The trade-off between accrual-based and real earnings management: evidence from Jordan

Mohammad Azzam* and Alaa AlQudah
Accounting Department,
Yarmouk University,
Irbid, 21110, Jordan
Email: moh.azzam@yu.edu.jo
Email: alaa.alqudah@yu.edu.jo
*Corresponding author

Lara Al-Haddad
Finance Department,
Yarmouk University,
Irbid, 21110, Jordan
Email: lara.haddad@yu.edu.jo

Ayman Abu Haija
Accounting Department,
Jadara University,
Irbid, 21110, Jordan
Email: aymanh@jadara.edu.jo

Abstract: This study examines the extent of accrual-based and real earnings management surrounding three important turning points in the Jordanian business environment. Using a sample of 1748 firm-year observations between 2002 and 2016, the results show that firms have a great tendency towards using discretionary accruals to alter their reported earnings compared with real manipulation. Indeed, the magnitude of accrual-based earnings manipulation is increased significantly in the aftermath of the issuance of listing requirements. Interestingly, accrual-based and real earnings management is decreased significantly with the passage of the corporate governance code. In relation to the Arab Spring era, no clear evidence appears that firms are engaged in earnings management to embellish their financial reports. The overall results suggest that the ability of managers to exercise their discretion over earnings depends on firms' attributes such as the quality of the governance system, regulatory requirements and the surrounding business and political environment.

Keywords: accrual-based earnings management; real earnings management; financial reporting; corporate governance; listing requirements; Arab Spring; Jordan.
1 Introduction

Manipulating firms’ financial reporting by engaging in earnings management (EM) practices is a problem of importance for stockholders, creditors and economies. The incentives underlying EM vary among firms and contexts as well. The most common incentives that are discussed in prior research are capital market incentives (Iqbal et al., 2015; Shi et al., 2017), contractual incentives (Ali and Zhang, 2015; Hossain and Monroe, 2015) and regulatory and tax incentives (Chen and Zhang, 2014; Chen et al., 2018; Li et al., 2014). Furthermore, the vast majority of researchers have focused extensively on accruals EM to represent how managers exercise their accounting discretion to adjust firms’ earnings. They adopt several models to determine the extent of accruals EM such as those developed by Healy (1985), DeAngelo (1986), Jones (1991), Dechow et al. (1995), Larcker and Richardson (2004), and Kothari et al. (2005). In contrast, very few studies have shown how managers can alter earnings through real EM. One well-known study in this regard was conducted by Roychowdhury (2006). He provides clear evidence that managers manipulate real activities (i.e., decrease discretionary expenses) to avoid reporting losses. The literature, therefore, suggests that the starting point in detecting the existence of EM activities in any context is to determine the potential incentive that is most likely associated with these activities. Of equal importance, firms’ tendency to use accruals vs. real EM practices may depend on their
The trade-off between accrual-based and real earnings management

ability to use them as well as the costs associated with these practices (Chang and Chen, 2018; Cohen and Zarowin, 2010; Ho et al., 2015; Ipino and Parbonetti, 2017).

The current study contributes to the literature by investigating the trend of both accruals and real EM in a unique context (i.e., Jordan) pre-and-post three important turning points in its business environment. Firstly, it shows how listed firms on the Amman Stock Exchange (ASE) responded to the new listing requirements which were implemented in 2004. Specifically, the “Securities Law No. 76 for 2002” divided the ASE into two markets: the first market, which comprises the most profitable firms, and the second market, which comprises less profitable firms. The law states that a firm should be removed from the first market if “the company accounts show losses in the last three fiscal years” (Securities Law No. 76 for 2002). Equally significant, a firm can be moved to the first market if it “realised net pre-tax profits in two financial years at least within the last three years preceding the listing transfer” (Securities Law No. 76 for 2002). This law, which is different from other stock market laws in different contexts, is expected to provide listed firms with a strong incentive to alter reported earnings to remain listing in the first market or to shift from the second market to the first market.

Secondly, Jordan introduced its first code of corporate governance for listed firms at the ASE in 2009. The core of this code is to enhance transparency in the capital market and open it to foreign investments (JSC, 2018). It concentrates on stockholders’ rights, provides more protection for minority stockholders, develops the structure of a board of directors and clearly specifies its duties, and obliges firms to disclose all relevant information regarding their operations. This study, therefore, investigates whether managers’ use of the two types of EM is decreased/increased with the promulgation of this code. The third turning point that may affect the Jordanian business environment is the start of the Arab spring approximately in 2012. Most of the Arab countries, including Jordan, face financial difficulties which may affect listed firms in terms of exhibiting poor financial performance, increasing their level of debt and lowering their attractiveness for investments, noticeably by foreign investors. The behaviour of firms during this extraordinary environment is still equivocal. Indeed, no study to date has investigated whether managers manipulate firms’ earnings to overcome the potential negative consequences of the Arab Spring. The current study fills this gap in the literature by comparing the magnitude of accruals and real EM pre-and post-Arab Spring.

The remainder of this study proceeds as follows: Section 2 reviews the literature and formulates the hypotheses. Section 3 sets out the methodology adopted here by specifying sample selection criteria, justifying the selection of the study period that covers the years 2002 to 2016 and determining the models that are used to estimate accruals and real EM. Section 4 shows descriptive statistics and reports the results of univariate analysis and multivariate analysis and, finally, Section 5 concludes this study by presenting its main implications, limitations and suggestions for future studies.

2 Literature review and hypotheses development

2.1 Accruals and real EM pre-and post-listing requirements

Positive accounting theory (PAT) argues that some regulations (i.e., tax laws and listing requirements) that are issued by governments in order to organise their stock markets can also be used by firms’ managers as an incentive to manipulate earnings to overcome the
negative consequences of these regulations (Chen and Zhang, 2014; Johnston and Rock, 2005; Li et al., 2014). Indeed, Watts and Zimmerman (1986, p.281) state that “[governmental regulation] provides management with incentives to select accounting procedures which either reduce the costs they bear or increase the benefits they receive as a result of the actions of government regulators and legislators”.

Some of the previous studies support the PAT’s argument and provide evidence on the presence of EM activities as a result of the issuance of governmental regulations in different contexts. One of the early and well-known studies in this regard is presented by Jones (1991). She finds that firms adopt negative discretionary accruals in order to confer benefits from investigation by the US government pertaining to import relief. In a similar vein, Johnston and Rock (2005) and Chen et al. (2011) find that firms try to decrease their earnings to the lowest level to avoid costs associated with ‘Superfund Regulations’ in the US and ‘Real State Regulations’ in China.

Other studies investigate the association between EM and tax law changes. For example, Monem (2003) reveals that Australian firms employ both positive and negative EM in different years to be subjected to a low tax rate. Jaggi et al. (2006) find that firms manipulate their earnings upwards in order to reduce tax expense by obtaining a tax concession during the first years of their operations in China. Additionally, Marques et al. (2011) find that firms are highly motivated to alter their earnings through discretionary accruals to avoid paying more tax in advance to the Portuguese government. Most recently, Chen et al. (2018) find that information asymmetry is negatively linked to the practice of income shifting which is motivated mainly by tax.

Very few studies, however, have been conducted regarding the association between EM and listing requirements. Lin (2003) for example, provides evidence on the existence of EM activities in firms which try to move to a new stock market in the US. Furthermore, Li et al. (2014) reveal that Chinese firms engaged more in EM when the new listing regulation was introduced in 2000. The current study, therefore, has the opportunity to contribute to this on-going debate in the literature by examining the new listing requirements of listed firms on the ASE and providing original evidence from this developing country context. Equally significant, the bulk of previous studies have examined accruals EM and its association with several sets of governmental regulations, and thus real EM is ignored. This study overcomes this shortcoming by investigating both accruals and real EM pre-and post-listing requirements. Based on the previous discussion, the following hypotheses are formulated:

\[ H_{1a}: \text{The magnitude of accruals EM increased in the post-listing requirements period.} \]

\[ H_{1b}: \text{The magnitude of real EM increased in the post-listing requirements period.} \]

2.2 Accruals and real EM pre-and post-corporate governance code

The quality and the reliability of accounting earnings can be enhanced when the opportunistic behaviour of managers is constrained using different monitoring systems, noticeably corporate governance. The Organization for Economic Co-operation and Development (OECD) defines corporate governance as “the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibility among different participants in the corporation and spells out the rules and procedures for making decisions on corporate affairs” (OECD, 1999, p.11). A considerable amount of literature proves the efficiency of
corporate governance as a monitoring system to reduce managers’ tendency to manage earnings.

Good governance system is a central part of Jordan’s reform efforts to protect the interests of investors (AlQudah et al., 2019; Alrabba et al., 2018). Over the last few years, the Jordanian government has taken a number of steps to reform the corporate governance regime in the country. For example, several laws introducing the Jordanian governance framework were enacted (e.g., The Company Law, 1997; The Insurance Regulatory Act, 1999; The Banking Law, 2000; The New Securities Law, 2002). Furthermore, several corporate governance codes (CGCs) have been introduced such as “The CGC for Jordanian Banks in 2007”, “The CGC for Shareholding Firms Listed on the Amman Stock Exchange in 2009”, “The CGC for Private Shareholding Companies, Limited Liability Companies, and Non-listed Public Shareholding Companies in 2012” and “The New CGC for Banks in 2014”. Such remarkable steps reflect Jordan’s keenness to improve the overall governance structure in the country.

As this study concentrates on listed shareholding firms, it deals with the role of “The CGC for Shareholding Firms Listed on the Amman Stock Exchange in 2009” in deterring real and accrual-based earnings manipulations. This code was developed by the Jordanian Securities Commission (JSC), and aimed primarily to establish a clear framework that regulates the relations between management and shareholders, defines their rights, responsibilities and duties, realises their objectives and safeguards the rights of all stakeholders. Adherence to this code is through the ‘Compliance or Explain Approach’. Jordanian firms must comply with the rules of this code, and in case of non-compliance with any of these rules, it would be compulsory to clarify the reasons for non-compliance in the firm’s annual report.

As discussed earlier, the majority of previous literature suggests that there is a shift from using accruals EM to real earnings manipulations. However, according to agency theory, good corporate governance can act as an effective deterrent against possible opportunistic behaviour exercised by managers (Fama, 1980; Fama and Jensen, 1983). Thus, from an agency theory perspective, this study postulates that after the introduction of the 2009 CGC, the opportunistic behaviour of Jordanian managers has been moderated because they may find it quite hard to engage in either accrual or real earnings manipulations. The above discussion leads to the following hypotheses:

\[ H_{2a}: \text{The magnitude of accruals EM decreased in the post-CGC period.} \]

\[ H_{2b}: \text{The magnitude of real EM increased in the post-CGC period.} \]

2.3 Accruals and real EM pre-and post-Arab spring

To survive, firms need to interact with their environment to secure the stability of their financial position. Indeed, the continuity of firms is tied to the surrounding environment’s diverse conditions such as social and political issues (Pfeffer and Gerald, 1978). Achieving shareholders’ classical goal requires securing the required resources to meet customers’ needs. Meanwhile, firms need to export their products to different external markets in a way that enhance firms profits, and concurrently, to maximise managers remunerations and bonuses. The Arab Spring has carved new political, economic and social maps in the Middle East area. In other words, these local revolutions affected various aspects in the countries that are facing these new challenges in a way that aims to introduce a new set of reforms in order to enhance the life of society (Matesan, 2012).
The Arab Spring, indeed, has affected the countries under the Middle East and North Africa umbrella, such as Egypt, Syria, Tunisia, Libya and the Gulf region indirectly, through the uncertainty of producing oil and gas in these countries and this has influenced firms’ and countries’ financial positions (Darbouche and Fattouh, 2011). Interestingly, Jordan was one of the main victims of the Arab Spring in that cross-border trade has been influenced negatively, since Jordanian firms were dependent on exporting their products to the countries affected by the Arab Spring. Furthermore, internal tourism figures have been affected inversely since total income from this part of economy has decreased noticeably, according to official reports from the Jordanian government. Hence, since Jordan is surrounded by some countries that suffered from the Arab Spring, and also in the light of the scarcity of financial and natural resources needed to enhance the Jordanian economy, this has put a lot of pressure on Jordanian firms and Jordanian regulators to find effective solutions to survive and to improve the national figures needed to guarantee the survival of firms.

However, during the outbreak of local revolutions in the region, the JSC introduced the CGC to organise the Jordanian market in a way that protects shareholders’ wealth and enhances the Jordanian market’s figures. As a result, this has affected firms’ financial and legal positions, since Jordanian firms were under pressure to adopt CGC requirements in a period that witnessed extraordinary political conditions. Therefore, this may push firms to alter their earnings in a way that ensures their ability to survive at least in the short run; and further, form a managerial point of view, managers may be inclined and incentivised to practice EM techniques to secure their positions and remunerations in the foreseeable future.

In terms of EM practices, in specific, the trade-off between accruals and real EM decisions may be subject to several considerations based on firms’ environment and the strength of laws and regulations in the financial market. For example, accruals manipulation may be the preferable path for managers to exercise their discretion to enhance income figures. The argument is that altering accruals is considered less discoverable compared with real EM choices, since these choices are classified as internal decisions and managers are taking advantages of the current gaps in accounting standards to alter earnings. For example, Braam et al. (2015) conduct a study over 30 financial markets and reveal that firms that had political ties were more convinced about accruals techniques compared with real EM. Additionally, mandating the adoption of IFRS across a sample of 33 countries was one of the motivations to alter managers’ decisions to be more experience and knowledgeable in accruals decisions (Ipino and Parbonetti, 2017).

In contrast, Kothari et al. (2015) find that, firms prefer real EM techniques around the seasoned equity offering to manage earnings even with their knowledge of the cost of such practices in the long-run. Ferentinou and Anagnostopoulou (2016) present evidence that Greek managers have moved from practicing their discretion over firms’ accruals to a more practical approach (i.e., real EM) in order to gain a reduction in tax expense. Furthermore, Chinese managers under specific conditions, such as weak adoption of the governance code were motivated to adopt real EM since it has been less costly compared with accruals manipulations (Gao et al., 2017). Li (2018) argues that, firms may use both types of EM concurrently or complementarily to achieve their goals. However, the trade-off behaviour between accruals and real EM depends mainly on the surrounding environment conditions.
In terms of the scope of this study, previous evidence from the Jordanian market documents the adoption of accruals techniques to alter firms’ earnings in recent years. For instance, several studies show that, both manufacturing and service firms were inclined to embellish financial reports through discretionary accruals decisions to disclose consistent figures of earnings. Hence, the Arab Spring and scarcity of resources in the Jordanian market may be considered the main obstacles that hinder managers from preparing attractive financial reports that satisfy principals’ expectations. Therefore, the favourable path for managers in such a situation is the adoption of EM techniques in order to show that firms’ financial positions are under control.

Consequentially, managers’ behaviour within these unstable political fluctuations may create several financial setbacks in which firms’ managers preferred to change their policies in reporting profits. Indeed, Watts and Zimmerman (1986) report that, under the pressure of the political conditions, managers’ efforts may be devoted to adopt a conservative financial position by reporting lower profits compared with prior years in which the profits levels were normal. This perspective could be explained by the political cost theory that claimed that, firms under the political pressures are expected to be more inclined to involve in EM practices; for example, income decreasing techniques (Byard et al., 2007; Monem, 2003). Interestingly, the Arab Spring has affected the oil market negatively in the US; therefore, managers were interested in adopting income decreasing techniques to achieve their personal goals to guarantee their continuity in their seats (Hsiao et al., 2016). In other words, the unstable political conditions (i.e., Arab Spring) may deepen the gap in interests between firm’s owners and their representatives, since such managers are willing to maximise their personal benefits on the expense of firm’s owners. Consequently, they are expected to trade off between the available EM techniques to gain personal benefits.

To sum up, the political conditions are expected to influence managers’ behaviours in terms of selecting the appropriate way to report income, since such conditions may vary by time, therefore, the policy of trading off between accruals manipulations or real EM techniques depends mainly on managers experience or the targets that aim to achieve. Hence, based on the previous discussion, the following hypotheses are formulated:

\[ H_{3a} \]: The magnitude of accruals EM increased in the post-Arab Spring period.

\[ H_{3b} \]: The magnitude of real EM increased in the post-Arab Spring period.

3 Research design

3.1 Sample selection and study period

This study includes non-financial firms listed on the ASE from 2002 to 2016. Financial firms are excluded here owing to the different methods and techniques that they may employ to manipulate their reported earnings, noticeably loan loss provision. As shown in Table 1, firms on the ASE from 2002 to 2016 produced 2641 firm-year observations. Among them, 861 observations from the financial sector are excluded. Another 32 observations are also excluded as financial statements needed to estimate EM (whether accruals or real) were not available. These two exclusions leave the current study with 1748 firm-year observations.
The reason behind the selection of the period 2002–2016 is that this period enables the current study to conduct a comprehensive examination of EM activities undertaken by firms’ managers around three important turning points in the Jordanian business environment. Specifically, the levels of accruals and real EM are compared pre- and post-implementation of the new listing requirements in 2004, pre- and post-implementation of the CGC in 2009, and pre- and post-Arab Spring that started in 2012. The financial data required to conduct the current study are collected manually from firms’ annual reports that are available on the website of the JSC.

3.2 Measurement of earnings management

3.2.1 Accruals earnings management

The discretionary part of total accruals is used in the current study as a measure of accruals EM. Non-discretionary accruals (NDA) are isolated from discretionary accruals (DA) using the cross sectional version of the modified Jones model (MJM), which was developed by Dechow et al. (1995), as it is employed extensively in the literature to do that. The MJM adjusts the original model by including the change in receivables when estimating DA. Following the MJM, firms’ DA is estimated for each year and industry as follows:

\[ \frac{TAC_i}{TA_{i,t-1}} = a_1 \left( \frac{1}{TA_{i,t-1}} \right) + a_2 \left( \frac{\Delta REV_i}{TA_{i,t-1}} - \frac{\Delta REC_i}{TA_{i,t-1}} \right) + a_3 \left( \frac{PPE_i}{TA_{i,t-1}} \right) + \epsilon_i \]  

(1)

where:

- \( TAC_i \) : total accruals for firm \( i \) in year \( t \)
- \( TA_{i,t-1} \) : total assets at the beginning of the year for firm \( i \) in year \( t \)
- \( \Delta REV_i \) : change in revenues from the current year and previous year for firm \( i \) in year \( t \)
- \( \Delta REC_i \) : change in receivables from the current year and previous year for firm \( i \) in year \( t \)
- \( PPE_i \) : gross property, plant and equipment for firm \( i \) in year \( t \)
- \( \epsilon_i \) : error term
- \( a_1-a_3 \) : firm specific parameters.

In order to reduce heteroscedasticity, all variables in the previous equation are scaled by total assets at the beginning of a firm’s year. NDA are determined using the coefficients \( (a_1, a_2, \text{and } a_3) \), and then DA is the difference between a firm’s total accruals and its
The trade-off between accrual-based and real earnings management

NDA. This study also uses the “Performance Matched Discretionary Accruals Model” (PMDAM), which was developed by Kothari et al. (2005), to strengthen DA’s estimation by including ROA in the MJM.

While previous studies have estimated total accruals using two methods (i.e., balance sheet and cash flow), balance sheet remains the dominant method. This study, therefore, estimates total accruals as follows:

\[
TAC_i = \left( \frac{\Delta CA_i - \Delta CL_i - \Delta CASH_i + \Delta DCL_i - \Delta DEP_i}{TA_{i-1}} \right) 
\]  

(2)

where:

- \( TAC_i \): total accruals for firm \( i \) in year \( t \)
- \( \Delta CA_i \): change in current assets for firm \( i \) in year \( t \)
- \( \Delta CL_i \): change in current liabilities for firm \( i \) in year \( t \)
- \( \Delta CASH_i \): change in cash and cash equivalents for firm \( i \) in year \( t \)
- \( \Delta DCL_i \): change in debt included in current liabilities for firm \( i \) in year \( t \)
- \( \Delta DEP_i \): depreciation and amortisation expense for firm \( i \) in year \( t \)
- \( TA_{i-1} \): total assets at the beginning of the year for firm \( i \) in year \( t \).

3.2.2 Real earnings management

To estimate real EM, this study follows the majority of previous studies and employs the Roychowdhury (2006)’s model, where managers may engage in sales manipulation. The extra sales will lead to a riskier credit policy and higher production costs in the period relative to a ‘normal’ level for the firm. The current study, therefore, expects an abnormally low cash flow from operating in the current period as a result of sales manipulation. In addition, managers can manipulate earnings by reducing the discretionary expenditures, such the research and development (R&D), advertising, selling, general and administration expenses, in order to increase the current earnings. Lower abnormal discretionary expenses are then expected when real EM is involved. The normal levels of cash flow from operations and discretionary expenses are estimated using the following models for each year and industry:

\[
\frac{CFO_i}{TA_{i-1}} = a_0 + \beta_1 \frac{1}{TA_{i-1}} + \beta_2 \frac{S_i}{TA_{i-1}} + \beta_3 \frac{\Delta S_i}{TA_{i-1}} + \varepsilon_i 
\]  

(3)

\[
\frac{DISX_i}{TA_{i-1}} = a_0 + \beta_1 \frac{1}{TA_{i-1}} + \beta_2 \frac{S_{i-1}}{TA_{i-1}} + \varepsilon_i 
\]  

(4)

where \( CFO_i \) is cash flow from operations of firm \( i \) in year \( t \), \( TA_{i-1} \) represents total assets at the end of year \( t-1 \), \( S_i \) is net sales for firm \( i \) in year \( t \), \( \Delta S_i \) is changes in net sales for firm \( i \) between year \( t-1 \) and year \( t \), and \( \varepsilon_i \) is the regression residual which represents abnormal cash flow from operations. \( DISX_i \) is the discretionary expenses including selling, general and administrative expenses, R&D, and advertising for firm \( i \) in year \( t \), and \( \varepsilon_i \) is the regression residual which represents abnormal discretionary expenditures. The absolute
values of accrual-based and real EM is used here because the concern of this study is the magnitude of EM rather that its direction.

4 Descriptive statistics

Table 2 shows the mean and median values of accruals and real EM. Each type is measured using two different models in order to get more accurate estimation of the level of firms’ earnings manipulation. It appears that firms listed on the ASE are engaged more in accruals EM compared with real EM. Specifically, the mean (median) values recorded for accruals EM of both models -MJM and PMDAM- are higher than those recorded for the two models of real EM. Indeed, Figure 1 shows that while there is a decreasing trend in EM level overtime, this reduction is more observable for real EM compared with accruals EM.

Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Full sample</th>
<th>Large firms</th>
<th>Small firms</th>
<th>T-test</th>
<th>Wilcoxon Z-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
</tr>
<tr>
<td>Accruals EM-MJM</td>
<td>0.108</td>
<td>0.062</td>
<td>0.090</td>
<td>0.054</td>
<td>0.126</td>
</tr>
<tr>
<td>Accruals EM-PMDAM</td>
<td>0.107</td>
<td>0.063</td>
<td>0.090</td>
<td>0.058</td>
<td>0.124</td>
</tr>
<tr>
<td>Real EM-CFO</td>
<td>0.091</td>
<td>0.056</td>
<td>0.090</td>
<td>0.057</td>
<td>0.092</td>
</tr>
<tr>
<td>Real EM-DISX</td>
<td>0.089</td>
<td>0.053</td>
<td>0.088</td>
<td>0.057</td>
<td>0.090</td>
</tr>
</tbody>
</table>

This table reports the descriptive statistics for accruals and real EM using a sample that includes 1748 firm-year observations of listed firms on the ASE from 2002 to 2016. T-test (mean difference) and Wilcoxon-Z test (median difference) are used here to compare the mean and median values between large and small firms. Accruals EM-MJM: is the absolute value of discretionary accruals estimated using the MJM developed by Dechow et al. (1995). Accruals EM-PMDAM: is the absolute value of discretionary accruals estimated using the PMDAM developed by Kothari et al. (2005). Real EM-CFO: is the absolute value of abnormal cash flow from operations. Real EM-DISX: is the absolute value of abnormal discretionary expenditures. The symbols (*), (**) and (***) denote significance at 10, 5 and 1%, respectively, in two-tailed test.

The bulk of previous studies that have been conducted in several different contexts revealed that a firm’s size is one of the most important factors that may limit/motivate its ability to manipulate earnings (Llukani, 2013; Rahmani and Akbari, 2013; Shu and Chiang, 2014). Table 2, therefore, compares the level of accruals and real EM between large and small firms to test whether EM in Jordanian firms is affected by their size. Such comparison may help in explaining the results of univariate analysis reported in the next sections. The results reveal that the mean (median) value of accruals EM for large firms is 9% (5.4%). These values are significantly lower than the mean (median) of small firms ($p < 0.01$).

This result supports the perspective in the literature that large firms are subject to more public scrutiny, especially from external auditors and creditors. Thus, their ability
to adjust reported earnings is minimised. In relation to real EM, while a slight difference is found in the mean between the two groups of firms, the median is significantly higher for large firms \( (p < 0.01) \). This conclusion most likely supports the argument that the choice between accruals and real EM depends on firms’ attributes like the quality of external audit, the level of leverage, and the quality of their governance system.

**Figure 1** The trend of accruals and real EM from 2002 to 2016 (see online version for colours)

### 5 Results and discussion

This section tests the current study’s hypotheses regarding the extent of EM around three important turning points in the Jordanian context. The hypotheses are tested using T-test (mean difference) and Wilcoxon-Z test (median difference). This study hypothesises that the listing requirements imposed by the JSC in 2004 establish a strong incentive for firms to manage their earnings in a way that guarantees their trading in the first market or moving from the second market to the first market. This study, therefore, expects that the level of both accruals and real EM is expected to increase in order to fulfil these listing requirements. To test this hypothesis, the mean and median values of the two types of EM are compared between the pre-listing requirements era (i.e., 2002 and 2003 with 148 firm-year observations), and the post-listing requirements era (i.e., 2005 and 2006 with 210 firm-year observations).

Table 3 shows that the mean (median) value of the MJM for the post-listing requirements period is 12.6\% (7.6\%), which is significantly \( (p < 0.01) \) higher than the values recorded for the pre-listing requirements period where the mean (median) is 9\% (5.4\%). The same findings approximately are reported using the PMDAM. This suggests that Jordanian firms are engaged clearly in accruals EM to reserve their position in the
first market or shift from the less profitable market (i.e., second market). These results corroborate one of the main assumptions of the PAT that regulations issued by a country’s government may lead to an increased level of managerial-discretion as an attempt to meet the requirements of these regulations. Based on this conclusion $H_{1a}$ is accepted.

Table 3  Univariate analysis of accruals and real EM pre-and post-listing requirements

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>-------------</td>
<td>------</td>
<td>--------</td>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td>Accruals EM-MJM</td>
<td>0.090</td>
<td>0.054</td>
<td>0.126</td>
<td>0.076</td>
</tr>
<tr>
<td>Accruals EM-PMDAM</td>
<td>0.090</td>
<td>0.058</td>
<td>0.124</td>
<td>0.073</td>
</tr>
<tr>
<td>Real EM-CFO</td>
<td>0.090</td>
<td>0.057</td>
<td>0.092</td>
<td>0.054</td>
</tr>
<tr>
<td>Real EM-DISX</td>
<td>0.088</td>
<td>0.057</td>
<td>0.090</td>
<td>0.049</td>
</tr>
</tbody>
</table>

This table reports the results of univariate analysis of accruals and real EM pre-and post-listing requirements. Pre-listing requirements era comprises the years 2002 and 2003 with 148 firm-year observations. Post-listing requirements era comprises the years 2005 and 2006 with 210 firm-year observations. T-test (mean difference) and Wilcoxon-Z test (median difference) are used here to compare the mean and median values. All accruals and real EM measures are defined previously in Table 2.

The symbols (*), (**) and (*** denote significance at 10, 5 and 1%, respectively, in two-tailed test.

The results reported for real EM are completely different. No significant difference appears between the pre-and post-listing requirements pertaining to the mean value of the two real EM models. More importantly, a significant reduction ($p < 0.01$) is found in the median values. Specifically, the median of the CFO (DISX) is decreased from 5.7% (5.7%) from the pre-listing requirements period to 5.4% (4.9%) post-listing requirements period. Interestingly, this conclusion supports the findings of Table 3 where managers of firms listed on the ASE preferred accruals EM to manipulate earnings. Thus, $H_{1b}$ is rejected.

Agency theory argues that improving the level of firms’ governance structure (i.e., board of directors and its committees) is expected to play a vital role in limiting EM practices. Indeed, the vast majority of previous studies in different contexts like Cohen et al. (2005) and Chen et al. (2015) in the US, Jordan et al. (2014) in Canada, Beekes et al. (2004) in the UK, Kang et al. (2013) in Australia, and Chen and Zhang (2014) in China find that the level of earnings manipulation is decreased in firms where a high quality governance system is adopted. In this line of thinking, the current study hypothesises that the level of accruals (real) EM is expected to decrease (increase) in the aftermath of the CGC’s issuance in 2009. To test this hypothesis, the mean and median values of accruals and real EM are compared between the pre-CGC period (i.e., 2007 and 2008 with 256 firm-year observations), and the post-CGC period (i.e., 2010 and 2011 with 294 firm-year observations).
The reported results in Table 4 reveal that the mean and median values of accrual-based EM are decreased significantly \((p < 0.01)\) post-CGC. For example, the mean (median) value of the MJM is decreased from 11.6% (7.2%) in pre-CGC to 8% (4.8%) post-CGC. Surprisingly, the mean (median) value of the CFO is decreased \((p < 0.01)\) from 12.1% (7%) pre-CGC to 7.6% (5.3%) post-CGC. This significant reduction suggests that the implementation of the controlling mechanisms included in the CGC leads to better monitoring over managers’ financial choices and activities, which in turn minimises their managerial discretion. Such mechanisms include determining board size, prohibiting a dual leadership structure, creating audit committees, and determining the minimum number of independent directors to serve on a firm’s board. Together, these mechanisms enhance the governance quality of listed firms on the ASE. Based on this conclusion, \(H_{2a}\) is accepted, while \(H_{2b}\) is rejected.

Table 4: Univariate analysis of accruals and real EM pre-and post-CGC

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Accruals EM-MJM</td>
<td>0.116</td>
<td>0.072</td>
<td>0.080</td>
<td>0.048</td>
</tr>
<tr>
<td>Accruals EM-PMDAM</td>
<td>0.113</td>
<td>0.071</td>
<td>0.080</td>
<td>0.046</td>
</tr>
<tr>
<td>Real EM-CFO</td>
<td>0.121</td>
<td>0.070</td>
<td>0.076</td>
<td>0.053</td>
</tr>
<tr>
<td>Real EM-DISX</td>
<td>0.119</td>
<td>0.065</td>
<td>0.047</td>
<td>0.012</td>
</tr>
</tbody>
</table>

This table reports the results of univariate analysis of accruals and real EM pre-and post-CGC. Pre-CGC period comprises the years 2007 and 2008 with 256 firm-year observations. Post-CGC period comprises the years 2010 and 2011 with 294 firm-year observations. T-test (mean difference) and Wilcoxon-Z test (median difference) are used here to compare the mean and median values. All accruals and real EM measures are defined previously in Table 2.

The symbols (*), (**) and (***) denote significance at 10, 5 and 1%, respectively, in two-tailed test.

Finally, the Arab Spring which started approximately at the beginning of 2012 is expected to be detrimental to firms in terms of decreasing financial performance, minimising their ability to obtain funds, and more importantly, lowering their attractiveness to investors, especially foreigners. This study, therefore, hypothesises that the level of both accruals and real EM is expected to increase in order to overcome the period of the Arab Spring. To test this hypothesis, the mean and median values of accruals and real EM are compared between the pre-Arab Spring period (i.e., 2010 and 2011 with 294 firm-year observations), and the post-Arab Spring period (i.e., 2013 and 2014 with 247 firm-year observations).

Inconsistent with the current study’s predictions, no significant difference is found in the mean as well as median values regarding accruals EM pre-and post-Arab Spring as shown in Table 5. This result may indicate that the Jordanian business environment is less affected by the negative consequences of the Arab Spring compared with other Arab countries. Indeed, the statistics of the ASE show that the market capitalisation of stocks owned by foreigners (both Arab and non-Arab) ranged between 48% and 51% from 2010 to 2017. Thus, listed firms are less likely to manipulate accruals to attract investors, especially foreigners. The results for real EM are somewhat mixed. While the level of...
CFO decreased in the post-Arab Spring, DISX increased. This suggests that during this period firms may change their policies pertaining to accounting choices used to alter earnings, and depend more on real EM. To conclude, there is no clear evidence that the level of accruals and real EM increased significantly to overcome the Arab Spring era. Based on this discussion, $H_{3a}$ and $H_{3b}$ are rejected.

Table 5  Univariate analysis of accruals and real EM pre-and post-Arab spring

<table>
<thead>
<tr>
<th>Description</th>
<th>Pre-Arab Spring (2010 and 2011)</th>
<th>Post-Arab Spring (2013 and 2014)</th>
<th>T-test</th>
<th>Wilcoxon Z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Accruals EM-MJM</td>
<td>0.080</td>
<td>0.048</td>
<td>0.086</td>
<td>0.054</td>
</tr>
<tr>
<td>Accruals EM-PMDAM</td>
<td>0.080</td>
<td>0.046</td>
<td>0.090</td>
<td>0.052</td>
</tr>
<tr>
<td>Real EM-CFO</td>
<td>0.076</td>
<td>0.053</td>
<td>0.061</td>
<td>0.046</td>
</tr>
<tr>
<td>Real EM-DISX</td>
<td>0.047</td>
<td>0.012</td>
<td>0.104</td>
<td>0.075</td>
</tr>
</tbody>
</table>

This table reports the results of univariate analysis of accruals and real EM pre-and post-Arab Spring. Pre-Arab Spring period comprises the years 2010 and 2011 with 294 firm-year observations. Post-Arab Spring period comprises the years 2013 and 2014 with 247 firm-year observations. T-test (mean difference) and Wilcoxon-Z test (median difference) are used here to compare the mean and median values. All accruals and real EM measures are defined previously in Table 2.

The symbols (*), (**), and (***), denote significance at 10, 5, and 1%, respectively, in two-tailed test.

To check the results obtained from univariate analysis, the current study runs six separate regression models. The first three are reported in Table 6 which aims to test the association between the magnitude of accruals EM and the three turning points that happened in the Jordanian business environment; the issuance of the listing requirements in 2004, the promulgation of the CGC in 2009, and the beginning of the Arab Spring in 2012. The remaining three regression models examine the association between real EM and the same turning points and report their findings in Table 7. To do this analysis, three variables are introduced. The first is listing which is measured using a dummy variable that takes the value of one if the firm’s year is post-listing requirements era (i.e., 2005 and 2006), and zero if the firm’s year is pre-listing requirements era (i.e., 2002 and 2003). The second is the CGC which is measured using a dummy variable that takes the value of one if the firm’s year is post-CGC era (i.e., 2010 and 2011), and zero if the firm’s year is pre-CGC era (i.e., 2007 and 2008). The last one is the Arab Spring which is measured using a dummy variable that takes the value of one if the firm’s year is post-Arab Spring era (i.e., 2013 and 2014), and zero if the firm’s year is pre-Arab Spring era (i.e., 2010 and 2011). The current study also controls for several factors that may have an impact on the association between EM and the three turning points. The variables are Firm Size which is measured by total assets at the beginning of year; Leverage which is measured by the ratio of total debts to total equity; and finally External Auditor which is measured using a dummy variable that takes the value of one if the firm is audited by one of the Big-4 auditors and zero otherwise.
The trade-off between accrual-based and real earnings management

Table 6 shows that the level of accruals EM is increased significantly in the post-listing requirements era (i.e., 2005 and 2006), which in turn enables listed firms to meet the ASE’s regulatory requirements. Of equal importance, the magnitude of EM is decreased significantly in the post-CGC era (coefficient = -0.036 and \( p < 0.01 \)). Regarding the association between the Arab Spring and accruals EM, multivariate analysis provides the same results that are reported earlier by univariate analysis. This result suggests that the discretionary decisions undertaken by firms’ managers do not affected by the Arab Spring era which started in 2012.

**Table 6** Regression results for accruals EM

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model one</th>
<th></th>
<th>Model two</th>
<th></th>
<th>Model three</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>T-value</td>
<td>Coefficient</td>
<td>T-value</td>
<td>Coefficient</td>
<td>T-value</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.100</td>
<td>4.93***</td>
<td>0.116</td>
<td>15.17***</td>
<td>0.082</td>
<td>14.67***</td>
</tr>
<tr>
<td>Listing</td>
<td>0.068</td>
<td>2.79***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CGC</td>
<td></td>
<td></td>
<td>-0.036</td>
<td>-3.90***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arab Spring</td>
<td></td>
<td></td>
<td>-0.006</td>
<td>-0.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>-7.560</td>
<td>-0.49</td>
<td>1.680</td>
<td>0.48</td>
<td>1.070</td>
<td>0.83</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.001</td>
<td>0.05</td>
<td>0.003</td>
<td>0.61</td>
<td>0.001</td>
<td>3.37***</td>
</tr>
<tr>
<td>External auditor</td>
<td>-0.015</td>
<td>-0.54</td>
<td>-0.009</td>
<td>-0.83</td>
<td>-0.002</td>
<td>-0.27</td>
</tr>
<tr>
<td>Adjusted ( R^2 )</td>
<td>0.122</td>
<td></td>
<td>0.128</td>
<td></td>
<td>0.119</td>
<td></td>
</tr>
<tr>
<td>No. of observations</td>
<td>358</td>
<td></td>
<td>550</td>
<td></td>
<td>541</td>
<td></td>
</tr>
</tbody>
</table>

This table presents the results of OLS regression for the association between listing, CGC, Arab Spring and the extent of accruals EM. The dependent variable in all models is the absolute value of discretionary accruals estimated using the MJM developed by Dechow et al. (1995). *Listing* is measured using a dummy variable that takes the value of one if the firm’s year is post-listing requirements era (2005 and 2006), and zero if the firm’s year is pre-listing requirements era (2002 and 2003). *CGC* is measured using a dummy variable that takes the value of one if the firm’s year is post-CGC era (2010 and 2011), and zero if the firm’s year is pre-CGC era (2007 and 2008). *Arab Spring* is measured using a dummy variable that takes the value of one if the firm’s year is post-Arab Spring era (2013 and 2014), and zero if the firm’s year is pre-Arab Spring era (2010 and 2011). *Firm size* is measured by total assets at the beginning of year. *Leverage* is measured by the ratio of total debts to total equity. *External auditor* is measured using a dummy variable that takes the value of one if the firm is audited by one of the Big-4 auditors and zero otherwise.

The symbols (*) , (**) and (*** ) denote significance at 10, 5 and 1%, respectively, in two-tailed test.

Table 7 reports the result of the association between real EM and the three turnings points and shows that it remains essentially unchanged from the primary results reported in Table 6 as well as the univariate analysis’s results. A slight change, however, is observed for the measures associated with Arab Spring. The magnitude of the coefficient is increased along with an increase in significance to 5%. Overall, multivariate analysis here supports the univariate-based conclusions.
Table 7 Regression results for real EM

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model One</th>
<th>Model Two</th>
<th>Model Three</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>T-value</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.091</td>
<td>6.36***</td>
<td>0.112</td>
</tr>
<tr>
<td>Listing</td>
<td>0.035</td>
<td>2.01**</td>
<td></td>
</tr>
<tr>
<td>CG</td>
<td>–0.046</td>
<td>–4.38***</td>
<td>–0.014</td>
</tr>
<tr>
<td>Arab Spring</td>
<td>–2.500</td>
<td>–0.23</td>
<td>1.280</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.001</td>
<td>0.23</td>
<td>0.011</td>
</tr>
<tr>
<td>Leverage</td>
<td></td>
<td></td>
<td>–0.001</td>
</tr>
<tr>
<td>External auditor</td>
<td>0.004</td>
<td>0.23</td>
<td>0.011</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.113</td>
<td></td>
<td>0.154</td>
</tr>
<tr>
<td>No. of observations</td>
<td>358</td>
<td></td>
<td>550</td>
</tr>
</tbody>
</table>

This table presents the results of OLS regression for the association between listing, CGC, Arab Spring and the extent of real EM. The dependent variable in all models is the absolute value of abnormal cash flow from operations. Listing is measured using a dummy variable that takes the value of one if the firm’s year is post-listing requirements era (2005 and 2006), and zero if the firm’s year is pre-listing requirements era (2002 and 2003). CG is measured using a dummy variable that takes the value of one if the firm’s year is post-CGC era (2010 and 2011), and zero if the firm’s year is pre-CGC era (2007 and 2008). Arab Spring is measured using a dummy variable that takes the value of one if the firm’s year is post-Arab Spring era (2013 and 2014), and zero if the firm’s year is pre-Arab Spring era (2010 and 2011). Firm size is measured by total assets at the beginning of year. Leverage is measured by the ratio of total debts to total equity. External auditor is measured using a dummy variable that takes the value of one if the firm is audited by one of the Big-4 auditors and zero otherwise. The symbols (*), (**), and (***), denote significance at 10, 5 and 1%, respectively, in two-tailed test.

6 Conclusion

While the vast majority of researchers investigated accruals EM and its association with several aspects of firms such as the quality of corporate governance, audit quality, and initial public offering, some started to focus more on real EM. The current study, therefore, aims to contribute to this debate in the literature by examining both accruals and real EM in a new and very different context in terms of capital market regulations, governance reform, and political conditions. A detailed examination of accruals and real EM is conducted from 2002 to 2016 using 1748 firm-year observations. To estimate accruals EM, this study uses the MJM and the PMDAM. To estimate real EM, CFO and DISX are used.

The reported results reveal that firms’ managers have a clear tendency towards using accruals EM compared with real EM. This is potentially due to the variety of choices that accruals accounting offer, which in turn may be exploited by managers when estimating accounting figures. This is especially true given that the current study finds that the level of accruals EM increased significantly after the promulgation of the new listing requirements in 2004. This is because listed firms on the ASE need to avoid reporting
losses to keep their position in the first market or to transfer from the second to the first market.

Interestingly, the extent of accruals and real EM decreased significantly with the implementation of the CGC in 2009. This reduction is most likely based on the reasoning that the board of directors becomes more efficient in performing its duties owing to the inclusion of more independent directors with expertise as well as the prohibition of a dual leadership structure. Thus, the governance reform in Jordan is positively linked with an improved level of firms’ earnings quality (by means of minimising managerial discretion). Finally, this study finds that firms do not engage more in EM activities in the aftermath of the Arab Spring. The generalisability of the current study’s findings, however, should be treated with care. This is due to the unique features of the Jordanian context and its business environment. Future studies in other contexts are highly recommended to test whether a similar conclusion can be obtained. Another possible limitation of this study’s results is that there is no conclusive evidence that increases/decreases in firms’ use of EM is caused solely by the issuance of listing requirements or the promulgation of the CGC.

References


The trade-off between accrual-based and real earnings management


Bibliography


