

Board gender diversity, corporate governance, and earnings management

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Abstract

Purpose – The purpose of this study is to examine whether board gender diversity and other board characteristics affect earnings management practices of top public companies in Kazakhstan.

Design/methodology/approach – The study analyzes data of top public companies for the period 2010–2016. Data on corporate governance were manually collected from annual reports and investment memorandums, and financial data were collected from audited financial statements.

Findings – The empirical results show that companies with greater board gender diversity are more effective in constraining earnings management. The findings also indicate that companies with larger boards adopt a more restrained approach to earnings management practices, thus supporting the theoretical framework of the study. However, the results provide weak evidence of the association between board independence and earnings quality.

Originality/value – This study is the first to investigate the relationship between gender diversity and earnings management in emerging markets such as Kazakhstan that offers managerial and policy implications.

Keywords Corporate governance, Emerging markets, Earnings management, Board gender diversity, Kazakhstan

Paper type Research paper

1. Introduction

The board of directors is an important corporate governance (CG) mechanism that holds the responsibility for leading and directing a business organization and protecting the interests of all stakeholders (Fama and Jensen, 1983; Jensen and Meckling, 1976). Effective CG practices in terms of board characteristics reduce information asymmetry, control insiders' opportunism and mitigate managerial incentives aimed at manipulating reported earnings (Chen *et al.*, 2015; Chi *et al.*, 2015; Khalil and Ozkan, 2016; Peasnell *et al.*, 2005; Pham *et al.*, 2019). In other words, the board of directors is central to CG and may effectively mitigate agency problems between agents and principals (Fama and Jensen, 1983; Hillman and Dalziel, 2003; Zahra and Pearce, 1989). Prior studies have suggested that a comprehensive CG system plays a crucial role in deterring earnings management (EM) behavior (Bajra and Cadez, 2018; Lo *et al.*, 2010; Pucheta-Martinez *et al.*, 2016; Tang *et al.*, 2013). Therefore, to ensure that managers apply accounting choice responsibly and report high-quality financial reporting information, establishing effective CG mechanisms is imperative (Brown *et al.*, 2014; Cohen *et al.*, 2002; Engel *et al.*, 2010; Pham *et al.*, 2019; Tang and Chang, 2015).

EM is defined as a purposeful practice of using accounting discretion to achieve desired levels of reported accounting earnings (Bajra and Cadez, 2018; Gao *et al.*, 2019; Gavius *et al.*, 2012). In other words, managers have incentives to manipulate accounting numbers either to



mislead users of accounting information about the financial performance of a firm or gain personal benefits at the expense of shareholders (Beneish, 2001; Christie and Zimmerman, 1994; Pham *et al.*, 2019). As noted by Arun *et al.* (2015), EM reduces the quality of financial reporting because accounting information reported in financial statements does not reflect the underlying economic conditions of a business organization. Prior literature suggests that the monitoring function of the board derived from the agency theory plays a crucial role in mitigating agency problems and monitoring managerial decisions to protect shareholders' interests and to ensure high-quality financial reporting (Fama and Jensen, 1983; García Lara *et al.*, 2017; Xie *et al.*, 2003). In addition, the provision of resources function of the board under the resource dependency theory explains board members' skills, experience and expertise that are likely to reduce the magnitude of EM and improve the quality of financial reporting (Kiel and Nicholson, 2003; Puat Nelson and Devi, 2013).

Board gender diversity is gaining tremendous attention among policymakers, regulators, investors, corporations, scholars and the public, because the role of female directors on corporate boards is slowly but steadily increasing (Abdullah and Ismail, 2016; Pathan and Paff, 2013; Wahid, 2018). A number of studies have explained how board gender diversity might improve the accuracy and transparency of financial information. For example, Fan *et al.* (2019), Triki Damak (2018) and Zalata *et al.* (2018) argue that the appointment of female directors improves the board's independence, functioning, efficiency and monitoring activities. Ammer and Ahmad-Zaluki (2017) and Ginesti *et al.* (2018) suggest that the presence of female directors on the board contributes to the advancement of CG mechanisms which in turn improve corporate reporting practices. García-Sánchez *et al.* (2017) and Gavius *et al.* (2012) provide evidence that female directors improve the quality of financial information because they follow more conservative financial reporting practices. Other studies argue that women are more ethical than men in their behavior, professional judgment and monitoring abilities (Fan *et al.*, 2019; Triki Damak, 2018), as a result, they are likely to report incidents of fraudulent reporting (Capezio and Mavisakalyan, 2016; Kaplan *et al.*, 2009), avoid fraud and malpractice (Heminway, 2007; Wahid, 2018), and therefore improve, financial reporting quality (Ginesti *et al.*, 2018; Pucheta-Martinez *et al.*, 2018). However, based on the inconclusive results in prior literature, there is still no consensus regarding the roles of female directors in mitigating EM. For instance, Sun *et al.* (2011) and Waweru and Prot (2018) argue that the presence of female directors on the board does not constrain EM practices. Therefore, the question whether the benefits that female directors bring to the company constrain EM practices is still in debate (Kyaw *et al.*, 2015).

The importance of gender equality has also appeared on the political agenda in Kazakhstan. Women's rights are protected by the legal system of Kazakhstan and other legislative measures. The main objectives of these legislative and institutional developments are to promote gender diversity and highlight the roles of women in all aspects of society including female representation on corporate boards. Recent institutional developments and legislative systems in Kazakhstan have intensified an interest in the role of women in modern corporations. Therefore, this paper aims to examine whether the presence of female directors on boards constrains EM practices in the financial reports of Kazakh companies.

Emerging markets play a crucial role in the world economy (Ma and Ma, 2017), because their favorable investment climate and potential economic growth have been attracting a substantial amount of investments throughout the world for the last few years (Li *et al.*, 2014). However, the quality of accounting information reported by companies in these emerging markets is often considered inaccurate and unreliable. Top global auditing firms have also raised concerns regarding the credibility of financial reports disclosed by companies in emerging markets and transition economies (Li *et al.*, 2014). It is often difficult

to assess the quality as well as the extent of corporate reporting practices in emerging markets due to high information asymmetry (Mahmood and Orazalin, 2017). As noted by Li *et al.* (2014) and Orazalin and Akhmetzhanov (2019), future research of EM should also focus on emerging markets, because EM practices in these markets appear to be more pervasive due to their specific intuitional setting. Therefore, the present study examines the effects of gender diversity and board characteristics on EM in the context of Kazakhstan.

Kazakhstan is one of the leading economies in the Commonwealth Independent States (CIS) region and is considered the economic and financial hub of Central Asia (Mahmood and Orazalin, 2017). Located in the heart of Eurasia, the Republic of Kazakhstan is the world's largest landlocked country and the ninth largest in the world by land area. Over the past few years, Kazakhstan has been promoting equal opportunities for women and developing institutional mechanisms to protect and improve the status of women in the society (Yergaliyeva, 2018). According to the recent reports, women contribute about 40 per cent of Kazakhstan's GDP, make up 66 per cent of entrepreneurs, and account for approximately 52 per cent of those working in business organizations (Witte, 2015). Women also play an important role in the political life of the country. In particular, about 20 per cent of the parliamentary ministers are women and Kazakhstan ranks 30th out of 144 nations in gender equality (ahead of the USA and Japan) (Uatkhanov, 2016). These indicators highlight the increasing role of women in the political, economic, and social life of Kazakhstan.

The present study contributes to the existing literature in several ways. First, there is a scarcity of empirical evidence on the roles of female directors in deterring EM in emerging markets (Abdullah and Ismail, 2016). Hence, this study brings further light on the impact of board gender diversity on EM in the context of Kazakhstan, which adopted the model of CG Codes based on Western governance practices and principles. Second, the results reinforce empirical evidence in the context of emerging markets, showing that the presence of female directors on the board constrains EM practices, and therefore, has a positive impact on the quality of accounting information. In this regard, the study adds to the existing literature on the agency theory (Fama and Jensen, 1983; Hillman and Dalziel, 2003; Jensen and Meckling, 1976) and suggests how information asymmetry between agents and principals can be mitigated by the quality of accounting information. Third, the study is also extending the existing literature by providing empirical evidence on the association between CG mechanisms in terms of other board characteristics and EM. According to the mainstream conclusion of prior literature (Chouaibi *et al.*, 2018; Marra *et al.*, 2011; Suyono and Farooque, 2018; Türegün, 2018), board independence is highly effective in deterring EM practices. However, the present study finds no association between board independence and EM, and the lack of association can be explained by the underestimated roles of outside directors. In other words, independent directors are assigned to boards just simply to meet the formal requirements of good CG practices but not to improve efficiency (Mahmood and Orazalin, 2017). Moreover, outside directors may not fully assess the credibility of accounting information due to information asymmetry between managers and outside independent directors (Yusof and Atef, 2010).

The rest of the paper is organized in the following way. Section 2 presents a brief description of the research context. Section 3 reviews the relevant literature and develops hypotheses. Section 4 discusses the sample, data and research methods. Section 5 presents the empirical results and analysis, and finally, Section 6 summarizes and concludes the paper.

2. Corporate governance practices in Kazakhstan

The Kazakh Code of CG (henceforth the Code), adopted in 2005, was developed with high compliance of the OECD's CG principles. The main purpose of the model is to assist public

companies of Kazakhstan to develop their CG systems (KMG EP, 2006). It presents guidelines in five broad areas, such as “The Rights of Shareholders and Key Ownership Functions”, “The Equitable Treatment of Shareholders”, “The Role of Stakeholders in Corporate Governance”, “Disclosure and Transparency” and “The Responsibility of the Board”. Based on the OECD’s CG principles, the Code identified seven main principles to ensure fairness, transparency, honesty, accountability, responsibility, and professionalism for effective CG practices. These principles are protection of rights and interests of shareholders, principles of transparency and objectivity of corporate disclosure, principles of legality and ethics, principles of effective dividend policy, principles of effective manpower policy, environmental protection, and policy of regulation of corporate conflicts. These principles are intended to provide guidelines to policy makers, corporations, governments, investors and other stakeholders to promote good CG practices with respect to social, economic, legal, institutional and regulatory aspects of the country.

In 2006, the International Financial Corporation issued the Central Asia Corporate Governance Project. The main goal of the project is to assist Central Asian joint stock companies to develop their CG practices to increase their ability to attract investments (International Finance Corporation, 2006). Additionally, the government of Kazakhstan also entrusted the Agency on CG to monitor and supervise various activities of commercial banks, insurance companies, pension funds, investment companies, securities market entities and to protect the rights of investors. As part of its tasks, the Agency periodically recommends various legal measures to the Parliament of the Republic of Kazakhstan to improve CG systems and protect investors’ interests. One of those legal measures is to require listed companies to adopt a Corporate Governance Code which is the most prominent one. So far, the Agency has implanted a number of measures to reform and improve state regulation and supervision systems of the financial market, and created an independent and effective system to consolidate financial supervision.

The Joint Stock Companies (JSC) Act of 2003 also acts as a catalyst for good CG practices in Kazakhstan (EBRD, 2016). The JSC Act emphasizes the following important guidelines to improve CG practices of public companies listed on KASE:

- Board-level committees that are responsible for strategic planning, personnel and remuneration, internal auditing and social aspects of the company must be chaired by independent non-executive directors.
- The chair of management board cannot be appointed as the chair of the board of directors (CEO duality is not allowed).
- The board of directors should consist of at least at least three members; and
- At least one-third of board members should be independent non-executive directors.

As per the JSC Act, all public companies are required to follow specific reporting and disclosure practices. In particular, companies are required to incorporate major transactions into financial statements and publish their annual reports in mass media. The JSC Act also requires public companies to provide information on shares and stocks, properties pledged as collateral exceeding 5 per cent of total assets, major and interested-party transactions, and participation in other company shareholdings. In addition to annual reports, listed companies are also required to submit their financial reports to the National Bank on a semi-annual basis.

Although the first efforts to improve CG systems in public and private sectors started in the early 2000’s, the state of CG in Kazakhstan is still in infancy (Johannesson *et al.*, 2012; Mahmood and Orazalin, 2017). In other words, publicly listed companies in Kazakhstan still

demonstrate weak forms of CG practices. [Johannesson et al. \(2012\)](#) and [Orazalin and Mahmood \(2019\)](#) suggest that it is important to improve CG practices of public companies in Kazakhstan because the country still remains as a relatively risky environment for global investors. According to the official report from European bank, CG practices of public companies in Kazakhstan are relatively weak ([Cigna et al., 2017](#)). The report also provides statistical results that gender diversity on boards is limited and some companies do not comply with the requirement that at least one-third of board members should be outside directors, thus violating the JSC Act.

3. Literature review and hypothesis development

Managers may actively engage in EM because reported earnings affect their compensation. However, effective CG mechanisms in terms of board characteristics may help reduce aggressive EM, thus decreasing agency costs ([García Lara et al., 2017](#); [Xie et al., 2003](#)). The agency theory postulates that the board of directors fulfills a crucial role in mitigating agency problems and monitoring managerial decisions to protect shareholders' interests and ensure high quality accounting information ([Fama and Jensen, 1983](#)). In other words, effective board characteristics including board size, independent directors and board gender diversity, serve as a control mechanism to improve the quality of financial reporting. The agency theory suggests that female directors on the board enhance internal control mechanisms over the activities of managers and executives, as female representation on the board improves board independence ([Carter et al., 2010](#); [Pucheta-Martínez et al., 2016](#)). The gender literature documents that female directors are more ethical in their professional activities and less tolerant of opportunistic behavior than male directors ([Fan et al., 2019](#); [Ibrahim et al., 2009](#); [Krishnan and Parsons, 2008](#); [Simga-Mugan et al., 2005](#)). Moreover, female directors are more cautious, conservative, and risk averse than their male counterparts in decision-making environments ([Carter et al., 2017](#); [Faccio et al., 2016](#); [Martin et al., 2009](#); [Powell and Ansic, 1997](#)). They actively attend board meetings, perform better oversight and monitoring functions, demand greater accountability from managers and executives for unfavorable performance, and create more value to the firm ([Adams and Ferreira, 2009](#); [Gul et al., 2011](#); [Moreno-Gómez et al., 2018](#)). Women are more likely to disclose illegal activities ([Miethe and Rothschild, 1994](#)), report instances of fraudulent financial reporting ([Capezio and Mavisakalyan, 2016](#); [Kaplan et al., 2009](#)) and avoid fraud and irregularities ([Heminway, 2007](#); [Wahid, 2018](#)). These gender-based differences suggest that the presence of female directors on the board may enhance the efficiency and functioning of the board and constrain EM practices. Thus, female representation on the board reduces conflicts of interests between managers and shareholders ([Gul et al., 2009](#); [Lakhal et al., 2015](#)).

The provision of resources is another important function of the board ([Hillman and Dalziel, 2003](#)). This function is widely studied by scholars from the resource dependency perspective ([Boyd, 1990](#); [Gales and Kesner, 1994](#); [Hillman et al., 2000](#); [Pfeffer and Salancik, 1978](#)) and refers to the board's ability to bring various resources to a firm ([Kesner and Johnson, 1990](#); [Pfeffer and Salancik, 2003](#)). The resource dependency theory posits that the board's provision of resources is directly linked to firm performance ([Hillman and Dalziel, 2003](#)). Resources provided by boards help reduce dependency between the firm and its external contingencies ([Pfeffer and Salancik, 1978](#)), mitigate transaction costs ([Kesner and Johnson, 1990](#)), and ultimately lead to better sustainability and growth ([Singh et al., 1986](#)). According to [Kesner and Johnson \(1990\)](#) and [Pfeffer and Salancik \(2003\)](#), the resource dependency theory suggests that directors bring various resources such as information, skills, knowledge and legitimacy that will reduce uncertainty which in turn reduces

transaction costs. In other words, firms depend on external units within the society to achieve their goals and objectives. In this regard, effective board characteristics including board gender diversity, board size, and independent directors may be important factors in constraining EM. As noted by [Kiel and Nicholson \(2003\)](#), effective board characteristics may serve as an effective link between the firm and its external resources, reduce uncertainty for the firm, and improve corporate reporting which is important for sustainability and growth. [Puat Nelson and Devi \(2013\)](#) argue that, in addition to the monitoring function derived from the agency theory, the provision of resources function of the board under the resource dependency theory is needed to explain board members' skills, experience and expertise that reduce the magnitude of EM practices. Similarly, [Hillman and Dalziel \(2003\)](#) suggest that integrating the agency and resource dependency perspectives is important to assess the board's monitoring and provision of resources functions in examining the relationship between board characteristics and firm performance.

3.1 Board gender diversity and earnings management

The resource dependence theory postulates that differences in gender, such as ethical sensitivity and risk aversion, improve the quality of information provided by the board to executives due to rich and unique information held by diverse directors. In this regard, it has been argued that female directors are more socially responsible and ethical in the workplace, and are less likely to engage in unethical activities including earnings manipulation and fraud ([Khazanchi, 1995](#); [Krishnan and Parsons, 2008](#); [Kyaw et al., 2015](#); [Wahid, 2018](#)). From the agency theory perspective, [García Lara et al. \(2017\)](#) and [Gull et al. \(2018\)](#) argue that female directors improve the monitoring effectiveness of the corporate board over the quality of financial reporting practices, and therefore, deter accounting reporting aggressiveness. Additionally, the feminist economics theory argues that women tend to be more neutral in moral judgment ([Nelson, 1996](#)). This study extends this research stream and examines how board gender diversity impacts financial reporting quality. [Gul et al. \(2007\)](#) support the notion that firms with a higher number of female directors are associated with lower EM and higher earnings quality. [Thiruvadi and Huang \(2011\)](#) find that the presence of female directors on audit committees deters EM practices of companies from the S&P Small Cap 600. Using data of European companies, [Kyaw et al. \(2015\)](#) provide evidence that board gender diversity mitigates EM in countries where gender equality is relatively high. Similarly, [Arun et al. \(2015\)](#), using data of UK companies, confirm that firms with a higher number of female directors adopt more restrained EM practices. [Luo et al. \(2017\)](#) provide empirical evidence that board gender diversity serves as an effective governance mechanism to curb managers' real manipulation activities of Chinese listed companies. [Wahid \(2018\)](#) reveals that female directors improve boards' monitoring ability and decrease the frequency of financial reporting mistakes and fraudulent activities in the case of US listed companies. The recent findings of [Fan et al. \(2019\)](#) show that EM declines when the numbers of female directors on the board reaches three or more in the case of US bank holding companies. Other studies have also confirmed the existence of a negative association between the presence of female directors on boards and EM practices ([García Lara et al., 2017](#); [Gavious et al., 2012](#); [Gull et al., 2018](#); [Harakeh et al., 2019](#); [Triki Damak, 2018](#)). However, in contrast to these findings, [Ye et al. \(2010\)](#) find no association between gender diversity and earnings quality based on data of Chinese companies. In a similar vein, [Sun et al. \(2011\)](#) provide evidence that the presence of female directors on audit committees has no impact on the extent of EM in the case of S&P companies. The recent findings of [Waweru and Prot \(2018\)](#) show that board gender diversity does not mitigate EM practices of East African listed companies. Based on the theoretical framework and the findings of most

prior research, board gender diversity is expected to mitigate EM. Thus, the following hypothesis is developed:

H1. Board gender diversity is negatively associated with higher levels of EM.

H1a. The presence of female directors constrains EM practices.

H1b. The portion of independent female directors constrains EM practices.

H1c. The number of female directors on the board constrains EM practices.

3.2 Board size and earnings management

Board size is another important characteristic that affects the quality of accounting information (Xie *et al.*, 2003). Previous research provides evidence that larger boards are highly effective in mitigating EM because such corporate boards usually allow benefiting from experiences, knowledge and skills of board members, thus supporting the resource dependency theory (Peasnell *et al.*, 2005; Xie *et al.*, 2003). Prior studies that have examined the relationship between board size and EM provide mixed results. Xie *et al.* (2003) conclude that larger boards are more effective in mitigating EM practices. Using data of Malaysian companies, Hashim and Devi (2008) find a negative association between board size and EM. Khalil and Ozkan (2016) provide evidence that larger boards play a significant role in constraining EM practices of Egyptian companies. Similarly, Chouaibi *et al.* (2018) reveal that firms with larger boards are associated with lower EM practices in the form of sales manipulation in the emerging market of Tunisia. Other studies have also proved the existence of a negative association between board size and EM (Cheng, 2008; Klein, 2002; Thanh and Tan, 2019; Triki Damak, 2018). However, Jensen (1993) supports the notion that smaller boards are more effective than larger boards in terms controlling functions. Abdul Rahman and Haneem Mohamed Ali (2006) provide evidence that larger boards are less effective in mitigating EM practices of Malaysian companies. Using data of listed companies in Kenya and Tanzania, Waweru and Prot (2018) reveal that board size has no impact on EM practices. Based on theoretical assumptions and evidence from prior research, it is expected that companies with larger boards will report higher earnings quality. Hence, the estimated coefficient for board size is expected to be negative, and the following hypothesis is formulated:

H2. Board size is negatively associated with higher levels of EM.

3.3 Board independence and earnings management

There has been considerable debate whether the percentage of outside directors is negatively related to EM. To ensure the reliability, faithful representation, and timeliness of financial reporting, boards of directors should consist of independent directors who are more likely to be free from executives' influence (Karamanou and Vafeas, 2005). Prior literature suggests that independent directors possess better monitoring skills that minimize the likelihood of EM practices and fraudulent activities (Fama and Jensen, 1983; Larcker *et al.*, 2007). In other words, board independence is negatively associated with EM because more independent corporate boards are effective at monitoring a firm's financial reporting practices (Klein, 2002). Using data of US companies, Uzun *et al.* (2004) conclude that the likelihood of financial fraud is lower in companies with greater board independence. In further UK research, Peasnell *et al.* (2005) find that the likelihood of making income-

increasing abnormal accruals to avoid earnings reductions is negatively related to the proportion of independent directors on the board. Similarly, Klein (2002) demonstrates that the magnitude of abnormal accruals is negatively associated with board independence in the USA. Wu *et al.* (2016) conclude that a higher proportion of independent directors significantly inhibits EM and restores investors' faith in corporate financial reporting in the context of Taiwan. The recent findings of Suyono and Farooque (2018) show that board independence has a significant deterrent effect on EM in the Indonesian market. Other empirical studies also support the negative association board independence and EM practices (Chouaibi *et al.*, 2018; Davidson *et al.*, 2005; Marra *et al.*, 2011). However, Khalil and Ozkan (2016) provide evidence that increasing the proportion of independent directors on the board does not mitigate EM in the context of Egypt. Similarly, Wan Mohammad *et al.* (2016) find no evidence to suggest that independent directors effectively deter EM of top Malaysian companies. The recent findings of Chatterjee (2019) show that board independence does not mitigate EM practices of Indian firms. Based on the theoretical framework and the findings of most prior studies, it is assumed that independent directors on the board play a crucial role in mitigating EM practices of top public companies in Kazakhstan. Thus, the following hypothesis is constructed:

H3. The proportion of independent directors is negatively associated with higher levels of EM.

4. Data and methodology

The study analyzes data of top public companies listed in the Kazakhstan Stock Exchange (KASE) for the period 2010-2016. Data on CG were manually collected from annual reports and investment memorandums, and financial data were collected from audited financial statements that are available on company websites and the KASE webpage (www.kase.kz). Financial institutions were excluded from the initial sample due their unique industry characteristics, specific accounting implications, and different regulatory requirements (Macve and Chen, 2010). After eliminating companies with insufficient data on CG, the sample comprises 71 top public companies that represent four major industries including oil and gas, service, manufacturing, and mining of natural resources. Since a negative equity values indicates a firm's financial distress and may distort empirical results, it is suggested that observations with negative shareholder equity should be removed from the sample (Jaggi and Lee, 2002). Therefore, after dropping observations with negative equity values and removing potential outliers from both tails, the study sample consists of 332 firm-year observations for period 2010-2016. Detailed definitions and measurements of all research variables are presented in Table I.

4.1 Measurement of earnings management

Drawing on previous literature, this study uses the modified Jones model proposed by Dechow *et al.* (1995) to estimate discretionary accruals as a measure for EM behavior. There is a large body of earlier studies that have examined EM using abnormal accruals as a proxy for earnings manipulation (Jones, 1991; Dechow *et al.*, 1995; Defond and Subramanyam, 1998; Kasznik, 1999). Therefore, in line with prior research (Carmo *et al.*, 2016; Chen *et al.*, 2011; Houqe *et al.*, 2017; Karjalainen, 2011; Orazalin and Akhmetzhanov, 2019), this study uses the modified Jones model (Dechow *et al.*, 1995) to estimate EM.

Variables	Acronym	Operationalization
EM	DACC	Discretionary accruals measured as residuals under the Jones model (1991) and the modified Jones model (Dechow <i>et al.</i> , 1995)
Board gender diversity	PGEN	Dummy variable that takes "1" if at least one board member is a woman
Board gender diversity	NGEN	Total number of women on the board
Board gender diversity	INDGEN	Percentage of independent and female directors on the board
Board size	BSIZE	Total number of directors on the board
Independent directors	INDIR	Percentage of independent directors on the board
Return on assets	ROA	Earnings after tax divided by total assets of the company
Leverage ratio	LEV	Total debt divided by total assets of the company
Liquidity ratio	LIQR	Current assets divided by current liabilities of the company
Firm age	AGE	Number of years since foundation of the company
Firm size	SIZE	The natural logarithm of total assets of the company
Audit quality	AUDIT	Dummy variable that takes "1" if financial statement of the company are audited by Big Four, and otherwise "0"

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Table I.
Research variables
definition/
measurement

Total accruals (TA_{it}) are measured as the difference between net earnings and cash flows from operating activities for company i in year t . To measure EM, discretionary accruals are estimated which are the residuals of the modified Jones (Dechow *et al.*, 1995) model.

In the modified Jones (Dechow *et al.*, 1995) model, non-discretionary accruals are estimated as follows:

$$\frac{TA_t}{A_{t-1}} = \alpha_1 \left(\frac{1}{A_{t-1}} \right) + \alpha_2 \left[\frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} \right] + \alpha_3 \left(\frac{PPE_t}{A_{t-1}} \right) + \varepsilon_{i,t}$$

where:

TA_t – total accruals, measured as the difference between net profit and operating cash flows from activities; A_{t-1} - total assets at the end of year $t - 1$; ΔREV_t – the difference in operating revenues in year t and year $t - 1$; ΔREC_t - the difference in net receivables in year t and year $t - 1$; ΔPPE_t - property plant and equipment at the end of year t .

Since managers may engage in earnings manipulation using either income-increasing accruals or income-decreasing accruals, the absolute value of discretionary accruals is used to assess the extent of EM. This measurement approach is consistent with prior studies that use absolute values of discretionary accruals as a proxy for a mixed effect of upward or downward earnings manipulation (Warfield *et al.*, 1995; Gabrielsen *et al.*, 2002; Barth *et al.*, 2008).

4.2 Measurement of independent variables

The independent variables in this study consist of three main board characteristics including board gender diversity, board size, and board independence. In particular, the study follows previous studies to assess governance quality in terms of board gender diversity (Byoun *et al.*, 2016; Kılıç and Kuzey, 2016), board size (Amran *et al.*, 2014; Orazalin, 2019), and board independence (Mahmood and Orazalin, 2017; Suyono and Farooque, 2018). Three proxies are used to measure board gender diversity. First, the presence of female directors on the board (PGEN) is a dummy variable that takes a value of "1" if at least one board member is a woman. Second, the number of female directors on the board (NGEN) is measured by the total numbers of women on the board. Third, the proportion of independent

and female directors (INDGEN) is measured as the numbers of independent and female directors divided by the total number of directors. Board size (BSIZE) is measured by the total number of directors on the board. Board independence (INDIR) is measured as the proportion of independent directors on the board.

4.3 Measurement of control variables

The study includes control variables in the model to account for the potentially confounding effects of specific firm-characteristics that may affect EM. These control variables are: firm profitability (*ROA*), measured as net income divided by total assets; financial leverage (*LEV*), calculated as total debts divided by total assets; liquidity (*LIQR*), estimated as current assets divided by current liabilities; firm age (*AGE*), measured as the number of years since the foundation of the company; firm size (*SIZE*), measured as the natural logarithm of total assets; and audit quality (*AUDIT*), measured as a dummy variable that takes a value of “1” if financial statements of the company are audited by Big Four, and “0” otherwise. Prior studies have suggested that these firm-specific characteristics are useful in explaining EM behavior (Kim *et al.*, 2012; Khalil and Ozkan, 2016; Wan Mohammad *et al.*, 2016; Houqe *et al.*, 2017).

4.4 Research model

To test hypotheses of the study and estimate the effects of board gender diversity, other board characteristics, and control variables on EM, the following panel regression model is employed:

$$EMit = \beta_0 + \beta_1(BODit) + \beta_2(ROAit) + \beta_3(LEVit) + \beta_4(LIQRit) + \beta_5(AGEit) \\ + \beta_6(SIZEit) + \beta_7(AUDITit) + \sum_{k=1}^4 \beta_i(INDk) + \sum_{n=2010}^{2016} \beta_j(YEARn) + \eta_i \\ + \varepsilon_{it}$$

where *EMit* - EM practices of company *i* at time *t*, measured as discretionary accruals (DACC) under the modified Jones model (Dechow *et al.*, 1995); *BODit* - board characteristics, including board gender diversity, board size, and board independence; *ROAit* - is a return on assets, measured as net income divided by total assets; *LEVit* - a leverage ratio and is calculated as total debt divided by total assets; *LIQRit* - a liquidity ratio, estimated as current assets divided by current liabilities; *AGEit* - firm age, measured as the number of years since the foundation of the company; *SIZEit* - firm size, measured as the natural logarithm of total assets; *AUDITit* - audit quality measured as a dummy variable that takes “1” if financial statement of the company are audited by Big Four, and otherwise zero; *INDk* - industry fixed effects; *YEARn* - year fixed effects; η_i is the unobserved heterogeneity or the unobservable individual firm effects; and ε_{it} is the specific error term.

The Hausman specification test is performed to examine the validity of fixed effects (FE) and random effects (RE) parameters. The Hausman test shows that the difference between the FE and RE coefficients is statistically significant, thus indicating that the FE model is more appropriate for this study.

5. Findings and analysis

Table II reports descriptive results and *t-values* of discretionary accruals for each industry. The estimated *t-statistics* show that the mean values of DACC are statistically significant from zero for all industries. These results indicate that Kazakh companies engage in EM

either by increasing earnings to hide their true financial results and communicate their superior position to stakeholders or, on the contrary, decreasing earnings to pay less taxes and contributions.

Table III shows descriptive statistics for independent variables and controls. The results for PGEN indicate that approximately 40 per cent of companies have women on their board. The average number of directors on the board is 5, with a range from 3 to 13 directors. The percentage of independent directors on the board has a mean value of 37.75 per cent, and it ranges from 20 per cent to 75 per cent. The minimum of 20 per cent is consistent with observations of Cigna *et al.* (2017) that some Kazakh companies do not maintain a minimum threshold of 33.33 per cent (one-third of board members should be outside independent directors), thus violating corporate policy and local legislation. The mean value of ROA is 3.65 per cent, and ranges from -50.11 per cent and 58.42 per cent. The reported statistics for AGE indicate that the average age of Kazakh companies is about 18 years, and varies between 1 and 40 years. The mean values for leverage and liquidity ratios are 0.36 and 2.65, respectively. The analysis also shows that companies that audited by Big Four auditors represent approximately 67 per cent of companies in the sample.

Table IV presents correlation coefficients for all variables. Among the independent variables, the correlation coefficient between BSZIE and SIZE is highest at 0.580. According to Pallant (2007), multicollinearity issue is present in the regression analysis if the

	Obs.	Mean	SD	Min.	Max.	<i>t</i>	<i>p</i> -value
DACC – Manufacturing companies	121	0.350	0.196	0.008	0.873	19.639***	0.000
DACC – Mining of natural resources	45	0.330	0.325	0.023	1.618	6.806***	0.000
DACC – Oil, Gas and Energy	79	0.281	0.248	0.001	1.673	10.087***	0.000
DACC – Service companies	87	0.332	0.203	0.009	0.768	15.23***	0.000
TOTAL	332	0.326	0.232	0.001	1.673	25.605***	0.000

Notes: ***, ** and * indicate significant levels 1, 5 and 10% respectively; DACC: discretionary accruals

Table II.
Descriptive statistics
of discretionary
accruals (DACC)
estimations by
industry

Variable	Obs.	Mean	SD	Min.	Max.
NGEN	332	0.66	0.94	0.00	4.00
INDGEN	332	11.70	14.99	0.00	66.67
BSIZE	332	5.09	1.91	3.00	13.00
INDIR (%)	332	37.74	8.62	20.00	75.00
ROA (%)	332	3.65	13.71	-50.11	58.42
LEV	332	0.36	0.31	0.00	2.05
LIQR	332	2.65	6.82	0.00	79.63
AGE	332	12.53	6.09	1.00	40.00
SIZE	332	17.68	2.05	11.89	23.84
<i>Dichotomous variables</i>		<i>Yes (1)</i>	<i>No (0)</i>		
PGEN (%)	332	39.79	60.21		
AUDIT (%)	332	66.49	33.51		

Notes: PGEN: the presence of female directors on the board; NGEN: the number of women on the board; INDGEN: the percentage of independent female directors on the board; BSIZE: the number of directors on the board; INDIR: the percentage of independent directors on the board; ROA: return on assets; LEV: leverage ratio; LIQR: liquidity ratio; AGE: firm age; SIZE: firm size; AUDIT: auditor type

Table III.
Descriptive statistics
of the variables

Table IV.
Correlation
coefficients

	DACC	PGEN	NGEN	INDGEN	BSIZE	INDIR	ROA	LEV	LIQR	AGE	SIZE	AUDIT
DACC	1											
PGEN	-0.047	1										
NGEN	-0.044	0.869**	1									
INDGEN	-0.032	0.961**	0.896**	1								
BSIZE	-0.127*	0.238**	0.513**	0.232**	1							
INDIR	0.166**	-0.032	0.006	-0.047	0.278**	1						
ROA	-0.111*	0.091	0.094	0.091	0.016	-0.097	1					
LEV	-0.006	-0.070	-0.036	-0.043	0.014	0.013	-0.397**	1				
LIQR	-0.158**	0.032	0.051	0.019	0.179**	-0.008	0.001	-0.035	1			
AGE	-0.028	0.169**	0.097	0.144**	-0.101	0.133*	0.156**	-0.181**	-0.016	1		
SIZE	0.219**	-0.032	0.128*	-0.046	0.620**	0.306**	-0.015	-0.058	0.127*	-0.212**	1	
AUDIT	0.314**	-0.008	0.039	-0.026	0.249**	0.189**	0.135*	-0.127*	0.052	0.111*	0.427**	1

Notes: DACC: discretionary accruals; PGEN: the presence of female directors on the board; NGEN: the number of female directors on the board; INDGEN: the percentage of independent female directors on the board; BSIZE: the number of directors on the board; INDIR: the percentage of independent directors on the board; ROA: return on assets; LEV: leverage ratio; LIQR: liquidity ratio; AGE: firm age; SIZE: firm size; AUDIT: auditor type; ** and * indicate significant at the 0.01 and 0.05 levels respectively

correlation coefficient between independent variables is above 0.700. The reported coefficients between independent variables indicate that multicollinearity is not an issue in this study. Since DACC is regressed separately on PGEN, NGEN, INDGEN, BSIZE and INDIR, high correlations among board characteristics variables are not an issue.

Table V presents FE regressions of EM on the gender variables, board characteristics, and control variables. The estimated coefficient for PGEN shows that the presence of female directors on the board is negatively related to DACC at the 5 per cent significance level. Similarly, both NGEN and INDGEN are negatively associated with DACC. These findings confirm *H1* and support the findings of [García-Sánchez et al. \(2017\)](#), [Gull et al. \(2018\)](#), [Harakeh et al. \(2019\)](#) and [Triki Damak \(2018\)](#) that firms with greater board gender diversity tend to follow more conservative accounting policies. Overall, these results provide considerable evidence that the presence of female directors on the board, a greater number of female directors, and a higher proportion of independent female directors on the board are associated with less EM, implying that board gender diversity reduces information asymmetry and mitigates managerial incentives aimed at manipulating reported earnings in the context of Kazakhstan.

The estimated coefficient for BIZE is negative and statistically significant with DACC. This finding supports *H2* and suggests that companies with larger boards are less likely to engage in EM practices. The result supports the findings of [Chouaibi et al. \(2018\)](#), [Khalil and Ozkan \(2016\)](#), [Thinh and Tan \(2019\)](#) and [Triki Damak \(2018\)](#) that larger boards play a significant role in mitigating EM practices. Overall, this finding indicates the effectiveness of the JSC Act of 2003 in improving CG practices of public companies in Kazakhstan with regard to board membership guidelines that require the board of directors to have at least three members ([EBRD, 2016](#); [Orazalin and Mahmood, 2019](#)).

The variable INDIR is not statistically significant in explaining the variance in DACC. This weak association indicates that greater board independence is less effective in mitigating EM. Thus, *H3* is not supported. This finding is in line with those of [Chatterjee \(2019\)](#), [Khalil and Ozkan \(2016\)](#), and [Wan Mohammad et al. \(2016\)](#) that the role of independent directors is not an effective deterrent of EM. There are several possible explanations for this result. First, independent directors may not fully assess the quality of accounting information due to information asymmetry between managers and outside independent directors ([Yusof and Atef, 2010](#)). Second, the weak association between board independence and EM might be explained by the underestimated roles of outside directors. In other words, simply to meet the formal requirements of good CG practices, top management may appoint their close allies as independent directors who may not act as effective monitoring participants to improve efficiency ([Mahmood and Orazalin, 2017](#); [Wan Mohammad et al., 2016](#)).

With regard to control variables, ROA is negatively related to DACC. This finding indicates that more profitable companies are less likely to engage in earnings manipulation. This relationship is consistent with the findings of [Abdullah and Ismail \(2016\)](#) and [García Lara et al. \(2017\)](#) and supports the notion that more profitable firms are less likely to manipulate accounting data to reach their earnings threshold ([Alzoubi, 2016](#); [Bartov et al., 2000](#); [Skinner, 2003](#)). The estimated coefficients of SIZE show that firm size has a statistically significant and positive association with DACC, thus suggesting that smaller companies are likely to follow more conservative accounting policies, and to have a lower tendency to manage earnings. This result is consistent with the findings of [Lakhal et al. \(2015\)](#) and [Nasution and Jonnergård \(2017\)](#) that firm size is positively associated with EM practices. The estimated coefficients for LEV, LIQR, AGE and AUDIT are statistically insignificant, thus indicating that these firm-specific characteristics have no impact on EM practices of Kazakh companies.

Table V.
Panel regression
analysis: board
characteristics and
earnings
management

	(1)	(2)	(3)	(4)	(5)
	DACC	DACC	DACC	DACC	DACC
PGEN	-0.0375** (-2.06)				
NGEN		-0.0162* (-1.76)			
INDGEN			-0.0980** (-1.90)		
BSIZE				-0.0225*** (-3.89)	
INDIR					-0.117 (-0.82)
ROA	-0.00324*** (-3.01)	-0.00323*** (-3.01)	-0.00322*** (-2.99)	-0.00332*** (-3.07)	-0.00335*** (-3.00)
LEV	0.0377 (0.67)	0.0363 (0.64)	0.0363 (0.64)	0.0349 (0.66)	0.0168 (0.30)
LIQR	0.000512 (0.43)	0.000340 (0.31)	0.000341 (0.29)	0.000281 (0.25)	0.0000437 (0.04)
AGE	-0.00468 (-0.81)	-0.00454 (-0.79)	-0.00477 (-0.83)	-0.00553 (-0.98)	-0.00387 (-0.73)
SIZE	0.0995*** (2.71)	0.103*** (2.80)	0.101*** (2.76)	0.119*** (3.42)	0.103*** (2.79)
AUDIT	-0.0396 (-1.21)	-0.0407 (-1.23)	-0.0398 (-1.20)	-0.0385 (-1.14)	-0.0363 (-1.11)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Constant	-1.368** (-2.23)	-1.427** (-2.33)	-1.403** (-2.29)	-1.606*** (-2.80)	-1.397** (-2.25)
N	332	332	332	332	332
F-test	4.03***	3.93***	3.86***	5.93***	3.78***
R-sq. (%)	17.17	16.97	16.96	18.69	16.63
Hausman test	0.000***	0.002***	0.000***	0.000***	0.005***

Notes: DACC: discretionary accruals; PGEN: the presence of female directors on the board; NGEN: the number of women on the board; INDGEN: the percentage of independent female directors on the board; BSIZE: the number of directors on the board; INDIR: the percentage of independent directors on the board; ROA: return on assets; LEV: leverage ratio; LIQR: liquidity ratio; AGE: firm age; SIZE: firm size; AUDIT: auditor type. ***, **, and * indicate significance levels 1, 5, and 10% respectively. This table presents fixed-effects (FE) regressions of EM on board gender diversity, board size, board independence and controls. Robust *t*-statistics are shown in parentheses

As female directors are more ethical and risk averse than their male counterparts, it is assumed that the effects of board gender diversity on EM practices are more pronounced in firms operating in high litigious industries. Therefore, consistent with prior studies, the sample is split into two sub-samples based on whether the firm is facing high or low litigation risks. In particular, following [Ho et al. \(2015\)](#) and [Zalata et al. \(2018\)](#), the firm is classified as facing high litigation risks, if it is operating in industries with SIC codes of 2800-2836 (chemical and allied products), 3570-3577 (computers and office equipment), 3600-3674 (electronics and other electrical equipment), 5200-5961 (retail market products and services), and 7370-7370 (services-computer programming and data processing). [Table VI](#) presents regressions results of EM on the gender variables, board characteristics and control variables in high litigious industries. The estimated coefficients for PGEN, NGEN and INDGEN are negative and statistically significant. These results support the finding of [Zalata et al. \(2018\)](#) and indicate that board gender diversity has a significant effect on restraining EM practices in high litigious industries.

[Table VII](#) reports regressions results of EM on board gender diversity, board size, board independence, and control variables in low litigious industries. The estimated coefficients for all gender diversity variables are negative, but statistically insignificant. These findings indicate that board gender diversity is less effective in mitigating EM practices in firms operating in low litigious industries. The results in [Tables VI](#) and [VII](#) show that board size is negatively related to EM. These results indicate that larger boards are likely to constrain EM both in high and low litigious industries. However, the estimated coefficients for INDIR are statistically insignificant, thus suggesting that board independence is not effective in mitigating EM practices both in high and low litigious industries. Overall, the results in [Tables VI](#) and [VII](#) indicate that the negative relationship between board gender diversity and EM practices attenuates in low litigious industries, thus implying that board gender diversity mitigates EM practices in high litigious industries in the context of emerging markets such as Kazakhstan.

5.1 Additional analyses

To examine whether the main results are robust to an alternative measure of EM, an additional analysis is performed. Most prior studies have used the cross-sectional modified [Jones \(1991\)](#) model to obtain the measure of discretionary accruals ([Dechow et al., 1995](#); [Xie et al., 2003](#); [Carmo et al., 2016](#); [Houqe et al., 2017](#)) Therefore, the Jones model (1991) is used to measure EM and confirm the original results. The estimated coefficients remain qualitatively similar to those reported in [Table V](#), thus indicating that the main results in initial models are not affected by the use of the alternative measure for EM (due to space limitation, the results are not reported).

An additional analysis is conducted to examine the effects of board gender on income-increasing and income-decreasing EM practices. Hence, in addition to absolute values of discretionary accruals, signed residuals from the modified Jones ([Dechow et al., 1995](#)) model are used to capture the mixed effects of EM. The results show that board gender diversity constrains EM practices of Kazakh companies that engage mainly in income-decreasing manipulation (due to space limitation, the results are not reported).

In addition to correlation analysis, the variance inflation factor (VIF) test is performed to detect possible multicollinearity among independent variables. As noted by [Chatterjee et al. \(2000\)](#), a VIF value of more than 10 provides evidence of serious multicollinearity in the regression analysis. The estimated VIF values for all independent variables are much lower than the threshold value of 10, thus indicating the absence of multicollinearity in this study.

	(1) DACC	(2) DACC	(3) DACC	(4) DACC	(5) DACC
PGEN	-0.115*** (-3.61)				
NGEN		-0.0463*** (-4.81)			
INDGEN			-0.294*** (-2.63)		
BSIZE				-0.0238* (-1.72)	
INDIR					-0.0485 (-1.52)
ROA	-0.00058 (-0.40)	-0.00067 (-0.46)	-0.00055 (-0.37)	-0.00057 (-0.35)	-0.00049 (-0.33)
LEV	0.136* (1.89)	0.114 (1.66)	0.128* (1.74)	0.0518 (0.77)	0.0384 (0.49)
LIQR	0.00466 (1.45)	0.00576 (1.69)	0.00469 (1.45)	0.00257 (0.76)	0.00235 (0.51)
AGE	-0.0227 (-1.78)	-0.0200 (-1.50)	-0.0227 (-1.75)	-0.0172 (-1.21)	-0.0137 (-1.07)
SIZE	0.00698 (0.08)	-0.00224 (-0.03)	0.0136 (0.15)	0.0267 (0.38)	0.0187 (0.24)
AUDIT	0.124 (1.08)	0.122 (1.04)	0.115 (0.99)	0.121 (0.91)	0.120 (0.95)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Constant	0.347 (0.23)	0.469 (0.31)	0.222 (0.14)	0.0287 (0.02)	0.105 (0.08)
N	87	87	87	87	87
F-test	9.19***	15.41***	5.89***	2.80**	1.30
R-sq. (%)	21.95	20.51	20.67	19.08	19.28

Notes: DACC: discretionary accruals; PGEN: the presence of female directors on the board; NGEN: the number of women on the board; INDGEN: the percentage of independent female directors on the board; BSIZE: the number of directors on the board; INDIR: the percentage of independent directors on the board; ROA: return on assets; LEV: leverage ratio; LIQR: liquidity ratio; AGE: firm age; SIZE: firm size; AUDIT: auditor type. ***, **, and * indicate significance levels 1, 5, and 10% respectively. This table presents fixed-effects (FE) regressions of EM on board gender diversity, board size, board independence and controls in high litigious industries. Robust *t*-statistics are shown in parentheses

Table VI.
Board characteristics and earnings management in high litigious industries

6. Concluding remarks

The objective of this study is to examine the effects of board gender diversity and other board characteristics on EM practices of top public companies in Kazakhstan. The empirical results show that companies with greater board gender diversity are more effective in constraining EM. The findings also indicate that companies with larger boards adopt a more restrained approach to EM practices, thus supporting the theoretical framework of the study. However, the results provide weak evidence of the association between board independence and EM. Overall, the empirical results of the study reinforce the current literature suggesting that board size and board gender diversity deter EM, however cast doubt on the mitigating effect of board independence on EM practices in the context of emerging markets such as Kazakhstan. In addition, the results reveal that board gender diversity has a significant effect on restraining EM in high litigious industries, but has no impact on EM practices in low litigious industries. The results also indicate that more profitable and smaller companies are likely to follow more conservative accounting policies to constrain EM practices.

This study extends the CG literature to the setting of an emerging market in the CIS region to highlight the importance of CG practices in Kazakhstan, and investigates whether effective CG mechanisms in terms of board characteristics mitigate EM practices. The findings suggest regulators and policymakers to revisit their policies and reforms to improve board gender diversity by increasing the number of female directors, including at least of woman on the board, and increasing the proportion of independent female directors on the board in emerging markets such as Kazakhstan. Thus, managers, practitioners and investors should consider individual dimensions of effective board characteristics to improve CG practices in emerging

	(1) DACC	(2) DACC	(3) DACC	(4) DACC	(5) DACC
PGEN	-0.0107 (-0.54)	-0.00463 (-0.38)	-0.0118 (-0.18)	-0.0196** (-2.90)	
NGEN					0.0271 (0.21)
INDGEN					-0.00481*** (-3.77)
BSIZE					-0.0199 (-0.27)
INDIR					-0.00025 (-0.22)
ROA					-0.00064 (-0.10)
LEV	-0.00482*** (-3.91)	-0.00482*** (-3.91)	-0.00483*** (-3.92)	-0.00478*** (-3.87)	0.124*** (2.98)
LIQR	-0.0174 (-0.24)	-0.0171 (-0.23)	-0.0197 (-0.27)	0.00188 (0.03)	-0.0427 (-1.25)
AGE	-0.00012 (-0.10)	-0.00019 (-0.17)	-0.00022 (-0.18)	-0.00034 (-0.03)	Yes
SIZE	-0.00009 (-0.01)	-0.00009 (-0.02)	-0.00026 (-0.04)	-0.00057 (-0.09)	-1.838** (-2.80)
AUDIT	0.121*** (2.85)	0.122*** (2.93)	0.122*** (2.91)	0.131*** (3.25)	245
Year fixed effects	-0.0436 (-1.28)	-0.0438 (-1.27)	-0.0430 (-1.26)	-0.0464 (-1.32)	8.29***
Constant	Yes	Yes	Yes	Yes	25.22
N	-1.760** (-2.51)	-1.782** (-2.59)	-1.785** (-2.57)	-1.838** (-2.80)	-1.817** (-2.64)
F-test	245	245	245	245	245
R-sq. (%)	7.96***	7.87***	8.03***	8.29***	9.69***
	25.27	25.25	25.22	26.88	25.22

Notes: DACC: discretionary accruals; PGEN: the presence of female directors on the board; NGEN: the number of women on the board; INDGEN: the percentage of independent female directors on the board; BSIZE: the number of directors on the board; INDIR: the percentage of independent directors on the board; ROA: return on assets; LEV: leverage ratio; LIQR: liquidity ratio; AGE: firm age; SIZE: firm size; AUDIT: auditor type. ***, **, and * indicate significance levels 1, 5, and 10%, respectively. This table presents fixed-effects (FE) regressions of EM on board gender diversity, board size, board independence and controls in low litigious industries. Robust *t*-statistics are shown in parentheses

Table VII.
Board characteristics
and earnings
management in low
litigious industries

markets, such as Kazakhstan, which adopted the CG model based on western governance principles. The findings also suggest that board size may effectively deter EM. Investors, regulators and practitioners should bear in mind that board size improves the quality of financial reporting, and therefore, CG codes and reforms may recommend this practice. These findings confirm the effectiveness of the JSC Act of 2003, which requires corporate boards of Kazakh public companies to have at least three members. Thus, policies, reforms, and initiatives that encourage effective board membership in terms of board size should not be neglected in case of emerging markets such as Kazakhstan. Furthermore, the findings suggest regulators and policymakers to encourage board committees to have qualities in terms of independent directors' financial expertise and accounting knowledge and ensure that outside directors are independent from the management to improve monitoring and resource provision functions of the board, especially in the context of emerging markets such as Kazakhstan. The findings also suggest that, when designing a board of directors, investors and regulators should take into account whether the firm is facing litigation risks, because in high litigious industries, board gender diversity may deter EM practices. In other words, industry characteristics in terms of litigation risks may impose different requirements on corporate boards in shaping the effectiveness of CG mechanisms and constraining EM practices in the context of emerging markets such as Kazakhstan.

The findings of the study are subject to several limitations. First, gender is only one aspect of board gender diversity. Thus, it would be relevant to analyze the effects of other characteristics and tendencies related to gender diversity such as education, experience, age, culture and tokenism in examining the relationship between board gender diversity and EM. Second, only abnormal accruals are used to measure EM. Therefore, future studies should use other measures of earnings quality such as earnings persistence, earnings predictability and conservatism. Third, this study is limited to one country. Although Kazakhstan is one of the leading economies in Central Asia and the CIS, future comparative research including other CIS emerging markets would provide new insights on the effects of gender diversity and other CG mechanisms on EM in different markets. Despite these limitations, this study adds to the very limited research in the context of Central Asia on the effects of gender diversity and other board characteristics on EM and therefore should be of interest to policymakers and regulators.

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