The Effect of Accounting Conservatism on Cash Holding and Tax avoidance and Their Impact on Stock Price Crash Risk

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Abstract:

In the last two decades, financial crises around the world have happened. Many studies are interested in analyzing these crises and innovating some new expressions related to these crises, such as stock price crash risk. Some of these studies were concerned with determinants to minimize this risk. The paper concerns three of these determinants; they are accounting conservatism, cash holding, and tax avoidance. Using a sample of 65 non-financial listed firms, 390 annual observations, on the Egyptian Stock Exchange (EGX100) from 2016 to 2021. The findings are (1) Accounting conservatism contributes to reducing cash holdings. Increasing accounting conservatism pushes management to depend more on internal financial resources because of reducing shareholders' trust. (2) Management can reduce stock price crash risk by increasing cash holdings. Management uses available cash to guarantee operations and faces some sudden problems in introducing a good image to shareholders to gain their trust. (3) Accounting conservatism contributes to increasing tax avoidance. Accounting conservatism

discloses expected losses which leads to reducing reported earnings and tax. (4) Tax avoidance has a negative contribution to reducing stock price crash risk. More tax avoidance practices mean increasing chances of discovering these practices. This leads, when discovering them, to the reduction of shareholders' trust. (5) reducing accounting conservatism contributes to reducing stock price crash risk. A high accounting conservatism increases information asymmetry that reduces shareholders' trust. (6) cash holding and tax avoidance have a partial mediation role in the association between accounting conservatism and stock price crash risk

Keywords : Accounting Conservatism, Cash holding, Tax avoidance, and stock price crash risk.

الملخص:

خلال العقدين الأخيرين تكرر حدوث العديد من الأزمات المالية العالمية، حيث اهتمت العديد من الدراسات بتحليل هذه الأزمات، وفي هذا الصدد فقد استحدث العديد من المصطلحات المرتبطة بتلك الأزمات مثل مخاطر انهيار أسعار الأسهم، حيث اهتم العديد من هذه الدراسات بتحليل أسباب هذه المخاطر ودراسة المحددات التي من شأنها التقليل من تعرض المنشأة لهذه المخاطر. اهتمت هذه الدراسة بعدد من هذه المحددات وهم التحفظ المحاسبي، والاحتفاظ بالنقدية، والتجنب الضريبي. قامت الدراسة بالتطبيق على عينة من المنشأة المسجلة في سوق الأوراق المالية المصرية مع التركيز على EGX100 لعدد ٦٥ منشأة غير مالية متضمنة ٣٩٠ مشاهدة سنوية خلال الفترة من ٢٠١٦ إلى ٢٠٢١. توصلت الدراسة إلى عدد من النتائج وهم (١) يساهم التحفظ المحاسبي في تقليل الاحتفاظ بالنقدية فزيادة التحفظ المحاسبي تدفع

الإدارة للاعتماد بصورة أكبر على مصادر التمويل الداخلي بسبب انخفاض ثقة المساهمين. (٢) من الممكن أن تعمل الإدارة على تخفيض مخاطر انهيار أسعار الأسهم من خلال زيادة مستويات النقدية المحتفظ بها، وهذا على أساس أنه يمكن استخدام النقدية المتاحة في تأمين المنشأة من أي مخاطر مفاجئة في التشغيل بغرض تقديم صوره جيده عن المنشأة وبالتالي تزيد ثقة المستثمرين فيها. (٣) تساهم التحفظ المحاسبي في زيادة مستويات التجنب الضريبي، ففي ضوء اهتمام التحفظ المحاسبي بالإفصاح عن الخسائر المتوقعة بالشكل الذي ينعكس على الأرباح المفصح عنها وبالتالي الضرائب. (٤) تساهم التجنب الضريبي بشكل سلبي في تخفيض مخاطر انهيار أسعار الأسهم فزيادة ممارسات التجنب الضريبي تزيد من فرص اكتشافها، وهو ما يقود، في حالة كشفها، إلى أن يفقد المساهمون الثقة في المنشاة. (٥) تخفيض التحفظ المحاسبي يساهم في تقليل مخاطر انهيار أسعار الأسهم حيث ان زيادة مستويات التحفظ المحاسبي تعني زيادة مستويات عدم تماثل المعلومات بالشكل الذي يضعف من ثقة المساهمين. (٦) هو دور وسيط لدور كل من الاحتفاظ بالنقدية والتجنب الضريبي على العلاقة بين التحفظ المحاسبي ومخاطر انهيار اسهار الأسهم.

الكلمات المفتاحية: التحفظ المحاسبي، الاحتفاظ بالنقدية، التجنب الضريبي، مخاطر انهيار أسعار الاسهم.

Introduction:

In the last two decades, studying financial market riskiness has grown significantly, particularly after various financial crises. Many firms have experienced severe stock price crashes considerable attention has been devoted to studying Stock Price Crash Risk (SPCR) (Fu et al., 2021 and Wang et al., 2021). It can have significant negative effects on global financial stability (Dyck et al., 2019). Generally, financial instability has wiped out

billions of dollars of investor wealth, and many firms have faced bankruptcy during crashes.

Many studies have focused on SPCR, especially after the financial crisis in 2008. Kothari et al. (2009) stated that it measured the likelihood of a stock price fall for a listed firm resulting from principal-agent problems and information asymmetry. Additionally, Kim et al. (2014) defined it as a negative skewness in the distribution of returns for the firm's specific stocks. Callen and Fang (2015) suggested that SPCR captured higher moments of the distribution of stock returns, which are extremely negative returns. Kim and Zhang (2016) mentioned that SPCR occurred in firms that faced high agency risk. Feng et al. (2022) indicated that SPCR referred to the risk of large negative abnormal stock returns. Such a risk is associated with firms' information environment.

There are some reasons for SPCR, such as (1) managers are motivated to hide bad news about the firm, which can cause the stock prices to deviate from the firm's intrinsic value. When unfavorable information accumulates and then released all at once, investors begin selling stocks, making the firm's stock price more likely to crash. Therefore, the possibility of a stock price crash occurs (Kothari et al., 2009; Dai et al., 2019 and Shahwan and Habib, 2022). (2) managers are concerned about over-investing in negative net present value (NPV) programs, as these projects could be privately beneficial to them, so they conceal

information that can result in SPCR (Li et al., 2017). (3) SPCR is an explicitly unfavorable Phenomena in the capital market with considerable changes in prices resulting in stock price crashes (Yin and Tian, 2017).

Many studies were interested in SPCR determinants to reduce it, such as corporate governance and audit quality. This study focuses on some determinants such as Accounting Conservatism (CONS), Cash Holding (CASH), and Tax Avoidance (TA). The rest of this paper is divided into five sections. Section 1 presents the research problem. Section 2 concentrates on literature review and hypotheses development; section 3 discusses the research method. Section 4 reports and discusses the empirical results. Section 5 presents some concluding remarks.

1. Research problem:

1.1 Accounting Conservatism and stock price crash risk:

Accounting Conservatism (CONS) has been used for decades. There is no conclusive definition for CONS; rather, multiple definitions have been proposed to capture its various dimensions. Bliss (1924) defined it as "anticipate no profits but anticipate all losses". According to the Statement of Financial Accounting Concept (SFAC), CONS is "a prudent reaction to unpredictability in order to warrant those risks as well as uncertainties, which are inherent in any business situation, are

effectively taken into account. That is, if two amounts to be paid (or received) in the future are probably equal, CONS dictates the more pessimistic estimates of amounts" (FASB, 1980). Watts and Zimmerman (1986) described CONS as a feature of financial reporting and defined CONS as "the rule that accountants should report the lowest value among the possible alternative values for assets and the highest alternative value for liabilities".

Feltham and Ohlson (1995) defined it from a balance sheet point of view as "a biased accounting that reports net assets less than market value". Basu (1997) defined it as "the accountant's tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses". Moreover, Givoly and Hayn (2000) defined CONS from an income statement point of view as "an accounting principle that reduces cumulative reported earnings by slower revenue recognition, faster expense recognition, lower asset valuation and higher liability valuation". In addition, Ruch and Taylor (2014) defined it as "an accounting policy that results in the downward bias of accounting net asset value relative to economic net asset value". Shen et al. (2020) defined it as "net assets and accumulated net income are under-reported relative to neutral or aggressive accounting methods".

Based on these definitions, the researcher concludes that CONS involves asymmetrical verifiability that accelerates the recognition of all possible losses rather than gains and tends to limit uncertainties by choosing a less optimistic alternative available.

There is a debate about the effect of CONS on financial reporting users. In 2005, the International Accounting Standards Board (IASB) and The Financial Accounting Standards Board (FASB) argued that CONS biases financial information and neutrality. Therefore, CONS might increase information asymmetry and provide misleading information about firms' position. On the other hand, some academic studies argue that CONS is an essential financial reporting property and is considered a good governance mechanism for managerial behavior. CONS helps reduce information asymmetry. Therefore, removing CONS from the conceptual framework may decrease information quality and harm financial reporting (Maciuca et al., 2015).

Regarding the effect of Accounting Conservatism (CONS) on Stock Price Crash Risk (SPCR), there are two opinions. The ***first opinion*** supports a positive association between them. The reasons for this opinion are (1) Based on the opinion that confirms that CONS increases information asymmetry. IASB and FASB argue that CONS biases financial information, faithfulness, and neutrality, which encourages CONS removal from the conceptual framework even if CONS has great importance in financial reporting. This decrease in information asymmetry increases SPCR, especially when the hidden news is eventually disclosed (Kousenidis et al., 2014). (2) CONS limits managers' incentive and ability to overstate performance and hide bad news from investors, which, in turn, reduces SPCR (Kim and Zhang, 2016).

In contrast, the ***second opinion*** supports a negative association between CONS and SPCR. The reasons for this opinion are (1) the higher level of shares held by management and institutional investors would further strengthen the impact of CONS to avoid a price crash. Management tries to hide the bad news as a result of governance system weakness. Furthermore, if the ownership structure is centralized, they would put pressure on management to anticipate bad news with the help of the CONS principle. They should direct the management to share equal information in a timely manner, regardless of whether the information is good or bad for stock prices (Toksoz, 2024). (2) Based on the opinion that confirms that CONS helps reduce information asymmetry, which means adopting CONS improves outsiders' trust in financial performance and reduces SPCR. Decreasing information asymmetry directs the management to share equal information promptly regardless of whether the information is good or bad for stock prices (Waqas and Siddiqui, 2021). (3) having good corporate governance mechanisms can higher CONS, which contributes to preventing the risk of stock price collapse (Wang et al., 2021).

1.2 Cash holding and stock price crash risk:

Cash has a significant effect on operational, investment, and financial decisions. It ensures continued operation and provides firms with the required finance to make the right investment decisions when they are financially constrained. In addition, a high level of

cash increases firms' availability to access capital markets freely. Al-Amri et al. (2015) mentioned cash balances contributed to a firm's survival, especially in the 2008 world financial crisis.

Managers are interested in maximizing cash balances. They have four motives for them, which are: 1) Transaction motive, which means cash reduces transaction costs if firms increase their fund without liquidation assets (Keynes, 1936), Therefore, the more cash balances, the less need to borrow (Al-Amri et al., 2015); 2) Precautionary motive which means cash balances reduce financial distress costs (Opler et al., 1999); 3) tax motive which means cash balances will be higher if there are tax consequences related to repatriating foreign earnings (Foley et al., 2007); and 4) Agency motive confirms entrenched managers have incentives to hold high level of cash by controlling dividends payments which increases agency problem. They do not use cash balances to optimize shareholders' wealth (Jensen & Walkling 2010; Al-Najjar & Clark, 2017).

In contrast, shareholders do not agree with increasing cash balances. They are interested in maximizing dividends' payments, which pushes them to use their power to prevent accumulating excess cash to serve management interests (Al-Najjar & Clark, 2017). This conflict of interests between management and shareholders determines the suitable cash holding (CASH) that pushes academic research to give more interest in this subject (Meier et al., 2015).

Regarding the direct effect of cash holding (CASH) on SPCR, many studies confirmed that CASH contributes to increasing SPCR for some reasons, they are (1) management success in increasing cash to face the rejection of shareholders, which leads to increasing SPCR (Gao and Li ,2021). (2) having more cash allows management to make higher on-the-job consumption and seek more compensation. Management tries to conceal these actions. By discovering them, SPCR increases (Sheng, 2022).

Regarding the indirect effect of CONS on SPCR through CASH as a mediator, there are two opinions to describe this association; ***the first opinion supports a positive association between them***, CONS reduces both information asymmetry and morally hazardous agency conflicts between managers and less informed other related parties (Balakrishnan et al., 2016 and Isniawati et al., 2018) this reduction pushes these parties to decrease cost of capital due to mitigating interests' conflicts between shareholders, managers and debt holders as a result of decreasing risk related to pay excessive dividends which reduces CASH. This leads to increasing the shareholders' trust and so decreasing SPCR.

On the other hand, ***the second opinion*** confirms a negative association between CONS and CASH. CONS means management selects some news to hide. High CONS means a high information asymmetry and lower shareholders' trust, which pushes the management to use available cash to face a potential increase in the cost of capital. In other words, low CONS increases the risk of

default for debt holders which forces them to increase required CASH (Al-Amri et al., 2015; Xiangyu et al., 2015) which leads to decreasing the shareholders' trust and decreasing SPCR.

1.3 Tax Avoidance and stock price crash risk:

There is a conflict between tax authorities and taxpayers about the right amount of tax burden. Taxpayers want to minimize the burden, while tax authorities face the trend of seeking to maximize their tax revenues, the most familiar expression to represent this issue is called "Tax Avoidance (TA)". It was defined by Hanlon and Heitzman (2010) mention that TA practices affect tax obligations by using weaknesses in the law of tax. Hanlon and Heitzman (2010) mention that TA practices affect tax obligations by using weaknesses in the law of tax. Gallemore and Labro (2015) who state that TA practices use loopholes in the provisions of the law of tax, and this behavior does not involve any criminal activity, not getting out of tax regulations. Lestari and Nedya, (2019) define TA practices are an indicator of the benefits for the firm that does not pay the tax burden, which motivates management to follow these practices to higher profit for shareholders.

TA issues have been a growing concern for any government because of its negative effects on the overall economy. TA is considered as an internal source of finance (Dewi et al., 2021; Hajawiyah et al.,2021 and Alsmady, 2022 and Joel et al., 2023).

Regarding the direct effect of TA on SPCR, there are two opinions, ***the first opinion*** confirmed a negative association between them. Increasing TA practices reduces tax expense, then increasing dividable profit which increases shareholders' satisfaction, which reduces SPCR. ***The second opinion*** confirmed a positive effect of TA on SPCR. Management that does more TA practices hoards bad news for extended periods using tools and justifications for these opportunistic behaviors. This hoarding and accumulation of bad news for extended periods increases SPCR when the accumulated hidden bad news crosses a tipping point then all bad news comes out all at once (Kim et al., 2011 and Khajavi et al.,2018).

The direct effect between TA and SPCR depends on a group of determinants, such as (1) management ability, more able managers weaken the positive relationship between TA and SPCR. So, efficient tax management is more able to manage teams as the likelihood of SPCR due to TA practices is reduced in such firms (Gary et al., 2022). (2) Strength of corporate governance mechanisms to direct TA which affects SPCR (Thai et al., 2023).

Regarding the effect of the integration between CONS and TA on SPCR, there are two opinions to describe this association; ***the first opinion supports a positive effect of integration between CONS and TA on SPCR***. Firms that have incentives to increase CONS in financial reporting can cut the tax rate to shift taxable income into the lower level, this cash saving due to TA practices

gives chances to increase shareholders' trust, so decrease SPCR (Bornemann, 2018; Suleiman, 2022 and Dewi and Andriyani, 2023)

On the other hand, ***the second opinion supports a positive effect of the integration between CONS and TA on SPCR***. In case of passing financial distress, the firm may increase CONS practices to get TA avoidance cannot help to reduce SPCR, the shareholders will not depend on CONS and TA to make their investment decisions (Nurcholis et al., 2021 and Saad et al., 2023).

TA and CONS are two potential channels through which tax enforcement efforts affect crash risk (Chen et al., 2022). However, this effect is affected by some factors, such as capital intensity, corporate governance mechanisms, financial distress and audit quality.

2. Literature Review and Hypotheses development:

2.1 Accounting Conservatism (CONS) and cash holdings (CASH):

Previous studies that were interested in the association between accounting conservatism and cash holdings were divided into two groups; the ***first group confirmed a significant and positive association between them***, Louis et al. (2012) got strong evidence that CONS had a positive association with CASH for sample of firm covers the period from 1974 to 2006. Al-Amri et al. (2015) supported the last result when they applied to Gulf Countries Firms from 2003 to 2012. Lin et al. (2018)

analyzed the effect of controlling shareholders on the relationship between CONS practices and CASH for a sample of listed firms in Taiwan. They indicated that CONS enhanced the value of CASH in the presence or absence of controlling shareholders. Hamad et al. (2019) investigated the association between CONS and the risk of falling operating cash flows in the presence of CASH for a sample of Jordanian firms listed in Amman Stock Exchange (ASE) for the period from 2005 to 2014. They found that CONS had a significantly positive effect on CASH.

Malekian and Moradi (2019) confirmed the last findings of a sample of 111 firms listed in Tehran Stock Exchange from 2012 to 2016. It showed that, in the absence of controlling shareholders, a high degree of CASH. Moreover, the strengthening of the dominant control of shareholders would reduce the positive effects of CONS activities on cash value. Finally, it confirmed that strengthening the supervisory dimension of controlling shareholders did not increase the positive relationship between CASH and CONS. Similarly, Manoal and Moraes (2021) used a sample of listed firms in Latin America, such as Argentina, Brazil, Chile, Mexico, and Peru from 2000 to 2018. It found evidence that Latin American firms with more conservative accounting policies have higher CASH.

However, ***the second group did not confirm a positive association between CONS and CASH*** Xiangyu et al. (2015) confirmed a negative association between them using a sample of

listed firms in Shanghai and Shenzhen from 2010 to 2013. Shakirani and Ghozali (2021) confirmed the last findings for a sample of 46 listed banks in Indonesian Stock Exchange (IDX) with the research period of 2018-2020. The finding indicated that conditional CONS significantly affects CASH. On the other hand, unconditional CONS did not significantly affect the CASH.

To confirm this association Soliman and Rashed (2021) used a sample of 124 listed non-financial firms in EGX from 2013 to 2018. The findings showed CONS has a negative effect on CASH. Moreover, information asymmetry did not have a mediation role within the association between CONS and CASH. Krema (2022) used a sample of listed firms on EGX100 which was 44 most active non-financial firms in the Egyptian stock market from 2018 to 2020. The result showed an insignificant association between CONS and CASH.

To the best of researchers' knowledge, there is no agreement about the effect of CONS on CASH. Therefore, the following hypothesis is:

H_1: There is a significant effect of accounting conservatism on cash holding.

2.2 Cash holding (CASH) and stock price crash risk (SPCR):

Previous studies that were interested in the association between CASH and SPCR started with Chen (2021) who used a sample of listed Chinese firms from 2007 to 2018. The results

indicated that CASH is positively related to SPCR. In addition, the nature of the state-owned property and the “big four" auditors can strengthen the relationship between CASH and crash risk. Gao and Li (2021) confirmed this result using a sample of Chinese-listed firms from 2007 to 2018. It confirmed a positive association between CASH and future SPCR. Moreover, the impact of CASH on SPCR is more pronounced in state-owned firms with higher analyst coverage.

Sheng (2022) used a sample of Shanghai-Shenzhen A-share listed firms in China from 2007 to 2019. They got approved that the increase in CASH, increased management opportunistic behavior, leading to seeking more compensation, when they implement these behaviors, they are bound to try to conceal; Over time, these actions are eventually discovered by the market and trigger SPCR, which manifests itself in CASH in capital markets as increasing the risk of a share price collapse. Finally, Xu et al. (2023) used a sample of listed Chinese firms from 2010 to 2018, the study showed that CASH and interest-bearing debts were associated with a higher SPCR. Also, CASH and interest-bearing debts affected SPCR by increasing real earnings management.

Finally, there is an agreement that there is a positive association between CASH and SPCR. So, the researcher concludes the following hypothesis:

H_2: Cash holding has a significant effect on stock price crash risk.

2.3 Accounting Conservatism (CONS) and Tax Avoidance (TA):

Previous studies that were interested in the association between CONS and TA were divided into three groups; the ***first group confirmed a significant and positive association between them***, Bornemann (2018) confirmed this result using a sample of listed firms in 18 countries from 1995 to 2010. The study found that conditional CONS was positively associated with future tax rate cuts when book-tax conformity was high. Lismiyati and Herliansyah (2021) used a sample of 30 listed banks in Indonesia Stock Exchange (IDX) from 2014 to 2017 when it got evidence that CONS and capital intensity had a significant effect on TA. However, an independent board of commissioners has no effect on TA. Finally, the independent board of commissioners did not have a moderating role between CONS on TA.

Also, Suleiman (2022) confirmed the positive association using a sample of listed firms in Nigerian stock exchange. It confirmed a positive effect of female representation and CONS on TA. Moreover, CONS played a moderating role in the relationship between females in governance and TA. Finally, Dewi and Andriyani (2023) confirmed this direction using a sample of 12 listed firms in Indonesian Stock Exchange (IDX) from 2019 to 2021 with concentrating on food and beverage sector. The findings indicated that the CONS variable partially influences TA, Meanwhile, the simultaneous results of CONS, capital intensity and leverage affect TA positively.

On the other hand, ***the second group confirmed a negative association between CONS and TA.*** Nurcholis et al. (2021) confirmed this direction using a sample of 340 non-financial listed firms in Jakarta Stock Industrial Classification (JASICA) system from 2015 to 2019. It showed that financial distress and CONS have a significant and negative effect on TA, while leverage has no effect on TA, and leverage moderates the influence of financial distress and CONS on TA. In addition, Saad et al. (2023) used a sample of 48 listed non-financial firms in Nigerian Stock Exchange during the period between 2014 and 2020. The study revealed that CONS has a negative effect on both the effective tax rate and book-tax difference.

Finally, ***the third group confirmed no association between CONS and TA.*** Purwantini (2017) was interested in a sample of 23 listed firms in Indonesian Stock Exchange from 2013 to 2015. The study concluded that CONS practice significantly influences book-tax difference practice but did not influence TA. This research can contribute to tax planning formulation. Yuniarsih (2018) used a sample of 123 firms listed in Indonesian Stock Exchange (IDX) from 2014 to 2016. The study found that CONS has no effect on TA. Moreover, Managerial ownership has a negative effect on TA. Finally, institutional ownership and audit quality have no effect on TA. Ratnasari et al. (2019) confirmed this result using a sample of listed firms in Indonesian Stock

Exchange (IDX) from 2017-2018. The results proved that CONS has no effect on TA.

Ardillah and Halim (2022) used a sample of listed firms on Indonesia Stock Exchange (IDX) from 2016 to 2019. It indicated no effect of institutional ownership, fiscal loss compensation, and CONS on TA. Moreover, Lubis et al. (2022) used a sample of 58 listed firms in the mining sector from 2017 to 2019, when they found that the audit committee, firm size, leverage, CONS did not simultaneously affect TA.

The results of Rizkiana and Suripto (2022) that used a sample of 20 listed firms in Indonesia Stock Exchange from 2016 to 2020. The results showed that audit quality and CONS had no effect on TA. Moreover, Rudianti and Hermawan (2023) used a sample of listed firms in Indonesia Stock Exchange (IDX) from 2016 to 2019. They revealed that capital intensity and financial distress have an impact on TA, while CONS did not.

To the best of researchers' knowledge, there is no agreement about the effect of CONS on TA. Therefore, the following hypothesis is:

H_3: There is a significant effect of conservatism on stock price crash risk.

2.4 Tax Avoidance (TA) and stock price crash risk (SPCR):

Previous studies that were interested in the association between TA and SPCR were divided into two groups; the ***first group confirmed a significant and positive association between them***, Kim et al. (2011) used a large sample of U.S. firms from 1995 to 2008. It provides evidence that TA is positively associated with firm-specific SPCR. Moreover, this positive association is attenuated when firms have strong external monitoring mechanisms. Khajavi et al. (2018) used a sample of 103 listed firms in Tehran Stock Exchange (TSE) during the period from 2008 to 2015. The results found a positive relationship between TA and SPCR proxies.

Moreover, Gary et al. (2022) used a sample of U.S.listed firms from 1980 to 2016. The study found that more able managers weaken the positive relationship between TA and SPCR. It suggested that the benefits of efficient tax management are more likely in firms with a more able management team as the likelihood of SPCR due to TA practices was reduced in such firms. Thai et al. (2023) confirmed this result when they used a sample of listed firms in Vietnam from 2011 to 2020. It found a positive relationship between TA and SPCR. Moreover, foreign ownership weakens the impacts of TA on SPCR.

On the other hand, ***the second group did not confirm a positive association between TA and SPCR.*** Neifar and Utz (2019) used a

sample of 188 non-financial listed German firms from 2008 to 2014. It found that earnings management and TA were not related in terms of affecting shareholder wealth and SPCR. Moreover, earnings management has no impact on shareholder wealth but significantly affects SPCR. Finally, TA has a significant positive effect on shareholder wealth but no impact on SPCR. Chen et al. (2022) used a sample listed Chinese firms from 2003 to 2017. The study found that tax enforcement efforts negatively affect SPCR, this negative effect was stronger among state- owned firms but weaker when information opacity was higher for firms.

Finally, there is a debate between studies about the effect of TA and SPCR. Although some of these studies claimed a positive effect, other studies got the opposite results. So, the researcher concludes the following hypothesis as follows:

H_4: Tax Compliance has a significant effect on stock price crash risk.

2.5 Accounting Conservatism and stock price crash risk:

Previous studies that were interested in the association between CONS and SPCR were divided into two groups; ***The First group confirmed a negative between them***. Kim and Zhang (2016) confirmed this negative association using a sample of U.S. firms over the period 1964–2007. It found that conditional CONS is associated with a lower likelihood of a firm's future SPCR. Moreover, it found that the association between CONS and crash

risk is more pronounced for firms with higher information asymmetry. Finally, conditional CONS limited managers' incentives and ability to overstate performance and hide bad news from investors, which reduced SPCR. Wang et al. (2021) used a sample of listed firms in Shenzhen and Shanghai from 2011 to 2016. The results showed that CONS, corporate governance and stock price collapse risk are negatively correlated, and CONS policies can effectively restrain the occurrence of the stock price collapse, and higher levels of corporate governance can effectively reduce the possibility of the future SPCR.

Waqas and Siddiqui (2021) used a sample of 155 listed firms in Pakistan Stock Exchange (PSX) from 2007 to 2019. The study found a significant negative effect of CONS on firms' SPCR. Moreover, they found that managerial ownership enhances the SPCR as a moderator, while there was no significant moderating influence of institutional ownership. Xie (2022) used a sample of 2285 Chinese firms listed in the Shanghai and Shenzhen Stock Exchanges. It was discovered that state control was negatively associated with future SPCR. The mechanism analysis showed that state control reduced stock SPCR through the implementation of conservative corporate policies.

On the other hand, ***the second group did confirm an association between CONS and SPCR***. Kousenidis et al. (2014) indicated a negative relation between conditional CONS and future SPCR, but more importantly provided new evidence by

showing that unconditional CONS was also negatively related to future SPCR. In addition, they showed that the level of unconditional CONS affected the association between conditional CONS and SPCR. However, auditing attributes did not seem to have predictive ability for SPCR. Prameswari et al. (2016) used a sample of firms listed in Indonesian Stock Exchange. It proved that conditional CONS has no direct effect on SPCR, but it has a negative effect on SPCR when it was moderated by the full implementation of IFRS convergence.

Finally, there is a debate between studies that discussed the direct effect of CONS and SPCR. Although some of these studies claimed a negative effect, other studies did not confirm it. So, the researcher concludes the following hypothesis as follows:

H_5: Accounting Conservatism has a significant effect on stock price crash risk.

Regarding the indirect effect of CASH on the association between CONS and SPCR, the researcher concludes the following hypothesis as follows:

H_6: There is an indirect effect of accounting Conservatism has a significant effect on stock price crash risk through cash holding as a mediator.

Regarding the indirect effect of TA on the association between CONS and SPCR, the researcher concludes the following hypothesis as follows:

H_7: There is an indirect effect of accounting Conservatism has a significant effect on stock price crash risk through tax avoidance as a mediator.

3. Research Method:

This part has included the following sections:

3.1. Research Variables and Measurements:

3.1.1. Independent variable: Accounting Conservatism (CONS):

There are many methods that can be used to express Accounting Conservatism (CONS). Researcher does not rely on market prices to express CONS. Using market prices could concern with the differences between returns of good news against returns of bad news than interest in expressing the CONS. Moreover, most emerging markets are not highly efficient, which means using market prices cannot reflect the real firms' performance (Soliman, 2020). So, CONS will equal net profit before extraordinary items plus depreciation expense mines operating cash flows deflated by assets multiply by -1 (Al-Amri et al., 2015; Lin et al., 2018; Hamad et al., 2019 and Soliman, 2020).

3.1.2 Independent Variables:

3.1.2.1 Cash Holding (CASH):

Cash Holding (CASH) is measured as ratio of total cash and cash equivalent items to total assets in the same year (Al-Amri et al., 2015 and Soliman, 2020) .

3.1.2.2 Tax Avoidance (TA):

According to Hajawiyah et al. (2021) TA is an indicator of effectiveness of the companies' tax compliance policy. TA is considered as a form of tax non-compliance. Consequently, higher TA level indicates lower tax compliance level and vice versa. Therefore, Effective tax rate (ETR) can be used as a proxy to measure TA which is total tax expenses scaled by net income before taxes (Hajawiyah et al.2021). According to computation of ETR, it represents the opposite value of TA, since increasing ETR means reducing TA.

3.1.3. Dependent variable: Stock Price Crash Risk (SPCR):

Measuring SPCR passes three steps; the ***first step*** is interested in formulating regression between weekly stock for firm and average weekly return market index using the following regression equation:

$$r_{i,t} = \beta_0 + \beta_1 R_{m,t-2} + \beta_2 R_{m,t-1} + \beta_3 R_{m,t} + \beta 4 R_{m,t+1} + \beta_5 R_{m,t+2} + \varepsilon_{i,t} \qquad (1)$$

where:

$r_{i,t}$	:	Weekly return of firm (i) for week (t).
$R_{m,t-2}$	:	Average weekly return on market index before last week (t-2).
$R_{m,t-1}$	:	Average weekly return on market index for last week (t-1).
$R_{m,t}$	:	Average weekly return on market index for recent week (t).
$R_{m,t+1}$	:	Average weekly return on market index for next week (t+1).
$R_{m,t+2}$	:	Average weekly return on market index after next week (t+2).
$\varepsilon_{i,t}$	:	The error.

The second step uses the error ($\varepsilon_{i,t}$) in equation (1) to represent value of weekly return ($R_{i,t}$) for each firm using natural logarithm of the error plus 1, which is represented through the following equation:

$$R_{i,t} = Ln\ (\varepsilon_{i,t} + 1) \qquad (2)$$

The third step uses value of weekly return ($R_{i,t}$) to SPCR using one of the following methods:

1) Negative Coefficient of Skewness (NSCKEW):

SPCR is represented as NSCKEW which is computed as the following:

$$NSCKEW_{i,t} = [-n\ (n-1)^{1.5} \sum R_{i,t}^{3}] \div [(n-1)\ (n-2)\ (\sum R_{i,t}^{2})^{1.5}] \qquad (3)$$

where:

N : Number of weeks for one year, they are 52 weeks for complete year.

Higher values of NCSKEW indicate firms' stock having a more left-skewed distribution, and hence, more prone to crash (Chen et al. 2001).

2) Down to up Volatility (DUVOL):

SPCR is represented as DUVOL which is computed by four stages; (1) compute average weekly return (MEAN), (2) determine weekly returns are lower the MEAN and computing standard deviation for each weak, (3) determine the weekly returns are higher the MEAN and computing standard deviation

for each weak. (4) compute DUVOL through the following equation (Chen et al. 2001):

$$DUVOL_{i,t} = -Ln\left[\left((n_{down}-1)\sum_{down} R_{i,t}^{2}\right) \div \left((n_{up}-1)\sum_{up} R_{i,t}^{2}\right)\right]$$

where:

n_{down} : Number of weeks which its return is lower than average return.
n_{up} : Number of weeks which its return is higher than average return.

Higher values of DUVOL indicate firms' stock having a more prone to crash.

3) Negative Worst Deviations (EXTRASIG):

$$EXTRASIG_{i,t} = -MIN\left[\left(R_{i,t} - MEAN_{i,t}\right) \div \sigma_{\mathbf{R}i,t}\right]$$

where:

- MIN : The highest negative weekly return for the firm (i) in the year (t) .
$MEAN_{i,t}$: Average weekly return of firm (i) in the year (t).
$\sigma_{\mathbf{R}i,t}$: Standard deviation for weekly return for lower weekly return.

Finally, increasing the value of all measures means increasing SPCR.

3.2 The Model:

Describing the mediating role of Cash Holding (CASH) and Tax Avoidance (TA) on the association between accounting conservatism (CONS) and Stock Price Crash Risk (SPCR) is represented in the following figure:

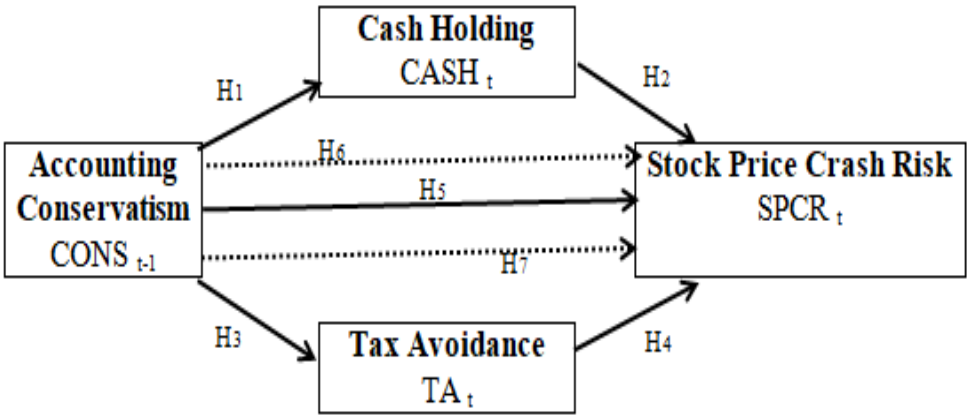

Figure 1: Research Model to test hypotheses

3.3 Data Description:

Published annual reports in Mubasher database were used. The sample begins from 2016 to 2021. All banks and financial institutions since this sector are affected by rules issued by Central Bank of Egypt that could have a significant effect of research results. The sample includes 65 listed firms on EGX 100 with 390 completed annual observations.

3.4 Descriptive statistics:

Table 1 introduces descriptive statistics for all study variables as follows:

Table 1: Descriptive Statistics of the variables

Var.	N	Mean	Min.	Max.	STDEV	Kurtosis	Skewness
CONS $_{t-1}$	390	-0.0341	-0.6731	0.4779	0.1547	0.0000	0.0000
CASH $_{t}$	390	0.2513	0.0000	0.8548	0.2517	0.4403	0.0000
TA $_{t}$	390	0.1419	-0.5559	0.7296	0.2385	0.0024	0.1720
NSCKEW $_{t}$	390	-0.1313	-1.9447	1.7296	0.9638	0.0003	0.0271
DUVOL $_{t}$	390	0.0304	-1.8647	1.9730	0.7955	0.0333	0.7961
EXTRASIG $_{t}$	390	2.4881	1.0610	4.8605	0.7784	0.0569	0.0000

Source: Data Processed 2024.

Table 1 indicates that Skewness and Kurtosis values are within accepted ranges for all variables, this means the deviations are normal and will not have any significant effect on the results.

3.5 Data Analysis:

Data was processed by using Structural Equation Modeling (SEM) through running "Smart PLS 4" software. The researcher examines model and proxies' validity through the following tests:

3.5.1 Model goodness of fit:

To make sure the model has trusted and generalized results as follows, the researcher uses the following table:

Table 2: Model goodness of fit

Test of model fit	Accepted level	Default model	Decision
SRMR	**SRMR < 0.08**	0.058	The results of the model are easy to interpret
NFI	**NFI ≥ 0.95**	0.950	The models improve the fit.

Source: Data Processed 2020

Table 2 indicates the model is fit and easy to interpret.

3.5.2 Inner Model Assessment (Structural Model):

R-squares are presented in table 3 to judge model relevance:

Table 3: R-Square Value

Constructs	R-Square
CASH	**0.026**
TA	**0.028**
SPCR	**0.167**

Source: Data Processed 2024.

The models used three variables influenced by others. CASH and TA variables are influenced by CONS. Similarly, SPCR is also influenced by both CONS, CASH and TA. Q^2 represents predictive relevance, since the higher Q^2, the model is more fit with the data. Q^2 is calculated by using the following equation:

$$Q^2 = 1 - [(1 - R^2) \times (1 - R^2) \times (1 - R^2)] = 1 - [(1 - 0.026) \times (1 - 0.028) \times (1 - 0.167)] = 0.2114$$

Based on table 3, the amount of variability of data which was explained by the structural model was 21.14%. So, the structural model has a good fit.

3.5.3 Discriminant Validity:

To assure that the association between proxies and latent variables. The results obtained from the discriminant validity test are as follow:

Table 4: Values of discriminant validity (Cross Loading)

	CONS	CASH	TA	SPCR
CONS	**1.000**	-0.160	-0.168	0.254
CASH	-0.160	**1.000**	0.054	-0.193
TA	-0.168	0.054	**1.000**	-0.323
NSCKEW	0.229	-0.214	-0.279	**0.880**
DUVOL	0.223	-0.145	-0.298	**0.830**
EXTRASIG	0.187	-0.121	-0.237	**0.826**

Source: Data Processed 2024.

Table 4 indicates that all proxies make up each variable (the values in bold) and meet the discriminant validity. It has the largest outer loading value for the variable it formed only.

3.5.4 Outer Model Assessment (structure model):

The convergent validity tests are presented in the following table:

Table 5: Outer weights

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Decision
CONS <- CONS	**1.000**	**1.000**	**0.000**			
CASH <- CASH	**1.000**	**1.000**	**0.000**			
TA <- ETR	**1.000**	**1.000**	**0.000**			
SPCR <- NSCKEW	**0.430**	**0.431**	**0.029**	**14.665**	**0.000**	**Accepted**
SPCR <- DUVOL	**0.414**	**0.412**	**0.031**	**13.489**	**0.000**	**Accepted**
SPCR <- EXTRASIG	**0.336**	**0.337**	**0.031**	**10.814**	**0.000**	**Accepted**

Source: Data Processed 2024.

Table 5 shows the value of the loading factor (convergent validity) of each proxy, since having a statistical *t*-value of $\geq$ 1.96 means valid proxies and all *t*-values in this table, so all proxies are valid, especially for NSCKEW, DUVOL and EXTRASIG as accepted proxies for SPCR.

3.5.5 Correlation:

The following table presents the correlation table:

Table 6: Correlations of the variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) CONS	1.000					
(2) CASH	**-0.160****	**1.000**				
(3) ETR	**-0.168***	**0.084***	**1.000**			
(4) NSCKEW	**0.229****	**-0.214****	**-0.279****	**1.000**		
(5) DUVOL	**0.223****					
	****	**-0.145***	**-0.298*****	**0.565****	**1.000**	
(6) EXTRASIG	**0.187***	**-0.121****	**-0.237***	**0.643****	**0.516****	1.000

Source: Data Processed 2024 ****** p<0.01, ** p<0.05, * p<0.1***

Table 6 provides a correlation matrix of all variables comprising Pearson correlation coefficient among all variables with a concentration on the main variables of interest. The correlation is between 0.643, and -0.298 which indicates that all variables are not suffering from multicollinearity problems.

4. Results:

Using bootstrapping of the PLS analysis, the results are presented in the following table:

Table 7: Path Analysis

		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Decision
1	CONS -> CASH	-0.160	-0.159	0.058	2.781	0.005	Accepted
2	CASH -> SPCR	-0.148	-0.148	0.044	3.380	0.001	Accepted
3	CONS -> TA	-0.168	-0.168	0.064	2.620	0.009	Accepted
4	TA -> SPCR	-0.284	-0.283	0.057	4.958	0.000	Accepted
5	CONS -> SPCR	0.183	0.184	0.053	3.472	0.001	Accepted
6	CONS -> CASH -> SPCR	0.024	0.023	0.011	2.121	0.034	Accepted
7	CONS -> TA -> SPCR	0.048	0.047	0.021	2.267	0.023	Accepted

Source: Data Processed 2024.

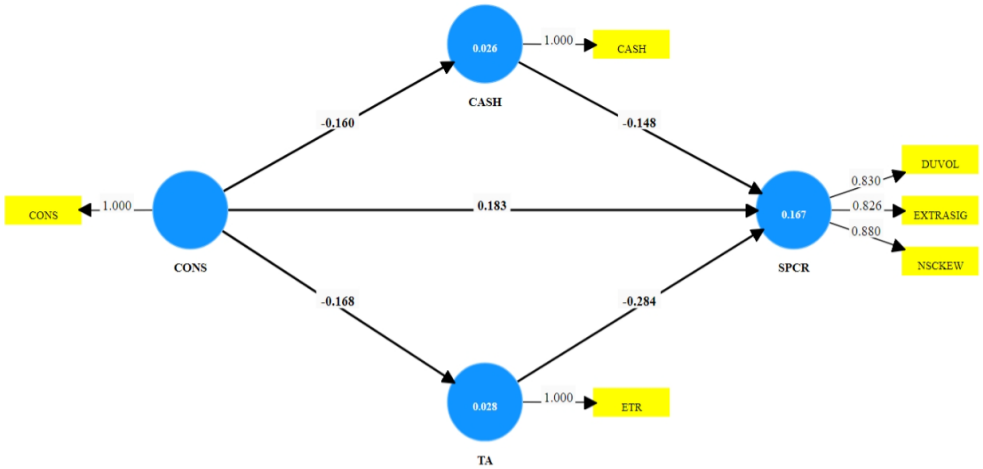

Figure 2: Research Model to test hypotheses

Results of table 7 are presented as follows:

1) The association between CONS and CASH is obtained from line 1, the path coefficient is -0.160 with t-value 2.781. This means CONS has a significant and negative effect on CASH at a significant level 1%. So, the **first hypothesis (H_1) is accepted**. The result supports Xiangyu et al. (2015) and

Soliman and Rashed (2021). However, this result is not consistent with Louis et al. (2012), Al-Amri et al. (2015), Lin et al. (2018), Hamad et al. (2019), Malekian and Moradi (2019), Manoal and Moraes (2021) and Krema (2022).

2) The association between CASH and SPCR is obtained from line 2, the path coefficient is -0.148 with t-value 3.380. This means CASH has a significant and negative effect on SPCR at a significant level 1%. So, the **second hypothesis (H_2) is accepted**. The result is not consistent with Chen (2021), Gao and Li (2021), Sheng (2022) and Xu et al. (2023).

3) The association between CONS and TA is obtained from line 3, the path coefficient is -0.168 with t-value 2.620. This means CONS has a significant and positive effect on TA at a significant level 1%. So, the **third hypothesis (H_3) is accepted**. The result supports Bornemann (2018), Lismiyati and Herliansyah (2021), Suleiman (2022) and Dewi and Andriyani (2023). However, this result is not consistent with Purwantini (2017), Yuniarsih (2018), Ratnasari et al. (2019), Nurcholis et al. (2021), Ardillah and Halim (2022), Lubis et al. (2022), Rizkiana and Suripto (2022), Saad et al. (2023), and Rudianti and Hermawan (2023).

4) The association between TA and SPCR is obtained from line 4, the path coefficient is -0.284 with t-value 4.958. This means TA has a significant and positive effect on SPCR at a significant

level 1%. So, the **fourth hypothesis (H_4) is accepted**. The result supports Kim et al. (2011), Khajavi et al. (2018), Neifar and Utz (2019), Gary et al. (2022) and Thai et al. (2023). However, this result is not consistent with Chen et al. (2022).

5) The direct association between CONS and SPCR is obtained from line 5, the path coefficient is 0.183 with t-value 3.472. This means CONS has a significant and positive effect on SPCR at a significant level 1%. So, the **fifth hypothesis (H_5) is accepted**. The result supports Kousenidis et al. (2014) and Prameswari et al. (2016). However, this result is not consistent with Kim and Zhang (2016), Wang et al. (2021), Waqas and Siddiqui (2021) and Xie (2022).

6) The indirect association between CONS and SPCR through CASH is obtained from line 6, the path coefficient is 0.024 with t-value 2.121. This means there is an effect of integration between CONS and CASH on SPCR at a significant level 5%. So, the **sixth hypothesis (H_6) is accepted**. Since the direct association between CONS and SPCR is significant and positive. CASH has a partial mediation role in the association between CONS and SPCR.

7) The indirect association between CONS and SPCR through TA is obtained from line 7, the path coefficient is 0.048 with t-value 2.267. This means there is an effect of integration between CONS and TA on SPCR at a significant level 5%.

So, the **seventh hypothesis (H_7) is accepted**. Since the direct association between CONS and SPCR is significant and positive. CASH has a partial mediation role in the association between CONS and SPCR.

5. Discussion and Conclusion:

5.1 Discussion:

Regarding the discussion about stock price crash risk (SPCR) determinants, this paper aims to analyze the effect of Accounting Conservatism (CONS), Cash Holding (CASH) and Tax Avoidance (TA) on SPCR. this objective is divided into seven sub-objectives; the first is testing the effect of CONS on SPCR, the second is testing the effect of CASH on SPCR, the third is testing the effect of CONS on TA, the fourth is testing the effect of TA on SPCR, the fifth objective concerns direct association between CONS and SPCR, the sixth objective concerns indirect association between CONS and SPCR through CASH as a mediator variable. The seventh objective investigates the association between CONS and SPCR through TA as a mediator variable.

Regarding objective (1), table 7 provides evidence that CONS has a negative effect on CASH. In other words, increasing CONS contributes to decreasing CASH. CONS means management hides some good news. This leads to increasing information asymmetry. This increasing in information

asymmetry reduces shareholder trust in firm performance, which is reflected in the increasing level of cost of capital, especially cost of equities. Management faces an increase in the cost of capital by using available cash to cover its obligations. This action means management uses available cash to face problems with the growth of increasing CONS levels. On the other hand, low CONS increases the risk of default for debtholders, which forces them to increase the required CASH.

Regarding objective (2), table 7 provides evidence that CASH has a negative effect on SPCR. In other words, increasing CASH contributes to decreasing SPCR. Having more cash may help management face and treat sudden situations using available cash, which guarantees the firm's performance without presenting some operational problems. This contributes to increasing shareholders' trust in firm performance and so reducing SPCR. This means shareholders in Egypt take their decisions based on a firm image more than firm profits.

Regarding objective (3), table 7 provides evidence that CONS has a positive effect on TA. In other words, increasing CONS contributes to increasing TA. Management depends on CONS to disclose expected losses and bad news, which leads to reduced reported earnings. Finally, income tax and tax expenses are reduced as a result.

Regarding objective (4), table 7 provides evidence that TA has a positive effect on SPCR. In other words, reducing TA contributes to decreasing SPCR. There is a significant effect of bad news related to discovering TA practices, when it happens, on shareholders' decisions, they lose trust in firm performance, which increases SPCR.

Regarding objective (5), table 7 provides evidence that CONS has a direct and positive effect on SPCR. In other words, decreasing CONS contributes to decreasing SPCR. CONS increases information asymmetry between managers and shareholders, especially when management hides good information; this reduces shareholders, trust in management and firm performance then increasing SPCR. Moreover, according to CONS, management discloses expected bad news which reduces net profit and increases SPCR due to dissatisfaction of shareholders for firm outputs.

Regarding objective (6), table 7 provides evidence that CONS has an indirect and negative effect on SPCR through CASH as a mediator. In other words, increasing CONS works with decreasing CASH and contributes to decreasing SPCR. Management uses the effect of integration between increasing CONS and decreasing CASH to decrease SPCR. However, the power of the indirect effect of CONS on SPCR through CASH as a mediator (form line 6 table 7) is lower than the direct effect (form line 5 table 7).

Regarding objective (7), table 7 provides evidence that CONS has an indirect and negative effect on SPCR through CASH as a mediator. In other words, increasing CONS works with increasing TA and contributes to decreasing SPCR. Management uses the effect of integration between increasing CONS and increasing TA to decrease SPCR. However, the power of the indirect effect of CONS on SPCR through TA as a mediator (form line 7 table 7) is lower than the direct effect (form line 5 table 7).

5.2 Conclusion:

In the last two decades, some universal financial crises have happened. Many previous studies innovated some expressions related to these crises, such as Stock Price Crash Risk (SPCR). The research is interested in investigating some determinants of SPCR, such as Accounting Conservatism (CONS), Cash Holding (CASH) and Tax Avoidance (TA). Besides, this research concerns the mediation effect of CASH and TA practices on the association between CONS and SPCR. For 65 Egyptian non-financial listed firms in EGX 100 from 2016 to 2021, which include 390 annual observations.

Findings indicate: (1) CONS, which hides good news, increases information asymmetry, which reduces shareholders' trust that pushes management to use available cash, so decreases CASH. (2) Management needs to have more cash to face and

treat sudden situations, this means cash is the tool to save the firm's operational stability to have shareholders' trust and reduce SPCR. (3) Management depends on CONS to disclose expected losses and bad news which reduces reported earnings. Finally, income tax and tax expenses are reduced as a result. (4) TA excessiveness increases opportunities of discovering these practices which reduces shareholders' trust in firm performance. then increases SPCR. (5) CONS increases information asymmetry, especially when management hides good information; this reduces shareholders' trust in management's performance and increases SPCR. Moreover, according to CONS, management discloses expected bad news which reduces net profit and increases SPCR due to shareholders' dissatisfaction with firm outputs. (6) there is a significant effect of integration between CONS and CASH on reducing SPCR. (7) there is a significant effect of integration between CONS and TA on reducing SPCR. However, the power of the indirect effect of CONS on SPCR through CASH or TA as a mediator is lower than the direct effect.

This research presents three contributions: 1) firms' management increases CONS to reduce SPCR; 2) Firm's management increases CASH to reduce SPCR; 3) Firm's management increases TA to reduce SPCR; 4) there is a significant effect of integration between CONS and CASH on SPCR; 5) there is a significant effect of integration between

CONS and TA on SPCR; 6) There is a partial mediation role of CASH and TA on the association between CONS and SPCR; 7) the power of the indirect effect of CONS on SPCR through CASH or TA as a mediator is lower than the direct effect without rejecting the indirect effect.

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