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Governance Mechanisms and Earnings Integrity: The Impact of Board and Audit Committee Independence on Real Earnings Management

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Abstract

The current study aimed to examine the effect of the independence both of the board of directors and audit committee for non-financial companies in Jordan. To show that effect, we used aggregated real earnings management (REM_ALL) and cash flow from operations (CFO), discretionary expenditure (DISX), and production cost (PROD) as proxies of real earnings management. The current study covered 740 firm-year observations for industrial and services firms listed in Amman Stock Exchange (ASE) during the period from 2012 to 2021. Using the Fixed Effect approach, the results showed that the board's independence has a positive effect on aggregated real earnings management (REM_ALL) and production cost (PROD), and a negative effect on cash flow from operations (CFO) and discretionary expenditure (DISX). While the study results indicated that the audit committee independence has a negative effect on aggregated real earnings management (REM_ALL) and cash flow from operations (CFO), and production cost (PROD), but a positive effect on discretionary expenditure (DISX). Further, for the control variables, the results showed that the firm size (FSIZE) has an insignificant effect on all model variants of real earnings management (REM). Meanwhile, financial leverage (LEV) has a negative effect on all model variants of real earnings management (REM). Thus, these findings provide shreds of evidence for all the regulators, investors, and executives in Jordan into account when designing corporate regulations. Hence, due to the significant impact on public policies, the results should be of interest to the regulators and standard setters.

Keywords: *Board Independence, Audit Committee Independence, Real Earnings Management*

Introduction

Since financial reporting is the main communication instrument between businesses and stakeholders, it is a crucial duty and fundamental component of corporate structure (Zgarni et al., 2016). Therefore, the purpose of financial reporting is to give reliable information about the company's financial situation and performance, which can be helpful to a wide range of users who make financial decisions (Barth et al., 2008). Yet financial reports are still disfigured or even misleading (Blanco et al., 2014). Meanwhile, earnings management has distorted the reliability and objectivity of financial reporting, hence impairing the ability of a firm's investors and other investors to make effective decisions (Mishra & Malhotra, 2016).

The company's ability to manipulate financial reports through activities of earnings management was significantly different from illegal activities. Due to financial scandals, earnings management has dominated the accounting literature after many companies, regulators, researchers, and other stakeholders are carried out worldwide to find the best corporate resolution (Isa & Farouk, 2018). The earnings management" idea had expanded and received substantial attention due to corporate failures, which phenomenon had increased stakeholders' concerns regarding the financial report's quality and reliability (Rosellyn & Harapan, 2019).

Several pieces of research worldwide support the prevalence of the concept of earnings management. Management of earnings acts as a strategic tool used by management on the pretext of maximizing a company's profitability and reducing risks (Bala & Kumai, 2015). Management of earnings is seen as a means by management to encourage, influence, or exploit recorded earnings using different accounting techniques or modifying practices, such as offset or increasing expenditures or sales transactions or using other strategies intended to influence current earnings (Rahman & Sharif, 2013). In addition, managers can

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deliberately or inadvertently overestimate the company's status or handle earnings for reasons such as retaining the company or obtaining bonuses (Demerjian et al., 2012). Consequently, earnings management is designed to conflict with the financial reporting process to achieve a personal benefit or to the company.

There are two forms of managing earnings management, as known in the accounting literature: earnings management through accrual-based and earnings management through actual activities. As shown by (Zang, 2012) managers may find accrual manipulation and real income management as two replacement strategies and weigh the costs and benefits of each strategy before taking steps. Furthermore, (Sun, Lan, & Liu, 2014) indicated that there-based earnings management is controlling earnings by employing accounting estimates and procedures which have no direct effect on cash flows, while the real management of earnings is the exploitation of earnings by operational practices which directly influence cash flows.

Standard of governance can go a long way towards ensuring appropriate accounting standards and accountability in reporting systems. Mechanisms of corporate governance are a commonly accepted instrument for growing investor trust and encouraging broader participation in capital markets. Corporate governance is a process that manages, controls, n, regulates companies (Azubike & Aggreh, 2014). Singh, Kumar, and Uzma (2010) identified many corporate governance elements, the most significant being the involvement of independent directors in and the efficacy of audit committees with sufficient powers to supervise financial reporting.

The composition of the board of directors and the composition of the audit committee attracted the attention of researchers in recent periods because of its impact on the management of earnings (Isa & Farouk, 2018). As part of these oversight systems, past inquiries note that boards of directors assume a critical observer role in managing the quality standards of financial reporting processes (Waweru & Riro, 2013). In addition, the task of the boards is to protect the interest of the shareholder in an increasingly competitive environment while the management is accountable for achieving the firm's good performance (Al Azeez et al., 2019). Whereas the primary role of audit committees is to oversee the process of financial reporting, track the activities of managers to minimize earnings manipulation, and improve the quality of audit (Isa & Farouk, 2018).

Empirical studies indicate that the independence of directors influences board decisions (Weisbach, 1988; Byrd & Hickman, 1992) and that they can identify and minimize earnings management activities (Dechow, Sloan, & Sweeney, 1996; Peasnell, Pope, & Young, 2005). Independent directors strengthen boards' effectiveness in supervisory management and in exercising power in the interest of shareholders (Rajpal, 2012). While Klein (2002) found that a high proportion of independent audit committee members contributes to few earnings management, indicating that the independence of audit committee members decreases earnings management.

Several studies in Jordan examined how mechanisms of corporate governance would play a decisive role in controlling earnings management activities (e.g. Al-Fayoumi, Abuzayed, & Alexander, 2010; Abed, Al-Attar, & Suwaidan, 2012; Alzoubi & Selamat, 2012; Alzoubi, 2016; Alqatamin, Aribi, & Arun, 2017; Idris, Abu Siam, & Nassar, 2018; Al-Othman & Al-zoubi, 2019). Most have shown that mechanisms of corporate governance have a positive impact on the oversight of activities. Thus, the current study aims to investigate the board of directors' independence and the audit committee's independence in constraining the management of real earnings. The current study explicitly investigates how real earnings management is affected by the board of directors' independence and the audit committee's independence following the issuance of the Corporate Governance Code in Jordan in 2009.

This study indicates whether the independence of the board and audit committee is successful in curbing opportunistic practices in real earnings management. So, it is expected, that the independent boards and independent audit committees have sufficient expertise will constrain real earnings management. The position played by corporate governance mechanisms, such as independent boards of directors and independent audit committees in restricting real earnings management practices, is a key topic that has not been discussed by previous research and has important policy implications, (Rashid et al., 2015). This study aims to address this important gap by presenting preliminary proof of the role of independence of the audit

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committee and independence of the board of directors in the monitoring of real earnings management. Following Roychowdhury (2006), we use operational activities to calculate real earnings management, namely, cash flows from operations, discretionary expenses, and production costs from Jordanian industrial and services public shareholders' companies, for the years 2012 to 2021.

The present study is organized according to the following. Section 2 provides a summary of the theoretical frameworks, literature reviews, and the production of hypotheses. Section 3 describes the methods of study and collection of the samples. The findings are presented in section 4, followed by conclusions in the final part.

Theoretical Background

Agency Theory

The question of the agency problem emerges from the division of ownership and management in modern companies in which shares are dispersedly held (Fama & Jensen, 1983; Jensen & Meckling, 1976). Managers make decisions on behalf of shareholders relating to all firm policies and processes that often trigger struggle in terms of party-related interests, leading to earnings management. The relationship between managers and principal agents is structured by a contract that outlines all the terms and conditions that the agents abide by (Shakir, 2008). Nonetheless, such a contract is nearly impossible to control all of the agents' actions that have more knowledge about the organization. So, the knowledge asymmetry and multiple priorities generate an incentive for managers to magnetize with manipulating earnings. Jensen and Meckling (1976) recommend using good governance mechanisms to monitor management's discretionary actions and discourage them from handling earnings violations, while dramatically reducing agency costs. There have been several attempts to clarify the relationship between mechanisms of corporate governance and earnings management according to the theory of agency. According to the theory of agency, boards, and committees with a majority of independent non-executive members would supervise the management better and minimize the risk of earnings management (Coles et al., 2006).

Real Earnings Management

Management of earnings is a subject that has been widely discussed in previous financial and accounting literature related (Katherine, 1989; Healy & Wahlen, 1999; Degeorge, Patel, & Zeckhauser, 1999). Management of earnings is a subject that has been widely discussed in previous financial and accounting literature related (Katherine, 1989; Healy & Wahlen, 1999; Degeorge et al., 1999). Managers may manipulate earnings by exercising control over accounting (Beasley, 1996; Burgstahler, Hail, & Leuz, 2006) or by participating in real-activities manipulation activities such as direct management (Degeorge et al., 1999), manipulation of the cash flows from operation (Glaum, Lichtblau, & Lindemann, 2004), and earnings management by manipulating real activities (Roychowdhury, 2006) to deceive other stakeholders related to the performance. real activities may, therefore, be the target of big manipulations (Graham, Harvey, & Rajgopal, 2005; Roychowdhury, 2006; Visvanathan, 2008).

The managers' incentive is that they can gain some benefit through direct bonuses or indirect incentives, where such bonuses are given to managers depending on the company's earnings performance. Consequently, if the rewards are based on the company's financial performance, principals could be tempted to increase their self-interest and draw attention to the shareholders of the company's performance results through earnings management (Toumeh & Yahya, 2017). Managemfree handle and the reported earnings and their effect on management reparations contribute to the agency issue (Bukit & Iskandar, 2009).

Management of earnings is categorized into several types that developed from various viewpoints through their validity, pattern effect on cash flow, and management intent. Management of earnings can be legal or illegal, depending on legality. Whereas legal earnings management takes advantage of the GAAP authority and the rules to disclose the desired revenue. Though illegal earnings management manipulates income by departing from the GAAP or the legislation to achieve the goals (Toumeh & Yahya, 2017). Depending on the management purpose, earnings management can be categorized as opportunistic and informative.

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Insightful earnings management aims to disclose the management's clear expectations of future cash flows to company shareholders, whereas the objective of opportunistic earnings management is to protect some private interests of management by misleading shareholders for the benefit of other parties (Al-khabash & Al-Thuneibat, 2008).

Graham et al. (2005) provided evidence showing that managers favor the method of controlling real earnings compared to handling accrual earnings. Whereas the management of real operations is more costly for businesses and their owners (Katherine Ann Gunny, 2005; Gunny, 2010), but less costly for managers. (Roychowdhury, 2006; Cohen, Dey, & Lys, 2008; Cohen & Zarowin, 2010) find that real income management imposes relatively high long-term costs on shareholders compared to accrual manipulation due to its adverse effects on future cash flows and could hurt the company's viability. Roychowdhury (2006) described real earnings management in this regard as "management activities that deviate from usual business practices with the primary objective of achieving certain earnings thresholds." As explained by Zang (2012), this type of earnings management is defined as an action aimed at changing the financial information recorded to some degree by changing the timing or organizing financial transactions.

Additionally, Roychowdhury (2006) presented clear evidence that leaders are conducting real operations to avoid annual loss reporting. Therefore, real-activity approaches do not benefit firms' growth and competitive features because of their long-term effect on revenue exploitation, overproduction, and reduction of discretionary expenses (Graham et al., 2005; Roychowdhury, 2006; Cohen et al., 2008; Zang, 2012). Because manipulating real activities leads to adverse economic consequences, understanding how to minimize this opportunistic activity is a critical and striking problem, particularly after the study by Graham et al. (2005), which discovered that real management of activities is a common practice. In the current study, we chose to examine cash flow from operations, discretionary expenses, and production costs, and according to Roychowdhury (2006), companies that give a price discount to increase revenue may use overproduction to report a higher gross profit margin ratio and may reduce discretionary expenditure to reflect inflated earnings.

Literature Review and Development of Hypothesis

Board Independence

The board of directors is a primary internal corporate governance framework for monitoring the accuracy and credibility of financial reports. The board of directors is an effective control mechanism for minimizing agency disputes between ownership and management and has the legal authority to protect shareholder interests by controlling and evaluating managers (Jensen & Meckling, 1976; Fama, 1980; Fama & Jensen, 1983). Even though monitoring is one of the key functions of the board (Fama & Jensen, 1983; Boivie, Bednar, Aguilera, & Andrus, 2016), not all board members are equally capable of this. To monitor effectively, the board must monitor companies in a man like an active and impartial shareholder would monitor (Hillman, Nicholson, & Shropshire, 2008; Hambrick, Misangyi, & Park, 2015), and independence may be a necessary condition for such monitoring (Bednar, 2012). Independence applies to directors that have no substantive connection with the company as employees or other than their role on the board (Dalton et al., 1999).

According to Kelton and Yang (2008), the board's ability to conduct its oversight function is focused on its independence from management and thus, the capacity of autonomous boards to restrict managerial opportunistic activity and reduce the capacity of management to withhold information is greater. Where independent directors are better able to track the company and its management in comparison to insiders due to their weaker relations with the company (Hambrick et al., 2015). Therefore, independent directors are potentially more likely than insiders to participate in monitoring.

From an agency viewpoint, board independence relates specifically to the number of independent directors as stated in the theory of the agency. Whereas an autonomous board is more likely to be concerned about organizational concerns as it comprises a large number of non-executive directors committed to tracking the performance and actions of management (Fama, 1980). Furthermore, Lawler, Finegold, Benson, and

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Conger (2002) gave empirical support that board independence enhances the board's control feature. Independent directors thus boost financial reporting quality and credibility (Kapoor & Goel, 2017). According to the OECD (2004) and Cadbury (1992) guidelines, the Jordanian Corporate Governance Code for 2009 suggests that at least one-third of the members of the board be independent.

Neville et al. (2019) indicated that independent directors are in a better structural situation to monitor management and corporate finance than the directors within. There is significant evidence to support the hypothesis that the risk of fraud and management of earnings is negatively linked to the percentage of external directors. Dechow et al. (1996) provide evidence that the proportion of out-out-of-boardectors is negatively linked to the risk of fraud. By view, Beasley (1996) and Uzun, Szewczyk, and Varma (2004) find that in companies with a high proportion of outside management, the risk of financial fraud is lower. Although Osma (2008) found using a broad sample of UK firms that more independent boards are restricting the manipulation of R&D spending, fewer independent boards are not restricting the manipulation of managers' activities. Furthermore, Uadiale and Fagbemi (2012) claimed that the involvement of the majority of external directors in the board provides the company with a better range of expertise and is in an enhanced position to supervise and govern the managers, thus, curtailing the management of earnings. The Board's ability to act as a control instrument, therefore, depends on its independence from management.

Idris et al. (2018) presented evidence that the involvement of independent board members or higher percentages of independent board members greatly increases the efficacy of the board in minimizing earnings management activities and plays a key role in reducing agency problems in the Jordanian environment. In addition, greater board independence leads to better monitoring and oversight of management behavior, which leads to avoidance of managers' opportunistic behavior thus curbing earnings management practices (Almashaqbeh et al., 2019). Thus, the empirical studies concerned with the relationship between the board's independence and real activities of earnings management submitted unfixed findings.

Visvanathan (2008) discovered a negative relationship between board independence and the method of overproduction and did not show a correlation between this mechanism and the manipulation of sales. Likewise, Ge and Kim (2014) found that a greater proportion of independent non-executive directors was correlated with higher manipulation of research and development expenditure, but did not disclose a link between board independence and reduced discretionary spending and sales manipulation. Additionally, Dakhlallh et al. (2021) reported new evidence of non-financial Jordanian companies for 910 firm-year observations from 2009 to 2018, by using a fixed effect model the result showed that the independence of the board has a positive and significant coefficient with all of the cash flow from operations, discretionary expenses, production cost, and total real earnings management. Thus, independent boards are more likely to participate in REM in Jordan.

Further, Sun et al. (2014) reported that board independence has an insignificant relationship with real earnings management calculated by abnormal operating cash flows, abnormal discretionary expenses, and abnormal cost of production. Whereas Talbi et al. (2015) found a negative relationship between board independence with abnormal cash flow and discretionary expenses and a positive with the abnormal cost of production. In addition, Swai (2016) found an insignificant relationship between the impact of board independence on the three real activities of manipulation in a study of 44 non-financial companies listed in East African security markets from 2004 to 2013, which are, manipulation of sales exploitation, reduction of discretionary expenses and overproduction. As a result, researchers have reached a consensus that internal governance mechanisms will play a stronger role as real activity manipulation is invisible to outside stakeholders and therefore generally not subject to external monitoring scrutiny (Graham et al., 2005; Zang, 2012; Ge & Kim, 2014).

In comparison, Kang and Kim (2012) explored the effect of corporate governance mechanisms on the management of real earnings, including the mechanisms of the board of directors in Korean terms. The authors find the relationship between the management of real earnings and the independence of the board a negative and significant. Furthermore, Zgarni, Halioui, and Zehri (2014) indicated that a board consisting

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of a majority of independent directors minimizes the extent of manipulations of real activities. Liu and Tsai (2015) found once again that better independence of the board leads to greater suppression of real earnings management through cash flows from operations, production costs, and expenses of discretionary Taiwanese companies. In addition, in a modern analysis by Rajeevan and Ajward (2019) for the period 2015 to 2017, evidence was given that the independent board has a significant negative effect on both the abnormal cash flow from operations, abnormal expenses of discretionary, and abnormal cost of production, leading to a decrease in real earnings management activities. Finally, in the Jordanian environment, Al-haddad and Whittington (2019) provided evidence that dependent directors have a substantial negative effect on both the abnormal cash flow from operations, abnormal expenses of discretionary and abnormal costs of production. Therefore, we suggest the following hypothesis:

H1: The association between board independence and real earnings management is negative.

Audit Committee Independence

The mechanisms of governance are currently attracting the attention of shareholders and regulators due to the company's recent financial scandals that caused a crisis of confidence about the reliability of financial information and had a terrible effect on the behavior of the shareholder. In addition, such failures were typically the result of an agent-principal conflict of interest. It was, therefore, necessary for the government to lay the foundations and principles for controlling the conduct of all parties involved in the companies. In addition, numerous regulations were published all over the world to enhance financial reports' quality. These reforms centered on improving corporate governance mechanisms; these regulations had important recommendations about the role and obligations of all parties in the process of corporate governance, particularly the audit committee (Zgarni et al., 2016; Abbadi, Hijazi, & Al-Rahahleh, 2016).

Over the previous decade, there have radical changes to enhance the effectiveness of audit committees. Reform to enhance the audit committee quality focuses on the independence of the members of the audit committee. Regulators have become particularly concerned about the efficacy of audit reporting oversight committees in response to recent major accounting scandals and corporate frauds (Lisic et al., 2016). Considering that good internal control efficiency is an important factor in maintaining a good financial reporting strategy since the internal control program is an important tool for investors to determine the adequacy of corporate reporting practices (Samaha, 2016). In addition, the audit committee is used to protect companies from fraud, mismanagement, and financial liability. Since the audit committee is a sub-committee of the board of directors composed of non-executive board members dealing with audit and internal control matters and the preparing of financial reports (Spira, 1998), the audit committee serves as a middleman between the internal and external auditors and the board of directors in their supervision role for the financial reporting method (Reinstein & Weirich, 1996).

To be able to exercise effective oversight, the audit committee must be independent of the management (Zgarni et al., 2016). Thus, prior empirical evidence suggests that the independence of the audit committee members can help balance the varying views of management and external auditors in producing high-quality financial information. In addition, some nations, such as the United States and the United Kingdom, mandate that all audit committee members be independent, while many other nations, such as Australia, China, and Singapore, only mandate that most audit committee members be independent (Kusnadi et al., 2016). In Jordan, all audit committee members are required to be autonomous and non-executive, as set out in the 2009 Corporate Governance Code. As such, audit committees are set up by boards of directors to supervise management's financial activities and serve as a bridge between external auditors and management (Vanasco, 1994; Bukit & Nasution, 2015). So, recent research suggests the significant influence of the audit committee's independence on earnings management and opportunistic activities (Nekhili et al., 2016).

Audit committees in Jordan are still a modern mechanism of mechanisms of corporate governance. In 1998, the Jordanian government approved the establishment of audit committees in Jordanian public company companies to enhance corporate governance, owing to the desire of Jordan to increase its involvement in international trade and attract foreign capital. In 2009, the corporate governance code

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provided further information about the role and duties of the audit committees of listed companies and confirmed that the committee will be accountable to the board of directors. Under these guidelines, the audit committee is responsible for the review and examination of the company's annual and interim financial statements, the work of the internal and external auditors, and the evaluation of the internal performance of the firm (Abdullatif, 2006; Abdullatif et al., 2015).

The audit committee's position reflects the concept of agency theory and the need to restrict managers' ability to receive special benefits from the firm (Badolato et al., 2014). The independent audit committee is therefore required to track management efficiently and reduce their opportunistic behavior. Khalil and Ozkan (2016) further stated that the impact of board independence on earnings management activities depends on the audit committee composition. Where Klein (2002) shows that companies with boards and/or audit committees containing fewer than independent directors are more likely to have a greater degree of abnormal accruals. In addition, Siagian and Tresnaningsih (2011) revealed significantly lower earnings management after the firms meet the criteria of independence, which implies a negative and significant correlation between the board independence and the audit committee independence with the management of earnings. Furthermore, Abata and Migiro (2016) provided empirical evidence that the independence of the board and the independence of the audit committee were insignificantly associated with earnings management by using the panel data analysis method for the period 2008 to 2013 in Nigeria. In addition, Hassan and Ibrahim (2014) presented empirical evidence of the listed manufacturing companies in Nigeria from 2007–2012 and reported that the independence of the audit committee had a significant and positive impact on the management of real earnings.

Similarly, the findings of Davidson, Goodwin-Stewart, and Kent (2005) suggest that earnings control is lower when the majority are non-executive members of the board of directors and audit committee. Marra, Mazzola, and Prencipe (2011) also show that providing the compulsory implementation of International Financial Reporting Standards (IFRS), including outside members on the board and audit committee plays a key role in controlling earnings control. Kapoor and Goel (2017) further noted that the independent audit committee has a significant negative effect on earnings management. While Al-Absy, Ismail, and Chandren (2019) indicated that the independence of the audit committee was found to be significantly correlated with a low level of 300 Malaysian-listed firms in real earnings management. In addition, Kharashgah, Amran, and Ishak (2019) presented proof of 721 firm-years of Jordanian companies over the period 2011 to 2017 and stated that the independence of the audit committee had a significant negative influence on the management of real earnings and all rates of real earnings. Consequently, we may conclude that the independence of the audit committee is effective in improving the efficiency of earnings by reducing the practice of management of real earnings.

On the other side, (Garven, 2015) noticed that in the case of real earnings management, the board performs a restricted role, and the audit committee has little control over managers' opportunistic behaviors. Moreover, Kang and Kim (2012); Sun et al. (2014), and Garven (2015) stated that the independent audit committee had an insignificant influence on operating cash flow, discretionary expenses, and production costs. In addition, Talbi et al. (2015) reported that the audit committee's independence on the overall real earnings management proxy at the traditional rates is insignificant. While Habbash (2019) confirmed that there is an insignificant correlation between an audit committee's independence and an indicator of earnings management. In addition, in a recent study by Rajeevan and Ajward (2019) for the period 2015 to 2017, the audit committee independence has an insignificant influence on both the abnormal cash flow from operations, abnormal expenses of discretionary, and abnormal cost of production. Therefore, we suggest the following hypothesis:

H2: The association between audit committee independence and real earnings management is negative.

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Research Methodology

Study Population Sample and Resources of Data

The data combination of the current study comprises the public companies listed on the Amman Stock Exchange (ASE) for the period 2012 to 2021 for 10 consecutive years of financial reporting (www.ase.com.jo). The financial sector has been excluded from the study sample due to strict instruction given by the Central Bank of Jordan to this sector and to ensure the robustness of the analysis and to understand the roles of corporate governance frameworks in relieving real earnings management activities and enhancing the transparency and reliability of recorded earnings, which enhances investor capacity in the decision-making process (Dakhlallh et al., 2020).

For the current study, the sample of the study included the industrial and service sectors from 2012 to 2021. However, some companies were excluded because they belonged to merged and liquidated firms or firms that did not have an available annual report. Thus, the final sample consists of firms listed and traded on ASE for the industrial and service firms (33 industrial firms, 41 service firms), which consists of 740 firm-year observations.

The current research data set includes financial and non-financial information for the ASE-listed companies for the period 2012-2021. Financial information was obtained from the available data released from the DataStream database for real earnings management. As regards, non-financial information for board independence and audit committee independence were collected manually from the annual reports published on the ASE website of the listed companies.

Measurement of Variables

Dependent Variable

We employ Roychowdhury (2006) and Cohen and Zarowin (2010) to estimate a total measure based on abnormal cash flows from operations (CFO), production costs (PROD), and discretionary expense (DISEXP) to quantify the manipulation of real activities.

Cash Flow from Operations (Sales Manipulations)

This approach can enhance the current period's earnings and sales volume, dissembling a positive margin. In addition, saving price discounts and credit terms would minimize the lenient current-period cash flow resulting in unnormal cash flow (abnormal cash flow from operations). Owing to their sales manipulation, cash flows from abnormal value operations will decrease, so actual earnings management will be poor if the cash flows from abnormal value operations are high. The estimates are as follows:

$$CFO_{it}/A_{it-1} = \text{a0} + \text{a1}(1/A_{it-1}) + \text{a2}(S_{it}/A_{it-1}) + \text{a3}(\Delta S_{it}/A_{it-1}) + \varepsilon_{it} \quad (1)$$

Where $CFO_{i,t}$ Cash flow operation, $A_{i,t-1}$ total assets of firm $_i$ at the end of period $_t$, $S_{i,t}$ is the Sales of firm $_i$ during period $_t$, $\Delta S_{i,t}$ change of sales ($\Delta S_{i,t} = S_{i,t} - S_{i,t-1}$). Abnormal CFO obtained residual value from equation (1).

Discretionary Expenses (Discretionary Expenditures)

Corporations may reduce discretionary expenses such as general management, expenses related to research and development, advertisement, and sales. This scenario can improve current period earnings and cash flow but with the risk of reducing future period cash flows. The reduction in discretionary load would reduce discretionary expenses with an abnormal value, thus, if the amount with abnormal discretionary expenses was high, real earnings management would reduce. Hence, we estimate discretionary expenses are following:

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$$DISX_{it}/A_{it-1} = a0 + a1(1/A_{it-1}) + a2(S_{it}/A_{it-1}) + \varepsilon_{it} \quad (2)$$

Where $DISX_{i,t}$ is discretionary expenses of firm $_i$ in period t, (sum of advertising expense, research and development expense, sales and general expense), $S_{i,t}$ is prior sales. Abnormal discretionary expenses obtained residual value from equation (2).

Production Cost (Overproduction)

Companies should generate more good units than necessary to increase earnings so that operations would reduce the cost of the products sold. Due to the overproduced goods, the lower cost of the sold goods is induced by the pervasion of fixed overhead costs by a greater number of units. Furthermore, if management manipulates earnings through overproduction, it may result in an abnormally high level of production costs. Production costs are therefore the amount of the goods sold and the inventory change (Roychowdhury, 2006) (Sun et al., 2014).

$$PROD_{it} = COGS_{it} + \Delta INV_{it} \quad (3)$$

Where $COGS_{i,t}$ are goods sold cost of the firm $_i$ in pierod $_t$, $\Delta INV_{i,t}$ is change in inventory of firm $_i$ in pireod t. We estimate the following regression model to compute abnormal production costs ($PROD_{i,t}$):

$$PROD_{it}/A_{it-1} = a0 + a1(1/A_{it-1}) + a2(S_{it}/A_{it-1}) + a3(\Delta S_{it}/A_{it-1}) + a4(\Delta S_{it-1}/A_{it-1}) + \varepsilon_{it} \quad (4)$$

Where PRODi,t Production cost, $\Delta S_{i,t-1}$ change of sales. Abnormal production cost obtained residual value from the equation (4). The final measure of real earnings management is the production costs of abnormal, measured by the residual value of equation (4). A high value of $PROD_{i,t}$ indicates high real earnings management due to overproduction leads to a higher value of abnormal production costs.

Total Real Earnings Management

To estimate a percentage of real earnings management. Residual values of equation (1) and (2) are multiplied by (-1) so that, when handling sales and/or discretionary expenses, actual operating cash flows and actual discretionary expenses are less than operating cash flows and discretionary expenses estimated. To convert changes in different processes into a single unit (Cohen et al., 2008; Cohen & Zarowin, 2010; Chi, Lisic, & Pevzner, 2011), this calculation is the sum of all three uniform residual operations. The bigger the number, the higher the exploitation level of a company's manipulation of real activities. We follow the equation to calculate real earnings management:

$$REM_{it} = -(CFO_{it}) - (DISX_{it}) + (PROD_{it}) \quad (5)$$

Independent Variable

We examine the relationship between the independence of the board, independence of the audit committee, and real earnings management, so the independence of the board and independence of the audit committee are the independent variables of the present study. Annual reporting from ASE-listed companies provides independent data from independent boards and audit committees. Therefore, a measure of board independence is the proportion of independent non-executive directors on the board of directors (Rajeevan & Ajward, 2019; Al-Haddad & Whittington, 2019; Almashaqbeh et al., 2019; Dakhlallh et al., 2021). Meanwhile, the audit committee's independence is the proportion of non-executive audit committee members to the total size of the audit committee (Rajeevan & Ajward, 2019; Al-Absy et al., 2019; Kharashgah et al., 2019; Dakhlallh et al., 2020)

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Control Variables

By earlier studies, the model includes several variables that indicate firm characteristics and earnings management motivations. So, controlling the determinants will lead to stronger findings in future studies of earnings management because they help mitigate the impact of omitted variables on earnings management (Dechow et al., 2012).

Firm size: Earlier earnings management research frequently employed the size of the company as a control variable. The mixed data indicate that there is no directional association between firm size and earnings management (Almarayeh et al., 2020). While Chung et al. (2002) find that larger enterprises manipulate earnings to report more predictable earnings, another study Ballesta & Garcia-Meca (2005) finds that large firms participate in earnings management to a lesser extent. Firm size (FZ) is computed as the natural logarithm of total capital.

Financial leverage: Many studies have demonstrated that financially challenged enterprises prefer to manage earnings to benefit from debt restructuring (Kim & Sohn, 2013). Another point of view is that heavily leveraged enterprises may face increased scrutiny from their lenders, reducing earnings management (Choi et al., 2004). Therefore, the sign for the relationship between company leverage and earnings management cannot be predicted due to such variable conditions (Almarayeh et al., 2020). Financial leverage (LEV) is calculated by dividing total debt by total assets.

Regression Equation Model

The author use panel data regression analysis for two hypotheses testing since this are more than one dependent variable used in this research. This research can be formulated as follows:

$$REM_{it} = \beta_0 + \beta_1 BI_{it} + \beta_2 ACI_{it} + \beta_3 FSIZE_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \qquad Eq1$$

REM_{it} represents the real earnings management, β_0 is the constant value, $\beta_1, \beta_2, \beta_3, and\ \beta_4$ are the slopes, ε_{it} is the error term, t represents the time series data, and i denotes the cross-sectional data. Following that, BI_{it} indicates the boad of directors independence; AI_{it} represents audit committee independence; $FSIZE_{it}$ is the firm size; LEV_{it} is financial leverage.

Result and Discussion

Descriptive Statistics

Table 1 supplies descriptive statistics of the variables used in the regression analysis for the sample of 740 firm-year observations from 2012-2021. Table 1 provides that the absolute values of real earnings management (REM) estimated utilizing the Roychowdhury model (2006) have a mean of 0.00498 and a standard deviation of 0.50297, meaning that the total volume of real earnings management is 0.498% of lagged total assets and that the Jordanian industrial and service firms widely practiced real earnings management. The abnormal operating cash flow (CFO) ranges from -0.68877 to 0.60834 with a mean of 0.00597. In addition, the abnormal discretionary expenditure (DISX) ranges from -0.17892 to 1.12265 with a mean of -0.00087. While the abnormal cost of production (PROD) ranges from -3.61294 to 3.67351 with a mean of 0.01008, which is a high percentage, meaning that Jordan's industrial and service firms depend on the abnormal cost of production to manipulate earnings. This indicates that these values are comparable with earlier evidence such as (Alzoubi, 2019; Dakhlallh et al., 2021).

Table 1: Descriptive Statistics

	REM	BI	ACI	CFO	DISX	PROD	FSIZE	LEV
Mean	0.004984	0.409665	0.806533	0.005976	-0.000876	0.010084	7.167015	0.361707
Maximum	3.530315	0.909100	1.000000	0.608341	1.122650	3.673516	8.273001	1.060530

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Minimum	-3.909329	0.000000	0.000000	-0.688776	-0.178923	-3.612941	5.744293	0.008158
Std. Dev.	0.502976	0.222748	0.480835	0.116443	0.102132	0.438677	0.480935	0.237417
Observations	740	740	740	740	740	740	740	740

Regarding the independent variables, Table 1 shows the mean of board independence (BI) is 0.40966 indicating that just under half of the Jordanian companies are largely consistent with recommendations of ASE which are one-third of members at least should be independent. While the mean of audit committee independence (ACI) is 0.80653, meanings that most Jordanian companies comply with ASE recommendations related to audit committees, and two-thirds of them are independent. Further, Table 1 displays the value of control variables, the mean of firm size (FSIZE) is 7.16701, meanwhile, 0.36170 is the mean of financial leverage (LEV).

Correlation Analysis

The correlation coefficient of the variables presents in the following Table 2 It is observed that all the coefficients are less than 0.8, which signifies fewer multicollinear problems. Yoshikawa and Phan (2003) mentioned that the model had no issues with multicollinearity, which generally requires 80% or more to confirm that the correlations between variables exist. Hence, the correlation analysis displays that multicollinearity is not a problem.

A consideration of correlation coefficients in Table 2 emphasizes several observations. aggregated real earnings management (REM) is not correlated with board independence and audit committee independence. Furthermore, the board independence is not associated with all of the cash flow from operations (CFO), discretionary expenditure (DISX), and production cost (PROD), while the audit committee independence is negatively correlated with all of the cash flow from operations (CFO), discretionary expenditure (DISX), and production cost (PROD) at 1%.

Table 2: Correlation Analysis

Correlation								
Probability	REM	BI	ACI	CFO	DISX	PROD	FSIZE	LEV
REM	**1.0000**							
BI	-0.05780	**1.0000**						
ACI	-0.01456	0.13968*	**1.0000**					
CFO	-0.43521*	-0.13738*	0.03733	**1.0000**				
DISX	-0.36752*	-0.11621*	0.03903	0.17666*	**1.0000**			
PROD	0.094548*	-0.12980*	0.00229	-0.19243*	-0.14168*	**1.0000**		
FSIZE	0.07388**	-0.00342	-0.14439*	-0.03548	-0.20403*	0.02779	**1.0000**	
LEV	0.02379	0.13586*	-0.08604**	-0.13742*	-0.03603	-0.01758	0.19315*	**1.0000**

* significant at 1%. ** significant at 5%. *** significant at 10%.
REM: real earnings management; BI: board independence; ACI: audit committee independence; cash flow from operations (CFO); discretionary expenditure (DISX); production cost (PROD); FSIZE: firm size; LEV: financial leverage.

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Regression Analysis Results

Table 3 shows the regression findings of the board independence and audit committee independence on real earnings management in Jordanian companies. As a balanced panel data is used, the Hausman test was run to choose which model is best suited to the data (fixed effect or random effect). The value was significant (P = 0.000) and, therefore, the null hypothesis cannot be rejected. Thus, the fixed effect model is considered the most appropriate for the current study.

Table 3: Fixed Effect Model

	REM_ALL		**CFO**		**DISX**		**PROD**	
Variable	Coefficients	t-Statistic	Coefficients	t-Statistic	Coefficients	t-Statistic	Coefficients	t-Statistic
BI	0.249	2.663*	-0.0756	-2.558**	-0.530	-15.731*	0.181	2.322**
ACI	-0.231	-2.685*	-0.064	-2.530**	0.036	2.747*	-0.226	-7.338*
FSIZE	0.145	0.470	-0.068	-0.698	0.023	0.467	0.100	0.698
LEV	-0.436	-2.551**	-0.068	-1.751***	-0.023	-1.652***	-0.366	-2.564**
Cons	-1.226	-0.550	0.605	0.850	-0.201	-0.547	-0.822	-0.441
R-squared	0.356105		0.344982		0.472257		0.384142	
F-statistic	16.40269		4.528035		29.15303		18.62180	
Prob (F-statistic	0.000000		0.000000		0.000000		0.000000	
Mean dep. var	0.004984		0.005976		-0.000876		0.010084	
S.D. dep. var	0.502976		0.116443		0.102132		0.438677	
Durbin-Watson	1.841185		2.003483		1.948787		1.810115	

*** significant at 1%. ** significant at 5%. *** significant at 10%.**
REM: real earnings management; BI: board independence; ACI: audit committee independence; cash flow from operations (CFO); discretionary expenditure (DISX); production cost (PROD); FSIZE: firm size; LEV: financial leverage.

Table 3 above indicates the effect of board independence and audit committee independence on real earnings management in Jordanian companies. The hypotheses evaluated in the current research are two. The research model shows that real earnings management is measured by abnormal cash flow from operations (CFO), abnormal discretionary expenditure (DISX), abnormal production cost (PROD), and abnormal aggregated real earnings management (ALL_REM). The model generates an R-squared of 0.356105, F-value is 16.40269, P-value is 0.000, and Durbin-Watson is 1.841185 for abnormal aggregated real earnings management (ALL_REM). Also, the model generates an R-squared of 0.344982: 0.472257: 0.384142, Durbin-Watson is 2.003483: 1.948787: 1.810115 for CFO, DISX, and PROD respectively.

As shown in Table 3, the board independence has a positive and significant coefficient with aggregated real earnings management (ALL_REM) and production cost (PROD), while has a negative and significant coefficient with cash flow from operations (CFO) and discretionary expenditure (DISX), which means that independent boards are more likely to participate in aggregated real earnings management (ALL_REM) and production cost (PROD) in Jordan. The positive link may exist because independent directors are not sufficiently independent and Jordanian companies may not have mature demands for independent directors. The intricacy of accounting required to identify real earnings management may also be lacking on the board. In this situation, the outcome is inconsistent with the theory of agency, which predicts that external board members will reduce the activities related to earnings management and increase the corporate governance framework.

Furthermore, the audit committee independence reveals a negative and significant relationship with REM_ALL, CFO, and PROD, whereas a positive effect with DISX. The negative result shows that audit committee independence is the most important board function element that determines real earnings management. Consequently, we may conclude that the independence of the audit committee is effective in improving the efficiency of earnings by reducing the practice of management of real earnings. Also, the result of hypothesis 2 is consistent with the agency theory view which indicates the independence of the audit committee reduces the managers' practices. On another side, the findings in Table 3 reflect control variables indicating that the coefficient of firm size (FSIZE) has an insignificant effect on all model variants of real earnings management (REM), meanings the firm size (FSIZE) can not limit real activities. Secondly, the findings show that financial leverage has a negative effect on all model variants of real earnings management (REM).

Conclusions

The current study aimed to shed new light on how the independence both of the board of directors and audit committee can limit real earnings management in a developing country, Jordan, whose cultural, economic, and institutional context is very different from other countries. To achieve the objective of the current study, we examined whether board independence and audit committee independence have an influence on all model variants of real earnings management (aggregated real earnings management (REM_ALL), cash flow from operations (CFO), discretionary expenditure (DISX), and production cost (PROD)) for the industrial and service sector listed on the ASE during the period 2012–2021.

The findings suggest that board independence and audit committee independence significantly affect earnings management. Therefore, board independence has a positive influence on REM_ALL and PROD, while a negative effect on CFO and DISX. Meanwhile, audit committee independence has a negative effect on all of REM_ALL, CFO, and PROD, but a positive effect on DISX. Thus, the findings of this study present new evidence regarding the impact of the percentage of the independence both of the board of directors and audit committee on real earnings management. Also, these findings support the authors' expectations about the outcomes. Hence, the findings of the current study corroborate the agency theory's view of the audit committee's independent role in limiting real earnings management activities and not in line with the board's independence.

Finally, our findings offer valuable information for policymakers and regulators. Contrary to the guidelines of the 2009 Jordanian corporate governance Code, the findings of this study indicate that independent directors worsen rather than decrease the prevalence of opportunism. Whereas the audit committee's independence leads to a limitation of opportunistic real earnings management practices. Therefore, probably the proportion of independent directors is too soft to control the board, their expertise being insufficient or doubtful in terms of independence. Concerning audit committee independence, government, and regulators must concentrate on this mechanism to reduce real earnings management activities and allow businesses to increase independence in the audit committee. Eventually, for future studies, consideration must be taken in the developed and developing countries to examine this relationship to explain the findings from a different viewpoint. Furthermore, further studies are required to examine the various proxies for independence, such as auditors' independence. In addition, researchers may also use manipulation of accrual-based to estimate different proxies of earnings management.

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