Available online at www.sciencedirect.com

Borsa İstanbul Review

Borsa İstanbul Review xxx (xxxx) xxx

http://www.elsevier.com/journals/borsa-istanbul-review/2214-8450

Full Length Article

Earnings management and theoretical adjustment in capital structure performance pattern: Evidence from APTA economies

Adnan Shoaib*, Muhammad Ayub Siddiqui

FAST-National University of Computer and Emerging Sciences, Sector H-11/4, A.K. Brohi Road, Islamabad Pakistan

Received 22 January 2020; revised 28 November 2020; accepted 6 December 2020
Available online ■ ■ ■

Abstract

This study examines the role of earnings management in the relationship between firm performance and capital structure, dividing earnings management into discretionary and nondiscretionary accruals to test established theories on the capital structure. Using data on 802 companies in the member countries of the Asia-Pacific Trade Agreement (APTA), our findings reveal that, in the absence of earnings management, the relationship between the capital structure and firm performance follows the trade-off theory or the pecking-order theory. Our results are consistent with agency theory only through managers' intervention via earnings management. In India, substantial opportunistic behavior in discretionary accruals is observed, and management seems to focus on manipulating capital structure performance in opportunistic ways. Furthermore, discretionary earnings are focused more on hiding asset inefficiency that arises from forced increases in firm size, reducing earnings risk. These practices reduce the impact of the capital structure on firm performance. This study has vital implications for debt managers and performance analysts in APTA member countries. Rather than testing the applicability in a traditional way, this study recommends dividing earnings management into discretionary and nondiscretionary accruals to test capital structure theories. Because nondiscretionary accruals play a dominant role in earnings management, firm behavior is consistent with trade-off or pecking-order theory, as seen in patterns in the relationship between the capital structure and firm performance, whereas agency theory holds only after external intervention by managers in terms of earnings management.

JEL Classifications: G32; M41

Keywords: APTA; Capital structure; Earnings management; Firm size; Leverage; Panel data models

1. Introduction

Earnings management has been one of the most crucial and specialized areas of research in finance for many years. The concept of earnings management[1] and its measurement have been extensively studied. Studies have identified accruals as the most suitable measure of earnings management (DeAngelo, 1986, pp. 400−420; Dechow, Sloan, & Sweeney, 1995, pp. 193−225; Healy, 1985; Healy & Wahlen, 1999; Jones, 1991). Scholars understand that earnings management practices are used to fabricate firm performance, which might misguide owners or investors (Balsam, Bartov, & Marquardt, 2002; Burgstahler & Dichev, 1997a, 1997b; Chung, Firth, & Kim, 2005; Schipper, 1989; Scott, 2000; Siregar & Utama, 2008).

With the development of earnings management concepts, numerous studies have been conducted to explain its relationship with other aspects of business (Balsam et al., 2002; Chaney & Lewis, 1995; Dechow et al., 1995, pp. 193−225). However, the literature is scarce concerning the manipulation of capital structure efficiency through earnings management.

* Corresponding author.
E-mail addresses: adnanshoaib1@gmail.com (A. Shoaib), ayub.siddiqui@nu.edu.pk (M.A. Siddiqui).

Peer review under responsibility of Borsa İstanbul Anonim Şirketi.

[1] Hicks (1939) introduced the concept of earnings and earnings management.

https://doi.org/10.1016/j.bir.2020.12.001

Please cite this article as: A. Shoaib, M.A. Siddiqui, Earnings management and theoretical adjustment in capital structure performance pattern: Evidence from APTA economies, Borsa İstanbul Review, https://doi.org/10.1016/j.bir.2020.12.001

The variation in the impact of the capital structure on firm performance between managed performance and unmanaged performance is still unaddressed.

Capital structure and its impact on firm performance is a core issue in finance, and many theories and empirical studies explain this relationship. During the 1950s, the linkage between a firm's capital structure and the influential factors in the debt-equity mix gained importance, leading to the path-breaking theory of Modigliani and Miller (1958). Modigliani and Miller (1958) state that in a perfect market the firm's value is independent of the capital structure, which implies that debt and equity are perfectly substitutable, and this has broad implications.[2] Three other three theories account for market imperfection and are considered alternatives to MM theory: trade-off theory, agency theory, and pecking-order theory. Trade-off theory (Kraus & Litzenberger, 1973; Myers, 1984) states that firms trade off the costs and benefits of debt in order to maximize firm value. The primary benefit of incorporating debt comes from the tax shield of reducing income through interest payments (Modigliani & Miller, 1963). The cost of debt comes from the bankruptcy cost through increases in financial risk (Kim, 1978; Kraus & Litzenberger, 1973). The pecking-order theory (Myers & Majluf, 1984; Ross, 1977) claims that the hierarchy of financing in which internal financing is used first, then debt, and finally equity is issued, maintaining maximum debt level. Agency theory (Hart & Moore, 1994; Jensen, 1986; Jensen & Meckling, 1976) states that an optimal capital structure that maximizes firm value can be achieved by minimizing conflicts of interest among the stakeholders. However, no single theory can fully explain the effect of the capital structure on firm performance. According to Ardalan (2017), all capital structure theories are based on critical assumptions that are far from financial operations in reality. A real society (which includes managers) is more complex, diversified, and multifaceted than assumed in theory. His study concludes that the results of any model with respect to any theoretical predictions might change in different contexts and statements, so capital structure theories are therefore questionable under different conditions. These findings infer that under different circumstances and contexts theoretical shifts in the evaluation of capital structure performance are possible; in other words, managers can purposefully manipulate capital structure efficiency, which may lead to a shift from one theoretical objective to another.

In the prior literature, the discussion on capital structure and firm performance had mixed results, as studies identified both a positive impact of financial leverage on firm performance with the goal of reducing agency issues (Gleason, Mathur, & Mathur, 2000; Kim, 2006; Salim & Yadav, 2012) and a negative effect of leverage on firm performance, which is attributed to increases in production costs (Fosu, 2013; Margaritis & Psillaki, 2010; Park & Jang, 2013). This mixed results are consistent with the findings of Ardalan (2017), which suggests that contextual and behavioral interference by managers and society in measuring capital efficiency in terms of firm performance yields mixed evidence. Moreover, the manipulation by managers of firm performance through earnings management gives rise to variation in the impact of the capital structure on firm performance or in other ways to make the capital structure conform to a particular theory. Previous papers (Alvarado, de Fuentes, & Laffarga, 2019; Balsam et al., 2002; Burgstahler & Dichev, 1997a, 1997b; Chung et al., 2005; Schipper, 1989; Scott, 2000; Siregar & Utama, 2008; Sujata, 2020) reveal that managers engage in earnings management to improve the financial picture, that may attract brokers and investment trust, considered as efficient earnings management. However, other studies point to opportunistic earnings management,[3] which can reduce the accuracy of financial results and lower the quality of accounting. Little work in prior papers identifies the impact of earnings management on the relationship between capital structure and firm performance. Firm performance is measured in different ways that involve net income or managed income[4] and reveal the behavior of the managed portion of earnings in optimization of the capital structure. The variation in the impact of the capital structure on firm performance after distinguishing managed performance and unmanaged performance is still unaddressed.

This study makes a contribution on many fronts. Because the evidence is mixed in previous studies, the present study divides firm performance into managed firm performance and unmanaged firm performance. Then it measures the capital structure efficiency separately for both types of performance to identify the theoretical shifts (i.e., from trade-off theory to pecking-order theory), explaining the direction of the relationship between capital structure and firm performance before and after managers' intervention. This intervention explains the impact of earnings management on capital structure performance. This study also explains managers' involvement in changing the direction of the relationship between the capital structure and firm performance. Moreover, this study identifies a consistent pattern in capital structure efficiency. In other words, in the absence of contextual settings, that is, earnings management, what is the nature of the relationship between capital structure and firm performance?

The purpose of the study is to identify the variation in the relationship between firm performance and capital structure and explain how the theoretical nature of this relationship varies based on earnings management. Our sample consists of firms in the member countries of Asia-Pacific Trade Agreement (APTA), including China, India, Sri Lanka, Bangladesh,

[2] This assertion is ultimately reversed such that corporate value is maximized when financing is completely through debt (Jang et al., 2008; Modigliani & Miller, 1963).

[3] See (Badertscher, Collins, & Lys, 2012; Chung et al., 2005; Scott, 2000; Siregar & Utama, 2008; Subramanyam, 1996).

[4] Earnings include accruals that are discretionary or managed by managers to create the illusion of managed income.

and Pakistan (an acceding[5] member). The results of prior studies on emerging economies in Asia indicate that, due to investor protection, these economies are more likely to be involved in earnings management than developed countries (Kitiwong, Verma, & Anderson, 2014; Sheng, 2014). This fact motivates us to study economies with trade ties to APTA. Prior studies measured firm performance through the capital structure but ignoring the variation in the relationship between capital structure and firm performance in the presence and absence of earnings management. Our findings have important implications for APTA member countries in terms of earnings management, the relationship between the capital structure and firm performance, and how earnings management affects the dynamics of the capital structure across countries.

Following this introduction, Section 2 explains the background and context of the study. Section 3 discusses our research methods, such as sampling, earnings management measurement, and control variables. Section 4 outlines our empirical results, and Section 5 concludes and offers the implications of our results.

2. Literature and hypotheses development

The concept of earnings management is as deeply rooted as the concept of earnings. The concept of earnings management was first introduced in 1939 by Hicks (co-author of the GAAP rules) on book value and capital (Hicks, 1939). Hicks demonstrated that the "true earnings" are not observable, so the GAAP can comprise many accounting choices, thereby facilitating earnings management. Later researchers have offered various different definitions of earnings management.[6] However, according to the comprehensive definition by Healy and Wahlen (1999), earnings management occurs when managers use their own judgment in financial reporting and in structuring transactions to alter financial reports, either to mislead stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on the accounting figures reported. Several studies have been conducted on earnings management and its impact on other aspects of business, such as cash flow, firm profitability, ownership structure, and stock returns, but the impact of earnings management on the capital structure is still unaddressed.

In the corporate world, the concept of capital structure is as old as the concept of the economy. The capital structure means the relative shares of debt and equity financing (Van Horne & Wachowicz, 2005), determined on the basis of some tangible and intangible facts (Schwartz, 1959). Debt includes fixed payments, however, equity holders enjoy residual income in the form of dividends as well as interest on their ownership (Van Horne & Wachowicz, 2005). During the 1950s, the linkage between a firm's capital structure and the influential factors of the debt-equity mix resulted in the pathbreaking theory by Modigliani and Miller (1958).

Modigliani and Miller (1958) state that in a perfect market, the firm's value is independent of the capital structure, which implies that debt and equity are perfectly substitutable, and this has broad implications.[7] When the assumption of a perfect market is relaxed, the choice of the capital structure is the critical factor in determining firm value. The relaxation of this assumption paved the way for the development of alternate theories on capital structure decision making: trade-off theory, pecking-order theory, and agency theory.

Trade-off theory suggests that the capital structure is optimal when firm value is maximized. When the capital structure is optimal, the marginal benefits of debt are equal to the marginal costs of debt, which leads to the maximization of firm performance (Jang, Tang, & Chen, 2008; Tang & Jang, 2007). Debt is a cheaper source of financing than equity financing because it is tax deductible. However, the excessive use of debt increases the likelihood of bankruptcy. Thus, trade-off theory argues that a firm fixes an optimal target debt ratio, which is determined through a trade-off between the benefits associated with debt (tax deductions) and costs associated with debt (bankruptcy costs). Many empirical examinations have attempted to identify the determinants of the capital structure based on the trade-off framework (Castanias, 1983; Ferri & Jones, 1979; Tang & Jang, 2007). Bradley, Jarrell, and Kim (1984) reviewed the theoretical and empirical nature of the trade-off hypothesis. Under the trade-off framework, Kester (1986), Rajan and Zingales (1995), and Titman and Wessels (1988) find significant support for an inverse relationship between leverage and performance.

However, Myers and Majluf (1984) see a dilemma from asymmetric information between managers and investors. Investors are more inclined to discount a firm's new securities when they are issued. Thus, managers expect price discounts in advance. So, to avoid distortion in investment decisions, managers prioritize internal financial resources, such as reserves and retained earnings, rather than external financial sources, including debt and equity.

Myers (1984) believes that the costs associated with issuing risky debt or equity outweigh the determination of optimal leverage in the trade-off model. This concept is referred to as the pecking-order theory. Pecking-order theory states that to reduce asymmetric information and various related financing costs, firms should prefer to finance investment primarily through retained earnings, then through safe debt,[8] then through risky debt, and finally through equity. In accordance with pecking-order theory, debt normally rises when investment requires funding greater than retained earnings and falls when investment requires funding less than retained earnings,

[5] Countries that have signed the treaty of accession, obtain the status of 'acceding countries' and are expected to become full member states on the date set out in the treaty.

[6] The concept of earnings management is defined in various context. See (Dechow & Skinner, 2000; Healy & Wahlen, 1999; Schipper, 1989).

[7] This assertion is ultimately reversed, indicating that firm value is maximized when financing is completely through debt (Jang et al., 2008; Modigliani & Miller, 1963).

[8] In this argument, Myers (1984) defined "safe debt" as newly issued debt, which is free of default risk.

which implies that, if profitability and investment outflows are persistent, the simple form of the model predicts that lower leverage is associated with more profitable firms when investment is constant (Jang, 2011; Jang & Park, 2011). When profitability is constant, leverage is higher at firms with greater investment opportunities. In general, firms are concerned with the costs of both current and future financing (Myers, 1984). To maintain balance between current and future costs, large investment firms keep a debt capacity for low risk so as to avoid forgoing future investment opportunities or funding them with risky securities.

Based on the theory of asymmetric information, Ross (1977) articulates the signaling effect, in which a high level of debt is interpreted by market participants as a signal of a high-quality firm and increases future cash flows for a firm, which infers that low-quality firms are not capable of handling larger debt levels due to a greater potential for bankruptcy (Barclay & Smith, 1995). Consequently, the signaling effect limits firms in issuing new equity as this sends an adverse signal to market participants.

Finally, the agency model, proposed by Jensen and Meckling (1979) and Jensen (1986), portrays a conflict between stockholders and managers. The interests of managers and investors are misaligned. Managers attempt to use free cash flow to achieve its personal objectives. As Jensen (1986) concludes, the greater the discretionary cash flow available to managers, the greater is the likelihood that managers will pursue their personal objectives, which shows that managers have a propensity to enhance the scale of their firms, even if that behavior leads them to accept poor projects or decrease firm value. This is known as a problem of overinvestment. To alleviate overinvestment problems, the free cash flows available for managers to access in order to pursue their own objectives need to be limited. Debt financing can be used to reduce free cash flow. Consequently, decisions related to the capital structure, such as increasing debt leverage, optimally address agency problems.

The rationale behind the relationship between capital structure and firm performance can be understood by reviewing the three capital structure theories (discussed earlier). Firm performance is affected by various factors, one of which is the capital structure. Substantial empirical work has explored any (positive, negative, or insignificant) relationship between the capital structure and firm performance (Ab Razak, Ahmad, & Aliahmed, 2008; Pathak, 2011; San & Heng, 2011). Prior studies also examined the endogenous relationship between the capital structure and firm performance (De Jong, 2002; Smith & Watts, 1992). Some studies argue that leverage is endogenous, and market value is exogenous (Smith & Watts, 1992); others conclude the opposite (McConnell & Servaes, 1995); and still others claim both are endogenous (Demsetz & Villalonga, 2001; Harvey, Lins, & Roper, 2004; Rajan & Zingales, 1995). Studies such as Salim and Yadav (2012) investigate the impact of the capital structure on firm performance at Malaysian listed companies. The results show that the return on assets (ROA), the return on equity (ROE), and Earning per share (EPS) have an inverse relationship with all debt measures. Growth has a positive relationship with performance. However, Tobin's Q has a positive link with short- and long-term debt but a negative association with total debt. Similarly, Kim (2006) also demonstrates that high debt reliance is negatively associated with productivity performance by small businesses and positively associated with large business groups. The negative relationship suggests that, because of agency issues, firm have a level of debt in capital structure that is higher than appropriate, which leads to lower performance (Gleason et al., 2000).

Previous studies have empirically examined the relationship between leverage and profitability (Baker & Wurgler, 2002; Rajan & Zingales, 1995; Titman & Wessels, 1988) and established an inverse relationship between profitability and leverage that is contrary to the trade-off theory, which predicts a positive relationship between profitability and book leverage. Further studies (Leary & Roberts, 2005; Strebulaev, 2007) reveal an inverse relationship between leverage and profitability, which is consistent with the dynamic trade-off model. Recent studies such as Xu (2012) support the trade-off theory and show no endogenous relationship between imports and leverage. The results are in line with trade-off theory, which predicts a positive relationship between the capital structure and future profitability. Danis, Rettl, and Whited (2014) discuss the implications of trade-off theory and reexamine the puzzle of a negative relationship between the capital structure and profitability. Based on the Brownian motion[9] assumption, they find that firms nearly optimal leverage have a positive correlation between leverage and profitability and otherwise have a negative relationship. Tudor, Andrei, Bădescu, and Georgescu (2014) and Andrikopoulos (2009) show the market valuation of the capital structure and confirm U-shaped behavior in the cost of capital thus confirms that MM1 theorem hold, the coefficient of time is weakly significant, showing that no variable other than debt has a significant influence on market value.

The impact of agency problems between shareholders and managers on capital structure adjustment is also studied by taking corporate governance quality into consideration (Ju & Ou-Yang, 2006; Sundaresan & Wang, 2007; Titman & Tsyplakov, 2007). Chang, Chou, and Huang (2014) study the impact of corporate governance quality on the optimal capital structure adjustment speed, in which corporate governance has two effects, the takeover defense and the disciplinary effect, which explain the adjustment speed. The results show that firms with weak governance and less leverage adjust slowly toward the target debt level because the cost of the disciplinary role of debt is higher than the benefit of debt as a takeover defense, whereas highly levered firms with weak governance also adjust slowly because of reluctance to reduce leverage to target debt due to the threat of a takeover. Miglo (2010)

[9] The application of Brownian motion in mathematical form has various implications, such as stock market fluctuation, as suggested by Mandelbrot and Hudson (2010).

opposes a zero tolerance policy toward earnings management and considers it socially inefficient because entrepreneurs need external financing for profitable projects, and production improvement to make a business socially efficient when they need to manage earnings in order to satisfy outside investors. This study relates the earnings manipulation to the capital structure, as earnings management is needed for an entrepreneurial business to make it socially efficient.

Empirical studies on the relationship between the capital structure and firm performance have mixed and contradictory results. Furthermore, some studies conducted on developed economies such as France and the United States (Berger & Di Patti, 2006; Gill, Biger, & Mathur, 2011; Margaritis & Psillaki, 2010) have elucidated the positive relationship between firm performance and the capital structure because the incorporation of debt reduces agency costs or encourages managers to act more in shareholders' interest. Other studies on emerging economies, such as India, South Africa, and Pakistan (Abor, 2007; Chhibber & Majumdar, 1999; Deesomsak, Paudyal, & Pescetto, 2004), find a negative relationship between the capital structure and firm performance. These results are based on the argument that underestimating the bankruptcy cost of liquidation might lead a firm to take on debt beyond its capacity, therefore, a higher debt ratio reduces firm performance. Moreover, incorporating debt as a monitoring tool to enhance firm performance is not significant in emerging markets. Thus, a higher cash flow from debt might lead managers to engage in discretionary behavior that in the end has a negatively effect on firm performance. To identify the variations in performance through the capital structure due to earnings management, we hypothesize that:

H1a. *The relationship between leverage and unmanaged firm performance is not significant.*

H1b. *The relationship between leverage and managed firm performance is not significant.*

Earnings risk refers to volatility in earnings or a performance measure. The volatility or earnings risk has an impact on firm overall performance. Deesomsak et al. (2004) suggest that high earnings volatility increases the chance of financial distress, which can reduce a firm's ability to satisfy their debt-service obligations, showing a negative relationship between leverage and earnings volatility. Udomsirikul, Jumreornvong, and Jiraporn (2011) use the volatility of earnings as a control factor to measure earnings risk. Firms with high earnings volatility have difficulty in obtaining borrowing, because when the economy is in the worst condition, it generates insufficient earning to meet their debt obligations (Antoniou, Guney, & Paudyal, 2002). According to Berger and Patti (2002), firms with greater risk have higher profit efficiency as the ROE aligns with the firm risk. Keeley and Furlong (1990) claim that firms that maximize value also adjust the risk related to a desired porfolio in accordance with the capital structure. Differentiating between managed and unmanaged firm performance based on earnings arrangement, we hypothesize:

H2a. *The relationship between earnings risk and unmanaged firm performance is not significant.*

H2b. *The relationship between earnings risk and managed firm performance is not significant.*

The size of the firm is the vital factor that guides firm performance. Prior studies (Ebaid, 2009; Frank & Goyal, 2003; Ramaswamy, 2001) claim that the size of the firm has an impact on firm performance; larger firms might possess greater capabilities and capacity and can achieve economies of scale. Larger firms may be linked to higher moral hazard, which shows the need for increased monitoring and incurring higher monitoring costs (Himmelberg, Hubbard, & Palia, 1999). Large firms have certain characteristics, such as profitability, financial flexibility, and tangibility. These characteristics result in asymmetric information, which influences firm performance (Drobetz & Wanzenried, 2006). Fama and Jensen (1983) suggest that larger firms prospectively provide more information to debt holders that reduces their monitoring costs. Based on prior studies, it is evident that firm size influences various aspects of firm performance, therefore, based on earnings management−based differentiation in performance, we hypothesize:

H3a. *The relationship between firm size and managed firm performance is not significant.*

H3b. *The relationship between firm size and unmanaged firm performance is not significant.*

Claessens, Djankov, and Klapper (2003), Maury (2006), and King and Santor (2008) claim that growth opportunities have a positive effect on firm performance, which needs to be controlled. Salim and Yadav (2012) also use growth as control variable when testing firm performance and leverage. Park and Jang (2013) also employ sales growth as measure of growth opportunities. Growth opportunities require funds to invest in opportunities, and leverage is used to bridge the funding gap. However, growth opportunity increases the cost associated with financial distress, mitigates free-cash-flow problems, and diminishes debt-related agency problems. Moreover, firms with growth opportunities are more inclined to use internally generated funds. Thus, the trade-off theory expects growth to moderate leverage. Under the notion of distinguishing firm performance based on earnings management, we hypothesize:

H4a. *The relationship between future growth opportunities and managed firm performance is not significant.*

H4b. *The relationship between future growth opportunities and unmanaged firm performance is not significant.*

Tangibility is vital for firms that seek to access debt finance (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001; Campello, 2006). Agency theory holds that firms with higher leverage tend to underinvest or invest sub optimally, which

leads to the transference of wealth from debt holder to shareholders and induces lenders to secure debt with collateral in order to reduce this problem (Himmelberg et al., 1999). Moreover, a firm liquidation value increases with an increase in tangibility and reduces the probability of mispricing in bankruptcy (Deesomsak et al., 2004; Udomsirikul et al., 2011). In the absence of collateral, firms need to pay high interest or make equity financing arrangements (Scott, 1977). Under the setting of managed and unmanaged performance based on earnings management, we hypothesize:

H5a. *The relationship between asset tangibility and managed firm performance is not significant.*

H5b. *The relationship between asset tangibility and unmanaged firm performance is not significant.*

Our discussion concludes that profitability, tangibility, taxes, growth, size, the cost of debt, taxes, and debt-service capacity are determinants of the capital structure (Deesomsak et al., 2004; Handoo & Sharma, 2014; Thippayana, 2014; Öztekin & Flannery, 2012). The evidence on the relationship between profitability and the capital structure is mixed, as the trade-off theory suggests a positive association of profitability and book leverage (Danis et al., 2014; Xu, 2012), but evidence contradicting the trade-off theory also exists (Leary & Roberts, 2005; Strebulaev, 2007). Moreover, agency conflicts also affect the capital structure. In sum, leverage has a direct relationship with tangibility, profitability, and firm size, and it diminishes with volatility and growth opportunity (Jang et al., 2008; Tang & Jang, 2007). However, the pecking-order theory shows that leverage declines with profitability, volatility, tangibility, and firm size, whereas growth opportunity has mixed orientation towards leverage (Jang, 2011; Jang & Park, 2011).

Previous studies have confirmed the impact of the capital structure on firm performance but have ignored the impact of earnings management. The present study attempts to explain how the relationship between capital structure and firm performance varies with and without earnings management. For that purpose, we divide firm performance into managed firm performance, which is related to net income, and unmanaged firm performance, which is related to nondiscretionary net income. Afterward, we study the impact of capital structure on each performance measure separately studied to identify the theoretical dynamics in the relationship between capital structure and firm performance. Asian markets are more prone to earnings management because they have weaker investor protection, so studying earnings management in the relationship between the capital structure and firm performance and the theoretical shifts in this relationship in the APTA member countries has important implications for the existing body of knowledge. Prior studies have focused on measuring firm performance through the capital structure, with less attention paid to explaining the impact of earnings management on capital structure performance and changes in theoretical settings. The present study also incorporates nondiscretionary accruals and variations in cash flow as control variables.

3. Research methods

Modigliani and Miller (1958) claim that value is irrelevant to the capital structure. However, Jensen and Meckling (1976) explain that the capital structure is relevant to firm value based on agency theory, trade-off theory, and pecking-order theory. The capital structure can be optimized based on the capital structure performance. In other words, the performance measure is used for capital structure optimization. This model is based on all theories of capital structure that assume that firm performance can be maximized by either reducing agency costs or improving the trade-off between the benefits and costs of debt. This model identifies the impact on firm performance of the capital structure measured by leverage along with control factors. The general model is as follows.

$$ROA_{it} = \alpha + \beta_1 (lev)_{it} + \beta_2 (\sigma ROA)_{it} + \beta_3 (size)_{it} + \beta_4 (gro)_{it} + \beta_5 (TAN)_{it} + \mu_{it}$$

The performance measure is then divided into two groups: performance based on discretionary measures and performance based on nondiscretionary measures. The purpose of this division is to identify and compare the direction of the two results. If the direction of the relationship for both groups is the same, then we can conclude that earnings management is intended to improve the performance of the capital structure, which leads to efficient earnings management, and mismanagement leads to opportunistic earnings management. Moreover, the division shows whether the performance of capital structure, whether discretionary or nondiscretionary, is based on the same theory of capital structure. If there is a difference in theory, then earnings management has an adverse effect on the capital structure, as it manipulates the true performance of the capital structure. The general models are as follows.

$$ROA_{it} = \alpha + \beta_1 (lev)_{it} + \beta_2 (\sigma ROA)_{it} + \beta_3 (size)_{it} + \beta_4 (gro)_{it} + \beta_5 (TAN)_{it} + \mu_{it} \quad (1)$$

$$NDROA_{it} = \alpha + \beta_1 (lev)_{it} + \beta_2 (\sigma NDROA)_{it} + \beta_3 (size)_{it} + \beta_4 (gro)_{it} + \beta_5 (TAN)_{it} + \mu_{it} \quad (2)$$

where $NDROA$ = the nondiscretionary return on assets of firm i at time t, Lev = Leverage of firm i at time t, σROA = performance risk based on ROA of firm i at time t, $\sigma NDROA$ = nondiscretionary performance risk based on $NDROA$ of firm i at time t, $Size$ = log of total assets of firm i at time t, Gro = growth measured by the sales of firm i at time t, and TAN = tangibility of an asset of firm i at time t.

Methodologically, the present study employs an efficient model, such as a panel data model along with a robustness test to address cross-sectional heterogeneity. The findings of this

model have important implications on the impact of the capital structure on firm performance in with and without earnings management.

3.1. Panel data model

To overcome the problem of heteroskedasticity, we use weighted least squares (WLS), which assigns equal weight to each observation to avoid spurious results. The regression with WLS is transformed as follows:

$$\frac{ROA_{it}}{\sigma_{it}} = \alpha\frac{1}{\sigma_{it}} + \beta_1\frac{(lev)_{it}}{\sigma_{it}} + \beta_2\frac{(\sigma ROA)_{it}}{\sigma_{it}} + \beta_3\frac{(size)_{it}}{\sigma_{it}} + \beta_4\frac{(gro)_{it}}{\sigma_{it}} + \beta_5\frac{(TAN)_{it}}{\sigma_{it}} + \frac{\mu_{it}}{\sigma_{it}} \tag{3}$$

$$\frac{NDROA_{it}}{\sigma_{it}} = \alpha\frac{1}{\sigma_{it}} + \beta_1\frac{(lev)_{it}}{\sigma_{it}} + \beta_2\frac{(\sigma NDROA)_{it}}{\sigma_{it}} + \beta_3\frac{(size)_{it}}{\sigma_{it}} + \beta_4\frac{(gro)_{it}}{\sigma_{it}} + \beta_5\frac{(TAN)_{it}}{\sigma_{it}} + \frac{\mu_{it}}{\sigma_{it}} \tag{4}$$

In Equations (3) and (4), the effect of heteroskedastic variances σ^2 of each cross section is adjusted. Further simplification revises Equations (3) and (4) as follows.

$$\sum\left(\frac{\mu_{it}}{\sigma_{it}}\right)^2 = \sum\left(\frac{ROA_{it}}{\sigma_{it}} - \alpha\frac{1}{\sigma_{it}} - \beta_1\frac{(lev)_{it}}{\sigma_{it}} - \beta_2\frac{(\sigma ROA)_{it}}{\sigma_{it}} - \beta_3\frac{(size)_{it}}{\sigma_{it}} - \beta_4\frac{(gro)_{it}}{\sigma_{it}} - \beta_5\frac{(TAN)_{it}}{\sigma_{it}}\right)^2 \tag{5}$$

$$\sum\left(\frac{\mu_{it}}{\sigma_{it}}\right) = \sum\left(\frac{NDROA_{it}}{\sigma_{it}} - \alpha\frac{1}{\sigma_{it}} - \beta_1\frac{(lev)_{it}}{\sigma_{it}} - \beta_2\frac{(\sigma NDROA)_{it}}{\sigma_{it}} - \beta_3\frac{(size)_{it}}{\sigma_{it}} - \beta_4\frac{(gro)_{it}}{\sigma_{it}} - \beta_5\frac{(TAN)_{it}}{\sigma_{it}}\right)^2 \tag{6}$$

Parameters can be obtained by minimizing Equations (5) and (6). We construct equations incorporating the cross section and period heterogeneity through Least Square Dummy Variables (LSDV) as follows:

The cross-sectional LSDV can be represented as

$$ROA_{it} = \alpha_1 + D_{2i}\delta_2 + D_{3i}\delta_3 + \ldots D_{ni}\delta_n + \beta_1(lev)_{it} + \beta_2(\sigma ROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it} \tag{7}$$

$$NDROA_{it} = \alpha_1 + D_{2i}\delta_2 + D_{3i}\delta_3 + \ldots D_{ni}\delta_n + \beta_1(lev)_{it} + \beta_2(\sigma NDROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it} \tag{8}$$

The period LSDV can be represented as

$$ROA_{it} = \alpha_1 + T_{2t}\gamma_2 + T_{3t}\gamma_3 + \ldots T_{3t}\gamma_n + \beta_1(lev)_{it} + \beta_2(\sigma ROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it} \tag{9}$$

$$NDROA_{it} = \alpha_1 + D_{ni}\delta_n + T_{2t}\gamma_2 + T_{3t}\gamma_3 + \ldots T_{3t}\gamma_n + \beta_1(lev)_{it} + \beta_2(\sigma NDROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it} \tag{10}$$

The cross section and Period LSDV jointly can be represented as

$$ROA_{it} = \alpha_1 + D_{2i}\delta_2 + D_{3i}\delta_3 + \ldots D_{ni}\delta_n + T_{2t}\gamma_2 + T_{3t}\gamma_3 + \ldots T_{3t}\gamma_n + \beta_1(lev)_{it} + \beta_2(\sigma ROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it} \tag{11}$$

$$NDROA_{it} = \alpha_1 + D_{2i}\delta_2 + D_{3i}\delta_3 + \ldots D_{ni}\delta_n + T_{2t}\gamma_2 + T_{3t}\gamma_3 + \ldots T_{3t}\gamma_n + \beta_1(lev)_{it} + \beta_2(\sigma NDROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it} \tag{12}$$

Because of the large number of cross sections, complexity, and heteroskedasticity issues, the fixed-effects model is estimated with transformed entity de-meaned estimators. So Equations (3), (4), (7) and (8) are revised as follows:

$$\widetilde{ROA}_{it} = \alpha + \beta_1(\widetilde{Lev})_{it} + \beta_2(\sigma\widetilde{ROA})_{it} + \beta_3(\widetilde{Size})_{it} + \beta_4(\widetilde{Gro})_{it} + \beta_5(\widetilde{TAN})_{it} + \varepsilon_{it} \quad (13)$$

$$\widetilde{NDROA}_{it} = \alpha + \beta_1(\widetilde{Lev})_{it} + \beta_2(\sigma\widetilde{NDROA})_{it} + \beta_3(\widetilde{Size})_{it} + \beta_4(\widetilde{Gro})_{it} + \beta_5(\widetilde{TAN})_{it} + \varepsilon_{it} \quad (14)$$

The cross-sectional heterogeneity can be addressed through the error term, depicting randomness in the cross section.

$$ROA_{it} = \alpha_1 + v_i + \beta_1(lev)_{it} + \beta_2(\sigma ROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it} \quad (15)$$

$$NDROA_{it} = \alpha_1 + v_i + \beta_1(lev)_{it} + \beta_2(\sigma NDROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it} \quad (16)$$

where

$$\varepsilon_{it} = \mu_{it} + v_i$$

$$ROA_{it} = \alpha_1 + \beta_1(lev)_{it} + \beta_2(\sigma ROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \varepsilon_{it} \quad (17)$$

$$NDROA_{it} = \alpha_1 + \beta_1(lev)_{it} + \beta_2(\sigma NDROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \varepsilon_{it} \quad (18)$$

3.2. The variables

3.2.1. Measurements of firm performance

Previous studies uses various measures of firm performance, including ROA (Demsetz & Lehn, 1985), ROE (Arbabiyan & Safari, 2009; Ebaid, 2009; Saeedi & Mahmoodi, 2011), Tobin's Q (Scherer & Ross, 1990), debt leverage (Park & Jang, 2013), diversification (Jacquemin & Berry, 1979; Park & Jang, 2013), and free cash flow (Richardson, 2006).

In this study, we use ROA to measure firm performance as net income divided by total assets. ROA is an accurate approximation of firm performance, as it provides information about the extent to which firm resources are used efficiently. ROA is also criticized, as it is affected by different accounting standards. However, other measures of performance, such as Tobin's Q, also have drawbacks. Demsetz and Lehn (1985) suggested that ROA reflects current business conditions, whereas Tobin's Q reflects future development. Moreover, Demsetz and Villalonga (2001) claim that, by using tangible assets, Tobin's Q does not depict depreciation accurately. Furthermore, Tobin's Q is not completely independent of psychological influence. Scherer and Ross (1990) indicate a high correlation between Tobin's Q and ROA, showing that either is appropriate for measuring performance. This study uses data related to different industries, with firms of various sizes. In this case, the use of ROA mitigates size bias in the effects.

To address the impact of earnings management on the performance of capital structure, we calculate the performance measure in two different ways. The first is ROA based on total net income (NI), and the second is nondiscretionary ROA based on nondiscretionary net income ($NDNI$) (Subramanyam, 1996). NI includes cash flow from operations and all types of accruals, including nondiscretionary accruals (accruals that are not under the control of managers or are mandatory for smooth business operations) and discretionary accruals (accruals based on manager decisions, which not considered mandatory). $NDNI$ includes only cash flows from operations and nondiscretionary accruals while excluding discretionary accruals (Subramanyam, 1996).

$$NI = CFO + NDA + DA$$

$$NDNI = CFO + NDA$$

Various methods are used to divide accruals between discretionary and nondiscretionary accruals, based on changes in accounting standards and in the capital structure. To estimate discretionary accruals, we use the performance matched modified Jones model (Kothari, Leone, & Wasley, 2005), which incorporates performance measure, unlike other accrual models. The Kothari et al. (2005) model is:

$$TAC_{it} = \beta_0 + \beta_1(1/A_{it}) + \beta_2(\Delta \text{Revenue} - \Delta Accrevenue)/A_{it} + \beta_2(PPE_{it}/A_{it}) + \beta_3 ROA_{it} + v_{it}$$

TAC is total accruals; AR is account receivables; PPE is property, plant, and equipment, and A_{it} is total assets; the variables are deflated by total assets to reduce heteroskedasticity. The explained portion is considered as the nondiscretionary accruals and other noises are due to discretionary accruals. The discretionary accruals are known as earnings management.

Based on the foregoing discussion and explanation, we adopt two dependent variables: ROA, calculated as net income after taxes (NI) divided by total assets, and the nondiscretionary return on assets ($NDROA$), calculated as $NDNI$ divided by total assets (Dechow et al., 1995, pp. 193–225; Jones, 1991). First, we incorporate each dependent variable into the model separately, and, then, we compare the results to identify whether the performance of the capital structure is the same under both types of ROA.

3.2.2. Measurements of the capital structure

Harris and Raviv (1991) argue that the operational measure of leverage as an explanatory variables is vital, as it affects the interpretation of results. Rajan and Zingales (1995) also show that the determinants of capital structure are sensitive to

Table 1
Control variables.

Variable	Definition	Source
Earnings Risk (σROA)	GARCH (1, 1) series of the firm performance measure is used as a volatility measure or earnings risk measure	Cuthbertson and Nitzsche (2005) suggest that the GARCH (1, 1) variance series can be used as an alternative measure of the variance or volatility of performance. The reason for using the GARCH (1, 1) series is that it imposes no limits on the error distribution.
Size (*Size*)	Logarithm of total assets	(Handoo & Sharma, 2014; Zamri, Rahman, & Isa, 2013)
Growth (*Gro*)	The percentage change in Sales is used as the measure of sales growth.	(Claessens et al., 2003; King & Santor, 2008; Maury, 2006)
Tangibility (*TAN*)	Ratio of total fixed assets (including property, plant, and equipment) to total assets	(Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001; Campello, 2006)

Table 2
Panel estimation of performance through the capital structure. The table shows the results of model that measures the performance through capital structure. Lev is Leverage, Size is log of total assets, GRO is Growth measured based on sales, σROA is standard deviation of ROA or performance risk. TAN is asset tangibility. The dependent variable is return on assets.

Variables	China	India	Pakistan	Bangladesh	Sri Lanka
	Cross-Section Fixed Effect	Period Fixed Effect	Period Random Effect	Cross-Section Fixed Effect	Cross-Section Fixed Effect
Constant	0.136 [20.482]**	−0.429 [−1.93]	−0.042 [−1.14]	0.357 [5.37]**	0.015 [0.62]
LEV	−0.115 [−26.94]**	0.072 [27.71]**	−0.08 [−5.21]**	−0.11 [−3.64]**	−0.212 [−19.02]**
SIZE	−0.009 [−4.682]**	−0.02 [−5.15]**	0.043 [4.89]**	−0.036 [−2.63]*	0.035 [5.83]**
GRO	0.028 [18.65]**	0.055 [5.14]**	0.038 [3.31]**	0.039 [5.88]**	0.043 [11.56]**
σROA	0.027 [5.329]**	0.711 [2.29]*	0.243 [10.26]**	0.002 [0.04]	0.195 [4.1]**
TAN	−0.076 [−14.54]**	0.125 [12.26]**	−0.082 [−3.25]**	−0.181 [−7.22]**	−0.025 [−2.07]*
R-Square	0.57	0.97	0.12	0.96	0.86
S.E. of Regression	0.21	0.12	0.18	0.04	0.06
F-Statistics	15.6**	5030.85**	36.08**	77.93**	24.49**
Durbin Watson Stat	1.55	0.66	1.63	2.15	2.1

*Significant at 5% level.
**Significant at 1% level
Values in [−] shows the t-statistics
Dependent Variable: ROA, Balanced Panels estimation, Robustness tested with Swamy and Arora estimator of component variances.
Model: $ROA_{it} = \alpha + \beta_1(lev)_{it} + \beta_2(\sigma ROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it}$.

leverage as a proxy. Various measures of leverage are used in the literature. Wiwattanakantang (1999) and Suto (2003) employ the market value of equity, rather than the book value, as a measure of leverage. In the previous literature (Abor, 2005; Ebaid, 2009; Saeedi & Mahmoodi, 2011) financial leverage is measured with three different ratios: short-term debt to total assets (STD), long-term debt to total assets (LTD), and total debt to total assets (TD).

Based on the previous literature, we use total debt to total assets to measure leverage because the performance measure adopted in this model is based on the book value, and the operationalization of the leverage is also based on book leverage. Total debt includes both short- and long-term debt. Book gearing is the relevant measure of the capital structure over which management has the option to make decisions (Schwartz, 1959). The higher the ratio is, the higher is the leverage used by the firm and the lower is the ratio of leverage employed by the firm.

3.2.3. Measurement of the control variables

This study uses some control variables based on Deesomsak et al. (2004), Udomsirikul et al. (2011), Antoniou et al. (2002), Ardison, Martinez, and Galdi (2013), Maury (2006), and King and Santor (2008). The control variables used in this study are defined in Table 1.

3.3. Data

Our sample consists of data from the five member countries of APTA: China, India, Bangladesh, Sri Lanka, and Pakistan.[10] APTA was signed in 1975 with the goal of promoting economic development and the adoption of mutually beneficial trade liberalization. APTA markets account for gross domestic product of US$14.615 trillion, therefore, they are considered representative of the Asia-Pacific region. The sample includes nonfinancial firms listed on their respective country stock exchanges: Shanghai Stock Exchange, the Bombay Stock Exchange, the Dhaka Stock Exchange, the Colombo Stock Exchange, and the Pakistan Stock Exchange. The data come from the Thomson Reuter DataStream Database. For Pakistan, India, and China, the sample period is 2001−2018, and in Sri

[10] In this study we consider only China, India, Bangladesh, Sri Lanka, and Pakistan because they are the source of the majority of APTA GDP.

Table 3
Hausman test and redundant fixed effect test. The model under consideration in this test explains the impact of capital structure on firm performance (managed). The results of Hausman test and redundant fixed-effect test are shown in this table.

Diagnostics	China	India	Pakistan	Bangladesh	Sri Lanka
Hausman Test					
Test Summary	Chi-Sq. Statistic	Chi-Sq. Statistic	Chi-Sq. Statistic	Chi-Sq. Statistic	Chi-Sq. Statistic
Cross-section random	180.05**	37.18**	35.78**	20.91**	30.49**
Period random	15.59**	32.03**	5.31	–	–
Redundant Fixed-Effect Test					
Test Summary	Statistic	Statistic	Statistic	Statistic	Statistic
Cross-section Fixed	7.66**	49.42**	11.34**	43.91**	15.84**
Period Fixed	4.48**	3.69**	1.27	0.73	1.47

*Significant at 5% level.
**Significant at 1% Level.

Lanka and Bangladesh, the sample period is 2007−2018.[11] After we delete extreme outliers from the sample, we have a sample size of 802 firms—consisting of 173 companies from India, 350 companies from China, 100 companies of Pakistan, 21 companies from Bangladesh, and 158 companies from Sri Lanka—and 9173 company-year observations.

We study APTA economies for several reasons. China has a unique corporate governance structure, including a stock splits, tradable and non-tradable shares, state ownership, and strong government control. It is interesting to examine the impact of earnings management on the relationship between the capital structure and firm performance.

India and Pakistan are also included in the analysis because of high demand for capital inflow by companies of these countries, and foreign investors are demanding appropriate channeling of their capital. Specifically, studying earnings management and its impact on capital structure and firm performance are important for Pakistan because of its collaboration with China in the China-Pakistan Economic Corridor, which brings foreign institutional investment to Pakistan. A flow of foreign capital can be sustained if the capital from investors is protected from managerial discretionary motives that attempt to justify agency costs. Moreover, this study helps the financial institutions to evaluate actual performance of their financed capital and can easily observe managers' opportunistic motives. Sri Lanka and Bangladesh are a favorite target of foreign investment, so investors need capital protection from managerial discretion there as well.

4. Empirical analysis

The estimated results evaluate the performance of the capital structure. In other words, the model explains the impact of the capital structure on firm performance. This model is estimated to compare the results of nondiscretionary performance in order to examine the role of earnings management.

Table 2 Lists the estimated results for China, India, Pakistan, Bangladesh, and Sri Lanka. The model estimates measure firm performance through the capital structure. The fixed and random effects are both estimated, but only the efficient results are reported after the application of diagnostics and robustness tests, such as the Hausman test and a redundant fixed-effects test.

Leverage is significant ($p < 0.05$) in all countries, and it is negatively associated with firm performance in all the countries except India. The negative association of leverage with firm performance supports the trade-off theory (Kester, 1986; Rajan & Zingales, 1995; Titman & Wessels, 1988), which suggests that firms set the target capital structure ratio, and this ratio is determined through trade-offs between the benefits of debt, that is, tax shield, and the cost of debt, that is, bankruptcy costs. However, in India, firm performance is positively related to leverage, supporting the agency cost hypothesis, which states that an increase in debt reduces the agency cost by reducing managerial control over free cash flow. Agency cost issues (Jensen, 1986; Jensen & Meckling, 1976) are more prevalent in manufacturing in India than in other countries. We conclude from the results that, among the countries studied, firm performance in Sri Lanka is the most sensitive to the capital structure, as it has the highest factor loading (−0.212).

Table 2 shows the significance of firm size ($p < 0.05$) shows that firm performance increases with firm size in Pakistan, China, and Sri Lanka, supporting trade-off theory. This result is consistent with Jónsson (2008); Ozgulbas, Koyuncugil, and Yilmaz (2006); Saliha and Abdessatar (2011); Serrasqueiro and Nunes (2008); Stierwald (2009). Moreover, the positive impact of size is consistent with trade-off theory, which suggests that larger firms are less likely to go bankrupt because of greater diversification or that size mitigates a firm's credit risk. However, in India and Bangladesh, firm performance declines with firm size. Jónsson (2008) principal-agent theory of size seems to be more prevalent in India, as managers there tends to increase the size of firms for their own benefit, such as increased salary and stock options. Moreover, in India the principal-agency theory of size is consistent with the agency cost hypothesis. However, in Bangladesh, the negative relation between performance and firm size supports Jónsson (2008) strategic theory and institutional theory. Strategic theory states that firms increase in size in highly competitive environments,

[11] Due to unavailability of data.

Table 4
Panel estimation of nondiscretionary performance through capital structure. The table shows the results of model that measures the performance through capital structure. Lev is Leverage, Size is log of total assets, GRO is Growth measured based on sales, σNDROA is standard deviation of Nondiscretionary ROA or performance risk. TAN is asset tangibility. The dependent variable is nondiscretionary return on assets.

Variables	China	India	Pakistan	Bangladesh	Sri Lanka
	Cross-Section Fixed Effect	Cross-Section Fixed Effect	Cross-Section Random Effect	Cross-Section Fixed Effect	Cross-Section Fixed Effect
Constant	0.363 [16.56]**	1.375 [5.39]**	0.112 [0.8]	0.827 [3.66]**	−0.021 [−0.25]
LEV	−0.045 [−4.08]**	−0.598 [−29.95]**	−0.162 [−2.73]**	−0.205 [−2.63]*	−0.606 [−12.9]**
SIZE	−0.048 [−8.42]**	−0.128 [−11.51]**	0.034 [1.01]	−0.141 [−2.82]**	0.16 [6.69]**
GRO	0.033 [9.01]**	−0.066 [−4.28]**	0.087 [1.93]	0.078 [3.46]**	−0.01 [−0.96]
σNDROA	0.018 [3.35]**	0.007 [0.2]	0.047 [11.86]**	−0.081 [−0.91]	−0.034 [−2.32]*
TAN	−0.41 [−23.76]**	−1.115 [−17.12]**	−0.209 [−2.13]*	−0.149 [−4.18]**	−0.418 [−8.24]**
R-Square	0.46	0.74	0.11	0.83	0.79
S.E. of Regression	0.57	0.45	0.71	0.12	0.79
F-Statistics	10.27**	33.9**	32.75**	15.32**	14.56**
Durbin Watson Stat	1.76	1.35	2.46	1.92	2.07

*Significant at 5% level
**Significant at 1% level.
Values in [−] shows the t-statistics.
Dependent Variable: NDROA, Balanced Panels estimation, Robustness tested with Swamy and Arora estimator of component variances.
Model: $NDROA_{it} = \alpha + \beta_1(lev)_{it} + \beta_2(\sigma NDROA)_{it} + \beta_3(size)_{it} + \beta_4(gro)_{it} + \beta_5(TAN)_{it} + \mu_{it}$.

Table 5
Hausman test and redundant fixed effect test. The model under consideration in this test, explains the impact capital structure on firm performance (unmanaged). The results of Hausman test and redundant fixed effect test are shown in this table.

Diagnostics	China	India	Pakistan	Bangladesh	Sri Lanka
Hausman Test					
Test Summary	Chi-Sq. Statistic	Chi-Sq. Statistic	Chi-Sq. Statistic	Chi-Sq. Statistic	Chi-Sq. Statistic
Cross-section random	750.11**	1431.57**	8.57	9.55*	147.32**
Period random	15.21**	6.27	6.15	–	–
Redundant Fixed Effect Test					
Test Summary	Statistic	Statistic	Statistic	Statistic	Statistic
Cross-section Fixed	6.07**	9.24**	2.78	13.44**	10.18**
Period Fixed	1.81*	0.97	1.92*	1.51	0.43

*Significant at 5% level.
**Significant at 1% Level.

where survival is more important than profit. Institutional theory is based on the notion that a larger firm is better than a smaller one, which is embedded in an institutional environment that pressurizes firms to increase their size to act in accordance with institutional environment.

Firm performance increases with growth and earnings risk. This outcome is similar in all countries, which suggests that firms with higher growth rates have improved performance. This result, consistent with Markman and Gartner (2002), is evident in terms of firm growth with diversification, leading to higher performance. Moreover, rapid growth leads to higher profitability when a firm enters the market on a large scale. Earnings risk is also positive and significant ($p < 0.05$) in all countries, showing that the riskier the firm is, the higher the profit efficiency of the firm. This notion is consistent with the fact that riskier firms are more profit efficient on average, if they tradeoff between risk and expected returns (Berger & DeYoung, 1997; Berger & Patti, 2002; Udomsirikul et al., 2011).

Tangibility is negative and significant ($p < 0.05$) in all the countries except India. The negative significance indicates that firms that have more tangible assets achieve lower performance. This result suggests that in China, firms cannot use tangible assets efficiently and invest too much in tangible assets, which leads to increasing costs, maintenance of assets, and wear and tear, rather than generating profit. That is the reason for a negative relationship (Adewale & Ajibola, 2013; Memon, Bhutto, & Abbas, 2012). However, in India, asset tangibility is positively associated with firm performance, which is in line with agency cost theory, according to which firms with high leverage tend to invest in a suboptimal manner or underinvest, leading them to transfer funds from debt holders to shareholders. As a result, lenders require collateral, and low tangibility leads to high lending costs. Tangibility offers easy monitoring and provide collateral that reduces agency costs and improves operating performance (Himmelberg et al., 1999; Udomsirikul et al., 2011). The R^2 and significant F-statistics confirm the overall fitness of the models.

Table 3 shows the results of the Hausman and redundant fixed-effects tests. The Hausman test establishes the efficiency of fixed and random effects, whereas the redundant fixed-

Table 6
Panel estimation of nondiscretionary performance through capital structure. The table shows the results of model that measures the performance through capital structure. Lev is Leverage, Size is log of total assets, GRO is Growth measured based on sales, σNDROA is standard deviation of Nondiscretionary ROA or performance risk. TAN is asset tangibility. The dependent variable is nondiscretionary return on assets.

Variables	China		India		Pakistan		Bangladesh		Sri Lanka	
	Managed Firm Performance	Unmanaged Firm Performance	Managed Firm Performance	Unmanaged Firm Performance	Managed Firm Performance	Unmanaged Firm Performance	Managed Firm Performance	Unmanaged Firm Performance	Managed Firm Performance	Unmanaged Firm Performance
	Cross-Section Fixed Effect	Cross-Section Fixed Effect	Period Fixed Effect	Cross-Section Fixed Effect	Period Random Effect	Cross-Section Random Effect	Cross-Section Fixed Effect	Cross-Section Fixed Effect	Cross-Section Fixed Effect	Cross-Section Fixed Effect
Constant	0.136 [20.482]**	0.363 [16.56]**	−0.429 [−1.93]	1.375 [5.39]**	−0.042 [−1.14]	0.112 [0.8]	0.357 [5.37]**	0.827 [3.66]**	0.015 [0.62]	−0.021 [−0.25]
LEV	−0.115 [−26.94]**	−0.045 [−4.08]**	0.072 [27.71]**	−0.598 [−29.95]**	−0.08 [−5.21]**	−0.162 [−2.73]**	−0.11 [−3.64]**	−0.205 [−2.63]*	−0.212 [−19.02]**	−0.606 [−12.9]**
SIZE	−0.009 [−4.682]**	−0.048 [−8.42]**	−0.02 [−5.15]**	−0.128 [−11.51]**	0.043 [4.89]**	0.034 [1.01]	−0.036 [−2.63]*	−0.141 [−2.82]**	0.035 [5.83]**	0.16 [6.69]**
GRO	0.028 [18.65]**	0.033 [9.01]**	0.055 [5.14]**	−0.066 [−4.28]**	0.038 [3.31]**	0.087 [1.93]	0.039 [5.88]**	0.078 [3.46]**	0.043 [11.56]**	−0.01 [−0.96]
Earnings Risk	0.027 [5.329]**	0.018 [3.35]**	0.711 [2.29]*	0.007 [0.2]	0.243 [10.26]**	0.047 [11.86]**	0.002 [0.04]	−0.081 [−0.91]	0.195 [4.1]**	−0.034 [−2.32]*
TAN	−0.076 [−14.54]**	−0.41 [−23.76]**	0.125 [12.26]**	−1.115 [−17.12]**	−0.082 [−3.25]**	−0.209 [−2.13]*	−0.181 [−7.22]**	−0.149 [−4.18]**	−0.025 [−2.07]*	−0.418 [−8.24]**
R-Square	0.57	0.46	0.97	0.74	0.12	0.11	0.96	0.83	0.86	0.79
S.E. of Regression	0.21	0.57	0.12	0.45	0.18	0.71	0.04	0.12	0.06	0.79
F-Statistics	15.6**	10.27**	5030.85**	33.9**	36.08**	32.75**	77.93**	15.32**	24.49**	14.56**
Durbin Watson Stat	1.55	1.76	0.66	1.35	1.63	2.46	2.15	1.92	2.1	2.07

*Significant at 5% level
**Significant at 1% level
Values in [−] shows the t-statistics
Balanced Panels estimation, Robustness tested with Swamy and Arora estimator of component variances.

effects test defines the efficiency of fixed effects and pooled results. Table 3 shows the results for the two tests in all the countries, showing that, except in India and Pakistan, they confirm the efficiency of cross-sectional fixed effects; however, for India, the diagnostics confirm the efficiency of time-fixed effects, and for Pakistan, the results confirm the efficiency of time-varying effects.

Table 4 shows the estimated results of the model, which reveal the impact of the capital structure on nondiscretionary performance. We compare these results with those of the previous model to evaluate the behavior and direction of earnings management. The estimated results for this model are discussed for each country.

The results in Table 4 show the negative and significant effect of leverage ($p < 0.05$) on nondiscretionary performance in all the countries studied, indicating that lower leverage is associated with increased nondiscretionary performance, which is in line with trade-off and pecking-order theory. The direction of the relationship is consistent with evidence in previous studies (Baker & Wurgler, 2002). Both theories hold for nondiscretionary accruals.

In China, India, and Bangladesh, the size is negative and significant ($p < 0.05$), illustrating that nondiscretionary performance decreases with size. This notion is consistent with strategic theory, institutional theory, and the principal-agent theory of size (Jónsson, 2008). Strategic theory states that firms must globalize because they have small domestic markets, which require a minimum size for firms. Moreover, increased competition in its domestic market compels a firm to achieve economies of scale. In that case, the logic for size is survival, rather than increased profitability. Institutional theory suggests that extensive economic growth in prior years develops a growth environment, which also becomes embedded in the institutional environment. In such a climate, it is reasonable to grow, rather than remaining stagnant in the market. These theories are consistent with conditions in China and Bangladesh. However, in India, the principal-agent theory applies, as it states that managers increase the firm size for their own benefit, such as larger salaries and stock options. The increase in size also increases turnover and employee contributions but also raise bureaucratic and overhead costs, which offsets any gain.

The growth variable is positively related to nondiscretionary performance in all the countries except India. The positive association of growth with nondiscretionary performance suggests that high-growth firms have high discretionary performance, consistent with evidence for the incorporated total performance measure (Markman & Gartner, 2002). However, in India, it is argued that having more investment opportunities requires greater funding, if internal sources of funding are not available, then funding with debt increases the cost of financing (Udomsirikul et al., 2011).

Nondiscretionary earnings risk has a positive and significant relation to nondiscretionary performance in some countries and a negative and significant relation in other countries. A riskier firm has greater profit efficiency, if on average it engages in a trade-off between risks and returns. In that case, risk is directly related to returns. However, if the firm does not determine the trade-off between risks and returns, then a negative relationship persists between nondiscretionary earnings risk and nondiscretionary performance. This positive significance is consistent with the assertion that riskier firms generate higher profit efficiency, which is in line with the view that high risk is associated with higher returns (Berger & DeYoung, 1997).

The results on asset tangibility show that the assets are inefficient in almost all sample countries. In China, India, and Bangladesh, this result is consistent with prior literature (Adewale & Ajibola, 2013; Memon et al., 2012). Moreover, this inference is also consistent with the negative significance of size. When a firm increases its size under pressure, then tangible assets acquired for the purpose of increasing size are underused and lead to increased cost, whereas asset inefficiency in other countries is attributed to country-specific economic factors that lead to inefficiency in tangible assets. The R^2 and F-statistics confirm the fitness of the model.

Table 5 shows the results of Hausman and redundant fixed-effect tests for all the sample countries to identify the efficiency effects. The Hausman test results identifies the level of efficiency effect between fixed and random effects whereas the redundant fixed-effects test helps to identify which model is more efficient, fixed effects or pooled results. The results confirm the efficiency of cross-sectional fixed effects in all the countries except Pakistan, for which the results support cross-sectional random effects.

The model discussed in Table 4 measures firm performance through the capital structure, whereas the model discussed in Table 5 measures nondiscretionary firm performance through the capital structure. Table 6 compares the two models to identify the behavior of discretionary accruals or to identify whether the discretionary portion of earnings moves in the same direction as nondiscretionary accruals. The difference in coefficients shows the pattern and behavior of earnings management.

Table 6 shows that in China, discretionary earnings are more focused on reducing the negative impact of size that arises from a forced increase in size (Jónsson, 2008), reducing earnings risk, and obscuring asset inefficiency that arises from the forced increase in firm size as discussed in the previous section. This discretionary earnings activity is assumed to be partially opportunistic because it is targeted at concealment of asset tangibility but also reduces earnings risk, which increases the efficiency of earnings. However, manipulation of firm size and asset tangibility is also detected. In India, substantial opportunistic behavior in the form of discretionary accruals focused on manipulating capital structure performance is observed. The actual capital structure performance is consistent with trade-off theory, but after discretionary earnings management is implemented, it follows agency cost theory, which shows an increase in leverage and reduces agency costs, which increases performance. This relationship is consistent with agency theory, which satisfies stakeholders; in reality, however, firm behavior is consistent with trade-off theory, which gives them room to manipulate earnings. Moreover, the negative impact of size is also reduced in the

measurement of total performance, which arises from managers' forced increase in size for their own benefit. The discretionary accruals are also part of an attempt to hide asset inefficiency from investors through earnings management, which, after manipulation, shows that assets are efficient. These activities substantially increase the earnings risk coefficient, indicating lower earnings informativeness.

In Pakistan and Sri Lanka, the major focus of discretionary earnings is avoidance of violations of debt agreements and concealment of asset inefficiency that may arise because of country-specific economic factors. This discretionary earnings manipulation adversely affects the size and earnings risk coefficients. In Bangladesh, earnings management is adopted to avoid violations of debt agreements, but mostly it is used for increasing earnings informativeness by reducing variations in earnings. It appears that in Bangladesh, firms are more involved in efficient earnings management that has an adverse impact on asset tangibility and growth coefficients. Overall, discretionary earnings are mostly used in opportunistically in all the sample countries except Bangladesh.

5. Conclusions

This study was conducted to test theories on the structure of capital with discretionary and nondiscretionary accruals as a measure of earnings management in the member countries of APTA: Pakistan, India, China, Bangladesh, and Sri Lanka. Leverage is used as proxy for the capital structure, and data on almost 800 companies are employed for estimation and analysis of a market valuation model and capital structure−based models. The study employs a panel data model and tests the applicability of fixed and random effects, with a cross-sectional variant and time-varying effects, augmented by several robustness tests.

In these countries, opportunistic earnings management seems to have adversely affected capital structure performance. At Chinese companies, management is more focused on the use of discretionary earnings to reduce the negative impact of increasing size, reduce earnings risk, and hide asset inefficiency with the growth of assets over time, and our findings are consistent with those in some previous studies (Jónsson, 2008; Ozgulbas et al., 2006; Saliha & Abdessatar, 2011; Serrasqueiro & Nunes, 2008; Stierwald, 2009). Substantial opportunistic behavior regarding discretionary accruals is observed in India, where management is focused on manipulating capital structure performance. In manipulating earnings, real capital structure performance in India is consistent with trade-off theory (Kester, 1986; Rajan & Zingales, 1995; Titman & Wessels, 1988) but, with discretionary earnings management, the assumptions of agency cost theory apply, mirroring prior studies (Jensen, 1986; Jensen & Meckling, 1976), in which an increase in leverage reduces agency costs and significantly improves performance. Additionally, earnings management helps reduce the negative impact of firm size that is increased through manipulation by the management for its own benefit, in which management also attempts to cover up asset inefficiency from investors through earnings management, which, after manipulation, shows that assets are efficient. Earnings management activities substantially increase the earnings risk coefficient, which reveals lower earnings informativeness. In Pakistan and Sri Lanka, the major focus of discretionary earnings is the avoidance of violations of debt agreements and hiding asset inefficiency that arises because of country-specific economic factors. This manipulation increases the earnings variation coefficient. In Bangladesh, earnings management is also adopted to avoid violations of debt agreements, but mostly it is used for increasing earnings informativeness by reducing variation in earnings. Thus, Bangladeshi firms are engaged in efficient earnings management. Overall, our results show that discretionary earnings are mostly used opportunistically in all the sample countries except Bangladesh, which adversely affects capital structure performance and does not give a true picture of capital structure performance. Our findings show that firm performance (managed and unmanaged) and capital structure relationship legitimately follow trade-off or pecking-order theory, whereas the agency theory can be followed only after external intervention by managers in terms of earnings management.

By showing the effect of earnings management on capital structure performance, this study explores a new area of research on earnings management. This study has vital implications for debt managers and performance analysts, as it enables them to deduce the true relationship between capital structure and firm performance.

Performance analysts traditionally examine the relationship between the capital structure and firm performance while ignoring the role of earnings management and prudence of managers in managing agency costs through discretionary accruals. The discretionary role of a firm's management in the APTA member countries in reducing agency costs needs to be recognized by financial analysts. Furthermore, the issue of agency cost is very closely connected with debt management and the moderating role of managers as part of prudent management of debt issues through discretionary power is singled out in this study as a guiding principle for debt managers.

Declaration of competing interest

There is no conflict of interest related to this paper.

References

Ab Razak, N. H., Ahmad, R., & Aliahmed, H. (2008). Government ownership and performance: An analysis of listed companies in Malaysia. *Corporate Ownership and Control, 6*(2), 434−442.

Abor, J. (2005). The effect of capital structure on profitability: An empirical analysis of listed firms in Ghana. *The Journal of Risk Finance, 6*(5), 438−445.

Abor, J. (2007). Debt policy and performance of SMEs: Evidence from Ghanaian and South African firms. *The Journal of Risk Finance Incorporating Balance Sheet, 8*(4), 364−379.

Adewale, M. T., & Ajibola, O. B. (2013). Does capital structure enhance firm performance? Evidence from Nigeria. *IUP Journal Of Accounting Research & Audit Practices, 12*(4), 43.

Alvarado, N. R., de Fuentes, P., & Laffarga, J. (2019). Do auditors mitigate earnings management during economic crisis? *Revista de Contabilidad - Spanish Accounting Review, 22*(1), 6−20.

Andrikopoulos, A. (2009). Irreversible investment, managerial discretion and optimal capital structure. *Journal of Banking & Finance, 33*(4), 709−718.

Antoniou, A., Guney, Y., & Paudyal, K. (2002). *The determinants of corporate capital structure: Evidence from European countries*. University of Durham, Department of Economics and Finance.

Arbabiyan, A.-A., & Safari, M. (2009). The effects of capital structure and profitability in the listed firms in Tehran Stock Exchange. *Journal of Management Perspective, 33*, 159−175.

Ardalan, K. (2017). Capital structure theory: Reconsidered. *Research in International Business and Finance, 39*, 696−710.

Ardison, K. M. M., Martinez, A. L., & Galdi, F. C. (2013). The effect of leverage on earnings management in Brazil. *ASAA-Advances in Scientific and Applied Accounting, 5*(3), 305−324.

Badertscher, B. A., Collins, D. W., & Lys, T. Z. (2012). Discretionary accounting choices and the predictive ability of accruals with respect to future cash flows. *Journal of Accounting and Economics, 53*(1), 330−352.

Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *The Journal of Finance, 57*(1), 1−32.

Balsam, S., Bartov, E., & Marquardt, C. (2002). Accruals management, investor sophistication, and equity valuation: Evidence from 10−Q filings. *Journal of Accounting Research, 40*(4), 987−1012.

Barclay, M. J., & Smith, C. W. (1995). The priority structure of corporate liabilities. *The Journal of Finance, 50*(3), 899−917.

Berger, A. N., & DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking & Finance, 21*(6), 849−870.

Berger, A. N., & Di Patti, E. B. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance, 30*(4), 1065−1102.

Berger, A. N., & Patti, E. B.d. (2002). *Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry.* Retrieved from.

Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance, 56*(1), 87−130.

Bradley, M., Jarrell, G. A., & Kim, E. (1984). On the existence of an optimal capital structure: Theory and evidence. *The Journal of Finance, 39*(3), 857−878.

Burgstahler, D. C., & Dichev, I. D. (1997a). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics, 24*(1), 99−126.

Burgstahler, D. C., & Dichev, I. D. (1997b). Earnings, adaptation and equity value. *The Accounting Review*, 187−215.

Campello, M. (2006). Debt financing: Does it boost or hurt firm performance in product markets? *Journal of Financial Economics, 82*(1), 135−172. https://doi.org/10.1016/j.jfineco.2005.04.001

Castanias, R. (1983). Bankruptcy risk and optimal capital structure. *The Journal of Finance, 38*(5), 1617−1635.

Chaney, P. K., & Lewis, C. M. (1995). Earnings management and firm valuation under asymmetric information. *Journal of Corporate Finance, 1*(3), 319−345.

Chang, Y.-K., Chou, R. K., & Huang, T.-H. (2014). Corporate governance and the dynamics of capital structure: New evidence. *Journal of Banking & Finance, 48*, 374−385.

Chhibber, P. K., & Majumdar, S. K. (1999). Foreign ownership and profitability: Property rights, control, and the performance of firms in Indian industry. *The Journal of Law and Economics, 42*(1), 209−238.

Chung, R., Firth, M., & Kim, J. B. (2005). Earnings management, surplus free cash flow, and external monitoring. *Journal of Business Research, 58*(6), 766−776.

Claessens, S., Djankov, S., & Klapper, L. (2003). Resolution of corporate distress in east Asia. *Journal of Empirical Finance, 10*(1), 199−216.

Cuthbertson, K., & Nitzsche, D. (2005). *Quantitative financial economics: Stocks, bonds and foreign exchange*. John Wiley & Sons.

Danis, A., Rettl, D. A., & Whited, T. M. (2014). Refinancing, profitability, and capital structure. *Journal of Financial Economics, 114*(3), 424−443.

De Jong, A. (2002). The disciplining role of leverage in Dutch firms. *European Finance Review, 6*(1), 31−62.

DeAngelo, L. E. (1986). Accounting numbers as market valuation substitutes: A study of management buyouts of public stockholders. *The Accounting Review*, 400−420.

Dechow, P. M., & Skinner, D. J. (2000). Earnings management: Reconciling the views of accounting academics, practitioners, and regulators. *Accounting Horizons, 14*(2), 235−250.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, 193−225.

Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure: Evidence from the Asia Pacific region. *Journal of Multinational Financial Management, 14*(4), 387−405.

Demsetz, H., & Lehn, K. (1985). The structure of corporate ownership: Causes and consequences. *Journal of Political Economy*, 1155−1177.

Demsetz, H., & Villalonga, B. (2001). Ownership structure and corporate performance. *Journal of Corporate Finance, 7*(3), 209−233.

Drobetz, W., & Wanzenried, G. (2006). What determines the speed of adjustment to the target capital structure? *Applied Financial Economics, 16*(13), 941−958.

Ebaid, I. E.-S. (2009). The impact of capital-structure choice on firm performance: Empirical evidence from Egypt. *The Journal of Risk Finance, 10*(5), 477−487.

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, 301−325.

Ferri, M. G., & Jones, W. H. (1979). Determinants of financial structure: A new methodological approach. *The Journal of Finance, 34*(3), 631−644.

Fosu, S. (2013). Capital structure, product market competition and firm performance: Evidence from South Africa. *The Quarterly Review of Economics and Finance, 53*(2), 140−151.

Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics, 67*(2), 217−248.

Gill, A., Biger, N., & Mathur, N. (2011). The effect of capital structure on profitability: Evidence from the United States. *International Journal of Management, 28*(4), 3.

Gleason, K. C., Mathur, L. K., & Mathur, I. (2000). The interrelationship between culture, capital structure, and performance: Evidence from European retailers. *Journal of Business Research, 50*(2), 185−191.

Handoo, A., & Sharma, K. (2014). A study on determinants of capital structure in India. *IIMB Management Review, 26*(3), 170−182.

Harris, M., & Raviv, A. (1991). The theory of capital structure. *The Journal of Finance, 46*(1), 297−355.

Hart, O., & Moore, J. (1994). A theory of debt based on the inalienability of human capital. *Quarterly Journal of Economics, 109*(4), 841−879.

Harvey, C. R., Lins, K. V., & Roper, A. H. (2004). The effect of capital structure when expected agency costs are extreme. *Journal of Financial Economics, 74*(1), 3−30.

Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics, 7*(1), 85−107.

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons, 13*(4), 365−383.

Hicks, J. R. (1939). *Value and capital; an inquiry into some fundamental principles of economic theory.* Oxford: Clarendon Press.

Himmelberg, C. P., Hubbard, R. G., & Palia, D. (1999). Understanding the determinants of managerial ownership and the link between ownership and performance. *Journal of Financial Economics, 53*(3), 353−384.

Jacquemin, A. P., & Berry, C. H. (1979). Entropy measure of diversification and corporate growth. *The Journal of Industrial Economics*, 359−369.

Jang, S. S. (2011). Growth-focused or profit-focused firms: Transitions toward profitable growth. *Tourism Management, 32*(3), 667−674.

Jang, S. S., & Park, K. (2011). Inter-relationship between firm growth and profitability. *International Journal of Hospitality Management, 30*(4), 1027−1035.

Jang, S. S., Tang, C.-H. H., & Chen, M.-H. (2008). Financing behaviors of hotel companies. *International Journal of Hospitality Management, 27*(3), 478−487.
Jensen, M. C. (1986). Agency cost of free cash flow, corporate finance, and takeovers. Corporate finance, and takeovers. *The American Economic Review, 76*(2).
Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305−360.
Jensen, M. C., & Meckling, W. H. (1979). *Theory of the firm: Managerial behavior, agency costs, and ownership structure*. Springer.
Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, 193−228.
Jónsson, B. (2008). Does the size matter? The relationship between size and profitability of Icelandic firms. *Bifröst Journal of Social Science, 1*.
Ju, N., & Ou-Yang, H. (2006). *Asset substitution and underinvestment: A dynamic view*. Paper presented at the EFA 2006 Zurich Meetings.
Keeley, M. C., & Furlong, F. T. (1990). A reexamination of mean-variance analysis of bank capital regulation. *Journal of Banking & Finance, 14*(1), 69−84.
Kester, W. C. (1986). Capital and ownership structure: A comparison of United States and Japanese manufacturing corporations. *Financial Management*, 5−16.
Kim, E. H. (1978). A mean-variance theory of optimal capital structure and corporate debt capacity. *The Journal of Finance, 33*(1), 45−63.
Kim, E. (2006). The impact of family ownership and capital structures on productivity performance of Korean manufacturing firms: Corporate governance and the "chaebol problem". *Journal of the Japanese and International Economies, 20*(2), 209−233.
King, M. R., & Santor, E. (2008). Family values: Ownership structure, performance and capital structure of Canadian firms. *Journal of Banking & Finance, 32*(11), 2423−2432.
Kitiwong, W., Verma, S., & Anderson, K. (2014). *Earnings management and audit quality: Evidence from southeast Asia*. University of York.
Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics, 39*(1), 163−197.
Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *The Journal of Finance, 28*(4), 911−922.
Leary, M. T., & Roberts, M. R. (2005). Do firms rebalance their capital structures? *The Journal of Finance, 60*(6), 2575−2619.
Mandelbrot, B. B., & Hudson, R. (2010). *The (Mis)Behaviour of markets: A fractal view of risk*. Ruin and Reward: Profile Books.
Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance. *Journal of Banking & Finance, 34*(3), 621−632.
Markman, G. D., & Gartner, W. B. (2002). Is extraordinary growth profitable? A study of inc. 500 high-growth companies*. *Entrepreneurship: Theory and Practice, 27*(1), 65−75.
Maury, B. (2006). Family ownership and firm performance: Empirical evidence from Western European corporations. *Journal of Corporate Finance, 12*(2), 321−341.
McConnell, J. J., & Servaes, H. (1995). Equity ownership and the two faces of debt. *Journal of Financial Economics, 39*(1), 131−157.
Memon, F., Bhutto, N. A., & Abbas, G. (2012). Capital structure and firm performance: A case of textile sector of Pakistan. *Asian Journal of Business and Management Sciences, 1*(9), 9−15.
Miglo, A. (2010). Capital structure and earnings manipulation. *Journal of Economics and Business, 62*(5), 367−382.
Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review*, 261−297.
Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *The American economic review*, 1−16.
Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance, 39*(3), 574−592.
Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187−221.
Ozgulbas, N., Koyuncugil, A., & Yilmaz, F. (2006). Identifying the effect of firm size on financial performance of SMEs. *The Business Review, Cambridge, 6*(1), 162−167.
Öztekin, Ö., & Flannery, M. J. (2012). Institutional determinants of capital structure adjustment speeds. *Journal of Financial Economics, 103*(1), 88−112.
Park, K., & Jang, S. S. (2013). Capital structure, free cash flow, diversification and firm performance: A holistic analysis. *International Journal of Hospitality Management, 33*, 51−63.
Pathak, R. (2011). *Capital structure and performance: Evidence from Indian manufacturing firms*. Available at: SSRN 1740424.
Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance, 50*(5), 1421−1460.
Ramaswamy, K. (2001). Organizational ownership, competitive intensity, and firm performance: An empirical study of the Indian manufacturing sector. *Strategic Management Journal, 22*(10), 989−998.
Richardson, S. A. (2006). Over-investment of free cash flow. *Review of Accounting Studies, 11*(2−3), 159−189.
Ross, S. A. (1977). The determination of financial structure: The incentive-signalling approach. *The Bell Journal of Economics*, 23−40.
Saeedi, A., & Mahmoodi, I. (2011). Capital structure and firm performance: Evidence from Iranian companies. *International Research Journal of Finance and Economics, 70*, 20−29.
Saliha, T., & Abdessatar, A. (2011). The determinants of financial performance: An empirical test using the simultaneous equations method. *Economics and Finance Review, 10*(1), 1−19.
Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia-Social and Behavioral Sciences, 65*, 156−166.
San, O. T., & Heng, T. B. (2011). Capital structure and corporate performance of Malaysian construction sector. *International Journal of Humanities and Social Science, 1*(2), 28−36.
Scherer, F. M., & Ross, D. (1990). *Industrial market structure and economic performance*. University of Illinois. at Urbana-Champaign's Academy for entrepreneurial leadership historical research reference in entrepreneurship.
Schipper, K. (1989). Commentary on earnings management. *Accounting Horizons, 3*(4), 91−102.
Schwartz, E. (1959). Theory of the capital structure of the firm. *The Journal of Finance, 14*(1), 18−39.
Scott, J. H. (1977). Bankruptcy, secured debt, and optimal capital structure. *The Journal of Finance, 32*(1), 1−19.
Scott, R. W. (2000). *Financial accounting theory*. Scarborough, Ontario, Canada: Prentice Hall Canada Iinc.
Serrasqueiro, Z. S., & Nunes, P. M. (2008). Performance and size: Empirical evidence from Portuguese SMEs. *Small Business Economics, 31*(2), 195−217.
Sheng, J. (2014). Private securities litigation in China: Passive people's courts and weak investor protection. *Bond Law Review, 26*, 94.
Siregar, S. V., & Utama, S. (2008). Type of earnings management and the effect of ownership structure, firm size, and corporate-governance practices: Evidence from Indonesia. *The International Journal of Accounting, 43*(1), 1−27.
Smith, C. W., & Watts, R. L. (1992). The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics, 32*(3), 263−292.
Stierwald, A. (2009). *Determinants of firm profitability-the effect of productivity and its persistence*. Melbourne Institute of Applied Economic and Social Research.
Strebulaev, I. A. (2007). Do tests of capital structure theory mean what they say? *The Journal of Finance, 62*(4), 1747−1787.
Subramanyam, K. (1996). The pricing of discretionary accruals. *Journal of Accounting and Economics, 22*(1), 249−281.
Sujata, B. (2020). Does the EVA valuation model explain the market value of equity better under changing required return than constant required return? *Financial Innovation, 6*(1).
Sundaresan, S., & Wang, N. (2007). Investment under uncertainty with strategic debt service. *The American Economic Review*, 256−261.

Suto, M. (2003). Capital structure and investment behaviour of Malaysian firms in the 1990s: A study of corporate governance before the crisis. *Corporate Governance: An International Review, 11*(1), 25−39.

Tang, C.-H. H., & Jang, S. S. (2007). Revisit to the determinants of capital structure: A comparison between lodging firms and software firms. *International Journal of Hospitality Management, 26*(1), 175−187.

Thippayana, P. (2014). Determinants of capital structure in Thailand. *Procedia-Social and Behavioral Sciences, 143*, 1074−1077.

Titman, S., & Tsyplakov, S. (2007). A dynamic model of optimal capital structure. *Review of Finance, 11*(3), 401−451.

Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance, 43*(1), 1−19.

Tudor, E., Andrei, A. M., Bădescu, A., & Georgescu, I. (2014). Modigliani-Miller Theorem and its implications on Romanian agricultural policies. *Procedia Economics and Finance, 13*, 101−108.

Udomsirikul, P., Jumreornvong, S., & Jiraporn, P. (2011). Liquidity and capital structure: The case of Thailand. *Journal of Multinational Financial Management, 21*(2), 106−117.

Van Horne, J. C., & Wachowicz, J. M. (2005). *Fundamentals of financial management*. Financial Times Prentice Hall.

Wiwattanakantang, Y. (1999). An empirical study on the determinants of the capital structure of Thai firms. *Pacific-Basin Finance Journal, 7*(3), 371−403.

Xu, J. (2012). Profitability and capital structure: Evidence from import penetration. *Journal of Financial Economics, 106*(2), 427−446.

Zamri, N., Rahman, R. A., & Isa, N. S. M. (2013). The impact of leverage on real earnings management. *Procedia Economics and Finance, 7*, 86−95.