18. Risk of illiquidity
19. Control risk
20. Business risk
21. Currency risk
22. Market risk
23. Financial analysis such as return on assets; return on equity; net interest margin; cost-to-income ratio; earning per share; risk-weighted assets; debt-to-equity ratio; total liquid assets to assets ratio and dividend per share
Strategic information
1. Customer satisfaction
2. Product development
3. Efficiency and performance
4. Environmental factors/Environmental issues
5. Regulatory environment
6. Political environment
7. Economic environment
8. Social environment
9. Type of industry or activities/Industry environment
10. Business portfolio
11. Competitors
12. Customers
13. Suppliers
14. Identity past and future effect of key demographic trends
15. Planning on long term basis?
16. Life cycle
17. Performance measurement
18. Health and safety
Management analysis
1. Discussion on accounting policy and impact
2. Discussion on accounting standards and impact
3. Comparison of actual business performance over two years
4. Reasons for change in profitability
5. Identity the effect of unusual or nonrecurring transactions and events
6. Reasons for change in ratios
7. Reasons for change in liquidity and financial flexibility
8. Reasons for change in financial position
9. Reasons for change in innovation
10. Identity past and future effect of key economic trends
11. Identity past and future effect of key regulatory trends
12. Identity past and future effect of key social trends
13. Identity past and future effect of key technological trends
14. Identity past and future effect of key demographic trends
15. Graphical presentation of performance indicators

APPENDIX B

Table B1. Company ranking in year 2016

Type of company	Company code	QUTD	Rank	COVD	Rank	COND	Rank	DQA	Rank
Banks and financial firms	AUB	0.79210	1	0.77453	4	0.99847	1	0.91120	2
	SALAM	0.78818	3	0.75455	8	0.98946	8	0.90307	4
	BISB	0.78251	5	0.78453	2	0.99071	4	0.90673	3
	BBK	0.78521	4	0.76995	5	0.99648	2	0.90288	5
	KHCB	0.77141	7	0.76208	7	0.98971	7	0.88791	7
	NBB	0.79133	2	0.78709	1	0.99046	5	0.91614	1
	ITHMR	0.77945	6	0.77702	3	0.99625	3	0.88619	8
	BARKA	0.76946	8	0.76370	6	0.98995	6	0.89100	6
	ABC	0.76697	9	0.74451	9	0.98846	9	0.88245	9
	BCFC	0.74254	12	0.72954	10	0.98793	10	0.86543	10
	BMB	0.72698	16	0.72820	11	0.98652	15	0.86135	11
	ESTERAD	0.73601	14	0.63705	17	0.98654	13	0.84782	14
	GFH	0.72829	15	0.63704	17	0.98674	11	0.78402	16
	INOVEST	0.76678	10	0.72453	12	0.98651	17	0.82594	10
	INVCORP	0.76146	11	0.64953	15	0.98655	12	0.79918	14
	UGB	0.73718	13	0.67453	13	0.98653	14	0.79941	13
	UGIC	0.69905	17	0.65053	14	0.98653	16	0.77870	17
Non-financial firms (such as industrial, tourism and services firms)	BFM	0.30038	30	0.57500	24	0.89504	28	0.59014	30
	POLTRY	0.31290	28	0.57500	24	0.89504	28	0.59431	29
	ALBH	0.46124	23	0.57500	24	0.89504	28	0.64376	23
	FAMILY	0.34337	27	0.55000	29	0.96379	20	0.61905	27
	BANDER	0.19113	31	0.61250	22	0.87303	31	0.55889	31
	NHOTEL	0.54289	21	0.53750	31	0.91557	24	0.66532	22
	BHOTEL	0.53753	22	0.53750	31	0.98647	18	0.68717	21
	BASREC	0.17548	33	0.63750	16	0.83936	34	0.55078	32
	CINAMA	0.13690	34	0.62500	19	0.85848	33	0.54012	34
	DUTY	0.17830	32	0.60000	23	0.86592	32	0.54807	33
	SEEF	0.35918	25	0.56250	28	0.95923	21	0.62697	24
	TRAFCO	0.35596	26	0.53750	31	0.98647	18	0.62664	25
	Zain.BH	0.68513	18	0.62255	21	0.91559	24	0.74108	19
	BATELCO	0.68172	19	0.62500	19	0.93992	22	0.74888	18
	NASS	0.40903	24	0.55000	29	0.90133	26	0.62012	26
	BMMI	0.30095	29	0.57500	24	0.93919	23	0.60504	28
	CPARK	0.67634	20	0.50100	34	0.90100	27	0.69278	20

Note: Disclosure quantity (*QUTD*), disclosure coverage (*COVD*), disclosure concentration (*COND*), and disclosure quality (*DQA*). Total number of firms is 34 (17 banks and financial firms and 17 non-financial firms).

Table B2. Company ranking in year 2015

Type of company	Company code	QUTD	Rank	COVD	Rank	COND	Rank	DQA	Rank
Banks and financial firms	AUB	0.76432	3	0.69487	2	0.98604	2	0.85503	2
	SALAM	0.75429	6	0.67984	5	0.97524	7	0.84406	6
	BISB	0.76620	2	0.69484	2	0.97504	8	0.85258	3
	BBK	0.75432	5	0.68484	4	0.97404	9	0.85054	5
	KHCB	0.73752	7	0.67484	8	0.97626	5	0.84105	7
	NBB	0.77440	1	0.69734	1	0.98959	1	0.85627	1
	ITHMR	0.75560	4	0.67734	6	0.97724	3	0.85091	4
	BARKA	0.73557	8	0.67484	8	0.97705	4	0.84104	8
	ABC	0.73308	9	0.67734	6	0.97573	6	0.83332	9
	BCFC	0.68865	16	0.66634	10	0.97190	10	0.82000	11
	BMB	0.69309	15	0.65984	11	0.96735	13	0.81390	12
	ESTERAD	0.70212	14	0.64734	14	0.96660	16	0.78652	15
	GFH	0.70440	12	0.65484	12	0.96735	14	0.78402	16
	INOVEST	0.73289	10	0.65484	12	0.96649	17	0.82594	10
	INVCORP	0.72757	11	0.62984	20	0.96822	11	0.79918	14
	UGB	0.70329	13	0.62984	20	0.96735	12	0.79941	13
	UGIC	0.66516	18	0.63784	16	0.96710	15	0.76203	17
Non-financial firms (such as industrial, tourism and services firms)	BFM	0.10853	32	0.62500	23	0.84720	29	0.52691	32
	POLTRY	0.38641	21	0.55000	33	0.90133	22	0.61250	24
	ALBH	0.20276	28	0.62500	23	0.84720	29	0.55832	29
	FAMILY	0.33840	23	0.57500	31	0.89504	26	0.60281	26
	BANDER	0.15689	31	0.62500	23	0.84720	29	0.54286	31
	NHOTEL	0.34107	22	0.58750	30	0.91346	20	0.61401	23
	BHOTEL	0.16497	30	0.63750	17	0.83937	32	0.54728	30
	BASREC	0.43650	20	0.57500	31	0.93919	19	0.65023	20
	CINAMA	0.66766	17	0.53750	34	0.96647	18	0.72388	18
	DUTY	0.02492	33	0.63750	17	0.83937	32	0.50059	33
	SEEF	0.23496	27	0.60000	27	0.90563	21	0.58020	27
	TRAFCO	3.3E-09	34	0.63750	17	0.83937	32	0.49229	34
	ZAIN.BH	0.33772	24	0.62510	22	0.89848	23	0.62043	21
	BATELCO	0.33395	25	0.62500	23	0.89848	23	0.61914	22
	NASS	0.32598	26	0.64560	15	0.86592	28	0.61250	25
	BMMI	0.19267	29	0.60000	27	0.89811	25	0.56359	28
	CPARK	0.60000	19	0.58800	29	0.87500	27	0.68766	19

Note: Disclosure quantity (*QUTD*), disclosure coverage (*COVD*), disclosure concentration (*COND*), and disclosure quality (*DQA*). Total number of firms is 34 (17 banks and financial firms and 17 non-financial firms).

Table B3. Company ranking in year 2014

Type of company	Company code	QUTD	Rank	COVD	Rank	COND	Rank	DQA	Rank
Banks and financial firms	AUB	0.69819	1	0.73115	1	0.99522	2	0.80819	1
	SALAM	0.69101	4	0.72976	3	0.99194	5	0.80424	3
	BISB	0.69449	2	0.72815	4	0.99015	7	0.80426	2
	BBK	0.69119	3	0.72765	5	0.99100	6	0.80328	5
	KHCB	0.68339	5	0.72615	6	0.98773	9	0.79909	7
	NBB	0.68331	6	0.73015	2	0.99715	1	0.80354	4
	ITHMR	0.68143	8	0.72265	7	0.99194	4	0.79867	8
	BARKA	0.68144	7	0.72265	7	0.99473	3	0.79961	6
	ABC	0.67896	9	0.72265	7	0.98804	8	0.79655	9
	BCFC	0.67452	10	0.72265	7	0.98202	12	0.79306	10
	BMB	0.66896	11	0.67269	11	0.98054	13	0.77405	11
	ESTERAD	0.64799	17	0.62277	21	0.98657	10	0.75239	15
	GFH	0.66025	15	0.63516	14	0.97046	17	0.75530	14
	INOVEST	0.66876	12	0.63513	14	0.97133	15	0.75841	13
	INVCORP	0.66344	14	0.59762	29	0.96711	18	0.74273	16
	UGB	0.64916	16	0.66010	12	0.97048	16	0.75993	12
	UGIC	0.61103	18	0.63865	13	0.97346	14	0.74105	17
Non-financial firms (such as industrial, tourism and services firms)	BFM	0.14630	31	0.61250	23	0.87303	26	0.54394	31
	POLTRY	0.17961	30	0.60000	28	0.86592	29	0.54851	30
	ALBH	0.27432	26	0.61250	23	0.87303	26	0.58661	26
	FAMILY	0.66634	13	0.50000	34	0.91251	23	0.69295	20
	BANDER	0.19396	29	0.61250	23	0.87302	26	0.55983	28
	NHOTEL	0.44050	22	0.56250	31	0.94702	21	0.65000	23
	BHOTEL	0.19854	27	0.62500	16	0.86520	30	0.56291	27
	BASREC	0.19590	28	0.62500	16	0.85848	34	0.55979	29
	CINAMA	0.12628	32	0.62500	16	0.86529	30	0.53883	32
	DUTY	0.11882	33	0.62500	16	0.86520	30	0.53634	33
	SEEF	0.32382	25	0.57500	30	0.93919	22	0.61267	25
	TRAFCO	0.09816	34	0.62500	16	0.86520	30	0.52945	34
	ZAIN.BH	0.43309	23	0.61198	27	0.95647	20	0.66718	22
	BATELCO	0.49159	21	0.61199	26	0.98647	11	0.69668	19
	NASS	0.58400	20	0.61640	22	0.91251	23	0.70430	18
	BMMI	0.38620	24	0.56250	31	0.95923	19	0.63597	24
	CPARK	0.58998	19	0.54100	33	0.89200	25	0.67432	21

Note: Disclosure quantity (*QUTD*), disclosure coverage (*COVD*), disclosure concentration (*COND*), and disclosure quality (*DQA*). Total number of firms is 34 (17 banks and financial firms and 17 non-financial firms).

APPENDIX C

Table C1. List of firms included in the sample of the study

Type of firms	Firm name	Firm code
Banks and financial firms	Ahli United Bank B.S.C.	AUB
	Al Salam Bank B.S.C.	SALAM
	Bahrain Islamic Bank B.S.C.	BISB
	BBK B.S.C.	BBK
	Khaleeji Commercial Bank B.S.C.	KHCB
	National Bank of Bahrain B.S.C.	NBB
	Ithmaar Bank B.S.C.	ITHMR
	Albaraka Banking Group B.S.C.	BARKA
	Arab Banking Corporation B.S.C.	ABC
	Bahrain Commercial Facilities Company B.S.C.	BCFC
	Bahrain Middle East Bank B.S.C.	BMB
	Esterad Investment Company B.S.C.	ESTERAD
	GFH Financial Group B.S.C.	GFH
	Inovest B.S.C.	INOVEST
	Investcorp B.S.C.	INVCORP
	United Gulf Bank B.S.C.	UGB
	United Gulf Investment Corporation B.S.C.	UGIC
Non-financial firms (such as industrial, tourism and services firms)	Bahrain Flour Mills	BFM
	Delmon Poultry	POLTRY
	Aluminum Bahrain	ALBH
	Bahrain Family Leisure	FAMILY
	Banader Hotels Company BSC	BANADER
	National Hotels Company	NHOTEL
	Gulf Hotel Group B.S.C	BHOTEL
	Bahrain Ship Repairing & Engineering Company B.S.C.	BASREC
	The Bahrain Cinema Company B.S.C.	CINAMA
	Bahrain Duty Free Shop Complex B.S.C.	DUTY
	Seef Properties B.S.C.	SEEF
	TRAFCO Group B.S.C.	TRAFCO
	Zain Bahrain B.S.C.	Zain.BH
	Bahrain Telecommunications Company B.S.C.	BATELCO
	Nass Corporation B.S.C.	NASS
	BMMI B.S.C.	BMMI
	Bahrain Car Park Company B.S.C.	CPARK

Note: Total number of firms is 34 (17 banks and financial firms and 17 non-financial services).