

Mediating role of earnings management upon nexus among bank financial leverage and economic financial stability

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Abstract

Purpose – This research aims to investigate the relationship between banks' financial leverage and economic financial stability, and as a result, the research will discuss the role of earnings management (EM) in this relationship, since managers normally manipulate their financial reports when they show higher financial leverage. It is important to control the financial leverage in Jordanian banks based on the research results. The main objective is to mitigate the bank's financial leverage risk as much as its relationship with financial stability. Results may be important for investors, managers, regulatory bodies and auditors in Jordan since they help strengthen financial stability in Jordan. Finally, the main objective of this study is to find a solution to maintain stable and real financial economy by finding the effect of higher financial leverage in Jordanian banks of managers' cosmetic practices. This will be discussed through testing the role of EM of the relationship between firm's financial leverage and financial stability.

Design/methodology/approach – In order for the researchers to analyze data, quantitative methods are processed statistically. Also, the researcher tests research conceptual framework according to the mediation model that was developed by Preacher and Hayes (2004). In Figure (1) of which panel A: determines a direct effect, while panel B: illustrates a mediating design. To construct the sample, the researcher used information extracted from Jordanian annual financial reports that is extracted from Amman Stock Exchange. The population of the study includes all Jordanian banks which are 26 banks, additionally, the period from 2008 to 2018 was used to illustrate data. The reason behind using this period is that to examine the variables relationships for and after 2008 financial crisis and its consequences. The researcher chose 2018 as the end period, that is because it is the year before COVID-19 period which covers 2019–2022, and this period is considered not normal. In comparison with past studies, the researcher used modified Jones Model to measure EM (Valášková *et al.*, 2021; Nopiana and Salvi, 2022; Riahi, 2020; Quddoos *et al.*, 2020; Cho *et al.*, 2012), while financial stability and financial leverage was calculated using total debt/total equity (Nopiana and Salvi, 2022). Finally, financial stability is measured using the financial stability model for banking sector, but not for all economy that is because the banking sector represents 96% of the economy, also this study applied for banking sector. Missing values were replaced using the mean on SPSS. Finally, regression model and F-score, correlation have been examined in the research analysis.

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Findings – Increased risk on enterprises has an impact on economic financial stability. And the interest rate result shows that Jordan's central bank boosts interest rates during inflationary periods, increasing the risk to the economy's financial stability. Furthermore, size has a minimal impact when compared to other variables, and greater business sizes signal more sophisticated transactions and higher leverage, reducing the economy's financial soundness. Finally, ROA indicates increased bank performance, which contributes to the economy's financial stability. While EM has a direct negative impact on financial stability, this conclusion is consistent with the researcher's expectations. Because EM refers to the manipulation of financial report information, including information about financial leverage, manipulation also lowers investor confidence in bank share prices, affecting the stability of the economy's financial system. It has little influence on the relationship between leverage and economic financial stability.

Practical implications – The implications of this research have been discussed through the research, for example, to maintain economic financial stability, auditors must take care through their role specially when there is higher financial leverage of Jordanian banks. Further, managers must pay attention before manipulating financial information if there is high financial leverage, because this will affect the economic financial stability. Lastly, the most important implication is that the maintenance of economic financial stability, and EM if not discovered for a period of time may show false signaling of economic financial stability, and suddenly face financial crises.

Originality/value – Understanding the role of EM in the relationship between banks' financial leverage the economic financial stability, may control many issues like the role of external auditor of reporting about the reliability of financial information (when there is high bank financial leverage, the auditor must exercise professional care and increase his sample to ensure that there are no cosmetic accounting), and when EM is in control, the economy will work smoothly and react normally to the effect of financial leverage of Jordanian banks. And the situation of 2008 crisis will not be repeated (because of the cosmetic practices by American firms for many years since 2008 with hidden cosmetic practices, suddenly, the 2008 crises happened). In conclusion, this discussion is original, since no literature theoretically discussed this issue before which (EM when financial leverage is high) may be applied in practice.

Keywords Earnings management, Economic, Financial stability, Jordanian banks, Firm financial leverage

Paper type Research paper

Introduction

The role of earnings management (EM) in the nexus between bank financial leverage and economic financial stability is an essential topic for consideration. As financial institutions play a critical part in maintaining a stable economy, their leverage practices warrant scrutiny to ensure that they do not negatively impact overall fiscal health. Notably, EM can significantly influence how banks report their financial performance, which in turn affects the perception and confidence of investors and regulators. Therefore, understanding the ties between EM, bank financial leverage and economic financial stability is crucial for developing robust financial policies and maintaining a thriving economy. Thus, in the last few years since the 2008 crisis, there are many types of risk that affect the economic financial stability in many countries, such as climate change risk, inflation risk, deflation risk and interest rate risk. Since banks play an important role in monetary policy and economic financial stability, and under those risks that surround the banks sector, so, it is important to discuss those risks that surround banks because of their effect on banks' performance as well as on the economic financial stability. One of the risks that affect the bank work is increasing the financial leverage of the banks. Discussion of literature indicates that some research discussed financial leverage considering financial stability. Although, in Jordan no research investigates the relationship. Additionally, EM did not discuss a role that may affect this relation. Since higher firm financial leverage is more likely to manage earnings (Lee, 2022), and higher financial leverage may decrease economic financial stability, so, it is important to examine the linkage between firm EM and economic financial stability. This study examines the role of EM and economic financial stability, which is based on the researchers' best of knowledge that no past research examined this construction especially in Jordan.

The previous discussion introduces stress on the banks to mitigate financial leverage under control because of its effect on bank performance and may affect financial stability. These motivate researchers to investigate the relationship between banks' financial leverage and economic financial stability. Additionally, the role of earning management in this relationship, which contributes significantly in theory and practice in this area, thus, when we understand the role of EM in the relationship between banks financial leverage the economic financial stability, we may control many issues like the role of external auditor of reporting about the

reliability of financial information (when there is high bank financial leverage, auditors must exercise professional care and increase his sample to ensure that there are no cosmetic practices), and when EM is in control, the economy will work smoothly and react normally to the effect of financial leverage of Jordanian banks. And the financial crises on 2008 will not be repeated (because of the cosmetic accounting by American firms since many years of 2008 with hidden cosmetic practices, suddenly, 2008 crises happened). In conclusion, this discussion is original, since no literature discussed this issue theoretically before which (EM when financial leverage is high) may be applied in practice.

From the previous negotiation, the research produces the following research questions:

- (1) What is the relationship between banks financial leverage and economic financial stability in Jordanian banks sector?
- (2) Does EM play a role in the relationship between banks financial leverage and economic financial stability in Jordanian banks?

Research objective

Lastly, the research objective is to test the relationship between banks financial leverage and economic financial stability, and as a result, the research will discuss the role of earning management on this relationship, since managers normally manipulate their financial reports when they show higher financial leverage. This is important to control the financial leverage in Jordanian banks based on the research results. The main objective is to mitigate the bank's financial leverage risk as much as its relationship with financial stability. Results may be important for investors, managers, regulatory bodies and auditors in Jordan since they help strengthen financial stability in Jordan. Finally, the main objective of this study is to find a solution to maintain stable and real financial economy by finding the effect of higher financial leverage in Jordanian banks of managers' cosmetic practices. This will be discussed through testing the role of EM of the relationship between firm's financial leverage and financial stability.

The theoretical issues, literature and hypothesis development

Although the discipline of earning management has been extensively studied in accounting literature, scholars might still contribute to this field of accounting. A precursor research project that slammed the door on earning management three centuries ago was the Bruns and Merchant study. [Singh \(2000\)](#) discusses earnings management as a response to tax laws in Malaysia. This implication assumes that tax breaks could serve as a motivator for profitable business activities. Using the use of three scenarios, [Liu \(2011\)](#) developed a model of securitization and financial stability. He created regulations for a new securitization regulatory framework that take systemic risk and externalities into account. The connection between business size and leverage with earning management discussed by [Ruwanti et al. \(2019\)](#) to summarize, large corporations and corporations with a high level of leverage will not perform EM. Following this research, [Rakshit and Paul \(2020\)](#) investigated the relationship between EM and financial distress. In conclusion, they discover that firms in financial distress may engage in EM activities. EM was used by [Amelia and Mulya \(2022\)](#) as a moderate variable that could play a role in the relationship between corporate social responsibility, leverage, and good corporate governance and tax aggressiveness. They discovered that corporate social responsibility, leverage and good corporate governance have no effect on tax aggressiveness, but that the effect of leverage and good corporate governance is affected after EM is moderated.

[Valencia \(2014\)](#) created a dynamic bank model to better understand what causes banks to take more risks when monetary policy rates are low and when it becomes excessive. In the model, lowering the risk-free rate for a given return on entrepreneurs' projects increases

lending profitability, which is boosted by limited liability because the higher funding cost associated with higher bank leverage is only partially internalized by the bank. When banks are unable to issue equity, the effect is proportional to the size of the shock, with small reductions in the policy rate potentially reducing excessive bank risk-taking and large reductions in the policy rate potentially increasing it. In order to achieve this, I simulate 300 pathways with a total of 1000 periods. Using these simulated data, I compute the empirical distribution of bank capital, and these probabilities are used to average risky behavior across different bank capital values. The concept encourages the use of macroeconomic condition-dependent financial regulation because excessive risk-taking is a function of aggregate conditions, in this case the policy rate.

[Adrian \(2012\)](#) states that it has been discussed that education is the process by which a person acquires knowledge or imparts knowledge to another person. The main goal of education is to help people live their lives and contribute to society as they grow older. There are various types of education, but traditional schooling is critical in determining a person's success. Education is important for everyone because it allows people to live a better life with more opportunities. We present a dynamic, general equilibrium theory of the financial intermediaries leverage cycle as a conceptual foundation for financial stability policies. Our model's assumptions are empirically motivated, and our theory captures many important stylized facts about the dynamics of financial intermediaries that have been documented in the literature. Their theory generates the volatility paradox, in which low contemporaneous volatility leads to high intermediary leverage and increases forward-looking systemic risk.

The results of the study by [Tanko \(2023\)](#) showed that financial leverage significantly and favorably affects the tax planning of the manufacturing companies in the sample. Firm expansion, however, has a negative but noteworthy effect on listed manufacturing companies in Nigeria's tax planning. Real earnings management (REM) significantly and favorably affects tax planning. Furthermore, the association between tax planning and financial qualities is strongly moderated by REM.

Using a sample of all non-financial KSE-100 index companies for the years 2009–2017, [Quddoos et al. \(2020\)](#) examines the mediating impact of EM on the connections between certain corporate governance features and firm performance. The research examination took into account the corporate governance traits related to the board of directors, ownership structure, external audit quality and audit committee independence. According to the study's findings, the audit committee's independence is negatively correlated with the firm's performance. Furthermore, discovered to be negatively correlated with profitability indicators like ROA and ROE is the board's independence. The other components, such as the size of the board, the CEO's dual role, the use of Big 4 audit firms and ownership structure, have little bearing on a company's performance. A true and fair representation of the company's financial affairs can be presented thanks to the audit committee and external audit processes. The security exchange commission of Pakistan (SECP) should ensure that neither internal nor external auditors are subjected to any pressure and should switch out audit firms once a year. In order to safeguard the interests of the stakeholders, SECP should enact regulations that make it less attractive for businesses to hire an audit company. With EM acting as a moderating factor, [Irawan et al. \(2022\)](#) study attempts to ascertain the impact of cash holding, profitability (ROA) and financial leverage (DER) on firm value (PBV) in manufacturing enterprises listed on the Indonesia Stock Exchange. A total of 24 manufacturing companies make up the research sample for this study, which spans the years 2015–2020. In this work, the data analysis method employed is called moderated regression analysis (MRA). The findings demonstrated that managing earnings and cash holdings had little impact on firm value (PBV). Firm value (PBV) is significantly positively impacted by profitability as indicated by return on assets (ROA) and financial leverage as indicated by debt to equity ratio (DER). The findings also indicate that there is no moderating influence of EM on the effect. The findings also indicate that the impact of cash holdings, profitability (ROA), and financial leverage (DER) on business value (PBV) is not mitigated by EM.

[Siekelova \(2021\)](#) in his article negotiated that the international economy has evolved in recent years. As a contemporary phenomenon, EM is crucial to the financial industry in the context of globalization. The topic of the reported financial results' informational usefulness is one that the academic community addresses. When we consider that managers have the ability and motive to manipulate these findings through EM strategies, the informative usefulness of these results is called into doubt. The contribution aims to both detect EM using the most explanatory power model and validate hypotheses regarding the presence of a statistically significant relationship between financial stability and EM practices in a sample of companies. Information was taken from the Amadeus database. A total 1,480 company financial reports from 2019 to 2017 are included in the sample. The research focuses on V4 businesses with operating revenue of more than 100,000 EUR and total assets exceeding 2,000,000 EUR. The theories on the current statistically significant relationship between financial stability and EM techniques were also tested using the Pearson correlation coefficient. Conclusions and added value: an outline of the EM problem in the V4 nations is given in the article. It looks at how EM techniques are implemented and how financial stability affects the scope and direction of these strategies.

[Riahi \(2020\)](#) In order to examine the effects of total LLP, discretionary loan loss provision (DLLP), discretionary accruals and a slight positive variance in net income on bank stability, the author isolates the DLLP. Second, the author looks into potential distinctions between Islamic banks and ordinary banks in terms of how DLLP affects bank stability. Findings according to the results show that the degree of stability is inversely related to the DLLP intensity. The impact of DLLP on bank stability was also shown to differ significantly between the two banking sectors in this study. In order to counteract any unfavorable repercussions, lenders should thoroughly evaluate the effects of their LLP policies. Third, shareholders, investors and bank customers should be aware of the findings. The primary goal of the current study is to analyze how earnings quality affects bank stability in GCC nations. Regarding whether IBs are more or less stable than CBs, there is not a lot of consensus in the literature. We examined a sample of banks using annual data for the years 2000–2014 to investigate this. Overall, we find strong evidence that the usage of LLP has an impact on banking stability, with lower levels of LLP being associated with more stable banking. This suggests that LLP can be interpreted as an indication of EM and a stability danger. By concentrating on the GCC nations, we are able to investigate a novel subject, namely the impact of DLLP on banking stability. We found that banks with higher DLLP become less stable, which could be read as a hint that banks are utilizing DLLP to manage capital and liquidity smooth financial outcomes, which explains the reduced stability.

[Valášková et al. \(2021\)](#) discussed the level of earnings achieved has a significant impact on an enterprise's financial health, as well as its continuous profitability and market competitiveness. Enterprises are required to present the best possible results in order to demonstrate financial strength and competitiveness, as well as to give accurate accounting to investors and creditors. Thus, the primary goal of the research is to determine whether there is a mutual reliance between corporate financial stability and EM. To assess these categories, Altman's Z score was used to assess the financial soundness of businesses, while the Beneish M-score and modified Jones model were employed to detect earnings manipulation. The chi-square test found a statistically significant relationship between financial strain and earnings manipulation. The categorical data were then analyzed using a multivariate statistical technique known as correspondence analysis to identify categories of characteristics that are mutually correspondent. Based on a dataset of 11,105 firms operating in the Visegrad nations, the findings revealed that enterprises facing bankruptcy or in the gray zone prefer to falsify their earnings in order to maintain credibility, creditworthiness and competitiveness. Because an enterprise's financial health can serve as an incentive for earnings manipulation, the study's findings may help state authorities, regulators and policymakers.

[Wang et al. \(2008\)](#) state that although much research has looked at several factors that affect EM in relation to corporate governance and audit quality, the empirical data on their effects are

rather contradictory. The management of profits is significantly impacted by each of the eleven variables evaluated. The management of earnings is a major problem for corporate stakeholders. We located 68 studies on EM in literature. There are many opportunities for additional research on the impact of corporate governance, particularly the effectiveness of the audit committee and the audit quality on EM, given the relatively small number of studies that have been published to date on these two significant issues.

[Amelia and Mulya \(2022\)](#) determined that tax is the largest income in Indonesia, but taxpayers believe that tax is an additional expense for corporations, so taxpayers engage in tax aggressive behavior in order to reduce their tax expense. The goal of this study is to empirically test the effect of CSR disclosure, leverage and GCG disclosure on tax aggressiveness moderated by EM in the mining industry listed on the Indonesian stock exchange between 2014 and 2019. Purposive sampling was used to obtain 14 corporates with a total of 84 observations. According to the results of the hypothesis test, corporate social responsibility disclosure, leverage and good corporate governance disclosure have no effect on tax aggressiveness. The results show that EM is unable to moderate the effect of corporate social responsibility disclosure on tax aggressiveness, whereas EM can moderate the effect of leverage and good corporate governance disclosure on tax aggressiveness. Based on the findings of the data analysis, the following conclusions are reached: (1) For the years 2014–2019, CSR disclosure had no effect on tax aggressiveness in mining corporations listed on the IDX. (2) For the years 2014–2019, leverage had no effect on tax aggressiveness in mining corporations listed on the IDX. (3) For the period of, disclosure of GCG has no effect on tax aggressiveness in mining corporations listed on the IDX for the period of 2014–2019.

[Lee's \(2022\)](#) approach to design methodology using a sample of 5,669 firm-year data from the South Korean securities market from 2011 to 2019, employs multiple regression analysis to investigate the EM of zero-leverage firms in the context of financial constraints. According to the findings of this study, zero-leverage firms are less likely than leveraged firms to manage earnings. When the analysis is conducted for firms with financial constraints, these findings vanish. Firms can maximize their values through optimal debt and equity financing, according to traditional capital structure theory. Many businesses adhere to a zero-leverage policy, avoiding debt financing entirely. According to the debt covenant hypothesis, in positive accounting theory firms typically manage earnings in order to avoid debt covenant violations ([Watts and Zimmerman, 1990](#)). According to [Dang \(2022\)](#), zero-leverage firms are not homogeneous and can be classified as financially constrained or unconstrained. The study found that zero-leverage firms are less likely to manage earnings than leveraged firms. After dividing the total sample into groups of firms with and without financial constraints, it was discovered that the EM level of zero-leverage firms is lower than that of leveraged firms in the former.

[Nopiana and Salvi \(2022\)](#) The goal of this research was to determine the impact of governance, leverage and financial distress on EM in companies listed on the Indonesia Stock Exchange (IDX), with a focus on the banking sector. The study's findings were analyzed and processed using statistical tests, which revealed that leverage has a positive and significant effect on EM. Based on the analysis of the research findings, it is possible to conclude that (1) the independence of the audit committee and the board of directors in governance in Indonesian banking companies continues to meet the requirements of the regulator government. Managerial ownership has no effect on EM. This is due to the fact that the percentage of managers who own shares is very small in comparison to the total capital owned by general investors. (2) The impact of debt or the obligation to pay installments and interest at maturity has a positive and significant impact on EM.

[Vakilifard and Mortazavi \(2016\)](#) a review of accounting literature on EM reveals that due to auditor and regulatory scrutiny, leverage limits EM. Because these studies look at the relationship between leverage and accrual-based earnings management (AEM), it is expected that leveraged firms manage their earnings by manipulating real-world activity. As a result, the goal of this paper is to see if leverage causes a shift away from AEM and toward REM. According to the findings, when leverage increases, managers tend to engage in REM rather

than AEM. Leverage has resulted in a shift from AEM to REM. In fact, financial leverage is increasing, and the pressures of debt covenants and stringent audits force leveraged firms to limit their exposure. Their exposure is growing, leverage led to shift from AEM to REM. Financial leverage is increasing, which puts debt covenants and strict audits on leveraged firms. EM will be reduced as a result of limiting managers' opportunistic behaviors.

Kliestik *et al.* (2021) the Altman Z score was used to assess a company's financial health, and the Beneish M-score and modified Jones model were used to detect earnings manipulation. The results of the categorical data analysis, which were supported by the correspondence analysis output, revealed a statistically significant relationship between an enterprise's financial health and earnings manipulation. The findings of the paper are significant and useful for investors, creditors, auditors and regulators, as the impact of EM on financial health is critical in determining an enterprise's financial capability, creditworthiness and honesty we cannot agree on a single definition of earnings quality because it is context dependent. The contribution of a firm's fundamental performance to its earnings quality is one area for future research. First, because all of the proxies for earnings quality that involve earnings, such as persistence, timely loss recognition, smoothness and small profits, as well as the Earnings Response Coefficients (ERCs), are affected by both the firm's fundamental performance and the measurement of performance, these proxies are affected by both the firm's fundamental performance and the measurement of performance. First, managers are only required to report one earnings figure, but having multiple goals may necessitate trade-offs. Second, managers choose a set or portfolio of accounting options to determine earnings rather than just one. Third, managers select a set or portfolio of accounting options to determine earnings, rather than just one, implying that they may have the flexibility to tailor individual elements of the set to different objectives.

However, no significant relationship exists between growth and EM activities. This study also discusses the relationship between EM and discretionary accruals. The implications of the study for various stakeholders have also been discussed. This study examined the impact of leverage on AEM in 159 nonfinancial firms listed on the Pakistan Stock Exchange over a seven-year period. The dependent variable was EM, with leverage as the independent variable and three control variables: growth, firm size and ROA. According to the regression results, debt ratios or leverage, have a positive relationship with AEM, implying that a high level of debt motivates managers to participate in EM, either to report the desired profit or to increase the amount of debt. The findings suggest that people should keep their debt under control in order to avoid having their earnings manipulated. Harymawan and Nowland (2016) state that according to previous research, political connections can provide significant benefits to firms, such as preferential access to financing, preference in the awarding of government contracts, as well as a higher likelihood of government bailout during a crisis.

Chaney *et al.* (2011) and Agrawal and Knoeber (2001) state that because of their political connections, businesses can obtain financing. They have less of a need to respond to external market pressures, resulting in lower quality accounting information disclosure. According to the literature, the benefits of political connections are greatest in less developed countries with higher levels of corruption. Increased political and economic development, according to Faccio (2010), should reduce the need for firms to rely on political connections while increasing the need for firms to respond to market pressures. We concentrate on changes in political stability and government effectiveness because we anticipate that they will have varying effects on the trade-off that connected firms face between the benefits of their political connections and the need to respond to market pressures. In addition, we also argue that increased political stability makes it more likely for firms with political ties to reap the benefits of their connections, reducing the need for connected firms to respond to market pressures and resulting in lower earnings quality. Politically connected firms in Indonesia, according to Fisman (2001), rely heavily on the benefits of their connections. When politically connected firms lose power, they face financing difficulties, according to Leuz and Oberholzer-Gee (2006).

Lo (2008) states that looking at EM detection through the eyes of a crime scene investigator sheds new light on previous EM and earnings quality research. EM and the market performance of initial public offerings are used to show how the seven elements of a crime scene investigation can be applied to EM research. EM has been studied by researchers for nearly two decades.

Hussain *et al.* (2022) state that further, to the best of their knowledge the empirical role of financing constraints has not yet been explored between the relationship of leverage and EM practices. The present study aims to empirically examine the impact of leverage on REM practices and how financing constraints influence this association. Leverage is categorized into short-term, long-term and total leverage to check the individual effects of each leverage category on REM practices. First, consistent with positive accounting theory, the impact of total leverage on REM is positive. Second, compared to the long-term leverage, short-term leverage has more pronounced effects on managers opportunistic behavior towards using REM. Third, in firms that are not financially constrained, total leverage has a greater impact on REM practices. Fourth, in financially constrained firms, the influence of short-term leverage on REM practices is weaker than that of long-term leverage. According to some researchers, both total and short-term leverage have a controlling effect on manager participation in EM practices. Following on from the preceding arguments, this study looks into the impact of leverage categories on REM practices, as well as how financing constraints change the nature of this relationship. Fifth, this study shows that total leverage responds positively to REM practices, which is consistent with positive accounting theory's debt covenant hypothesis. Sixth, in the case of a financially constrained company, the influence of short-term leverage on REM practices is weakened in the study compared to long-term leverage. The positive relationship between leverage and REM practices implies that leverage incentivizes managers to use REM practices to increase their income level through a variety of tactics, such as offering a discount on sales, implementing more relaxed credit policies, and reducing RD expenditure to repay debts and obtain more loans in difficult economic conditions.

Tjaraka *et al.* (2022) state that the consistency of agency theory and behavioral consistency theory as a solution for explaining the role of EM in mediating the influence of male CEO masculinity on leverage. EM is a practice that mitigates the impact of male CEOs' masculinity on leverage. The findings provide empirical evidence that EM practices have an impact on increasing and decreasing male CEO masculinity, as well as increasing and decreasing leverage. The findings are backed up by agency theory and behavioral consistency theory, which explain how the face of CE masculinity influences EM and leverage practices. The role of male CEOs in EM practices and corporate leverage policies is explained by agency theory. ImageJ software empirically supports the findings that the face of male CEO masculinity influences the company's EM and leverage management practices. The empirical findings have implications for company management because policymaking regarding the face of male masculinity has an impact on EM policies, leverage policies and research development cost policies, allowing company management and the government to use the empirical findings.

Based on the above discussion, the following hypothesis has been developed:

H1. There is no statistically significant effect of firm financial leverage and economic financial stability in Jordanian banks.

Lee (2022) who investigated whether EM of zero-leverage firms contributes to less EM practices, finding assure that zero-leverage firms are less likely to manage earnings than leveraged firms. Thus, 1 as much as financial leverage increased, risk associated is increased, which may lead managers to manipulate data. Agency theory explains the relationship between agent and manager, and some managers may manage data to achieve their interest. Agency theory is a framework for explaining and comprehending the relationships and conflicts that occur between principals (such as shareholders) and agents (such as managers) in enterprises. Agency theory emphasizes the possibility of conflicts of interest between principals and agents. This can involve disputes over EM, which refers to managers

manipulating financial statements or accounting methods to fulfill certain targets or objectives, sometimes for personal gain or to meet investor expectations. EM can occur in the framework of agency theory when managers are motivated to manipulate financial outcomes to maximize their own interests at the expense of shareholders or other stakeholders (Shikumo *et al.*, 2020). According to Lee's (2022) study, more financial leverage will lead to higher risks and as a result they manipulate data. Based on that, higher firm financial leverage led to more risks, and since banks represent and heavily the financial sector, higher banks financial leverage may lead to reduce the economic financial stability.

Based on the above discussion, the following hypothesis has been developed:

H2. There is no statistically significant effect of EM practices on the relationship between firm financial leverage and economic financial stability in Jordanian banks.

Research model

The researcher used many formulas to calculate study variables in Table 1 below in order to use them in the research models. The formulas are as follows:

Then the researcher used those variables in the following models:

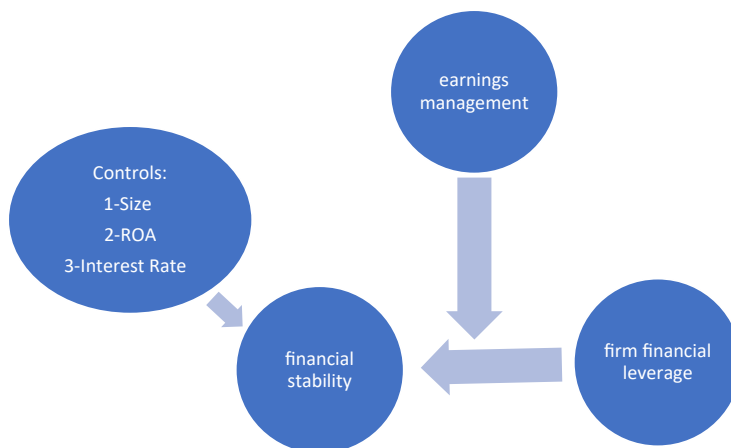
- (1) Model 1: $FSI_{y,t} = \alpha_0 + \alpha_1 FL_{y,t} + \alpha_2 SIZE_{y,t} + \alpha_3 INTEREST_{y,t} + \alpha_4 ROA_{y,t} + \ell_{y,t}$
- (2) Model 2: $FSI_{y,t} = \alpha_0 + \alpha_1 FL_{y,t} + \alpha_2 EM_{y,t} + \alpha_3 SIZE_{y,t} + \alpha_4 INTEREST_{y,t} + \alpha_5 ROA_{y,t} + \ell_{y,t}$

Research methodology

Quantitative methods are processed statistically. Also, the researcher test research conceptual framework according to the mediation model that was developed by Preacher and Hayes (2004). In Figure 1 of which panel A: determines a direct effect, while panel B: illustrates a mediating design. To construct the sample, the researcher used information extracted from Jordanian annual financial reports that is extracted from Amman Stock Exchange (ASE). The population of the study includes all Jordanian banks which are 26 banks, additionally, the period from 2008 to 2018 was used to illustrate data. The reason behind using this period is to examine the variables relationships for and after the 2008 financial crisis and its consequences. The researcher chooses 2018 as the end period, that is because it is the year before COVID-19 period which covers 2019–2022, and this period is considered not normal. In comparison with past studies, the researcher used modified Jones model to measure EM (Valášková *et al.*, 2021; Nopiana and Salvi, 2022; Riahi, 2020, Quddoos *et al.*, 2020; Cho *et al.*, 2012). While financial stability financial leverage will be calculated using total debt/total equity (Nopiana and Salvi, 2022). Finally, financial stability is measured using the financial stability model for banking sector, but not for all economy that is because the banking sector represents 96% of the economy, also this study applied for banking sector. Missing values were replaced using the mean on SPSS. Finally, regression model and F-Score, correlation were examined.

Table 1. Research variables

Modified Jones model	$\frac{TA_{it}}{A_{it-1}} = \alpha_i \left[\frac{1}{A_{it-1}} \right] + b_{1i} \left[\frac{\Delta REV_{it}}{A_{it-1}} \right] + b_{2i} \left[\frac{PPE_{it}}{A_{it-1}} \right] + \epsilon_{it}$
Financial Stability	$Bsi = (\sum_1^{10} \left\lfloor \frac{W_b d_b}{Total Debt \backslash Total Equity} \right\rfloor) / 10$
Firm Financial Leverage	
Source(s): Authors' own creation	



Source(s): Authors' own creation

Figure 1. The relationship between research variables

Research results

Descriptive statistics

Some descriptive statistical metrics are shown in Table 2. For all variables, the total number of observations is (286). In addition, as shown in column (5), the deviation of observations is in normal points. In terms of the symmetry of observations for each variable, Financial Stability Index (FSI) and ROA data appear to be skewed left, while other variables appear to be skewed right. This shows that all variables' data are not regularly distributed. Kurtosis analysis shows that FSI and INTEREST have a light tail distribution, but LEVERAGE, EM and SIZE have a heavy tail distribution. Finally, mean indications for all variables appear to be normal. For FSI the minimum value was 0.41, while the maximum value was 0.70 which is normal distribution of values between the minimum and the maximum value. The minimum and maximum values of each other variables shown in columns 2 and 3 in Table 2, thus no exceptional issues need to be discussed.

Correlation

The Pearson correlation test, as shown in Table 3, shows the relationship between the research variables at the two-tailed level of significance. The results indicate that the correlation between variables is under control, with no exceptions. However, the strongest negative connection is roughly 61% between size and leverage at the 0.00 level of significance. This significant correlation between size and leverage is expected since research indicates that as business size grows, financial leverage reduces. Furthermore, there is a strong relationship between interest rates and financial stability indicators. This ratio is approximately 41% adversely, and this strong association between interest rate and financial stability is natural since a rise in interest rate has a negative impact on financial stability at the economic level. Other variables correlation data show that there is no substantial connection between variables. The relationship between FSI and LEVERAGE is about -5%, which indicates that the increase of firm leverage decreases financial stability by about 5%. This correlation is normal and leverage increasing produces negative point of the firm which must affect negatively the financial stability. Also, FSI has negative and less than 1% connection with firm size. Additionally, ROA has about 8% correlation with FSI.

Interest rate has shown normal correlation with leverage, EM, size and ROA. As much as interest rate increases, economy must be in difficult situation, which lead managers to manipulate financial reports which have been affected by the bad situation of economy, although, this correlation is about 5%.

Table 2. Descriptive analysis

Descriptive statistics	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
FSI	286	0.4100	0.7000	0.593636	0.0912413	−0.616	0.144	−0.711	0.287
INTEREST	286	0.03750	0.06250	0.0481364	0.00802850	0.316	0.144	−1.152	0.287
SMEAN(LEVERAGE)	286	0.0000	0.4944	0.142266	0.0724452	2.228	0.144	6.532	0.287
SMEAN(EM)	286	0.0053032	0.0664766	0.020393087	0.0076400970	1.798	0.144	7.360	0.287
SMEAN(SIZE)	286	4.8050	9.1600	6.870842	0.9764989	0.154	0.144	−0.210	0.287
SMEAN(ROA)	286	−0.06320	0.02734	0.0106302	0.00754543	−3.925	0.144	33.562	0.287
Valid N (listwise)	286								
Source(s): Authors' own creation									

Table 3. Pearson correlation

Correlations		FSI	INTEREST	SMEAN(LEVERAGE)	SMEAN(EM)	SMEAN(SIZE)	SMEAN(ROA)
FSI	Pearson Correlation	1	−0.408**	−0.054	−0.037	−0.003	0.081
	Sig. (two-tailed)		0.000	0.366	0.535	0.960	0.171
	N	286	286	286	286	286	286
INTEREST	Pearson Correlation	−0.408**	1	−0.043	0.054	−0.026	0.023
	Sig. (two-tailed)	0.000		0.471	0.367	0.656	0.693
	N	286	286	286	286	286	286
SMEAN(LEVERAGE)	Pearson Correlation	−0.054	−0.043	1	0.063	−0.612**	−0.072
	Sig. (two-tailed)	0.366	0.471		0.289	0.000	0.223
	N	286	286	286	286	286	286
SMEAN(EM)	Pearson Correlation	−0.037	0.054	0.063	1	0.001	0.035
	Sig. (two-tailed)	0.535	0.367	0.289		0.981	0.559
	N	286	286	286	286	286	286
SMEAN(SIZE)	Pearson Correlation	−0.003	−0.026	−0.612**	0.001	1	0.209**
	Sig. (two-tailed)	0.960	0.656	0.000	0.981		0.000
	N	286	286	286	286	286	286
SMEAN(ROA)	Pearson Correlation	0.081	0.023	−0.072	0.035	0.209**	1
	Sig. (two-tailed)	0.171	0.693	0.223	0.559	0.000	
	N	286	286	286	286	286	286

Note(s): **Correlation is significant at the 0.01 level (2-tailed)

Source(s): Authors' own creation

Regression result for model one

$$FSI_{y,t} = \alpha_0 + \alpha_1 FL_{y,t} + \alpha_2 SIZE_{y,t} + \alpha_3 INTEREST_{y,t} + \alpha_4 ROA_{y,t} + \ell_{y,t}$$

This model represents the effect of firm financial leverage on financial stability indicator for the Jordanian economy. Tables 4 and 5 indicate that the model explains 17% of changes in FSI, and the model is fit (F-Score = 16) at (0.000) level of significance. Table 6 presents coefficients for each variable in the model. The table shows that leverage, interest rate and size negatively affect FSI, while ROA is positively affected FSI. Also, all of the independent variables are significant under (5%) level of significant, and T-Value supports these results. Additionally, an increase (100%) of leverage will decrease FSI by (17%), and this result supports the research expectation, since the increase in firm financial leverage led it to riskier firm which will affect the economic financial stability. The increase of interest rate of (100%)

Table 4. Model (1) summary

Model summary ^b					
Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.433 ^a	0.187	0.176	0.0828284	2.101
Note(s): a. Predictors (Constant), SMEAN(ROA), INTEREST, SMEAN(LEVERAGE), SMEAN(SIZE)					
b. Dependent Variable: FSI					
Source(s): Authors' own creation					

Table 5. ANOVA results

ANOVA ^a						
Model		Sum of squares	Df	Mean square	F	Sig
1	Regression	0.445	4	0.111	16.209	0.000 ^b
	Residual	1.928	281	0.007		
	Total	2.373	285			
Note(s): a. Dependent Variable: FSI						
b. Predictors (Constant), SMEAN(ROA), INTEREST, SMEAN(LEVERAGE), SMEAN(SIZE)						
Source(s): Authors' own creation						

Table 6. Coefficients

Coefficients								
Model		Unstandardized c		Standardized c		Collinearity s		
		B	Std. Error	Beta	T	Sig	Tolerance	VIF
1	(Constant)	0.911	0.062		14.678	0.000		
	INTEREST	−4.767	0.613	−0.419	−7.772	0.000	0.993	1.008
	SMEAN(LEVERAGE)	−0.173	0.086	−0.137	−2.012	0.045	0.619	1.615
	SMEAN(SIZE)	−0.011	0.007	−0.120	−1.728	0.085	0.596	1.679
	SMEAN(ROA)	1.285	0.667	0.106	1.926	0.055	0.950	1.052
Note(s): a. Dependent Variable: FSI								
Source(s): Authors' own creation								

will decrease FSI by (400%), and this result is normal since central banks of Jordan increases interest rate in the inflation periods which will increase the risk of financial stability of the economy. Additionally, the increase of size by (100%) will decrease FSI by (1%). This effect is very small comparing with other variables. An explanation of this result includes that more firm size means more complicated transactions and higher leverage which as a result decrease financial stability of the economy. Finally, as much as ROA increases by (100%) will increase FSI by (120%), and this result is normal since the increase of ROA indicates higher performance for banks which as a result will increase financial stability of the economy.

Regression result for model two

$$FSI_{y,t} = \alpha_0 + \alpha_1 FL_{y,t} + \alpha_2 EM_{y,t} + \alpha_3 SIZE_{y,t} + \alpha_4 INTEREST_{y,t} + \alpha_5 ROA_{y,t} + \ell_{y,t}$$

For the Jordanian economy, this model illustrates how EM affects the connection between a firm's financial leverage and a financial stability indicator. In Table 7 17% of variations in FSI can be explained by the model, which is fit (F-Score = 12) at the significance level of (0.000) as shown in Table 8. The coefficients for every variable in the model are shown in Table 9. The table demonstrates that while ROA has a favorable impact on FSI, leverage, interest rate, size and EM have a negative impact. Additionally, T-Value confirms these findings, and all independent variables are significant at the 10% level of significance. Furthermore, a 100% increase in leverage will result in a 17% fall in FSI. This finding aligns with the research hypothesis, since higher firm financial leverage entails greater risk, which in turn impacts economic financial stability. Since Jordan's central banks raise interest rates during periods of inflation, which raises the danger to the financial stability of the economy, the increase of 100% in interest rates will result in a 400% fall in the FSI. Lastly, a 100% rise in EM will result in an 11% fall in FSI while maintaining the same level of firm financial leverage. Although this conclusion is in line with the expectations of the research, as EM refers to the manipulation of financial report information, including information about financial leverage, manipulation

Table 7. Model (2) summary

Model summary					
Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-Watson
1	0.433 ^a	0.188	0.173	0.0829717	2.100

Note(s): a. Predictors (Constant), SMEAN(ROA), INTEREST, SMEAN(EM), SMEAN(LEVERAGE), SMEAN(SIZE)
b. Dependent Variable: FSI
Source(s): Authors' own creation

Table 8. ANOVA regression

ANOVA ^a						
Model		Sum of squares	Df	Mean square	F	Sig
1	Regression	0.445	5	0.089	12.928	0.000 ^b
	Residual	1.928	280	0.007		
	Total	2.373	285			

Note(s): a. Dependent Variable: FSI
b. Predictors (Constant), SMEAN(ROA), INTEREST, SMEAN(EM), SMEAN(LEVERAGE), SMEAN(SIZE)
Source(s): Authors' own creation

Table 9. Coefficients for the second model

coefficients ^a		Unstandardized coefficients		Standardized coefficients	T	Sig	95.0% confidence interval for B		Collinearity statistics	
Model		B	Std. Error	Beta			Lower bound	Upper bound	Tolerance	VIF
1	(Constant)	0.913	0.063		14.553	0.000	0.789	1.036		
	INTEREST	−4.761	0.616	−0.419	−7.735	0.000	−5.973	−3.549	0.989	1.011
	SMEAN(LEVERAGE)	−0.172	0.087	−0.137	−1.987	0.048	−0.342	−0.002	0.615	1.626
	SMEAN(EM)	−0.112	0.647	−0.009	−0.173	0.863	−1.385	1.161	0.989	1.011
	SMEAN(SIZE)	−0.011	0.007	−0.120	−1.714	0.088	−0.024	0.002	0.594	1.683
	SMEAN(ROA)	1.288	0.668	0.107	1.927	0.055	−0.028	2.604	0.950	1.053

Note(s): a. Dependent Variable: FSI
Source(s): Authors' own creation

also lowers investor confidence in bank share prices, which has an impact on the stability of the economy's financial system.

Furthermore, increasing the size by (100%) reduces the FSI by (1%). When compared to other factors, this effect is quite tiny. One reason for this conclusion is because larger firms have more intricate transactions and more leverage, which reduces the economy's financial stability. Finally, increasing ROA by (100%) raises FSI by (120%), which is reasonable since increasing ROA signals stronger performance for banks, which enhances financial stability in the economy.

Conclusion and implication

Increased business financial leverage leads to more risky enterprises, which has an impact on economic financial stability. And the interest rate result shows that Jordan's central bank boosts interest rates during inflationary periods, increasing the risk to the economy's financial stability. Furthermore, size has a minimal impact when compared to other variables, and greater business sizes signal more sophisticated transactions and higher leverage, reducing the economy's financial soundness. Finally, ROA indicates increased bank performance, which contributes to the economy's financial stability. while EM has a direct negative impact on financial stability, this conclusion is consistent with the research's expectations. Because EM refers to the manipulation of financial report information, including information about financial leverage, manipulation also lowers investor confidence in bank share prices, affecting the stability of the economy's financial system. It has little influence on the relationship between leverage and economic financial stability. Finally, practical implications also contribute to maintain economic financial stability, auditors must take care through their role specially when there is higher financial leverage of Jordanian banks. Further, managers must pay attention before manipulating financial information if there is high financial leverage, because this will affect the economic financial stability. Lastly, the most important implication is that the maintenance of economic financial stability, and EM if did not discovered for a period of time may show false signaling of economic financial stable, and suddenly face financial crises.

Future research

Future study might focus on the period from 2019 to 2024, which follows the COVID-19 era, and researchers could use dummy variables to eliminate the influence of COVID-19. Furthermore, future study on the link between company financial leverage and financial stability may focus on additional variables such as performance, earning efficiency, and so on. Other statistical approaches may also be employed to test this association, yielding updated results.

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