

THE IMPACT OF BOARD CHARACTERISTICS ON EARNINGS MANAGEMENT

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Abstract

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This study explores the effect of the board of directors' characteristics on real earnings management in Jordanian non-financial companies listed on the Amman Stock Exchange. The sample size is 131 companies during the period of 2015–2017. The study uses a board of directors' size, board members' independence, board members' financial experience, number of board meetings, membership in more than one board, and the ownership of board members of company shares to represent the board of directors' characteristics. Real earnings management is measured using the Roychowdhury model (2006). A multiple regression analysis (panel data) is used to investigate the effect of the board of directors' characteristics on real earnings management. The study found a negative and statistically significant impact for both: board members' independence and board members' financial experience on earnings management through real activities against the previous studies' findings, this research measured the impact of real activities. On the other hand, the study did not find any statistically significant effect of the additional earnings management variables through actual activities.

Keywords: Board Characteristics, Earnings Management, Real Activities, Amman Stock Exchange

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1. INTRODUCTION

After several recent financial scandals, such as Worldcom, Enron, and Xerox, and the global financial crisis starting in 2008, there has been increasing attention towards developing and implementing corporate governance mechanisms. The target was to curb the opportunistic behaviors that have undermined investors' reliability in financial information (Gulzar & Wang, 2011). The awareness of using corporate governance has

affected users' confidence in financial reports, which has led the regulatory agencies in developed countries to enact various corporate governance laws to restore confidence in financial markets in general, and in the accounting and auditing profession in particular (Al-Sartawi, Hamdan, Mushtaha, & Abu Ajaila, 2013).

The board of directors is one of the tools in the overall mechanism of governance that has proven to be effective in raising institutions' performance and developing the economy. Since the board of

directors undertakes the task of linking both shareholders' and managers' directions, it reduces the agency problem. Many practices have been used to achieve the above target, for example, monitoring, following-up, and ensuring the proper functioning of operations and the publication of financial reports that reflect the company's operations (Zidan, 2017). The board of directors has several characteristics that enhance its effectiveness and efficiency. The independence of board members is one of them, which means that members from outside the board have no relationship with the company. Therefore, they are real observers of the performance of management (Fama & Jensen, 1983).

On the other hand, earnings management became the subject of many recent studies because it is considered one of the most important causes of various crises and scandals; thus, it has received significant attention in accounting literature (Siam, Laili, & Khairi, 2014). It is worth noting that management can exercise earnings management through two methods: earnings management through accrual basis, and earnings management with real activities to show the required (manipulated) level of earnings and, at the same time, hide the company's proper performance (Malik, 2015). However, most studies that examined the board of directors' characteristics and earnings management tend to focus on earnings management through accrual basis and neglect the other type of earnings management (Fadzilah, 2017; González & García-Meca, 2014; Nugroho & Eko, 2011).

Within the Jordanian context, the situation is not much different from that delineated in the theoretical literature dealing with the issue of governance and earnings management, as most studies focus on the merit-based aspect (e.g., Azzoz & Khamees, 2016; Abbadi, Hijazi, & Al-Rahahleh, 2016; Abed, Al-Attar, & Suwidan, 2012). It is expected that the impact of the board of directors' characteristics on the earnings management through real activities will differ from that of managing the earning through accrual basis. The study's importance stems from the fact that it deals with one of the most critical contemporary accounting topics that directly affect investors' confidence in financial markets and its impact on the stability of the country's economy. This study aims to highlight earnings management's problem through using real activities in Jordanian listed companies to stand over the earning management practices, by answering a very important question: *What is the real impact of board of directors characteristics on earning management?* Additionally, the study contributes to presenting the reality of earnings management practice with real activities in listed companies. It will examine the importance of the board of directors' characteristics as one of the effective governance mechanisms in limiting earnings management practice (Alareeni, 2018; Chouaibi, Harres, & Brahim, 2018; Liu & Tsai, 2015).

The remainder of the paper is organized as follows. The relevant literature is investigated in Section 2. The methodology of the current research is outlined in Section 3. Most research findings are summarized in Section 4, and the recommendations for future research are highlighted in Section 5.

2. LITERATURE REVIEW

At the beginning of their emergence, public shareholding companies were run directly by their shareholders as the highest authority. They were the only party empowered to control the company's performance and conduct its business, while the board of directors played a complementary secondary role at that time. However, with the beginning of the 20th century, many studies called for the need to separate its management from ownership (OECD, 2018; Marks, 1999; Peev, 1995). The board of directors was considered a representative of the shareholders. Accordingly, the board of directors played the role of the oversight body responsible for the conduct of the company's business in the best way and is considered one of the most important mechanisms of effective governance, as it is the first line of defense of shareholders' rights that prevents the management from using its powers to practice any opportunistic behaviors in secret (Qasimi & Saud, 2016).

The Jordanian Companies Law defined the board of directors as people elected by secret ballot through proportional voting by shareholders to act on their behalf. The number of votes will be according to the number of shares they own. Another detention by Qasimi and Saud (2016) that it is a representative body of fund owners in institutions to protect their rights and ensure that their money is run in a way that maximizes benefits.

There is a difference in the characteristics that were relied upon to express the board of directors' characteristics (Nugroho & Eko, 2011; Malik, 2015; Fadzilah, 2017). This study will go through the most important characteristics of the board of directors that might affect earnings management through real activities.

2.1. Board of directors characteristics

Board size

Opinions diverge about the effect of board size on earnings management. However, at least two clear schools of thought emerge. Klein's (2002) study tries to demonstrate that large boards are more effective because they can reduce work pressure due to their ability to distribute tasks to different members. The large group has more experience and diverse perspectives. The large board is more influential and independent, unlike small boards controlled by the family, which may reduce earnings management. In contrast, Xie, Davidson, and DaDalt (2003) argue that the possibility of earning management becomes greater in companies with large boards, as the study showed that the board of directors, whose number ranges between four to six members, is more effective, which enables them to make strategic decisions promptly.

We conclude from the previous two views that a large board may be more effective in controlling management behavior and reduce its opportunistic behavior.

Board independence

Based on agency theory, Fama and Jensen (1983) stress the need for independent members to reduce conflicts of interest between management and shareholders, provided the independent members are non-executive directors, and their task is restricted to monitor the decisions taken by the board of directors to ensure the validity of the decisions. The presence of independent members within the board of directors is a good corporate governance practice that promotes the board's independent thinking which means preserving and enhancing shareholders' wealth (Mustafa & Suleiman, 2006; Helland & Sykuta, 2005; Rhoades, Rechner, & Sundaramurthy, 2000).

Board financial expertise

Board members' accounting and financial knowledge allow them to monitor the process of preparing financial reports. Thus, it helps reduce tampering with financial statements and shows more transparent information (Siam et al., 2014); for example, Xie et al. (2003) show the incidence of earnings management in companies managed by boards of directors has very little financial and administrative expertise. Their study also indicates that the diversity of knowledge and experience increases the board of directors' effectiveness in controlling profit management. On the other hand, Qi, Lin, Tian, and Lewis (2018) argue that executive board members who have financial expertise are more involved in earnings management than members without financial expertise, which means that board members who have financial expertise are capable of using financial expertise and knowledge to find ways to enable them to manipulate and cheat more than those with no financial expertise and knowledge. Based on the above arguments, financial expertise and experience may be a double-edged sword.

The number of board meetings

The number of board meetings is also one of the essential characteristics of the board, which indicates the activity and effectiveness of the board. González and García-Meca (2014) demonstrate that the greater the number of board meetings, the more efforts made by the board to participate in its tasks and activities, such as monitoring, following up, and supervising the progress of the company's business, which, in turn, guarantees shareholders and other stakeholders financial information with higher quality and free from manipulation. However, there are some studies that dealt with the other side of the recurrence of meetings, such as Evans, Evans, and Loh (2002), who make it clear that frequent meetings consume part of the management time and increase the expenses of the board of directors due to their need for meeting fees and travel expenses in some cases.

Multiple directorships

Various studies indicate different results in this regard. Fama and Jensen (1983), for example, suggest that the presence of members in different

boards will enable them to improve their skills and maintain a good reputation due to the greater experience that they will obtain by dealing with more issues, as well as these members will be able to exchange information with different parties, which keeps them informed of all what is new which increases the board's opportunity to obtain advice and guidance from these members. In contrast, Jiraporn, Davidson, DaDalt, and Ning (2009) indicate that members who hold memberships in different boards suffer from more work pressure, which causes them to be absent from attending many meetings, and, in turn, reduces the effectiveness of supervision over the work of the administration, resulting in a decrease in performance and the quality of financial reports.

Managerial ownership board

It is the ownership of the members of the board of directors of a company's shares, and the ownership of a company's shares can be considered one of the most successful internal control actions. Accordingly, the ownership of board members increases their desire for the company's success, achieves more profits, reduces profit manipulation, and reduces errors (Gulzar & Wang, 2011). Also, the non-executive ownership of shares by members of the board makes them more related to the company, which leads them to spend more time and effort in monitoring management (Kao & Chen, 2004). All this allows concluding that the ownership by the board members increases the effectiveness of control and improves the company's performance. On the other hand, the ownership of a large number of the company shares by members of any board may cause an undesirable effect that adversely affects the quality of reports and information because members with authority (owner-manager) may make them able to acquire the company's resources and thus exploit these resources in line with their desires and, accordingly, ignoring the objectives of other shareholders (Foolafdi, 2012).

2.2. Earnings management

Management always seeks to show its financial position in the best condition and tries hard to maintain its reputation. This practice sometimes leads them to resort to opportunistic behavior by increasing their profits to obtain more rewards or reduce tax evasion profits. This behavior is called earnings management. Earning management is an unannounced policy pursued by the management to achieve specific goals that serve its interests, which is usually done by choosing among accounting methods and disclosure policies.

There are many definitions of earnings management. It appears that the most prominent and widely accepted is that of Healy and Wahlen (1999). Their definition is: "Managers' use of personal judgment in the financial reporting process and in structuring transactions to mislead stakeholders about the organization's poor economic performance or influence the results that depend on the accounting numbers disclosed" (p. 368).

Earnings management cannot be considered to breach laws because it uses the flexibility allowed by existing accounting standards. That is, the current

accounting standards provide legitimacy for opportunistic-based behaviors such as earnings management. The abuses include presenting financial results in a manner consistent with management interests (e.g., postponing recognition of events or investments related to the current period or decisions related to changing accounting policies). However, these and other managerial decisions are legitimate because they are not in violation of legal rules. As for the ethical level, several studies show that such practices are morally unacceptable because opportunistic behaviors based on earnings management result in inaccurate information about the company, which may result in incorrect decisions by outsiders; particularly shareholders (Rahman & Ali, 2006; Stanga & Kelton, 2007). Earning management can be practiced in two ways:

- *Earnings management through accrual basis:* The accrual basis enables the entity to recognize revenue when it is due and when expenses are incurred, regardless of whether the amount is received or paid (Subramanyam & Wild, 2009). Several studies rely on Jones' modified model to identify the level of benefit-based practice of managing earnings, one of the most frequently used models for earnings management measurement. Jones's modified model classifies total benefits into discretionary accruals and non-discretionary accruals. Thus, discretionary accruals refer to the earnings that engage in fraud. In contrast, non-discretionary accruals refer to the part of the receivables that were not engaged in fraud because they are beyond the control of the management (Jones, 1991).

- *Earnings management through real activities:* After the emergence of the Sarbanes-Oxley Act (2002), earnings management on an accrual basis became easily discoverable by regulators, auditors, and analysts, and this law imposes criminal penalties on companies that engage in fraud (Cohen, Dey, & Lys, 2008; Cohen, Dey, & Lys, 2005), which motivates companies to go towards practicing earnings management with real activities because they are challenging to discover and challenging to distinguish them from the natural operational decisions that management usually takes in response to the work environment. Furthermore, there is no standard for determining the correct/right actions taken by management. For these reasons, companies have become to prefer it to manage earnings through accrual basis even though the costs resulting from the company's involvement in managing real earnings may be of great importance to a company (Graham, Harvey, & Rajgopal, 2005; Sun & Rath, 2010). Also, the effect of earnings managing through real activities on the company's value may be more harmful than managing earnings on an accrual basis because managing earnings with real activities has a direct impact on cash flows, whereas managing earnings on an accrual basis does not affect cash flows directly.

Roychowdhury (2006) defined earnings management through real activities as the process of misrepresenting operational activities to misleading stakeholders about the true position of the business and making them believe that the financial statements have achieved the required goals.

Management uses three methods to manipulate earnings through real activities to match expected profits by analysts and avoid loss. Roychowdhury's study (2006) shows the following:

- Increase sales by accelerating recognition or by creating non-permanent sales by increasing the discount or facilitating credit terms.

- Increasing production, which leads to an increase in the expenses allocated to the inventory and a reduction in the cost of goods sold, which increases operating profit. By increasing the number of units produced, the management can distribute the fixed cost to a larger number of units, thus reducing the share of one unit of the fixed cost, which reduces the cost of goods sold (Sun & Rath, 2010).

- Reducing the estimated expenses, such as those related to research and development, advertising, and general and administrative expenses, and these expenses are usually recognized for the same period in which they are incurred, and this allows management to try to reduce these expenses to increase the profits of the period. It is assumed that these estimated expenses do not produce direct revenue.

2.3. Board of directors and earnings management: An agency theory perspective

Agency theory has its roots in Jensen and Meckling (1976), where they define agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent.

The agency's problem arises as a result of conflicting goals between management (i.e., the agent) and shareholders (i.e., the principal), and asymmetry of information between them (Fama & Jensen, 1983). A company's owners authorize management to access internal information relevant to making strategic decisions affecting its economic situation. Managers can make decisions, whose consequences are not entirely known, exposing shareholders to bear part of these consequences (Jensen & Meckling, 1976). Information asymmetry results from an insider (management), having vested interests in the reported information, who himself/herself prepares and sends the same information to an outsider (principals) who rely on it to make purpose. There is a type of imbalance of knowledge between the insider and outsider related to information processing, including accounting methods for financial reporting purposes. As managers usually have enough freedom to choose between accounting methods, they often tend to choose accounting methods that maximize their benefit even if they are not useful to owners (Watts & Zimmerman, 1986). Based on the above, an agency problem occurs due to the separation of ownership from management, which motivates managers to opportunistically act through earnings management practices to increase their wealth at the expense of exploiting the enterprise owners' funds.

Agency theory provides scope for linking the relationship between earnings management and the characteristics of the board of directors because

corporate governance rules were initially established to control the behavior of managers and to reduce the magnitude of the agency's problem that is the fundamental reason for the emergence of earnings management (Jensen & Meckling, 1976). Reasonable control works to increase accounting numbers' quality, which reduces information asymmetry and increases shareholder confidence in financial reporting; thus, it enhances market effectiveness (Watts & Zimmerman, 1986).

Many studies investigated the relationship between the board of directors' characteristics and earnings management. For example, board size was statically and significantly negative with earnings management in many studies such as not exclusively to Soliman and Ragab (2013), Abed et al. (2012). Abed et al. (2012) found also a positive relationship between board independence and earnings management and no relationship between both board member ownership of shares and multiple directorships with earnings management. Likewise, Soliman and Ragab (2013) found a positive impact for multiple directorships on earnings management, and a negative and statistical significance impact for board independence with earnings management. Also, Ahmed (2013) examined this relationship between the board of directors' characteristics and earnings management in companies listed on the Malaysia Stock Exchange during the period of 2001-2005 and found a positive relationship between the financial expertise of the board members with earnings management but no relationship between the number of board meetings and the independence of members with earnings management.

Also, Baatour, Ben-Othman, and Hussainey (2017) explored the effect of multiple directorships of board members on earnings management and found no statistically significant result with earnings management on an accrual basis. Furthermore, Azzoz and Khamees (2016) examined the impact of corporate governance characteristics on financial reports and earnings management quality and found a positive effect on both the board size and independence on earnings management but a negative impact of multiple directorships on earnings management. Liu and Tsai (2015) examined this relationship between the board of directors' characteristics with earnings management through real activities and they found a positive impact for the board of directors' ownership of the company's shares on earnings management.

Fadzilah (2017) also examined the relationship between the board of directors' characteristics on earnings management in a family business in Malaysia; the discretionary accruals were measured using the modified Jones model. the study found that there is a statistically significant positive relationship between the board members' independence and earnings management. No statistically significant association was found with the frequency of board meetings size, the executive director's dual-position, and the multiplicity of memberships for the board members. In the Arab country context, Chouaibi et al. (2018) investigated the effects of the board of directors' characteristics on earnings management through real activities and found an adverse effect for the board size, board independence, and the number of board meetings on earnings management, it is also indicated that

earnings management in both methods is used interchangeably in the context of Tunisian companies.

In a more recent study, Alareeni (2018) found a negative impact on the board size on earnings management and also found a positive effect for both the board independence and managerial ownership board on earnings management.

So, most of the previous studies which investigated the relationship between the board of directors' characteristics and earnings management have been focused on earnings management measured by the accrual basis, and there was a lack of previous studies that measured earnings management through real activities in general, and in the Arab environment, in particular, and also, the results from the previous studies on this relationship between board characteristics and earnings management are contradictory. Accordingly, this study tries to bridge the gap in previous literature and identify the impact of the board characteristics on earnings management measured through real activities in Jordanian non-financial listed companies. The study relies on actual data extracted from financial reports of sample companies. Accordingly, the study supposes the following hypothesis:

H1: There is a statistically significant negative impact for the board size, board independence, the financial experience of board members, the number of board meetings, the membership in more than one board (busy member), and the board ownership percentage on earnings management through real activities in non-financial Jordanian listed companies.

3. RESEARCH METHODOLOGY

3.1. Population and sample

The study's sample covers all service, industrial, and real estate public Jordanian companies listed on the Amman Stock Exchange (ASE), with a total of 143 companies at the end of 2017. After excluding 12 companies due to the incomplete financial statements, the sample size becomes 131. Thus, the percentage of sample to a population is 131, that is 91.6% of the dataset allocated at the ASE. The sample is divided into 46 service companies, 62 industrial companies, and 35 real estate companies. It is noted that the data consists of cross-sectional data and time series, which allows us to analyze it in the form of (panel data). The annual financial reports, from 2015 to 2017, of non-financial sector companies were used to complete the empirical part of this study. The financial sector is excluded as it is subject to different regulations and authorities.

3.2. Measurement of study variables

Dependent variable:

The dependent variable is represented by real earnings management (*REM*). *REM* has been measured differently from previous literature, such as manipulating sales (Sales manipulation, *S*), reducing discretionary accruals, and increasing production (Abnormal production, *A*). This study adopts

the most common approaches: Sales manipulation and Abnormal production. Each scale, respectively:

$$\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{t-1}}\right) + \beta_1\left(\frac{S_t}{A_{t-1}}\right) + \beta_2\left(\frac{\Delta S_t}{A_{t-1}}\right) + \varepsilon_t \quad (1)$$

CFO_t represents the cash flow from operations during the t period; S_t represents the net sales of the company during the t period; ΔS_t represents the change in sales during the period $S_t = S_t - S_{t-1}$; A_{t-1} represents the company's total assets at the end of the $t-1$ period; ε_t is random error.

$$\frac{COGS_t}{A_{t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{t-1}}\right) + \alpha_2\left(\frac{S_t}{A_{t-1}}\right) + \varepsilon_t \quad (2)$$

$COGS_t$ represents the cost of goods sold during the period t .

Independent variables:

- Board size (*BSIZE*): The total number of members on the board of directors.
- Board independence (*BIN*): The total number of independent members to the board's total number of members.
- Financial experience of board members (*BFEXP*): The total number of members holding a certificate in the accounting major or any financial specialization to the total number of members in the board.
- The number of board meetings (*BMEET*): The number of board annual meetings.
- Multiple directorships (*MULTDIR*) membership: The total number of members occupied to the total number of members on the board.
- Managerial ownership board (*BOWN*): The percentage of board members who own shares of the company.

Control variables:

- Firm size (*FSIZE*): The natural logarithm of the total company assets.
- Leverage (*LEV*): Total liabilities to total assets.
- Return on assets (*ROA*): Net profit before interest and tax to total assets.
- Audit firm size (*BIG4AUD*): The number 1 is given if the company is audited by Big 4, and the number 0 is audited by other companies.

3.3. Data validity test

The study checked all necessary tests that were needed to validate the data such as the normal distribution test, to verify that the study data has a natural distribution. The extent of the data approach to the normal distribution can be identified through the Skewness-Kurtosis test. If the probability is greater than 0.05, it means that the variable is subject to a normal distribution. Still, less than 0.05 indicates that the variable is not subject to a normal distribution, and after testing. It was found that some variables are not subject to the normal distribution, and to address this problem, a Gujarati and Porter's (2010) approach is used, and robust standard error was used.

A multicollinearity test was conducted to ensure that there was no high correlation between the variables. Because the strength of the model stems from the assumption of the independence of each of the independent and control variables, then this test is done by finding the Pearson correlation. If it is found that correlation is at 70% or more, between the variables or between each other, this results in distorting the relationship between the variables (Gujarati, 2003). Table 1 shows that the results of all correlation coefficients between the variables are less than 70%, which means the study data is free from linear interference.

Table 1. Mutual correlation matrix of study variables

Variables	REM	BSIZE	BIN	BFEXP	BMEET	MULTDIR	BOWN	FSIZE	ROA	LEV	BIG4AUD
REM	1.000										
BSIZE	-0.075	1.000									
BIN	-0.138	-0.011	1.000								
BFEXP	-0.069	-0.112	-0.039	1.000							
BMEET	0.026	0.018	-0.116	-0.028	1.000						
MULTDIR	-0.057	0.336	-0.134	-0.054	0.037	1.000					
BOWN	-0.069	0.278	0.036	0.019	-0.101	0.168	1.000				
FSIZE	0.043	0.414	-0.203	-0.046	0.304	0.129	0.042	1.000			
ROA	0.107	0.092	0.017	0.083	0.081	0.153	-0.004	0.033	1.000		
LEV	0.067	0.101	-0.063	0.010	0.109	0.128	-0.094	0.342	0.087	1.000	
BIG4AUD	0.019	0.287	-0.319	0.052	0.103	0.181	0.119	0.357	0.091	0.195	1.000

A random error contrast test (Heteroskedasticity test) was also used through using the Breusch-Pagan test to measure random error variation, where the coefficient of Kay 2 was equal to 452.88. The probability of Kay 2 was equal to 0.00, which is less than the accepted rule that states that the probability should be greater than 5%. This means that the study data suffers from a random error discrepancy problem that has been tackled using robust standard error.

4. RESULTS

4.1. Descriptive analysis

Table 2 presents descriptive statistics for each board of directors' characteristics and earning management as it will appear in the following:

Table 2. Descriptive analysis

Variables	Mean	Mediator	Standard deviation	Lowest value	Highest value
REM	0.07	0.04	0.12	0.0002	1.67
BSIZE	7.45	7	2.19	3	13
BIN	0.38	0.40	0.25	0	1
BFEXP	0.22	0.20	0.18	0	0.86
BMEET	7.96	7	3.08	3	24
MULTDIR	0.15	0.14	0.18	0	0.8
BOWN	0.26	0.05	1.02	0	10
FSIZE	75018110	22824281	178,700,550	137049	1368290164
ROA	3.32	0.19	10.55	-48.3	115
LEV	28.75	0.24	23.46	0.001	105
BIG4AUD	37.15	-	0.48	0	1

Regarding practicing earning management in Table 2 we can notice that the average practice of earnings management through real activities in Jordanian non-financial listed companies is 0.07 of the total assets. The lowest value is 0.0002, and the highest value is 1.67, which indicates that some Jordanian listed companies do not practice earnings management through real activities yet and the arithmetic mean for the board of directors' size is 7.45, with a standard deviation of 2.19 and we can observe that the lowest and highest value ranges between 3 and 13, which means that the non-financial Jordanian public shareholding companies do not adhere to applying the rules of Jordanian governance related to the number of board members. The rules stipulate that the board number must be no less than 5 and not more than 13 members.

For the board member independence, it is noticed from Table 2 that the lowest value is 0 and the highest value is 1 with an average of 0.38 and a standard deviation of 0.25, which means that many Jordanian public shareholding companies still do not adhere to the Jordanian corporate governance rules stipulation, which requires that a third of the members of the board must be independent. On the other hand, in some companies, whose members mostly are independent, this indicates adequate supervision that guarantees the integrity and transparency of financial reports.

For the board members' financial expertise, it is noticed from Table 2 that the lowest value is 0. The highest value is 0.86 with an average of 0.22 and a standard deviation of 0.18, and this indicates that there are some Jordanian public shareholding companies' boards of directors still without any accounting or financial qualification. On the other hand, some other boards of directors are highly formulated with accounting and financial qualifications. While for the number of meetings, it is noticed from Table 2 that the lowest value is 3. The highest value is 24 with an average of 7.96 and a standard deviation of 3.08, which means that some sample companies do not adhere to the minimum specified by the rules of corporate governance for Jordanian companies, which is 6 meetings, but still, there are some Jordanian companies are meet during the year almost 24 times.

For the multiplicity of memberships, the lowest and highest values, respectively, were 0 and 0.80, with an average mean of 0.15 and a standard

deviation of 0.18. This clearly indicates that some of the sample companies do not have members who hold other memberships but, on the other side, some sample companies, whose board members occupy other memberships, increase their experience in dealing with the company's administrative and financial issues. Regarding the board of directors' ownership, it is noticed from Table 2 that the lowest and highest values, respectively, are 0 and 10 with an average of 0.26 at a standard deviation of 1.02. That means that there are some boards of directors' members who do not have any shares owned in the companies they direct and there are some members who hold high shares, which may indicate owners' authority.

With regards to the control variable *FSIZE*, the mean was JD75 million at a standard deviation of JD178 million, and the lowest and highest values, respectively, are JD178 million and JD1368 million indicating the varying size of the Jordanian public shareholding companies. For the control variable *ROA*, the mean is 3.32 at a standard deviation of 10.55, and the lowest and highest values, respectively, are -48.3 and 115, indicating that there is an apparent fluctuation in the Jordanian public shareholding companies' profitability.

For the other control variable, *LEV*, its value ranges between 0.001 and 105, with the mean of 28.75 and standard deviation of 23.46 indicating that the degree of dispersion of the data was average around the mean.

4.2. Hypothesis test and discussion

The study model was based on data called *panel data*, which consists of cross-sectional data and time series data. After testing the Hausman test, it became clear that the fixed effect model is the most appropriate for the study data, and it is worth noting here that the study data is balance panel data.

To test the study hypotheses, a multiple regression analysis was performed to identify the effect of the characteristics of the board of directors on earnings management through real activities in the non-financial sector of Jordanian public shareholding companies as in Table 3, so that the study model appears as follows:

$$REM_{it} = \beta_0 + \beta_1 BSIZE_{it} + \beta_2 BIN_{it} + \beta_3 BFEXP_{it} + \beta_4 BMEET_{it} + \beta_5 MULTDIR_{it} + \beta_6 BOWN_{it} + \beta_7 FSIZE_{it} + \beta_8 LEV_{it} + \beta_9 ROA_{it} + \beta_{10} BIG4AUD_{it} + \varepsilon_{it} \quad (3)$$

where,
 REM_{it} : Real-time earnings management;
 β_0 : The constant term value;
 $BSIZE_{it}$: Board size;
 BIN_{it} : Independence of board members;
 $BFEXP_{it}$: Board of directors' financial expertise;
 $BMEET_{it}$: Number of board meetings;
 $MULTDIR_{it}$: Membership on more than one board;
 $BOWN_{it}$: Board members' ownership of the company's shares;
 $FSIZE_{it}$: Firm size;

LEV_{it} : Leverage;
 ROA_{it} : Return on assets;
 $BIG4AUD_{it}$: Size of Big 4 audit company;
 ε_{it} : Random error.

The following table will provide multiple regression results. The results of Table 3 show that board independence and the board members' financial experience negatively affect earnings management through real activities. There is no effect for the other characteristics on earnings management. Explanations are presented below:

Table 3. Results of multiple regression analysis

Variables	Std. Coefficient	Std. Error	T	Sig.
Constant	1.602	0.5808	2.76	0.006***
BSIZE	0.0056	0.0131	0.43	0.670
BIN	-0.3675	0.0775	-4.74	0.000***
BFEXP	-0.2111	0.0738	-2.86	0.005***
BMEET	-0.0052	0.0044	-1.19	0.235
MULTDIR	-0.0882	0.1108	-0.80	0.427
BOWN	-0.0251	0.1010	-0.25	0.804
FSIZE	-0.1763	0.0781	-2.26	0.025**
ROA	0.0004	0.0008	0.50	0.615
LEV	-0.0009	0.0006	-1.53	0.127
BIG4AUD	0.0043	0.0404	0.11	0.916
Model summary	N = 393		F = 5.28	
	Adjusted R ² = 0.1732		Sig. F = 0,000	

Note: *** statistically significant at the level of 1%; ** statistically significant at the level of 5%.

For the results of the multiple regression analysis, Table 3 shows that the level of significance of the effect of the board of directors' size on earnings management through real activities is 0.670 with a t-value of 0.43, which is statistically not significant, thereby rejecting the hypothesis, which means there is no impact for the board size on earnings management, this might be due to the variation in the size of the board among the non-financial public shareholding companies. It is important to note that the results from this study are consistent with Fadzilah (2017) and Malik (2015). Also, the results of the multiple regression analysis emphasize the importance of existing an independent member among the board of directors as the results show the level of significance of the effect for the board independence on earnings management is 0.000 with a t-value of -4.74. This factor is statistically significant at the level of 1%, thereby accepting the hypothesis. So, we conclude that the board's independence will lead to reducing earnings management through real activities, the results from this study are in line with Xie et al. (2003), Chouaibi et al. (2018), Liu and Tsai (2015).

Multiple regression analysis also shed the light on the importance of existing financial expertise between the board members where the results show a level of significance for the financial expertise on earnings management is 0.005, which is statistically significant at the level of 1%, thus allowing accepting the hypothesis. The presence of a negative impact with statistical significance for the financial expertise for the board members on earnings management through real activities indicates the ability of members with financial experience to limit the phenomenon of practicing earnings with real activities. Results from this study are in line with Liu and Tsai (2015); this means as much as the board consists of financial expertise members, this will decrease earning management initiatives.

Also, the multiple regression analysis shows that the level of significance of the effect of the board of directors' number of board meetings on earnings management is 0.235, which is statistically not significant, and thus the hypothesis is not accepted. The absence of an impact for the number of board meetings on earnings management can be explained from the researchers' point of view that the members of the board of directors attend company meetings to reach the minimum number of meetings stipulated in the Guide to the Governance of Jordanian Companies. Results from this study are contradictory with Liu and Tsai's (2015) analysis but in line with other previous studies like Ahmed's (2013) and Fadzilah's (2017).

The results of the multiple regression analysis also show that the level of significance of the effect of multiple directorships on earnings management is 0.427, which is statistically not significant, and thus the hypothesis is not accepted. The absence of an impact for the multiple directorships of board members on earnings management can be explained from the researchers' point of view that most of the members of the board of directors did not have membership in other boards of other companies. Results from this study are in line with Fadzilah's (2017) research but in contradictory with Baatour et al.'s (2017) study.

With regards to the board of directors' ownership, the multiple regression analysis shows that the level of significance of the effect of the board of directors' ownership on earnings management is 0.804, which is statistically not significant, and thus the hypothesis is not accepted. The absence of an impact for the ownership of board members of the company shares on earnings management can be explained from the researchers' point of view that most of the board of directors did not have any shares in the company they are engaged in as a board member. Results from this

study are in line with Susanto and Pradipta's (2016) research but contradictory with Liu and Tsai's (2015) study. The study found also a statistically significant negative impact for the company's size on earnings management through real activities (sig = 0.025). This can be explained as large companies are subject to more legal and legislative controls than those small in size.

5. CONCLUSION

The study tried to fill the gap in previous literature about the way to measure earning management in developing countries like Jordan since most of the previous literature, as mentioned earlier, was investigating the relationship using an accrual base rather than through real activities. The study

provides new insight into this relationship and the study found that some Jordanian companies still do not practice earning management and the results of the study show that there is a statistical and significant impact of the board independency and the existence of financial expertise among the board members on earning management. The results show that there is no impact of the board size, the number of the board meetings, multiple directorships, and board of directors' ownership on earning management. Future research must address other aspects of corporate governance to consider its ability to limit the practice of earnings management in Jordanian companies, such as audit committee, institutional ownership, the gender of the board members that have not been addressed in this study.

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