How Does Gender Diversity Moderate the Relationship between Income Smoothing and Stock Liquidity? Evidence from Egypt

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How Does Gender Diversity Moderate the Relationship between Income Smoothing and Stock Liquidity? Evidence from Egypt

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Abstract:

Purpose – The study seeks to examine the impact of income smoothing (IS) on stock liquidity (SL). Further, it investigates the moderating impact of gender diversity (GD) which is represented by board gender diversity (BGD), and audit committee gender diversity (ACGD) in this relationship.

Design/methodology/approach – The study relies on a quantitative research method to assess the impact of IS on SL and then the moderating impact of GD in (62) Egyptian firms from 2018 to 2021. Panel Data regression analysis and the Kruskal-Wallis's test are run to test the hypotheses.

Findings – The results conclude a significant negative impact of IS on SL. Moreover, this relationship is enhanced by GD where BGD and BGD×ACGD weakens the negative impact of IS on SL. Also, the study demonstrates significant differences among Egyptian Stock Exchange (ESE) sectors regarding IS, besides, there are insignificant differences regarding SL.

Originality/value – This study expands the extant literature by providing novel empirical evidence about the moderating impact of GD on the IS-SL relationship. The study is in line with the growing universal interest in increasing females' participation in boardrooms. Also, the focus of this study is Egypt which has cultural practices and traditional customs toward women. Moreover, the study supports the decisions of regulatory bodies in Egypt to raise the participation of women.

Keywords: Income smoothing, Stock liquidity, Board gender diversity, Audit committee gender diversity

1. Introduction

Gender diversity (GD) is increasingly recognized as a crucial aspect that attracted considerable attention from academics and stakholders. There are apparent efforts to raise females' participation in boardrooms and audit committees over the world, whether by increasing their numbers or by making females' quotas. For instance, Norway enacted a female quota of 40% by 2008, following Norway, other European countries such as Spain, Italy, and the Netherlands issued a legal quota of 40%, 33.3%, and 30% respectively (Lee *et al.*, 2015). In emerging markets like Egypt, serious steps have been made to achieve women's empowerment by

increasing females' participation in boardrooms to become 30% by 2030 (WoB, 2020). For example, the Financial Regulatory Authority (FRA) issued decree No. (109) in 2021 related to listing and delisting rules for securities indicated that females' participation must represent at least 25% of the total number of board directors or the boardroom must include two women at least (FRA, 2021).

The growing attention to GD may be related to the following reasons. Firstly, GD has become a mechanism of corporate governance that is used to increase the board monitoring effectiveness, protect the interests of shareholders, and mitigate managerial opportunism (Zalata *et al.*, 2018; Orazalin, 2020; Ghaleb *et al.*, 2021; Ramadan and Hassan, 2022). Secondly, GD can alleviate agency problems between managers and shareholders (Ain *et al.*, 2021). Thirdly, numerous theories anticipate the value-added concerning females' participation because of the difference between women and men in their physiological and ethical behaviors towards events. Social cognitive theory, as a case in point, indicates that personal properties have a different effect on understanding, skills, and performance (Luszczynska and Schwarzer, 2015). Under this theory, previous studies denote that females show skills and characteristics that differ from males. For instance, women are more risk-averse and more conservative when taking decisions (Nelson, 2015; Hoang *et al.*, 2019), more ethical and higher degree of morality (Bart and McQueen, 2013; Briano-Turrent, 2022), and higher financial and social performance (Alazzani *et al.*, 2017; Garanina and Muravyev, 2021).

In the same context, the organizational theory implies that GD demonstrates better performance as a result of the existence of various skills, viewpoints, and behaviors (Brammer *et al.*, 2009; Jones, 2013). Also, critical mass theory clarifies that the increase in females' participation leads to various improvements (Torchia *et al.*, 2010). For instance, Ahmed and Ali (2017) concluded that the presence of one female in boardrooms rose stock liquidity; moreover, this effect became stronger when increasing females' participation to become more than one woman. Also, Harakeh *et al*. (2019) proved that females' participation in boardrooms mitigated earnings management (EM) and controlled CEO incentive compensation. In the same sense, Vafaei *et al.* (2021) concluded that the existence of females in boardrooms increased the activity of firm innovation.

EM reflects managerial behavior which is chosen by managers to adjust financial information for obtaining specific purposes and it is a method of information asymmetry between managers and shareholders (Ghaleb *et al.*, 2021; Li, 2021). Managers can manage earnings by using several tools such as discretionary

accruals, real activities, and income smoothing. Income smoothing (IS) was defined by Mulford and Comiskey (2002, p.3) as "A *form of earnings management designed to remove peaks and valleys from a normal earnings series, including steps to reduce and store profits during good years for use during slower years*". The basic two motives of IS are to show a firm in a low-risk situation and fewer earnings volatility (Monjed and Ibrahim, 2020). The implications of IS have been still under debate and include two streams. The first stream is related to the informativeness perspective which indicates that IS practices help managers to keep earnings stable from year to year and thus maintain firms' reputation (Patmawati *et al.*, 2020). Whilst the second stream is associated with the opportunistic perspective which means that IS practices enable managers to use private information to achieve personal interests or to evade earnings disappointment which may affect their positions (Chen *et al.*, 2019).

One of the most important aspects that are likely to be affected by income smoothing is stock liquidity (SL). SL means the ease of buying and selling securities, i.e., SL reflects the capability of investors to convert securities into cash or vice versa (Abdul-Khaliq, 2013; Ahmed and Ali, 2017). SL plays a vital role in the stock market's efficiency as an increase in SL can cause a decline in transaction costs, an increase in stock returns, and a crucial role in the pricing process (Sayari and Omri, 2017; Sayari, 2018). Additionally, SL enables firms to attract more investments, raise their funds by issuing new stocks, and diminish their capital costs (Al-Jaifi, 2017; Khan *et al.*, 2022). Prior studies proved the implications of SL in many aspects such as firms' dividends (e.g., Michaely and Qian, 2022; Stereńczak and Kubiak, 2022), cash holdings (e.g., Nyborg and Wang, 2021; Im *et al.*, 2022), firm's value (e.g., Jawed and Kotha, 2022; Shamsic *et al.*, 2022), capital structure (e.g., Dang *et al.*, 2019; Dutta *et al.*, 2022), corporate diversification (e.g., Gu *et al.*, 2018), cost of capital (e.g., Amihud *et al.*, 2015; Rahman and Rajib, 2018), and firms' performance (e.g., Boloupremo, 2020; Chabachib *et al.*, 2020). As a consequence, SL is a crucial area of interest whether in the field of stock markets or the field of firms.

Some studies have attempted to explore the role of GD in enhancing SL (e.g., Ahmed and Ali, 2017; Loukil *et al.*, 2019; Ye *et al.*, 2021; Abidi and Nsaibi, 2022). Other studies examined the impact of EM on SL (e.g., Trang and Linh, 2020; Hunjra *et al.*, 2020; Amawi and Abu Nassar, 2021). Nevertheless, no prior study, to the best of our knowledge, has investigated the relationship between IS and SL; moreovere, if GD moderates this relationship, especially in emerging countries like Egypt.

There are several reasons for selecting Egypt as the context for the current study. Firstly, the Egyptian Stock Exchange (ESE) is deemed one of the oldest stock exchanges in the world; furthermore, ESE is the first stock exchange launched in the Middle East and North Africa (MENA) (OECD, 2019). Secondly, regulatory bodies in Egypt have begun to pay great attention to female representation. For instance, a new set of listing and delisting rules for securities has been issued by FRA to increase women's representation on the board of directors (WoB, 2020). Consequently, females' participation in the boardrooms of firms listed in ESE witnessed a considerable improvement as it progressed from 10.2% in 2018 to 15.2% in 2021(WoB, 2021). Thirdly, Egypt is an emerging country that has cultural practices, traditional customs, and beliefs tending to reinforce the inferior status of women (Nguyen and Muniand, 2021); moreover, Egyptian culture highlights the superior status of men in leadership positions. Lastly, empirical studies in Egypt revealed that listed firms in ESE practice IS (e.g., Younis, 2018; Ibrahim *et al.*, 2020). These reasons motivate the current study to investigate the impact of IS, as a tool of EM, on SL and whether GD plays a moderator role in this relationship.

The contribution of this study enriches the extant literature in various ways. Firstly, this study expands the diversity literature by investigating the moderating impact of GD on the association between IS and SL, particularly in developing economies namely Egypt. Secondly, it is consistence with the tremendous global attention to increasing females in boardrooms and audit committees. Thirdly, our results have some practical implications, for example, females can help firms mitigate earnings manipulation. Also, our findings advocate the endeavors made by the Egyptian government to increase women in boardrooms. Additionally, firms should pay great attention to IS practices as these practices lead to a decline in SL. Moreover, our results prove that GD is an effective internal governance mechanism as it weakens the negative impact of IS on SL.

The remainder of the study is as follows. Section 2 includes literature review and hypotheses development. Section 3 shows empirical methodology. Section 4 demonstrates results and discussion. Section 5 presents additional analyses. Finally, section 6 displays conclusion.

2. Literature Review and Hypotheses Development

2.1 Income Smoothing and Stock Liquidity

IS can be used from an informative or an opportunistic viewpoint. According to the informative perspective, IS helps managers use present earnings to forecast

future earnings which leads to an increase in the informativeness and persistence of earnings (Chang *et al.*, 2021). Demerjian *et al.* (2020), for example, concluded that IS enhanced earnings usefulness in debt contracting by improving the relationship between earnings and performance. On the other hand, the opportunistic perspective indicates that management employs IS to obscure information related to the actual performance. Managers use this perspective to evade earnings disappointment and reach earnings targets (Chen *et al.,* 2019). The opportunistic behavior may cause negative impacts such as increasing earnings opacity, increasing transaction costs, and diminshing firms' values (Chang *et al.,* 2021).

In the extant literature, studies that examined the impact of IS on SL are infrequent. The reason for this is that the majority of studies used accruals or real activities to measure EM. These studies can be divided into two streams. The first stream has revealed that EM negatively affects SL (e.g., Ajina and Habib, 2017; Sayari and Omri, 2017; Sayari, 2018; Hunjra *et al.*, 2020; Amawi and Abu Nassar, 2021). The negative impact of EM on SL is related to the low level of financial information quality. This decline in financial information quality leads to an increase in the level of information asymmetry and transaction cost which causes a reduction in the trust and reliability of investors and thus a decrease in SL as a result of trading volume impairment.

In contrast, the other stream has shown that EM positively affects SL (e.g., Riahi *et al.*, 2013; Al-Jaifi, 2017; Trang and Linh, 2020). This positive viewpoint reflects that practices of EM can be considered an informative tool to increase earnings persistence and hence increase the number of investors who seek to achieve high and quick returns.

To sum up, the impact of EM on SL is a substantial matter because EM can determine the information quality which affects the trading volume and stock returns. Empirical studies have found mixed results concerning the impact of EM on SL but the majority of these studies selected discretionary accruals and real activities to measure EM and neglected IS. Therefore, the current study will focus on using IS as a tool of EM. Thus, the first hypothesis can be formulated as follows:

H_1: IS has a significant impact on SL

2.2 The Moderating Impact of Gender Diversity on Income Smoothing and Stock Liquidity Relationship

Recently, a large and growing body of studies has dealt with GD and its implications. Several attempts have been made to explore the impact of GD on SL. Most

of these attempts demonstrated a positive effect of GD on SL; furthermore, they proved that the positive impact of GD on SL became stronger with the higher presence of females (e.g., Ahmed and Ali, 2017; Loukil *et al.*, 2019; Nguyen and Muniand, 2021; Ye *et al.*, 2021; Abidi and Nsaibi, 2022; Khan *et al.*, 2022). The positive effect of GD on SL may be a result of investors' confidence in women to add value and improve the interests of shareholders (Sudeck and Latridis, 2014). This confidence is related to the positive impact of GD on profitability (e.g., Garanina and Muravyev, 2021; Safiullah *et al.*, 2022), environmental performance (e.g., Cordeiro *et al.*, 2019), firm value (e.g., Agyemang-Mintah and Schadewitz, 2019), and the negative effect of GD on agency cost (e.g., Ain, *et al.*, 2020).

Regarding the opportunistic behavior, i.e., EM, the literature has shown that females' participation in boardrooms or audit committees has rather mixed results. Some studies have proved a positive effect of GD on EM (e.g., Li, 2021; Zalata and Abdelfattah, 2021), whereas other studies revealed a negative impact of GD on EM (e.g., Harakeh *et al.*, 2019; Ghaleb *et al.*, 2021). The causes for positive or negative impact depend on, firstly, the type of role played by women if it is a monitoring or advisory role. For instance, Zalata *et al.* (2019) found among American firms that the monitoring role of women directors decreased managerial opportunism, while the advisory role of women directors had no impact to diminish managerial opportunism. Therefore, the presence of women in the boardroom can enhance the benefits for shareholders and alleviate EM if they have a monitoring role instead of an advisory role. Secondly, the financial expertise of females is considered a crucial factor. For example, Chen and Gavious (2016) indicated that the existence of one financially literate female director mitigated EM practices. In the same context, Zalata *et al.* (2018) showed that the existence of women financial experts in audit committees diminished EM. Thirdly, the impact of GD is related to the power allowed to females in the work-place (Kyaw *et al.*, 2015). Lastly, statutory and demographic characteristics of females can play a substantial role in changing the nature of GD impact. For instance, Gull *et al*. (2018) concluded that the negative effect converted into a positive one when statutory and demographic properties were taken into account.

It is worth mentioning that previous studies have used various tools to estimate EM which led to different results. For instance, Hunjra *et al.* (2020) found a negative impact of EM on SL when using discretionary accruals which catch the attention of auditors and regulators (Ismail, 2017), whilst Zalata and Abdelfattah (2021) proved a positive impact of EM on SL when using classification shifting which should be discussed during board and audit committee meetings. The

reason for these two different results is driven by litigation risk and reputation concerns that females prefer to decrease to the lowest level as they are more risk-averse, more conservative, and more ethical in taking decisions than men according to social cognitive theory (Hoang *et al*., 2019; Briano-Turrent, 2022). Consequently, this point was a motive for the current study to investigate IS as another tool of EM. Therefore, the second, third, and forth hypotheses can be formulated as follows:

H_2: BGD has a significant moderating impact on the IS-SL relationship

H_3: ACGD has a significant moderating impact on the IS-SL relationship

H_4: GD has a significant moderating impact on the IS-SL relationship

3. Empirical Methodology

3.1 Sample and Data Collection

Our initial sample includes all firms listed on ESE from 2018 to 2021 comprised of (184) firms distributed to (18) sectors (ESE, 2022). Our final sample contains (62) firms in (7) sectors representing (33.7%) of the total number of all firms listed on ESE with (248) firm-year observations after applying the following criteria. Firstly, firms must have been listed on ESE from 2018 to 2021. Secondly, firms' financial reporting must have been available during this period. Thirdly, firms' financial statements must have been issued on 31 December to ease the comparability among firms. Fourthly, all financial statements must have been published in the Egyptian pound. Fifthly, banks and financial services firms are excluded due to the uniqueness of their activities; furthermore, they are subject to the regulations of the Egyptian Central Bank. Our study uses a quantitative research method based on secondary data. Data for all variables are obtained from annual financial statements, the INVESTING database, the disclosure form of the directors'board and shareholders structure, and ESE.

3.2 Variables Description

The dependent variable in the current study is SL. Most prior studies employed the Amihud illiquidity measure (2002) to estimate SL (e.g., Bazrafshan *et al.,* 2021; Khan *et al.,* 2022; Abidi and Nsaibi, 2022; Michael *et al.,* 2022) because it is strongly associated with the high-frequency price impact benchmark, allows a better understanding of liquidity premium, and the simplicity of its construction (Lou and Shu, 2017). This measure can be illustrated by the ratio of the absolute stock return to the trading volume of the stock as follows (Amihud, 2002):

$$ILLIQ_{iy} = \frac{1}{Diy}\sum_{d=1}^{Diy}\frac{|Ridy|}{VOLDidy}$$

Where $ILLIQ_{iy}$ refers to the value of stock illiquidity for a firm (i), on a day (d), and a year (y). This measure is inversely related to stock liquidity and it is multiplied by 100,000,000 for presentation purposes and it is multiplied by minus 1 for easier interpretation (Amihud, 2002). Thus, higher values of this measure imply higher liquidity and vice versa. D_{iy} indicates the number of days trading in a year. R_{idy} denotes the daily absolute stock return. $VOLD_{idy}$ refers to trading volume averaged over trading days per year.

IS refers to the independent variable of the current study. Following prior studies (e.g., Akbari *et al.,* 2019; Tee, 2020; Paolone, *et al.,* 2022), the study relies on the Eckel ratio (1981). This ratio (1981) includes the coefficient of variation for the change in income divided by the coefficient of variation for the change in sales as follows:

$$IS = \frac{CV\Delta I}{CV\Delta S}$$

Where ΔI refers to the change in net income which is the difference between the current and the previous net income divided by the previous net income. ΔS is the change in sales which is calculated by the difference between the current and the previous sales divided by the previous sales. CV points to the coefficient of variation which is the standard deviation divided by the mean. If the ratio is less than one, this means the firm performs income smoothing and takes one. Conversely, if it is bigger than one, it implies that the firm does not perform income smoothing and takes zero.

The moderating variable in this study is GD. We divide GD into BGD which estimated by the ratio of women on the board of directors and ACGD which computed by the ratio of women on the audit committee (e.g., Gull, *et al.,* 2018; Mintah and Schadewitz, 2019; Cordeiro, *et al.,* 2020; Safiullah, *et al.,* 2022).

Additionally, we use six control variables (firm size, financial leverage, firm age, earnings per share, market-to-book ratio, and audit firm size) which can be probably associated with SL (Bazrafshan *et al.*, 2021; Michael *et al.*, 2022; Khan *et al.*, 2022; Abidi and Nsaibi, 2022). Firm size is estimated by the natural logarithm of total assets, financial leverage is measured by total liabilities divided by total assets, firm age is the natural logarithm of the number of years from the year of incorporation, earnings per share is calculated by net income divided by total shares outstanding, the market-to-book ratio is measured by dividing the market value of equity by the book value of equity, and audit firm size is calculated by a dummy variable that matches one when the auditor is a Big 4 firm and zero otherwise.

3.3. Models Specification

The study investigates whether IS will influence SL and whether GD will moderate the impact of IS on SL; this can be designed by the regression models as follows:

SL_{it}=β0+ β1IS+ β2FSize+ β3Lev+ β4FAge+ β5EPS+ β6MtB+ β7AudFirm+ε_{it}

SL_{it}=β0+β1IS+β2BGD+β3IS×BGD+β4FSize+β5Lev+β6FAge+β7EPS+β8MtB+β9AudFirm+ε_{it}

SL_{it}=β0+β1IS+β2ACGD+β3IS×ACGD+β4FSize+β5Lev+β6FAge+β7EPS+β8MtB+β9AudFirm+ε_{it}

SL_{it}=β0+β1IS+β2BGD×ACGD+β3IS×BGD×ACGD+β4FSize+β5Lev+β6FAge+β7EPS+β8MtB +β9AudFirm+ε_{it}

4. Results and Discussion

Table 1 demonstrates the descriptive statistics and shows whether variables follow the normal distribution or not by using Kolmogorov-Smirnov and Shapiro-Wilk tests. The results reveal that the significance values are less than 0.05 which indicates that the variables do not follow the normal distribution (Pallant, 2016). To detect the existence of multicollinearity problems, collinearity diagnostics are used to identify the values of Variance Inflation Factor (VIF) and Tolerance. VIF values for all variables are less than (10) and Tolerance values are greater than (0.05) which means that the analysis does not suffer multicollinearity problems within variables (O'Brien, 2007). Also, an autocorrelation test using Durbin Watson (D-W) is employed to test if there is any kind of autocorrelation problems. Values of (D-W) are within the specified range of test 1.5: 2.5 (Basheer, 2003) which denotes that variables do not suffer autocorrelation problems between them.

Table 1. Descriptive statistics results

Panel A: Continuous variables				
Variable	**Min**	**Max**	**Mean**	**Std. Dev.**
SL	0.07	35.97	10.142	12.964
BGD	0.00	0.50	0.093	0.106
ACGD	0.00	0.67	0.133	0.187
IS×BGD	0.00	0.40	0.043	0.079
IS×ACGD	0.00	0.67	0.066	0.150
BGD×ACGD	0.00	0.19	0.024	0.041
IS×BGD×ACGD	0.00	0.19	0.011	0.027
FSize	17.23	26.20	20.947	2.102
Lev	0.01	3.18	0.491	0.304
FAge	2.08	4.74	3.406	0.496
EPS	-187.87	493.08	3.834	38.045
MtB	-59.32	953.31	5.480	60.692

Panel B: Interval variables				
Variable	**(1)**		**(0)**	
	Frequency	**%**	**Frequency**	**%**
IS	125	50.4	123	49.6
AudFirm	165	66.5	83	33.5

The study relies on Panel Data regression analysis running a fixed effects model. The Panel Data can be analyzed by pooled regression, fixed effects, or random effects. To determine which of the three methods is the best based on study data, the study carries out the Wald test, Lagrange Multiplier, and Hausman test which indicates that the fixed effects model is the best (Hsiao, 2014; Croissant and Millo, 2019). In particular, we develop four different models to assess the accuracy of the regression models and to test the study hypotheses. All models are indicated in Table 2, and they all are controlled by firm size, financial leverage, firm age, earnings per share, market-to-book ratio, and audit firm size.

Overall, it concludes from the results for assessing the accuracy of Models (1), (2), (3), and (4) that R^2 values (13.7%, 24.2%, 14.6%, 21.9%) respectively which are consistent with the Adjusted R^2 values (10.6%, 19.1%, 11.3%, 18.9%) respectively. This denotes that the sample size is appropriate for the analysis of the results, the accuracy of models, and independence of the factors affecting SL. Additionally, calculated F values (5.686, 7.393, 5.279, 6.912) respectively which are higher than tabulated F values (2.73, 2.50, 2.50, 2.50) respectively. Also, the results show that the regression models are highly significant as the *P.* values are (0.011, 0.000, 0.018, 0.000) respectively.

Model (1) tests the extent of the direct causal impact of IS on SL. The results conclude the existence of a significant negative impact of IS on SL (β=-3.138; *P*=0.016<0.05), i.e., firms with a higher level of IS displayed a lower level of SL; therefore, **(**H_1**)** can be accepted. This negative effect results from the decrease in financial information quality which causes an increase in information asymmetry level and transaction cost leading to a decline in investors' trust and reliability and hence a reduction of SL due to an impairment of trading volume. This result is consistent with the results of Ajina and Habib (2017), Hunjra *et al.* (2020), and Amawi and Abu Nassar (2021).

Table 2. Data panel regression analysis results

Variable	Model(1)				Model(2)				Model(3)				Model(4)			
	B	***P***	**Tol.**	**VIF**	**B**	***P***	**Tol.**	**VIF**	**B**	***P***	**Tol.**	**VIF**	**B**	***P***	**Tol.**	**VIF**
IS	-3.138	.016	0.976	1.024	-.676	.034	0.545	1.834	-2.172	.027	0.641	1.559	-.950	.017	0.711	1.407
BGD					91.051	.000	0.598	1.673								
ACGD									17.869	.254	0.465	2.152				
BGD×ACGD													212.005	.001	0.596	1.679
IS×BGD					30.026	.018	0.416	2.405								
IS×ACGD									7.747	.718	0.380	2.631				
IS×BGD×ACGD													55.257	.038	0.518	1.932
FSize	-3.104	.019	0.516	1.937	-2.581	.028	0.511	1.955	-2.792	.038	0.500	2.000	-2.235	.025	0.501	1.997
Lev	-9.435	.025	0.771	1.297	-7.819	.042	0.768	1.302	-9.901	.035	0.767	1.303	-7.771	.014	0.768	1.302
FAge	1.374	.742	0.921	1.086	1.777	.660	0.919	1.088	1.155	.783	0.916	1.092	0.843	.836	0.920	1.087
EPS	.010	.854	0.962	1.040	.010	.855	0.954	1.049	.009	.861	0.957	1.045	.007	.897	0.958	1.043
MtB	-0.017	.596	0.991	1.009	-0.024	.460	0.981	1.020	-0.016	.636	0.986	1.014	-0.013	.685	0.987	1.013
AudFirm	-1.328	.034	0.600	1.667	-1.372	.025	0.597	1.674	-1.470	.033	0.574	1.743	-4.147	.013	0.576	1.736
D-W	1.765				1.862				1.775				1.837			
Constant	76.726				54.987				69.288				55.231			
R^2	13.7%				24.2%				14.6%				21.9%			
Adj. R^2	10.6%				19.1%				11.3%				18.9%			
d.f.	(7,240)				(9,238)				(9,238)				(9,238)			
$F_{Stat.}$	5.686				7.393				5.279				6.912			
$F_{Tab.}$	2.73				2.50				2.50				2.50			
P. value	.011				.000				.018				.000			

After adding BGD, Model (2) shows that BGD have a significantly positive impact on SL (β=91.051; *P*=0.000<0.05). This result indicates that firms with higher BGD demonstrates higher SL because investors may be more confident in females than males in adding value and enhancing the interests of shareholders. This result is in line with the results revealed by Loukil *et al.* (2019), Nguyen and Muniandy (2021), and Abidi and Nsaibi (2022). The most crucial result of Model (2) is related to the interaction effect between IS and BGD on SL. This result exhibits that the moderator relationship of IS×BGD positively affects SL (β=30.026; *P*=0.018<0.05). This means that the moderator impact of BGD weakens the negative impact of IS on SL, i.e., there is a moderator impact of BGD on the IS-SL relationship. Hence, (H_2) can be accepted.

When adding ACGD, Model (3) displays an insignificant impact of ACGD on SL (β=17.869; *P*=0.254>0.05). This result is in agreement with McLaughlin *et al.* (2021) who concluded that the percentage of audit committee female members have a negative insignificant effect on the firm scandal. Moreover, the interaction impact of IS and ACGD on SL is also insignificant (β=7.747; *P*=0.718>0.05). i.e., there is no impact of ACGD on the IS-SL relationship. Consequently, (H_3) can be rejected.

By adding BGD×ACGD, Model (4) demonstrates that BGD and ACGD have a significant positive impact on SL (β=212.005; *P*=0.001<0.05). This result proves that higher BGD×ACGD leads to higher SL because GD in the boardroom and audit committee can cause positive effects such as an increase in profitability (e.g., Safiullah *et al.*, 2022), firm value (e.g., Agyemang-Mintah and Schadewitz, 2019), a decline in agency cost (e.g., Ain, *et al.*, 2020). This result confirms the results of Gull *et al.* (2018) and Zalata *et al.* (2018) which showed that the existence of women in BD and AC diminished EM practices which could increase SL. Interestingly, the interaction effect of IS, BGD, and ACGD on SL is significant and positive (β=55.257; *P*=0.038<0.05). In other words, the moderator impact of BGD and ACGD weakens the negative impact of IS on SL. Therefore, there is a moderate impact of BGD×ACGD on the IS-SL relationship which leads to accept (H_4).

5. Additional Analyses

The current study relies on the Kruskal-Wallis test to compare SL and IS among ESE sectors. According to the Kruskal-Wallis test, if the significance level is lower than (0.05), this indicates significant differences (Pallant, 2016). The results of the Kruskal-Wallis test can be shown in Table 3.

5.1 Comparing SL among ESE Sectors

Table 3 denotes that there is a significant level for SL (0.062) which is higher than (0.05). Therefore, there are no significant differences among ESE sectors regarding SL at a value of chi-square (12.019). Also, it is noticed that the mean rank of SL among ESE sectors ranged between (83.56) and (143.70).

By examining the mean rank of SL among ESE sectors, it is noted that the mean rank of the sectors (travel, and leisure; food, beverages, and tobacco; healthcare, and pharmaceuticals; basic resources; contracting, and construction engineering; real estate; industrial goods, services, and auto-mobiles) amounted to (143.70, 142.10, 137.38, 121.48, 116.88, 115.74, 83.56) respectively, which indicates that there are low differences in the mean rank of SL among ESE sectors. Thus, this illustrates the presence of insignificant differences among ESE sectors regarding SL.

5.2 Comparing IS among ESE Sectors

Table 3 reveals that there is a significant level for IS (0.002) which is lower than (0.05). Thus, there are significant differences among ESE sectors regarding IS at a value of chi-square (21.234). Additionally, the mean rank of IS among ESE sectors ranges between (88.83) and (143.60).

By investigating the mean rank of IS among ESE sectors, it is noticed that the mean rank of the sectors (travel, and leisure; contracting, and construction engineering; real estate; basic resources; industrial goods, services, and auto-mobiles; food, beverages, and tobacco; healthcare, and pharmaceuticals) amounted to (143.60, 140.50, 139.09, 131.20, 109.50, 105.92, 88.83) respectively, which denotes that there are big differences in the mean rank of IS among ESE sectors. Therefore, this explains the existence of significant differences among ESE sectors regarding IS.

Table 3. Kruskal-Wallis test results

Sectors	SL				IS			
	Mean rank	Chi-Square	Sig.	ranking up	Mean rank	Chi-Square	Sig.	ranking up
Basic resources	121.48			4	131.20			4
Healthcare, and pharmaceuticals	137.38			3	88.83			7
Industrial goods, services, and automobiles	83.56			7	109.50			5
Real estate	115.74	12.019	0.062	6	139.09	21.234	0.002	3
Travel, and leisure	143.70			1	143.60			1
Food, beverages, and tobacco	142.10			2	105.92			6
Contracting, and construction engineering	116.88			5	140.50			2

6. Conclusion

This study aimed to investigate the impact of IS on SL and the moderating impact of GD on this relationship. The study depended on a sample of listed firms on ESE from 2018 to 2021. The findings revealed that IS had a significant negative impact on SL. Additionally, the study found strong evidence that BGD and BGD×ACGD as measures of GD impact significantly the relationship between IS and SL as BGD and BGD×ACGD weakened the negative impact of IS on SL. On the other hand, the results denoted that there was no moderating impact of ACGD on IS-SL relationship. Moreover, the study found significant differences among ESE sectors regarding IS, whereas there were no significant differences regarding SL.

Our contribution can be demonstrated as follows. The GD literature is extended by, first, investigating the association between GD, SL, and IS, second, exploring how GD moderates the relationship between SL and IS, especially in developing countries like Egypt. Also, this study is in line with the massive international interest in increasing females' existence in boardrooms and audit committees. Further, the study provides some substantial implications. As a case in point, GD weakens the negative effect of IS on SL, i.e., GD reduces managerial manipulation. Additionally, the findings support the Egyptian government's decisions to raise the participation of females. Furthermore, firms should increase their caution about IS because it negatively affected SL. Overall, the findings show that GD becomes an effective internal governance mechanism; moreover, the results highlight the invaluable effects of females in making decisions.

Nonetheless, the study's findings are subject to some limitations. One of these limitations is that banks and non-bank financial services were excluded. Therefore, future studies can be conducted to compare differences between financial and non-financial firms concerning the impact of IS on SL and the moderating impact of GD on this relationship. Another limitation of the current study is that gender is not the only aspect of BGD as BGD has several aspects such as experience, age, and education. Thus, further studies can examine these aspects besides gender to investigate the effect of IS on SL. Furthermore, the study sample was related only to one developing country, namely Egypt which differs from the other developing countries and developed countries. Consequently, future studies can replicate this study using cross-country data.

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كيف يُعَدل التنوع بين الجنسين العلاقة بين تمهيد الدخل وسيولة الأسهم؟ دليل من مصر

د. محمد صابر حمودة؛ د. عبير عبد الكريم سرور؛ د. مروة صابر حمودة

ملخص الدراسة:

الهدف: استهدفت الدراسة اختبار أثر تمهيد الدخل على سيولة الأسهم، بالإضافة إلى التحقق من التأثير المعدل للتنوع بين الجنسين الذي يتمثل فى التنوع بين الجنسين في مجلس الإدارة، والتنوع بين الجنسين في لجنة المراجعة على هذه العلاقة.

المنهجية: اعتمدت الدراسة على الأساليب الاحصائية لتقييم أثر تمهيد الدخل على سيولة الأسهم، فضلاً عن التأثير المعدل للتنوع بين الجنسين فى مجلس الإدارة ولجنة المراجعة بالتطبيق على عينة مكونة من (٦٢) شركة مقيدة فى سوق الأوراق المالية المصرى خلال الفترة ٢٠١٨م-٢٠٢١م، وقد استخدمت الدراسة لاختبار فروضها تحليل البيانات الزمنية المقطعية واختبار كروسكال واليس.

النتائج: خلصت نتائج الدراسة إلى وجود تأثيراً سلبياً لتمهيد الدخل على سيولة الأسهم. علاوة على ذلك، فقد أشارت نتائج الدراسة إلى أن التنوع بين الجنسين فى مجلس الإدارة، والتأثير التفاعلى بين تنوع الجنسين فى مجلس الإدارة ولجنة المراجعة يؤديان إلى ضعف التأثير السلبي لتمهيد الدخل على سيولة الأسهم. كما توصلت نتائج الدراسة إلى وجود اختلاف بين قطاعات سوق الأوراق المالية المصرى بشأن تمهيد الدخل، وعدم وجود اختلاف بشأن سيولة الأسهم.

الأهمية: تساهم الدراسة فى تقديم أدلة تطبيقية جديدة حول التأثير المعدل للتنوع بين الجنسين فى مجلس الإدارة ولجنة المراجعة على العلاقة بين تمهيد الدخل وسيولة الأسهم. فضلاً عن أنها تتماشى مع الاهتمام العالمي المتزايد بزيادة مشاركة الإناث في مجالس الإدارة. كما تركز الدراسة على البيئة المصرية التي تتصف بممارسات ثقافية وعادات مجتمعية تجاه المرأة. علاوة على ذلك، تدعم الدراسة قرارات الهيئات الرقابية في مصر لزيادة مشاركة المرأة.

الكلمات الدالة: تمهيد الدخل، سيولة الأسهم، التنوع بين الجنسين في مجلس الإدارة، التنوع بين الجنسين في لجنة المراجعة