Management international
International Management
Gestiòn Internacional

An empirical study of unethical earnings management behaviors in Gulf Cooperation Council (GCC) listed firms

Une étude empirique des comportements non éthiques en gestion des revenus dans les sociétés cotées au Conseil de coopération du Golfe (CCG)

Un estudio empírico sobre el comportamiento poco ético en la gestión de beneficios en empresas cotizadas en el Consejo de Cooperación del Golfo (CCG)

Badih Kazma et Marc Valax

Volume 28, numéro 5, 2024

Responsabilité et management international
Responsibility and international management
Responsabilidad y gestión internacional

URI : https://id.erudit.org/iderudit/1114626ar
DOI : https://doi.org/10.59876/a-eckf-1hw9

Aller au sommaire du numéro

Éditeur(s)

HEC Montréal
Université Paris Dauphine

ISSN

1206-1697 (imprimé)
1918-9222 (numérique)

Découvrir la revue

Citer cet article

Kazma, B. & Valax, M. (2024). An empirical study of unethical earnings management behaviors in Gulf Cooperation Council (GCC) listed firms. *Management international / International Management / Gestiòn Internacional*, *28*(5), 134–148. https://doi.org/10.59876/a-eckf-1hw9

Résumé de l'article

Nous présentons une justification empirique et une étude quantitative révélant comment les cadres, en particulier dans les sociétés cotées du Conseil de coopération du Golfe (CCG), ont recours à des pratiques de gestion des revenus contraires à l'éthique en période de perte financière et de détresse financière. Cette étude analyse 120 sociétés cotées en utilisant le modèle de Jones modifié (1995) pour estimer la gestion des revenus en tant que variable dépendante. L'analyse de régression est utilisée pour explorer l'impact des variables indépendantes. Nos résultats concluent que les dirigeants des six pays du CCG s'engagent dans la gestion des revenus par le biais d'accumulations discrétionnaires à la fois positives et négatives. Les résultats révèlent notamment que des facteurs tels que la consolidation, la détresse financière et la performance influencent de manière significative les pratiques de gestion des revenus.

An empirical study of unethical earnings management behaviors in Gulf Cooperation Council (GCC) listed firms

Une étude empirique des comportements non éthiques en gestion des revenus dans les sociétés cotées au Conseil de coopération du Golfe (CCG)

Un estudio empírico sobre el comportamiento poco ético en la gestión de beneficios en empresas cotizadas en el Consejo de Cooperación del Golfo (CCG)

Badih Kazma
Group Vice President in Finance Bahrain
Dr.badihkazma@gmail.com

Marc Valax
Institut d'Administration des Entreprises Nice, GRM
Université Côte d'Azur , France
marc.valax@univ-cotedazur.fr

ABSTRACT

We present an empirical rationale and supporting study revealing how executives, especially in the Gulf Cooperation Council(GCC) listed companies, resort to unethical earnings management practices in times of financial loss and financial distress. Employing a quantitative approach, this study analyzes 120 listed companies using the Modified Jones (1995) Model to estimate earnings management as a dependent variable. Regression analysis is employed to explore the impact of independent variables. Our findings conclude that executives across six GCC countries engage in earnings management through both positive and negative discretionary accruals. Notably, the results reveal that factors such as consolidation, financial distress and performance significantly influence earnings management practices.

Keywords: Earnings management, unethical behavior, Jones Model (1995)

Résumé

Nous présentons une justification empirique et une étude quantitative révélant comment les cadres, en particulier dans les sociétés cotées du Conseil de coopération du Golfe (CCG), ont recours à des pratiques de gestion des revenus contraires à l'éthique en période de perte financière et de détresse financière. Cette étude analyse 120 sociétés cotées en utilisant le modèle de Jones modifié (1995) pour estimer la gestion des revenus en tant que variable dépendante. L'analyse de régression est utilisée pour explorer l'impact des variables indépendantes. Nos résultats concluent que les dirigeants des six pays du CCG s'engagent dans la gestion des revenus par le biais d'accumulations discrétionnaires à la fois positives et négatives. Les résultats révèlent notamment que des facteurs tels que la consolidation, la détresse financière et la performance influencent de manière significative les pratiques de gestion des revenus.

Mots-clés : Gestion des bénéfices, comportement contraire à l'éthique, Modèle de Jones (1995)

Resumen

Presentamos una justificación empírica y un estudio de apoyo que revelan cómo los ejecutivos, especialmente en las empresas que cotizan en bolsa del Consejo de Cooperación del Golfo (CCG), recurren a prácticas poco éticas de gestión de beneficios en épocas de pérdidas y dificultades financieras. Con un enfoque cuantitativo, este estudio analiza 120 empresas cotizadas utilizando el modelo de Jones (1995) modificado para estimar la gestión de beneficios como variable dependiente. Se emplea un análisis de regresión para explorar el impacto de las variables independientes. Nuestros resultados concluyen que los ejecutivos de seis países del CCG practican la gestión de beneficios mediante devengos discrecionales tanto positivos como negativos. En particular, los resultados revelan que factores como la consolidación, las dificultades financieras y los resultados influyen significativamente en las prácticas de gestión de beneficios.

Palabras Claves: Gestión de ganancias, comportamiento poco ético, Modelo Jones (1995)

Pour citer cet article : Kazma, B. & Valax, M. (2024). An empirical study of unethical earnings management behaviors in Gulf Cooperation Council (GCC) listed firms. *Management international*, *28*(5), 134-148.

DOI: https://doi.org/10.59876/a-eckf-1hw9

In the past three decades executives have demonstrated increasing creativity in devising methods and techniques to alter firms' financial statements, with accounting fraud serving as our initial focus (Aubert & Gajewski, 2018). Earnings management has emerged as a significant concern for professionals, academics, regulators, and policymakers alike (Balsam, 2003). Several scandals have precipitated economic imbalances and political repercussions in emerging markets such as the Gulf Corporate Council (GCC), prompting regulators and policymakers to strengthen their internal controls and corporate governance policies to ensure the reliability of financial statements (Walker, 2013). The manipulation of financial statements to mislead both internal and external users about an organization's underlying performance is referred to as earnings management (Hamdi, 2012). Executives employ this strategy deliberately to enhance the perceived financial health of the company, thereby safeguarding their careers, bonuses, and compensation packages (Taylor and Xu, 2010). Schipper (1989, p.92) defies earnings management as a *"purposeful intervention in the external financial reporting process with the intent of obtaining some private gain."*, while Healy & Wahlen (1999) describe it as *"the judgment in altering financial statements and structuring transactions to mislead stakeholders"*.

The aim of this paper is to investigate whether executives in Gulf Corporate Council (GCC) listed companies engage in earnings management practices and to explore the potential impact of financial loss, distress, and financial performance on these practices. Our study employs a quantitative analysis based on data from 120 listed companies, comprising 360 observations over the three-year period from 2017 to 2019. We deliberately excluded financial firms and institutions along with oil companies due to their distinct financial structure, which cannot be adequately assessed using the Modified Jones (1995) Model. To estimate discretionary accruals (DACC), a proxy for earnings management, we used the Modified Jones Model. Our methodology involves employing Pearson Correlation analysis, variance inflation factors, ordinary least squares (OLS) and estimated generalized least squares (EGLS) regression methods to assess the impact of financial loss, distress, and financial performance on earnings management practices. Financial Loss is measured on a nominal scale, where '1' denotes a company experiencing a loss in year t and '0' indicates a profitable company. Financial distress is measured by total debt ratio, calculated as total debt over total equity (Llukani, 2013), while financial performance is measured by the ratio of net profit to revenue. Pearson correlation analysis is used to check the relationship between the dependent variables (DACC) and the independent variables (financial loss, distress, and performance), as well as to assess the interrelationships among the independent variables and to identify potential multicollinearity issues. To test the unknown parameters in this study, we employed the ordinary regression (OLS) method, a form of linear regression modeling. Earnings management behavior manifests through two broad techniques: accrual-based earnings management and real activities earnings management. In this article, when referring to emerging markets, we focus on six countries -Kuwait, Bahrain, Qatar, United Arab Emirates, Saudi Arabia and Oman- that are members of the Gulf Corporation Council (GCC)[1]. However, a significant challenge facing the GCC today is the lack of internal and external controls exercised by shareholders, board of directors (stemming from agency theory conflict), regulators, and auditors to curb executive leaders' unethical behavior. Earnings management practices have become a prevalent trend whenever companies encounter financial losses and distress, particularly in terms of their debt-to-equity ratio. In the face of financial losses and distress, executive leaders often resort to unethical practices to protect their careers. This can involve altering profit and losses financial statements by inflating current period revenue or deflating current period expenses, or adjusting the balance sheet by inflating assets and understating liabilities. Such manipulation techniques aim to portray the company's financial strength, attracting new investors, appeasing shareholders, securing new lines of credit at low interest rates or issuing debt financing on more advantageous terms. The main objective of this article is to investigate whether listed companies in the GCC engage in earnings management practices and to examine the impact of financial loss and distress (as measured by the debt-to-equity ratio) on these practices. In addition, we aim to assess the influence of financial loss and distress on the unethical behavior of executives concerning earning management practices.

This article offers novel insights into the unethical behavior of executive leaders and its impact on earnings management in GCC listed companies. Notably, there has been a dearth of research in the GCC investigating unethical earnings management behavior and its correlation with financial loss and financial distress, crucial factors in determining whether firms in the GCC engage in earnings management practices. Furthermore, while previous studies have examined earning management practices in individual GCC countries, none have undertaken a comprehensive analysis covering all GCC countries together. Thus, this study fills a significant gap by broadening the scope to encompass the entire GCC region, drawing upon recent data extracted from GCC countries' Bourses (stock markets) and Bloomberg over the last 3 years (2017-2019). The statistical analysis has been conducted separately for each country to ensure robust and accurate results. This article follows a traditional structure, comprising a theoretical framework, research hypothesis, research design, and analysis of the results from listed firms in the six GCC countries.

1. These countries share similar characteristics in terms of their ethnicity (Arab), religion (Islam), political regime (monarchy) and culture and traditions (Shehata, 2017). They are also wealthy nations endowed with abundant oil resources (IFC, 2008), with Saudi Arabia standing out as the largest oil exporter in the world. However, recent exploitation of local natural resources and escalating political tensions have led to rapid economic transformation. This has compelled executive leaders to resort to earnings management practices maintain a competitive edge and meet market demands.

Literature review

Earning Management Definitions

Earnings management practices represent behavioral actions driven by underlying motivations. Despite numerous theories attempting to explain these practices, none adequately explains the behavioral mechanisms behind executives manipulating financial statements (Hamza 2015). However, the literature suggests that agency theory may provide insights into the dynamics of executive unethical behavior concerning earnings management practices. Additionally, another theoretical perspective, the political cost hypothesis, offers an alternative explanation for behavior that could lead to the manipulation of financial statements (Elkalla 2017). Agency theory delineates the relationship between shareholders and executives, where executives are entrusted to act on behalf of shareholders in the day-to-day management of operations, safeguarding company assets, and preventing errors and fraud. In other words, shareholders rely on executives to make decisions on their behalf affecting the company and its employees.

The primary function of any financial statement is to present accurate and reliable financial data to both internal and external users. These statements serve as a reflection of executives and their shareholders, portraying a true representation of the company's financial health. When assessing company performance and personal benefits such as bonuses and compensations, both shareholders and executives rely on three key financial metrics: bottom line, top line, and equity. The bottom-line figure denoted by net income or loss in the income statement, pertains to the financial loss independent variable used in this paper. Equity figures, denoted by capital injected plus any accumulated gains or losses in the balance sheet, are related to the financial distress independent variable used in this paper (debt to equity). The top line figure, denoted by revenue in the income statement, is related to the financial performance independent variable (net income to revenue) (Goel, 2012). As highlighted by Sprouse (1978), executives tend to prioritize bottom- and top-line figures, viewing them as key indicators of their performance. These metrics often influence bonus schemes, stock options, future promotions and market reputations. As a consequence, executives may resort to unethical practices, such as earnings management, to manipulate these financial metrics when faced with financial loss, distress, or performance issues, in an attempt to present improved results.

Agency Theory for our research.

According to Whetten (2015), "A theory is an integrated collection of explanations about the relationships between one or more pairs of concepts that represent real-world phenomena under specified conditions Agency theory, in particular, delineates the relationship between shareholders and executives, wherein shareholders entrust executives to fulfill their duties on their behalf and to act ethically in accordance with local and international laws set by regulators and policymakers. In other words, the theory is about aligning the interests of shareholders and executives. However, it posits that when companies encounter financial loss, distress and performance issues, executives will act in an egocentric matter to pursue their own private gain through engaging in earnings management practices, thereby incurring what is referred to as agency cost (Jensen & Meckling 1976). To mitigate agency cost and align interests, shareholders should therefore ensure executives are financially satisfied and adhere to corporate governance codes and internal control mechanisms. Agency Theory hypothesizes that conflicts of interest between executives and shareholders arise when companies face financial losses, distress, and performance issues, leading to unethical behavior and the engagement in earnings management practices. When this happens, executives tend to prioritize tangible materialistic values over loyalty and trust, focusing on maximizing their own economic gain through positive or negative discretionary accruals, depending on their extrinsic motivational needs. From both shareholder and executive perspectives, maximizing shareholder wealth and ensuring executive monetary satisfaction is the preferred outcome, as it aligns the interests of both parties. However, under agency theory, executives may disregard shareholder wealth maximization when they perceive a risk of losing benefits, instead prioritizing their own interests, thereby incurring agency costs and substantial harm to the company's resources and stakeholders. As a consequence, when trust between shareholders and executives is breached, executives shift from ethical to unethical behavior, resorting to earnings management practices. (Lee & O'Neill, 2003).

Earnings Management Techniques

Earnings management involves the deliberate manipulation of accounting policies and operational figures to achieve favorable financial statements results (Jelinek, 2007). When manipulation occurs through adjustments to accounting policies and estimates, it is referred to in accounting as accrual-based earnings management. Conversely, when manipulation involves altering operational figures, it is referred to as real earnings management. Accrual-based techniques entail changes to accounting policies and estimates, such as adjusting fixed asset policies to lower depreciation expenses or bringing sales invoices forward. On the other hand, real activities-based earnings management involves manipulating actual business transactions such as writing off receivables to lower net income to save on income tax or avoid regulatory fines. Various techniques are employed to manipulate financial statements, however accrual-based and real activities-based earnings management are the two primary techniques used by executives to alter financial statements. Executives tend to lean more towards accrual-based earnings management due its flexibility and difficulties in monitoring such practices (Young, 1999). In the past, cash basis accounting was commonly used for preparing financial statements, where transactions were recorded based on cash received and paid. However, with the standardization of worldwide accounting rules, cash basis accounting has been largely replaced by the accrual basis method, as cash basis proved to be ineffective accounting. Discretionary accruals, also known as managed or abnormal accruals, are directly associated with manipulated earnings, whereas non-discretionary accruals are considered normal or non-managed accruals. Among other things, executives tend to prefer accrual-based accounting due its lower manipulation costs and the challenges associated with monitoring such practices (Young, 1999).

Earning Management Motivations in GCC countries

Studying earnings management practices in the GCC is a relatively new perspective. Investigating whether executives engage in earnings management in the GCC and exploring the impact of financial loss, distress, and performance on such practices is a topic of interest that has not been extensively studied. While there are few studies in the GCC that delve into earnings management practices, existing research primarily focuses on the relationship between corporate governance and earnings management

practices. For instance, Alareeny (2018) conducted a study on 332 listed companies in the GCC to investigate executives' involvement in earnings management practices. His findings revealed that executives tend to engage in earnings management practice by decreasing income when confronted with political and regulatory pressures. Companies in the GCC may have an incentive to practice earnings management and employ negative discretionary accruals (income decreasing) to mitigate political and governmental exposure and pressure.

Jones (1991) contends that executives manipulate earnings to exploit government import relief programs. Drawing from a decade of experience in the GCC, the author believes that the political cost hypothesis accurately reflects executive unethical behavior in employing negative discretionary accruals. Motivations for engaging in earnings management vary among executives, with some seeking recognition while others pursue financial gain. When firms' financial results fall short of shareholders' and investors' expectations at the end of each reporting period, executives often resort to earnings management practices by inflating revenues or deflating expenses to achieve the required results. In other words, they exercise discretion in financial reporting decisions to serve their own interests or those of shareholders, investors, and financial analysts. Jiraporn *et al.* (2008) conducted research on earnings management practices and identified various incentives for executives to engage in such practices. These incentives include: compensation and bonuses, debt agreements, political and governmental regulatory considerations, and mergers and acquisitions. The novelty of this paper lies in examining whether executives in GCC listed companies practice earnings management through both negative and positive discretionary accruals (income increasing and decreasing). Furthermore, we investigate the impact of financial loss, distress, and performance on earnings management practices, leading to the formulation of the following research questions:

1. Do executives in GCC listed companies engage in earnings management practice?
2. Do executives engage in earnings management practice via positive or negative discretionary accruals?
3. Do financial loss, distress and performance have an impact on earnings management practices?
4. How can we instigate long-term changes in earnings management practices in the GCC with the support of responsible leaders?

This part builds on a several hypotheses to address the four research questions.

Influence on Executive Behavior on Earnings Management Practices

We conducted a comparative literature analysis to explore the concept of 'ethical and unethical responsibility' from both local and international perspectives (Barnett and Salomon, 2012). This analysis focused on varying viewpoints on 'ethical and responsibility' among executives operating in the GCC culture, as well as the evolving connections between economic, political, and ethical considerations in this context. (Winter, 2004; Morris, 2005). We also discuss how managers can integrate individual and professional ethics into earnings management practices, and how they can link professional with social ethics. (Sherer and Palazzo, 2007: 1105; Becchetti *et al.*, 2007: 15). Furthermore, we examined the concept of 'ethical and unethical responsibility' from a regional standpoint through a comparative literature analysis (Barnett and Salomon, 2006). Based on these discussions, we formulated the following hypothesis regarding the impact of executives practicing negative or positive discretionary accruals.

H1: Executive's behavior significantly impacts earnings management practices in GCC listed firms.

H2: Executive's behavior has no significant impact on earnings management practices in GCC listed firms.

Impact of Financial Loss on Earnings Management Practices

In a context of economic instability and political tension, companies often find themselves closing their financial year with losses rather than profits (Hkimi *et al.*, 2022). These authors posit that company losses are among the main determinants driving earnings management practices, as executives may manipulate the bottom-line to portray improved results. Therefore, we hypothesize that earnings management practices are influenced by company losses. When a company incurs losses, executives may take precautionary measures to enhance profitability by employing positive discretionary accruals to fulfil their personal gains. Numerous studies in the literature provide strong evidence of executives resorting to earnings management to avoid losses. For instance, Hamdi & Zarai (2012) have shown how executives manipulate financial statements to mitigate financial losses. Moreover, Sun & Rath (2009) highlight the unique cultural and political landscape of the GCC countries. With monarchies prevailing in Kuwait, United Arab Emirates, Oman, Qatar, Saudi Arabia, and Bahrain, where a significant portion of companies are owned by high-ranking leaders, there exists immense pressure for companies to demonstrate profitability to safeguard executive careers. Therefore, we propose the following hypotheses:

H3: Financial loss significantly impacts earnings management practices.

H4: Financial loss has no significant impact on earnings management practices.

Impact of Financial Distress on Earnings Management Practices

The concept of corporate distress is complex, and varies among companies. Some view financial distress as an excess of debt over assets, while others consider it as an excess of debt over equity. The total debt-to-equity ratio is commonly used to assess a company's financial health. In this study, our focus lies on the debt-to-equity ratio and its impact on earnings management practices. We hypothesis that earnings management practices are contingent upon the debt and equity levels of a firm. When debt increases or equity decreases, executives may resort to earnings management practices. According to Bowen and Shores (1995), companies with high debt levels are inclined to manipulate their financial figures to present more favorable results and enhance the firm's credibility. In other words, an increase in debt positively affects earnings management practices, whereas a decrease in equity has a negative impact on earnings management. Dechow (2000) conducted studies comparing companies with high and low financial stress, revealing that firms facing high financial distress tend to engage in earnings management practices, whereas those with low financial distress do not. Based on these insights, the following hypothesis is proposed regarding the effect of a firm's financial distress on earnings management practices in GCC countries:

H5: Financial distress significantly impacts earnings management practices.

H6: Financial distress has no significant impact on earnings management practices.

Impact of Financial Performance on Earnings Management Practices

Financial performance is typically assessed using the net profit margin, calculated as the net profit divided by revenue. This ratio is crucial for firms as it reflects their ability to generate profit from revenue. In other words, it indicates how much profit the company generatess for every dollar of revenue. Firms with high profitability tend to attract investors and maintain a favorable market reputation, whereas those with low profitability are perceived as risks by investors, shareholders and other stakeholders. When a company's top-line revenue and net profitability per unit of sales are low, executives may take precautionary measures to bolster revenue by employing positive discretionary accruals to achieve their personal gains. As a consequence, executives may manipulate financial statements by inflating revenue figures, such as by issuing fake invoices or bringing revenue forward to artificially increase the net profit margin.

H7: Financial Performance significantly impacts earnings management practices.

H8: Financial performance has no significant impact on earnings management practices.

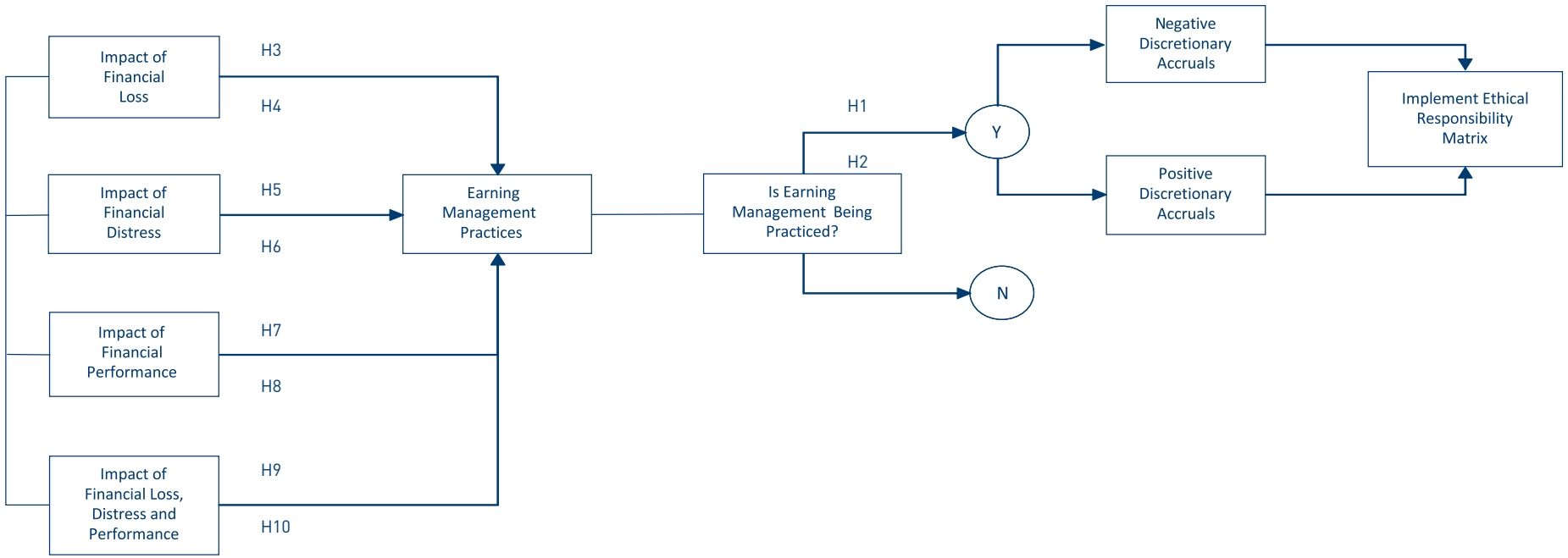
Impact of Financial Loss, Distress and Performance on Earnings Management

In summary, we have discussed three independent variables - financial loss, distress, and performance - and their relationship to the dependent variable, DACC. The literature review shows a correlation between the independent and dependent variables, suggesting that financial loss, distress and performance have an impact on earnings management practices. Building on this understanding, we have formulated another set of hypotheses that assesses the relationship between these three independent variables and the dependent variable.

H9: Financial loss, distress and performance significantly impact earnings management practices.

H10: Financial loss, distress and performance have no significant impact on earnings management practices.

FIGURE 1
Research model



Research design

When companies face financial loss, distress, and performance issues, executives often resort to unethical behavior, prioritizing their own interests over those of shareholders and company resources. This behavior creates what is known as agency cost, which refers to expenses incurred by the company due to executives acting in their own interests rather than those of shareholders. Agency costs arise when executives are dissatisfied with the company's financial performance, leading them to engage in earnings management practices. While some executives may perceive this behavior as ethical, the literature review has demonstrated that such actions are inherently unethical and detrimental to the company's reputation and stakeholders' interests.

To detect earnings management in GCC listed companies, we used the Modified Jones Model to estimate discretionary accruals (DACC), a common proxy for earnings management practices. Previous literature has shown the effectiveness of the Modified Jones Model in estimating discretionary accruals (DACC) (Juhmani. 2017). Hence, for the purpose of this study, we adopted this model. While various methods exist for calculating discretionary accruals (DACC), such as the DeAngelo (1986) model, Healy (1985) model, and Jones (1991) model, the Modified Jones (1995) Model stands out as one of the most widely used and effective models, particularly in the Middle East and North Africa (MENA) region. Originally developed in 1991, the Jones model separates accruals into discretionary and non-discretionary components. However, in 1995, Dechow, Sloan and Sweeney modified the 1991 Jones model by replacing changes in sales receivables with changes in receivables to reduce measurement errors in discretionary accruals. Their study found that the Modified Jones Model offers a more powerful examination of earnings management compared to other models. Further support for the effectiveness of the Modified Jones Model comes from Guay *et al.* (1996) and Peasnell, Pope and Young (2000), who concluded that it provides reliable estimates of discretionary accruals and is particularly effective in detecting revenue and bad debt manipulations. While most models have been developed and tested in developed countries, the Modified Jones Model has also been applied in the MENA region, with Charfeddine, Riahi, and Omri (2013) finding it to be more accurate than the DeAngelo (1986) model. By applying the Modified Jones Model to GCC listed firms for detecting earnings management, we contribute significant insights to the literature, as this has not been done before across six countries simultaneously. To address potential endogeneity issues and select the most appropriate econometric model, we conducted autocorrelation, heteroscedasticity, multicollinearity, and Hausman tests on our data. For this reason, we opted for the Modified Jones Model, which has been tested and used by other researchers, to compute our quantitative data for examining earnings management practices. Our sample comprised 120 companies with 360 observations.

Measurement of the Dependent Variable

According to existing literature, discretionary accruals (DACC) serve as a common proxy for measuring earnings management. In this study, we consider earnings management as the dependent variable, with discretionary accruals measured using the Modified Jones Model. While other studies have used different models to estimate DACC, we opted for the Modified Jones Model for our analysis. The process involves dividing total accruals into discretionary and non-discretionary components. Discretionary accruals are calculated annually and by industry. To ensure statistical reliability, a sufficient number of observations are necessary for each industry-year grouping. Discretionary accruals are derived by isolating the non-discretionary component from total accruals using the Modified Jones Model. For further details, please refer to Appendix 1

The Independent Variables in Earnings Management

The independent variables in this paper are financial distress, financial loss and financial performance, which re analyzed to determine their impact on discretionary accruals. Various statistical methods are used to investigate the relationship between these variables and their impact on the dependent variable. The analysis includes correlation analysis, variance inflation factors and regression analysis.

Measurement of Independent Variables

We use Pearson Correlation analysis, variance inflation factors, and OLS and EGLS regression methods to assess the impact of financial loss, financial distress, and financial performance on earnings management practices. Financial Loss is measured using a nominal scale, where a value of '1' indicates a company suffering a loss in year t, and '0' indicates profitability. Financial distress is calculated using total debt ratio, defined as total debt over total equity (Waweru and Riro, 2013; Llukani, 2013). Financial performance is measured by the ratio of net profit to revenue.

The methodology begins by estimating values of DACC for each firm using the Modified Jones Model. DACC is then treated as a dependent variable, with financial loss and financial distress serving as independent variables, as shown in the following equation:

$$(DACC) = \beta 0 + \beta 1(FS) + \beta 2(FL) + \varepsilon jt$$

Where:

DACC represents Discretionary Accruals calculated by the Modified Jones Model.

FL represents Financial Distress, calculated as the total debt ratio (Total Debt-to-Equity Ratio).

FS represents Financial Loss, a dummy variable indicating company income in year 1. A value of 1 denotes a negative income, while 0 indicates profitability.

Financial Performance = Net Profit divided by Revenue.

Data Collection and Sample Selections

To run the Modified Jones Model and conduct statistical methods, secondary data was extracted from financial statements, including balance sheet and income statements. This data encompassed cash, accrual revenue, accounts receivable, accounts payable, fixed assets, depreciation, and other relevant financial statement items. Using this secondary raw data served as the foundation for running the Modified Jones Model and implementing other statistical methods. Data for GCC countries was sourced from Bloomberg for the years spanning 2017 to 2019. The chosen time frame was deliberately short as we wanted to test earnings management after implementation of corporate governance codes to examine the viability of these controls. From each individual GCC country we selected the following number of observations: Saudi Arabia (57), Kuwait (22), Qatar (16), UAE (12), Oman (8) and Bahrain (5).

As mentioned above, all observations in industries were selected, excluding financial companies, institutions, and the oil sector. Consistent with other authors in the literature,

observations from financial companies were omitted from this study due to their distinct characteristics. For instance, Hessayri and Saihi (2015) in their study on monitoring earnings management in emerging markets excluded financial firms and focused solely on non-financial firms. This decision was made because financial statements from financial institutions differ significantly from those of non-financial firms, which could pose problems when running the model. Furthermore, after excluding financial and oil companies, the results became more comparable across industries. The authors agree with Hessayri and Saihi's approach, as choosing the same industries simplifies the running of the Modified Jones Model. Consistent with this, Bassiouny *et al.* (2016) also excluded financial firms from their study due to the differences in disclosure requirements different compared to non-financial firms. Several other authors also excluded financial firms from their studies. Jha (2013) argues that this practice is commonplace in earnings management literature. The authors of this study concur with Jha and other researchers who advocate for excluding financial firms as they encountered an unexpected challenge when running the data, when including an insurance company caused the model to be rejected. In addition, the authors decided to omit oil companies from their analysis. Given that Aramco, the world's largest oil company, recently went public, integrating its financial data with other oil companies led to inconsistencies and ultimately resulted in the model's failure. As a consequence, Aramco and all other oil companies in the GCC were excluded from the study. Earnings management serves as the dependent variable in this study, and is calculated using the Modified Jones Model.

Measurement of the Dependent Variable

The literature review shows that discretionary accrual (DACC) is calculated as a proxy for earnings management. In this study, earnings management is the dependent variable, and discretionary accrual is measured using the Modified Jones Model. Various models have been employed in previous studies to estimate DACC. Total Accruals are typically divided between discretionary and non-discretionary categories. Discretionary accruals are estimated annually and by industry. We require at least a certain number of observations for each industry-year group. Discretionary accruals are calculated by subtracting non-discretionary accruals from total accruals using the Modified Jones Model. This Model is based on the following equation. (see Appendix 1)

Findings and discussion

The findings of the study reveal that all GCC countries, namely Saudi Arabia, Bahrain, Qatar, United Arab Emirates, and Oman, engage in earnings management practices through negative discretionary accruals (income decreasing), with the exception of Kuwait, which uses positive discretionary accruals (income increasing). The motivation behind employing negative discretionary accruals may stem from various factors, including the desire to circumvent recently introduced income corporation taxes, as well as political and social costs such as Saudization, Bahrainization, and Emiratization, aimed at prioritizing local employment over expatriates. Additionally, companies may resort to negative discretionary accruals to avoid increases in employee wages and salaries. On the other hand, Kuwait's use of positive discretionary accruals suggests that companies in Kuwait manipulate financial figures by inflating revenue or reducing expenses to enhance their equity position.

TABLE 1
Sample Distribution by Country

Country	# of Companies	# of Obs.
KSA	57	171
Kuwait	22	66
Bahrain	5	15
Oman	8	24
Qatar	16	48
UAE	12	36
Grand Total	**120**	**360**

TABLE 2
Descriptive Statistics

Variables	Min	Max	Mean	Std. Dev.
KSA				
DACC	-0.6501	0.1863	-0.0055	0.0813
FD	-1.2361	5.7739	0.0930	0.7422
FL	0.000	1.000	0.2866	0.4535
FP	-0.7127	34.1467	0.3233	2.9529
Kuwait				
DACC	-0.1617	0.1293	0.0021	0.0634
FD	-1.1294	1.3497	0.0092	0.3737
FL	0.000	1.000	0.1667	0.3755
FP	-2.4422	4.6369	0.0139	0.7324
Bahrain				
DACC	-0.2491	0.1029	-0.0107	0.0779
FD	-0.0579	0.4555	0.0883	0.1560
FL	0.000	1.000	0.1333	0.3519
FP	-0.5463	0.5915	0.0108	0.2249

Variables	Min	Max	Mean	Std. Dev.
Oman				
DACC	-0.1517	0.1466	-0.0023	0.0641
FD	-1.7543	0.3800	0.0037	0.3951
FL	0.000	1.000	0.2083	0.4149
FP	-0.2164	0.0626	-0.0335	0.0707
Qatar				
DACC	-0.1169	0.0942	-0.0030	0.0432
FD	-1.9085	1.3403	0.0495	0.4248
FL	0.000	1.000	0.0833	0.2793
FP	-1.0197	0.7127	-0.0154	0.2058
UAE				
DACC	-0.2900	0.1600	-0.0081	0.0867
FD	-0.7400	3.0800	0.1694	0.6370
FL	0.000	1.000	0.3056	0.4672
FP	-0.9400	0.7400	-0.0656	0.3261

TABLE 3
Correlation Matrix

Variables	DACC	FD	FL	FP
KSA				
DACC	1.00	-0.2241	-0.1978	-0.2560
FD	-0.2241	1.00	0.3238	-0.0015
FL	-0.1978	0.3238	1.00	-0.0165
FP	-0.2560	-0.0015	-0.0165	1.00
Kuwait				
DACC	1.00	-0.1853	0.0204	0.0069
FD	-0.1853	1.00	0.1703	-0.0355
FL	0.0204	0.1703	1.00	-0.1127
FP	0.0069	-0.0355	-0.1127	1.00
Bahrain				
DACC	1.00	0.1408	-0.1453	0.0059
FD	0.1408	1.00	-0.1712	-0.2268
FL	-0.1453	-0.1712	1.00	0.0491
FP	0.0059	-0.2268	0.0491	1.00

Variables	DACC	FD	FL	FP
Oman				
DACC	1.00	0.1348	-0.3448	-0.0019
FD	0.1348	1.00	-0.3422	0.1459
FL	-0.3448	-0.3422	1.00	-0.2197
FP	-0.0019	0.1459	-0.2197	1.00
Qatar				
DACC	1.00	0.1494	0.0210	-0.0331
FD	0.1494	1.00	0.4349	-0.0873
FL	0.0210	0.4349	1.00	-0.1743
FP	-0.0331	-0.0873	-0.1743	1.00
UAE				
DACC	1.00	-0.4665	-0.2407	0.2366
FD	-0.4665	1.00	0.2320	-0.3030
FL	-0.2407	0.2320	1.00	-0.6767
FP	0.2366	-0.3030	-0.6767	1.00

TABLE 4
Regression Analysis for All Countries

Prob.						
Variable	KSA	Kuwait	Bahrain	Oman	Qatar	UAE
FD	0.0207	0.1296	0.2477	0.9093	0.7217	0.0033
FL	0.0592	0.6716	0.0012	0.1331	0.0022	0.7619
FP	0.0004	0.9614	0.3165	0.7017	0.7753	0.9168

KSA				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006053	0.006958	0.869818	0.3856
FD	-0.019454	0.008331	-2.335087	0.0207
FP	-0.007119	0.001981	-3.593089	0.0004
FL	-0.025908	0.013637	-1.899889	0.0592
R-squared	0.134646		Mean dependent var	-0.005482
Adjusted R-squared	0.119101		S.D. dependent var	0.081265
F-statistic	8.661554		Durbin-Watson stat	2.214538
Prob(F-statistic)	0.000022			

Kuwait				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000854	0.008613	0.099153	0.9213
FD	-0.032958	0.021455	-1.536191	0.1296
FP	0.000528	0.010854	0.048624	0.9614
FL	0.009146	0.02147	0.425975	0.6716
R-squared	0.037151		Mean dependent var	0.002082
Adjusted R-squared	-0.009438		S.D. dependent var	0.06338
F-statistic	0.79742		Durbin-Watson stat	2.082358
Prob(F-statistic)	0.499994			

TABLE 4 (cont'd)
Regression Analysis for All Countries

Bahrain				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.030048	0.018992	1.582099	0.1576
FD	-0.259219	0.205549	-1.261106	0.2477
FP	-0.029593	0.027435	-1.078675	0.3165
FL	-0.131524	0.025006	-5.259624	0.0012
R-squared	0.829094		Mean dependent var	-0.00145
Adjusted R-squared	0.658188		S.D. dependent var	0.13497
F-statistic	4.851165		Durbin-Watson stat	1.897653
Prob(F-statistic)	0.026971			

Oman				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006562	0.015837	0.414356	0.683
FD	0.004172	0.036178	0.115329	0.9093
FP	-0.075651	0.194702	-0.388548	0.7017
FL	-0.054711	0.034943	-1.565713	0.1331
R-squared	0.125804		Mean dependent var	-0.002288
Adjusted R-squared	-0.005325		S.D. dependent var	0.064055
F-statistic	0.95939		Durbin-Watson stat	2.454086
Prob(F-statistic)	0.431107			

Qatar				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.006311	0.003318	-1.902185	0.0671
FD	0.008784	0.024427	0.359607	0.7217
FP	0.005011	0.017387	0.28819	0.7753
FL	0.035697	0.010647	3.352683	0.0022
R-squared	0.675543		Mean dependent var	-0.007635
Adjusted R-squared	0.474157		S.D. dependent var	0.053111
F-statistic	3.354457		Durbin-Watson stat	2.698147
Prob(F-statistic)	0.001839			

UAE				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015862	0.021491	0.738041	0.4695
FD	-0.154204	0.045985	-3.353362	0.0033
FP	-0.006912	0.065276	-0.105883	0.9168
FL	-0.014948	0.048634	-0.307346	0.7619
LAGDACC	-0.246994	0.186424	-1.324905	0.2009
R-squared	0.49327		Mean dependent var	-0.01125
Adjusted R-squared	0.38659		S.D. dependent var	0.101138
Log likelihood	29.60408		Hannan-Quinn criter.	-1.985228
F-statistic	4.623823		Durbin-Watson stat	2.067005
Prob(F-statistic)	0.008916			

TABLE 5

Descriptive Analysis for All Variables

	DACC	FD	FP	FL
Mean	-0.005186	0.073321	0.145680	0.227778
Maximum	0.386281	5.773903	34.14667	1.000000
Minimum	-0.615031	-1.908533	-2.442192	0.000000
Std. Dev.	0.080868	0.602085	2.067243	0.419982
Observations	360	360	360	360

Table 5 shows that our dependent variables have a mean value of -0.005186, with a minimum value of -0.615031, a maximum value of 0.386281 and a standard deviation value of 0.080868. The average DACC figure of -0.005186 indicates that the sampled consolidated listed GCC companies are engaged in earnings management practices through negative discretionary accruals (income-decreasing).

TABLE 6

DACC % of Sampled Companies

Country	# of Neg	%Neg	Pos	%Pos	Total
Bahrain	8	53.3%	7	46.7%	15
Saudi Arabia	58	33.9%	113	66.1%	171
Kuwait	42	63.6%	24	36.4%	66
Oman	15	62.5%	9	37.5%	24
Qatar	32	66.7%	16	33.3%	48
United Arab Emirates	25	69.4%	11	30.6%	36
Total	**180**	**50%**	**180**	**50%**	**360**

TABLE 7

Financial Distress % Sample Selected

Country	# of Neg	%Neg	Pos	%Pos	Total
Bahrain	5	33.1%	10	66.7%	15
Saudi Arabia	96	56.1%	75	43.9%	171
Kuwait	39	59.1%	27	40.9%	66
Oman	10	41.7%	14	58.3%	24
Qatar	22	45.8%	26	54.2%	48
United Arab Emirates	17	47.2%	19	52.8%	36
Total	**189**	**53%**	**171**	**48%**	**360**

TABLE 8

Financial Loss % Sample Selected

Country	# of Zero	%Zero	# of One	%One	Total
Bahrain	13	86.7%	2	13.3%	15
Saudi Arabia	122	71.3%	49	28.7%	171
Kuwait	55	83.3%	11	16.7%	66
Oman	19	79.2%	5	20.8%	24
Qatar	44	91.7%	4	8.3%	48
United Arab Emirates	25	69.4%	11	30.6%	36
Total	**278**	**77%**	**82**	**23%**	**360**

TABLE 9

Financial Performance % Sample Selected

Country	# of Neg	%Neg	Pos	%Pos	Total
Bahrain	6	40.0%	9	60.0%	15
Saudi Arabia	104	60.8%	67	39.2%	171
Kuwait	29	43.9%	37	56.1%	66
Oman	15	62.5%	9	37.5%	24
Qatar	25	52.1%	23	47.9%	48
United Arab Emirates	21	58.3%	15	41.7%	36
Total	**200**	**56%**	**160**	**44%**	**360**

Moving to the independent variables, as illustrated in Table 6 above, we observe that 53% of all selected GCC companies exhibit signs of negative financial distress, indicating a decrease in debt-to-equity ratio, which contributes to an improvement in company financial performance.

Regarding financial loss, the results in Table 7 above reveal that 23% of the sampled GCC companies face financial loss issues. This factor stands out as one of the most significant drivers prompting companies to manipulate current accruals in order to sustain positive earnings.

TABLE 10

Person Correlation Analysis

	DACC	FD	FP	FL
DACC	1.000000	-0.207034	-0.131964	-0.107968
FD	-0.207034	1.000000	-0.006521	0.268895
FP	-0.131964	-0.006521	1.000000	-0.021909
FL	-0.107968	0.268895	-0.021909	1.000000

Additionally, there is a weak positive relationship between financial distress and financial loss, while a negative relationship exists between all other independent variables. Accordingly, the above correlation between dependent and independent variables appears to be very weak, suggesting the absence of multicollinearity issues among the study variables.

Thus, the above results affirm that executives engage in earnings management practices in GCC listed firms, supporting hypothesis **H1:** *Executive's behavior significantly impacts earnings management practices in GCC listed firms.* The findings regarding the independent variables reveal varying results across different countries: The P-value, representing the probability under the null hypothesis of obtaining a result equal to or more extreme than what was actually observed, serves as a measure of the likelihood that any observed difference between groups is due to chance.

On a consolidated basis, our analysis reveals that financial loss has no significant impact on earnings management practices, with a P-value of 0.262, greater than the threshold of 0.05, leading us to reject Hypothesis **H4:** *Financial loss has no significant impact on earnings management practices).* However, both financial distress and financial performance exhibit a significant impact on earnings management practices, with P-values of 0.0004 and 0.0091, respectively, both below the 0.05 threshold, leading us to accept Hypotheses **H5:** *Financial distress has a significant impact on earnings management practices, and* **H7:** *Financial Performance has a significant impact on earnings management practices).* These findings suggest that when companies encounter financial distress and experience issues with net profitability, their executives are inclined to engage in earnings management practices.

Furthermore, examining the three independent variables and their impact on earnings management practices, we find that financial loss, distress, and performance have a significant impact. Their combined P-value of 0.000031 is less than the threshold of 0.05, leading us to accept hypothesis **H9:** *Financial loss, distress and performance have a significant impact on earnings management practices.*

In Saudi Arabia, the investigation into the impact of independent variables on earnings management practices reveals that financial loss has no significant impact. With a P-value of 0.0592, which exceeds the threshold of 0.05, we reject Hypothesis **H4:** *Financial loss has no significant impact on earning management practices.* However, financial distress and financial performance exhibit significant impact on earnings management practices of listed companies in Saudi Arabia. Their P values of 0.0207 and 0.0004, respectively, are both less than the threshold of 0.05, leading us to accept Hypothesis **H5:** *Financial distress has a significant impact on earnings management practices, and* **H7:** *Financial Performance has a significant impact on earnings management practices.* Furthermore, considering all three independent variables together, we found that financial loss, financial distress, and financial performance have a significant impact on earnings management practices. Their combined P-value of 0.00002 is less than the threshold of 0.05, further supporting Hypothesis **H9:** *Financial loss, distress and performance have a significant impact on earnings management practices.*

In Kuwait, the investigation into the impact of independent variables on earnings management practices indicates that financial loss, financial distress, financial performance have no significant impact. The P-values of these three independent variables are 0.1296, 0.9614, and 0.6716, respectively, all greater than the threshold of 0.05. Consequently, we reject Hypotheses **H4:** *Financial loss has no significant impact on earnings management practices;* **H6:** *Financial distress has no significant impact on earnings management practices;* and **H8:** *Financial Performance has no significant impact on earnings management practices).* Moreover, considering all three independent variables together, we found that financial loss, distress, and performance have no significant impact on earnings management practices. The combined P-value of 0.499994 is greater than the threshold value of 0.05, leading us to reject Hypothesis **H10:** *Financial loss, distress and performance have significant impact on earnings management practices.*

In Oman, investigating the impact of independent variables on earnings management practices reveals that financial loss, financial distress, and financial performance have no significant impact. The P-values of these three independent variables are 0.7017, 0.9093, 0.1331, respectively, all greater than the threshold of 0.05, leading us to reject Hypotheses **H4:** *Financial loss has no significant impact on earning management practices;* **H6:** *Financial distress has no significant impact on earnings management practices;* and **H8***: Financial Performance has no significant impact on earnings management practices.* Additionally, upon examining the impact of the three independent variables on earnings management practices, we found that financial loss, distress, and performance collectively have no significant impact, with a P-value of 0.431107, exceeding the threshold of 0.05, leading us to reject hypothesis **H10:** *Financial loss, distress and performance have a significant impact on earnings management practices.*

In Qatar, the results of the OLS regression analysis indicated that the Durbin Watson statistic was 1.310, falling within the range of (0) to (2). This suggests evidence of autocorrelation issues among the independent variables. As a consequence, we adjusted our approach and used a generalized least squares (GLS) regression panel model to address these autocorrelation issues.

From the perspective of EGLS regression analysis results, we find that financial loss has a significant impact on earnings management practices, with a P-value of 0.0022, which is less than the threshold of 0.05. This led us to accept Hypothesis **H3:** *Financial loss has significant impact on earnings management practices*. However, financial performance and financial distress have no significant impact on earnings management practices, with P-values of 0.7217 and 0.7753, respectively, both exceeding the threshold of 0.05. We therefore reject Hypotheses **H6:** *Financial distress has no significant impact on earnings management practices,* and **H8:** *Financial Performance has no significant impact on earnings management practices.*

In Bahrain, the results of the OLS regression analysis indicated a Durbin Watson statistic of 2.121, falling within the range of (2) to (4). This suggests evidence of autocorrelation issues among the independent variables. As a consequence, we adjusted our approach and used the GLS regression panel model to address these autocorrelation issues.

From the perspective of EGLS regression analysis results, it can be concluded that financial loss has significant impact on earnings management practices, with a P-value of 0.0012 being less than the threshold of 0.05. This led us to accept Hypothesis **H3:** *Financial loss has significant impact on earnings management practices.* However, financial performance and financial distress have no significant impact on earnings management practices, with P-values of 0.3165 and 0.2477, respectively, both greater than the threshold

of 0.05. As a consequence, we reject Hypotheses **H6:** *Financial distress has no significant impact on earnings management practices; and* **H8:** *Financial Performance has no significant impact on earnings management practices.*

In the UAE, the results of the OLS regression analysis indicated a Durbin-Watson statistic of 3.429386 suggesting evidence of serial correlation between the independent variables. To address this issue in our panel data, we adjusted our approach and used the lagged method, re-running the OLS regression model to obtain new results.

Upon examining the results from an EGLS regression analysis perspective, we find that financial distress has a significant impact on earnings management practices, with a P-value of 0.0033 below the threshold value of 0.05. We therefore accept Hypothesis **H5:** *Financial distress has significant impact on earnings management practices.* However, financial performance and financial loss have no significant impact on earnings management practices, with P-values of 0.9168 and 0.7619, respectively, both exceeding the threshold of 0.05. We therefore reject Hypotheses **H8:** *Financial Performance has no significant impact on earnings management practices;* **H6:** *Financial distress has no significant impact on earnings management practices;* and **H4:** *Financial loss has no significant impact on earnings management practices.*

Our findings show the significant impact of earnings management practices on regulators, shareholders, board of directors, and stakeholders, emerging as a pressing issue in the Gulf Corporate Council (GCC). Earnings management practices represent a pervasive global challenge, eroding companies' reputations, undermining investor confidence, and raising questions about corporate governance and controls. Over the past 2 decades, earnings management practices in the GCC have escalated, posing considerable risks for, stakeholders, shareholders and investors. As a consequence, regulators and policy makers have responded by implementing corporate governance frameworks and internal controls to shield companies against fraudulent activities. Corporate governance codes were implemented at different times across the region: Oman in 2003, Saudi Arabia in 2006, UAE in 2007, Qatar in 2009, Kuwait in 2009, and Bahrain in 2010. While GCC corporate governance regulations aim to protect shareholders, stakeholders and investors, it is imperative for internal and external auditors to be held accountable for their own actions. Shareholders should also ensure that board members enforce company policies and procedures, and ensure that all stakeholders adhere to corporate governance principles and organizational protocols.

To address potential endogeneity issues, we ran autocorrelation, heteroscedasticity, multicollinearity, and Hausman tests. Heteroscedasticity errors were detected in the regression model for Saudia Arabia and the GCC, leading us to re-test the independent variables against the dependent ones using the GMM EGLS method. The results of the GMM EGLS were consistent with the OLS regression, reaffirming the validity of our analysis.

Similarly, serial autocorrelation issues were identified in the UAE, leading us to apply the GMM EGLS method for retesting. Again, the results aligned closely with those of the OLS regression, confirming the reliability of our findings. For the remaining GCC countries, no endogeneity problems were detected, validating the accuracy of our OLS regression and panel EGLS methodologies.

Conclusion

Our findings show the significant impact of earnings management practices on regulators, shareholders, board of directors and stakeholders, making it a pressing issue in GCC countries. As a result, the practical implications of this research should focus on three key elements that have the potential to enact new rules and regulations aimed at eliminating earnings management practices.

Additionally, to exert control over executives and ensure ethical behavior, companies should establish an ethical responsibilities matrix that outlines ethical, legal, and economic responsibilities. Executives must adhere to these standards, and failure to comply should result in legal consequences. *"Achieving compliance with Sarbanes-Oxley, a law aimed at improving the accuracy and reliability of corporate financial statements, is dependent on having access to timely, accurate, and complete information and establishing process controls -- the same success factors required to create more secure and efficient global trade operations"*; (Adrian Gonzalez, 2021). Compliance with regulations like the Sarbanes-Oxley Act of 2002, which mandates accurate financial reporting and disclosures, should be enforced rigorously, with penalties including substantial jail time for top management in cases of fraud.

Another practical solution to address the challenges of earnings management involves conducting quarterly seminars and training sessions for both internal and external auditors. These sessions should focus on equipping auditors with the skills to effectively use the Modified Jones Model for detecting earnings management practices.

Regulators and company management should take the lead in establishing rules and guidelines to ensure that internal auditors are adequately trained to fulfill their responsibilities and adhere to corporate policies and procedures. Similarly, regulators and shareholders must ensure that external auditors receive training on using the Modified Jones Model, given its importance in detecting earnings management practices and preventing fraud.

Seminars and training sessions aimed at detecting earnings management should be integrated into companies' regular training routines. Executives must understand that they are under scrutiny from regulators and policy makers, making it essential for them to prioritize ethical behavior and compliance with regulations.

Furthermore, implementing change management strategies within organizations can have a significant effect on staff performance and long-term success. Executives engaging in earnings management practice should understand the importance of making decisions that prioritize employee satisfaction and overcome obstacles without resorting to fraudulent activities, thus fostering an organic company culture.

Change management is a learning process for all stakeholders, and should be implemented through feasible training schemes tailored to the specific context of Kuwait. Executives, as role models for employees, should actively engage in learning opportunities, including: observing ethical managers, receiving coaching from ethical seniors, participating in working parties, joining project teams or attending meetings, participating in job swaps within and without the organization, engaging in planned reading, using of self-teaching methods and blended learning, and learning via involvement in research, report writing and visiting other workplaces or organizations.

The priority in change management should be to promote a shift in behavior and work practices among unethical executives, ensuring that they adopt ethical conduct in their decision-making strategies. By embracing these strategies, organizations can cultivate a culture of integrity and transparency, effectively combating earnings management practices and safeguarding the interests of stakeholders.

Limitations

Due to the sensitive nature of the topic of earnings management in GCC countries, particularly given their shared political regime of monarchy, conducting interviews with executives posed a significant challenge. The fear of potential repercussions, including termination or prosecution, deterred executives from sharing financial or operational information. As a result, we refrained from conducting interviews with company executives. Extracting data from Bloomberg was limited to industrial, energy and manufacturing firms. However, the data for Aramco, the largest oil company, was limited. Despite efforts to gather comprehensive data, the observational data-driven method of narrative research and writing was hindered by these limitations. Instead, to ensure data validity, the researcher examined the annual financial reports of each company separately. However, the required data was not consistently available, particularly for oil companies. As a result, these companies were excluded from the test results.

Further Research

The most effective method for extracting information from executives is through face-to-face interviews, and this avenue could be explored in future research. In addition, there are many other areas not covered in this paper that warrant further attention in future studies, which would assist researchers in detecting earnings management practices more comprehensively. For instance, while the Modified Jones Model stands as the ultimate and most effective model for detecting earnings management practices across industries, except financial services and institutions, it would be worthwhile to investigate if other models exist that can efficiently calculate earnings management practices across all industries, including the financial section. Moreover, to enrich and support our future work, Qualitative research methods will be employed, which require a thorough and complex approach. As one of the researchers operates in GCC countries, he is embedded in the society under study, and thus faced ethical considerations, requiring him to adapt to rules and norms, and sometimes leading to dilemmas with individuals at work concerning earnings management. Conducting ethnographic research will be a valuable future approach, allowing us to intimately engage with individuals and their experiences (Maurer, 2015). Ethnographers will adopt the role of "boundary-crossers", collapsing the lines between theories and personal or political narratives, objective observations and subjective interpretations, the self and the other (Adams *et al.*, 2015). This approach will shed light on how individuals navigate their lives, and the significance of their struggles in GCC countries. Furthermore, combining feedback mechanisms with **behavioral insights** will be key. By narrowing the 'Say/Do' gap in GCC countries, we aim to bridge the gap between what respondents articulate and what they actually intend to **do in the future.** This holistic approach will provide deeper insights into the behaviors and motivations underlying earnings management practices within the GCC context.

References

Aubert F., Gajewski J.-F. et Kermiche L., (2018). How to better detect cases of financial reporting fraud: some new findings from earnings restatements, Handbook of Sustainable Investing and Financial Markets, Editors S. Boubaker, D. Cumming et D.-K. Nguyen, Edward Elgar (UK).

Balsam, S. J. Krishnan, and J.S. Yand. (2003). Auditor industry specialization and earnings quality. Auditing: A Journal of Practice & Theory. Vol. 22, No. 2, p. 71-97.

Barnett, M.L. and Salomon, R.M. (2012) Does It Pay to Be Really Good? Addressing the Shape of the Relationship between Social and Financial Performance. Strategic Management Journal, 33, 1304-1320.

Bassiouny, S., Soliman, M., and Ragab, A. (2016). The Impact of Firm Characteristics on Earnings Management: An Empirical Study on the Listed Firms in Egypt, The Business and Management Review, 7(2): p. 91-101.

Becchetti, L., Ciciretti, R., and Hasan, I. (2007) Corporate Social Responsibility and shareholder's value: An event study analysis. Federal Reserve Bank of Atlanta Working Paper.

Bowen, R. M., Shores, D. (1995). Stakeholders' implicit claims and accounting method choice. Journal of Accounting and Economics, 20(3): p. 255-295.

Charfeddine, L., Riahi, R. and Omri, A. (2013). The determinants of earnings management in developing countries: a study in the Tunisian context, The IUP Journal of Corporate Governance, Vol. 12, No. 1, p. 35–49.

DeAngelo, L. (1986). Accounting numbers as Market Valuation Substitutes: A Study of Management Buyouts of Public Stockholders," The Accounting Review, July, p. 400-420.

Dechow, P, Hutton, A, Kim, J and Sloan, R. (2012). Detecting earnings management: A new approach. Journal of Accounting Research, 50 (2), p. 275-334.

Frost, J., (2021) Variance Inflation Factors (VIFs). https://statisticsbyjim.com/regression/variance-inflation-factors/.

Goel, S. (2012). Demystifying Earnings Management through Accruals Management: An Indian Corporate Study, Vikalpa, 37(1): p. 49-56.

Guay, W., S.P. Kothari, & R.L.Watts., (1996). A Market-Based Evaluation of Discretionary Accruals Model," Journal of Accounting Research, 34: 83-105.

Hamdi, F.M. and Zarai, M.A. (2012). Earnings management to avoid earnings decreases and losses: empirical evidence from Islamic banking industry, Research Journal of Finance and Accounting, Vol. 3, No. 3: 88–107.

Hamza, S. and Bannouri, S. (2015). The detection of real earnings management in MENA countries: the case of Tunisia. Afro-Asian Journal of Finance and Accounting, 2015, Vol. 5, issue 2, p. 135-159.

Healy, P. and Wahlen, J. (1999). A Review of the Earnings Management Literature and its Implication for Standard Setting. Accounting Horizons, 13(4): 365-383.

Hkimi, A., Boulila Taktak, N. (2022). Managing the Risks of Investment Deposit Account in Islamic Banks: An Examination of Mudharaba Contract Between MENA and International Markets. In: Echchabi, A., Grassa, R., Sibanda, W. (eds) Contemporary Research in Accounting and Finance. Palgrave Macmillan, Singapore.

Hessayri, M., Saihi, M. (2015). Monitoring earnings management in emerging markets: IFRS adoption and ownership structure, Journal of Economic and Administrative Sciences, Emerald Group Publishing, vol. 31(2), pages 86-108, November.

Jelinek, K. (2007). The Effect of Leverage Increases on Earnings Management. Journal of Business & Economic Studies, 13(2): 24-46.

Jensen, M., Meckling, W. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. Journal of Financial Economics, 3(4): 305-360. https://doi.org/10.1016/0304-405X(76)90026-X

Jiraporn, P., Miller, G. A., Yoon, S. S. and Kim, Y. S. (2008). Is earnings management opportunistic or beneficial? An agency theory perspective. International Review of Financial Analysis, 17(3): 622-634. https://ssrn.com/abstract=917941

Jha, A. (2013). Earnings Management around Debt Covenant Violations – An Empirical Investigation using a Large Sample of Quarterly Data", Journal of Accounting, Auditing, and Finance, 28(4): 369-396.

Jones, J. (1991). Earnings Management during Import Relief Investigations, Journal of Accounting Research, 29(2): 193-228.

Lee, P. M., & O'Neill, H. M. (2003). Ownership structures and R&D investments of U.S. and Japanese firms: Agency and stewardship perspectives. Academy of Management Journal, 46(2), p. 212-225.

Llukani Maurer, B. (2005) Mutual Life, Limited: Islamic Banking, Alternative Currencies, Lateral Reason. Princeton, NJ: Princeton University Press.

Osma, B. G., and Noguer, B. G. D. A. (2007). The effect of the board composition and its monitoring committees on earnings management: Evidence from Spain. Corporate Governance: An International Review, 15(6): 1413-1428.

Peasnell, K. Pope, P. & Young, S. (2000). Detecting Earnings Management using Cross-Sectional Abnormal Accruals Models, Accounting and Business Research, 30(4): 313-326.

Saleh, N. M., and Ahmed, K. (2005). Earnings management of distressed firms during debt renegotiation, Accounting and Business Research, 35(1): 69-86.

Shehata, N. F. (2017). The status and determinants of Corporate Governance Disclosure: the case of the Gulf Countries. *The Journal Of Developing Areas*, *51*(4), p. 157–165.

Schipper, K. (1989). Commentary on earnings management. Accounting Horizons, 3: 91-102.

Sprouse, R. (1978). The Importance of Earnings in the Conceptual Framework, The Journal of Accountancy, p. 64-71.

Sun, L. Rath, S. (2010). Earnings Management Research: A Review of Contemporary Research Methods. Global Review of Accounting and Finance Volume 1. Number 1. September 2010, p. 121-135.

Sun, Y., Wang, W., Wang, X.F., and Zhang, W. (2013). Shareholder activism and earnings management incentives: an empirical examination of shareholder proposals in the United States. Journal of International Management & Accounting, Vol. 24, issue 3.

Taylor, G. and Xu, R. (2010). Consequences of Real Earnings Management on Subsequent Operating Performance, Research in Accounting Regulation, 22(2): 128-132.

Walker, M. (2013). How far can we trust earnings numbers? What research tells us about earnings management', Accounting and Business Research, Vol. 43, No. 4, p. 445-481.

APPENDIX 1

Research equations and research steps

Measurement of Dependent Variable

Literature review has shown that discretionary accrual (DACC) is calculated as a proxy of earing management. This paper has used earnings management a dependent variable and will measure discretionary accrual using the Modified Jones (1995) Model. Other studies have used different models to estimate DACC[2]. Total Accruals is divided between discretionary and non-discretionary accruals.

The model for discretionary accruals is estimated yearly and by industry. We require at least a certain number of observations for each industry-year grouping. The discretionary accruals are calculated by measuring the non-discretionary accruals as a portion of the total accruals in the Modified Jones model. The Modified Jones (1995) Model is based on the following equation:

Step 1: We have estimated total accrual in year *t*.

$$TACC_t = \Delta CA_t - \Delta Cash - \Delta CL_t + \Delta DCL_t - DEP_t$$

$TACC_t$ = Total accruals in year *t*,
ΔCA_t = Change in current assets in year *t*.
$\Delta Cash$ = Change in cash and cash equivalents in year *t*.
ΔCL_t = Change in current liabilities in year *t*.
ΔDCL_t = Change in short term debt included in current liabilities in year *t*.
DEP_t = Depreciation and amortization expense in year *t*.

Step 2: We have estimated the Modified Jones Model, which is defined below:

$$\frac{TACC_t}{A_{t-1}} = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \alpha_3 \frac{PPE_t}{A_{t-1}} + \varepsilon_t$$

$TACC_t$ = Total accruals in year *t* divided by total assets in year $t-1$.
REV_t = Revenues in year *t* less revenues in year $t-1$.
REC_t = Delta revenues in year *t* less delta net receivables in year $t-1$.
PPE_t = Gross property plant and equipment in year *t*.
A_{t-1} = Total assets in year $t-1$.
α_1, α_2, and α_3 = Parameters estimated, namely alphas.
ε_t = Residuals in year *t*.

Descriptive Statistics

To estimate the alpha parameters (α_1, α_2, and α_3) of the modified jones (1995) model in equation 2, multiple regressions analysis have been used such as ordinary least square regression (OLS). Using these estimated parameters from Equation (2), the non-discretionary accruals (NDA) are calculated, for each sample firm-year observation using the Modified Jones (1995) Model, as shown in Equation (3):

The non-discretionary accruals can be calculated with the next formula:

Step 3: We have calculated the non-discretionary accruals (NDA).

$$\frac{NDACC_t}{A_{t-1}} = \hat{\alpha}_1 \frac{1}{A_{t-1}} + \hat{\alpha}_2 \frac{(\Delta REV_t - \Delta REC_t)}{A_{t-1}} + \hat{\alpha}_3 \frac{PPE_t}{A_{t-1}}$$

Finally, we will calculate the discretionary accruals by finding the difference between total accrual and estimated NDA as shown in the formula below.

Step 4: We have calculated discretionary accruals.

$$(DACC)\_t = (TACC)\_t - (NDACC)\_t$$

Thus, the absolute value of discretionary accruals Abs (DAit) is used as a measure of the degree of EM. This is in line with many prior studies on earnings management which indicate that the study of the quality of results does not impose any direction or sign on the expectations of EM.

2. For example, Dechow *et al*. (1995) assessed and used several models in his studies to calculate earnings management and proved that the Modified Jones (1995) model provides the most powerful analysis. Several other studies support the Modified Jones (1995) model as the most used and the best model for measurement and estimation of DA (Dechow *et al*., 1995; Teoh *et al*., 1998; Francis *et al*., 1999; Xie *et al*., 2003; Saleh and Ahmed, 2005; Atieh, and Hussain, 2012; Alareeni and Aljuaidi, 2014).

APPENDIX 1

Research equations and research steps

The Independent Variable in Earnings management

The independent variable in this paper are financial distress, financial loss and financial performance in which are being analyzed to find the impact of these independent variables on the discretionary accruals. Several statistical methods are being used for the analysis to find the relationship between these variables and to find the impact of independent against the dependent. The analysis is configured based on correlation analysis, variance inflation factors and regression analysis.

Measurement of Independent Variables

This paper used Pearson Correlation analysis, variance inflation factors OLS and EGLS regression methods to examine the impact of financial loss, financial distress, and financial performance on earnings management practices. Financial Loss is measured by nominal scale, '1' for a company suffers from loss in year t and '0' when the company has profit. Financial distress is calculated by total debt ratio which is the total debt over total equity (Waweru and Riro, 2013; Llukani, 2013) and financial performance is measure by net profit over revenue.

However, the methodology first involves estimating values of discretionary accruals (DACC) for each firm based on the Modified Jones (1995) Model. DACC is then incorporated as a dependent variable with the financial loss and financial distress as independent variables, as shown in the following equation:

$(DACC) = \beta 0 + \beta 1(FS) + \beta 2(FL) + \varepsilon jt$

Where:

DACC = Discretionary Accruals calculated by the Modified Jones Model

FL = Financial Distress - Calculated as Total debt ratio (Total Debt to Equity Ratio)

Financial Loss = Dummy variable to identify company's income in year 1. Loss equals 1 if the company's income in year 1 is negative and equals 0, if not

Financial Performance = Net Profit divided by Revenue

Pearson Correlation Analysis

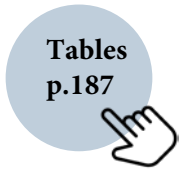
This analysis of Pearson correlation is used to check the relationship between DACC dependent variables) and financial loss, distress, and performance issues (independent variables), and well the independent variables among each other and helps to check for the multicollinearity problem. According to Hair *et al*. (2006), the presence of high correlations (generally 0.90 and above) is the first indicator of substantial multicollinearity.

OLS Regression Method

To test the unknown parameters in this thesis, we have used the ordinary regression method (OLS) which is a type of linear regression model. Statistical OLS regression is mostly a method to predict and calculate the unknown quantities from a set of available data (Victor Powell .n.d). For instance, let's assume that we are about to find the weight and feet size of certain individuals in picked population and then we would need to feet size from weight for some individuals not in the sample picked. When applying the OLS method, we will get an equation that takes the feet size as an independent variable as an input and gives the weight which is the dependent variable as the output.

APPENDIX 2

Consolidated GCC listed companies DACC result



APPENDIX 2

Consolidated GCC listed companies DACC result

Δ(CA)_t		
2017	2018	2019
(294.0)	(386.0)	14.0
(160.0)	3,115.9	(638.9)
8.3	(33.0)	(34.6)
(97.3)	(148.2)	35.1
16.5	38.3	(23.3)
151.7	(305.1)	(86.4)
(36.4)	(26.2)	56.4
32.6	(6.6)	60.1
55.4	(36.4)	(37.9)
(18.2)	17.8	47.6
0.3	156.9	28.5
94.6	(607.0)	(290.2)
(1,234.1)	129.7	(96.2)
592.1	161.3	(674.2)
(370.6)	(52.6)	29.0
93.4	3,199.0	(147.7)
203.2	(170.7)	(135.9)
13.8	251.9	41.5
(552.3)	569.4	590.1
(124.5)	78.6	21.8
(2,431.4)	(1,876.8)	(501.7)
1,194.6	538.6	(3,182.7)
2,040.6	549.8	(413.3)
(140.5)	147.5	(202.1)
(50.2)	(18.7)	(20.1)
95.6	(132.6)	92.4
91.0	42.7	(171.7)
(8.2)	(3.1)	(2.9)
(0.7)	1.3	(0.3)
(1.1)	1.3	(0.1)
118.1	61.1	(43.1)
30.7	14.5	34.1
1.9	(8.7)	2.6
0.6	9.4	7.6
1.3	(5.8)	(0.1)
0.2	(0.1)	0.0
5.1	0.4	(5.2)
12.0	3.9	(3.5)
2.6	2.4	2.0
(50.4)	23.9	(47.7)
(0.5)	1.4	1.5
12.9	35.7	(32.7)
1.7	(0.1)	0.7
2.8	5.6	4.4
(3.6)	(5.2)	15.2
(3.1)	(2.1)	(1.1)
4.5	(3.0)	(0.6)
2.4	7.4	10.2
60.1	(36.5)	4.7
9.7	9.0	10.1
(6.3)	(4.9)	1.7
5.8	(7.9)	11.5
13.6	(2.3)	(6.6)
(3.7)	(10.4)	1.2
3.2	2.7	(8.7)
(2.4)	(8.9)	35.8
(0.8)	(49.3)	43.2
3.7	0.7	(2.5)
25.8	(1.6)	3.0
4.5	(3.7)	(0.7)
86.9	54.3	6.4
1.7	(11.5)	(8.1)
2.6	(0.7)	1.7
1.7	5.2	7.1
20.2	(57.6)	55.7
(251.0)	(241.0)	301.2
3,151.8	1,889.6	(3,116.1)
620.6	3,746.7	(127.7)
(1.8)	(126.4)	(29.5)
(7.6)	10.5	47.9
16.2	(61.6)	(119.3)
27.9	26.3	(15.2)
175.9	442.9	(1,238.3)
10,137.6	(10,175.6)	(20,065.5)
(247.9)	1,057.7	(82.0)
(81.2)	1.5	(88.9)
(40.0)	(66.7)	(44.1)
(9.4)	21.1	81.5
12.2	(103.0)	396.2
(184.8)	79.3	147.6
40.7	20.7	9.5
(39.2)	56.2	233.4
66.5	(45.8)	82.3
(27.2)	(111.8)	22.7
106.3	34.1	87.2
(56.4)	205.0	(141.5)
643.9	695.3	(1,249.6)
213.0	(355.5)	(384.8)
(17.0)	(91.0)	(59.3)
328.5	(638.2)	1,127.8
697.2	2,379.2	(3,757.1)
180.0	101.6	(812.8)
156.9	(252.7)	77.7
25.8	18.1	175.9
(15.5)	(31.4)	69.0
(131.4)	(115.7)	(62.7)
(70.3)	121.8	21.5
7.5	9.7	22.8
1,165.2	200.1	(4,163.7)
(250.1)	44.6	31.3
(20.3)	9.8	(4.8)
19.9	(2.7)	(20.1)
16.6	13.9	(17.7)
33.2	(18.4)	15.4
18.2	54.2	14.7
(82.9)	29.7	(31.5)
(9.3)	73.9	(87.4)
225.2	(140.5)	(14.7)
(249.7)	(0.2)	(77.5)
(70.8)	(15.3)	(69.8)
(63.1)	28.0	135.2
(2.9)	13.7	7.2
(63.6)	58.0	(13.5)
9.6	(11.9)	272.4
(88.2)	(18.4)	18.0
(64.8)	(88.7)	(61.4)
13.8	(125.4)	170.2
(116.0)	(261.4)	(109.8)
(24.8)	8.5	(70.7)
(315.5)	(65.9)	(295.1)

ΔCash		
2017	2018	2019
306.0	(201.0)	18.0
(1,048.0)	2,687.5	(726.9)
(1.1)	35.9	(27.2)
(75.4)	(23.7)	-
(1.5)	11.1	(6.5)
92.0	(192.4)	58.9
(7.2)	(14.3)	52.4
(36.2)	22.7	27.6
0.1	1.1	0.8
(6.1)	14.1	37.5
5.1	8.5	(40.0)
4.5	(80.7)	(29.0)
(205.2)	256.2	(86.6)
425.0	681.9	(679.4)
14.4	(56.9)	(16.0)
(350.5)	1,260.0	(48.0)
216.9	(301.3)	(398.0)
(96.4)	104.8	(56.1)
(646.6)	(45.2)	34.5
57.0	40.0	(109.2)
(728.9)	(246.5)	50.4
1,195.4	631.7	(1,981.5)
209.3	36.6	(24.3)
(139.9)	151.8	(215.9)
5.3	(8.5)	(18.3)
(38.7)	(143.9)	(38.9)
32.3	(2.1)	(103.6)
(0.4)	(0.1)	0.5
(0.1)	(0.7)	(1.0)
(0.2)	(0.5)	0.2
11.0	26.4	(22.5)
(13.7)	(15.9)	32.7
2.0	(9.5)	1.9
(3.3)	(3.4)	(0.8)
(0.0)	0.1	(0.4)
(0.4)	-	(0.0)
0.1	10.2	(2.2)
(1.5)	0.4	1.0
(2.6)	(0.6)	0.7
(7.7)	(1.6)	0.2
0.1	(0.6)	0.2
6.7	24.5	(44.5)
0.6	(0.6)	0.4
0.2	7.1	1.3
(4.0)	0.6	13.6
2.8	(1.1)	(0.5)
5.2	(3.8)	0.6
0.1	6.5	8.8
13.6	(5.4)	0.7
(0.1)	0.8	0.5
(2.4)	(3.2)	(0.0)
0.4	(2.4)	20.9
6.3	(2.3)	(7.4)
(2.4)	(1.6)	-
2.4	2.5	(8.7)
(2.0)	2.3	2.9
(0.6)	(2.1)	8.0
2.4	0.9	(3.0)
2.8	1.5	(3.2)
3.1	(2.4)	(0.7)
31.4	0.2	5.0
(1.6)	(2.0)	0.1
3.2	(1.6)	2.8
4.3	1.1	7.7
7.5	(0.0)	52.1
325.8	(269.0)	17.3
(1,254.8)	1,136.8	(947.6)
(18.1)	1,041.5	(1,788.3)
(55.0)	(66.0)	(27.2)
(23.2)	17.3	56.3
19.3	(121.3)	(6.7)
(6.8)	13.0	16.0
(355.5)	985.7	(765.9)
18,790.9	(53,912.2)	1,390.6
(40.4)	509.0	(61.0)
(1.7)	(31.6)	30.3
(35.8)	(1.0)	10.1
(80.3)	1.1	69.5
(4.2)	56.5	(129.8)
(98.3)	30.0	230.9
16.9	(7.1)	(7.9)
(115.1)	(8.2)	235.1
(13.1)	(46.5)	125.3
(38.6)	(50.1)	3.7
17.3	(26.8)	34.0
(56.9)	(63.1)	44.8
273.8	999.7	(448.6)
(624.0)	(1,026.1)	110.1
0.2	(1.4)	(10.9)
(99.9)	(709.2)	777.8
1,127.0	(137.4)	(1,463.9)
(192.7)	(67.5)	(144.8)
38.0	(241.7)	(42.3)
75.6	17.9	(240.0)
(19.3)	37.3	(27.1)
(29.2)	(78.6)	(43.9)
(63.9)	(50.3)	57.6
3.7	(3.1)	4.0
105.2	373.8	(185.8)
(66.5)	6.3	91.7
(27.9)	4.4	39.6
(14.5)	(18.9)	(18.4)
(7.2)	12.4	(17.9)
(3.4)	(2.2)	(5.6)
(18.2)	(2.5)	8.8
(19.0)	(9.2)	5.0
(10.4)	(7.6)	(18.6)
7.6	(3.3)	6.5
(54.0)	(32.8)	(20.2)
32.8	(32.2)	(3.8)
(0.8)	(9.9)	3.3
0.6	(3.0)	0.8
0.2	39.7	(23.4)
(35.4)	2.2	44.0
(42.3)	3.1	17.2
(12.7)	1.5	(1.4)
54.6	(31.3)	52.2
54.3	(68.1)	(8.4)
(18.4)	(3.2)	(68.6)
3.5	(26.3)	(3.5)

Δ(CL)_t		
2017	2018	2019
(28.0)	(731.0)	350.0
1,935.8	2,611.4	(930.3)
188.4	59.9	(214.9)
(184.3)	74.4	6.4
21.6	(4.0)	23.8
(66.4)	10.7	55.0
(5.2)	(3.1)	(24.5)
62.9	758.5	11.8
77.6	(7.3)	56.2
(34.2)	(24.0)	(3.8)
(16.3)	113.9	120.5
41.9	566.1	(167.6)
(944.9)	(136.1)	88.4
107.3	904.6	32.4
(261.2)	72.1	7.0
201.1	(58.1)	(102.2)
78.4	20.1	(62.6)
139.2	(130.5)	(35.7)
(126.4)	212.0	538.0
(114.2)	37.6	59.6
#######	(1,144.2)	114.8
1,018.0	207.5	(1,493.0)
3,076.1	3.9	(24.8)
41.5	47.8	(22.1)
2.8	1.2	14.0
31.2	(157.4)	78.7
52.9	13.0	(125.3)
10.7	(20.7)	1.0
(0.5)	2.0	0.2
0.0	0.2	(0.2)
0.6	122.7	156.0
21.9	(7.7)	192.9
0.3	(1.5)	(1.7)
(1.1)	6.7	44.3
2.2	(1.3)	0.6
1.0	(0.2)	(0.5)
3.6	(5.3)	(8.1)
7.2	3.2	(3.1)
(0.3)	(0.4)	0.6
(35.7)	(19.9)	(35.4)
(3.2)	4.1	7.1
2.4	38.3	(34.1)
1.1	0.4	0.4
0.2	(0.2)	(1.3)
(0.4)	(9.0)	(0.4)
(1.5)	(0.9)	0.4
(0.2)	0.2	0.6
0.8	0.1	(0.1)
75.0	(28.2)	(2.1)
5.9	12.1	(6.2)
(0.4)	(3.4)	0.8
(9.7)	(12.7)	(5.3)
10.4	(4.9)	(5.2)
5.7	(3.4)	(0.3)
(0.7)	5.7	(4.8)
13.5	(9.9)	29.1
9.6	(34.3)	26.5
0.8	4.6	(8.6)
29.3	(3.9)	(4.7)
(0.2)	1.0	(0.2)
103.5	(46.8)	(16.0)
0.1	(0.1)	(5.4)
1.0	(0.9)	1.1
0.7	(3.1)	0.4
91.2	352.1	(100.8)
(18.8)	69.8	268.3
2,540.9	11,015.9	3,056.3
12.5	173.8	662.3
3.4	(12.2)	12.1
(19.4)	20.2	25.5
44.6	(28.1)	(24.8)
(8.7)	90.4	39.0
145.8	1,197.8	(1,352.6)
6,919.1	(11,191.0)	434.8
(92.8)	70.0	(173.9)
97.9	61.9	44.0
(12.9)	(48.7)	306.9
6.0	16.6	(10.5)
17.9	(86.3)	431.9
(160.4)	29.6	29.6
(97.9)	10.4	15.4
(82.4)	(134.8)	(10.2)
(18.4)	25.5	(57.3)
(61.1)	(69.7)	(31.4)
(112.6)	35.8	25.2
42.1	413.6	(152.2)
385.4	1,159.0	(1,225.1)
(208.1)	(979.3)	(191.1)
(74.4)	79.6	(8.5)
(254.0)	83.4	6.0
(142.4)	(54.5)	(409.2)
42.7	1,032.0	(1,040.7)
12.0	(49.7)	61.1
(17.4)	(80.8)	(5.7)
(10.6)	14.4	6.3
0.4	20.1	48.8
94.8	86.5	1.8
5.5	0.8	15.8
(980.5)	2,169.4	(3,868.4)
(195.6)	(55.2)	(470.6)
(2.6)	(0.2)	0.8
24.9	29.8	(6.6)
6.8	13.9	14.9
6.6	(78.9)	66.4
(72.1)	94.0	11.7
3.6	(10.0)	(10.1)
42.7	23.8	(63.4)
244.2	(13.2)	(49.1)
451.0	109.1	(389.2)
(55.6)	(23.0)	(28.6)
(121.7)	100.5	275.6
(6.3)	14.8	7.4
(1.8)	1.1	(1.5)
(69.3)	67.1	312.1
(71.2)	(18.4)	13.4
(133.6)	(59.7)	(113.3)
213.6	(0.3)	(155.2)
(66.1)	(195.7)	(292.7)
3.2	8.4	(1.3)
(61.6)	34.5	42.7

Δ(DCL)_t		
2017	2018	2019
-	-	-
-	-	-
-	332.2	(197.5)
-	-	-
6.3	3.2	1.7
45.9	2.1	30.2
1.2	(5.6)	(23.2)
(95.0)	703.4	90.6
4.4	14.0	26.9
(1.5)	(18.2)	0.7
(55.1)	(1.9)	34.0
-	-	-
(392.7)	(142.6)	45.4
186.9	1,019.5	(6.3)
-	-	-
-	-	-
-	-	-
-	-	-
(42.2)	36.9	(82.0)
(3.4)	40.8	26.7
(2,454.2)	(1,096.8)	(4.1)
-	-	-
735.7	(203.4)	(36.6)
0.4	0.4	25.4
(4.6)	0.5	(0.1)
-	-	-
-	0.5	(0.2)
11.0	(17.7)	(0.6)
-	-	-
-	-	-
(23.2)	52.5	78.4
5.4	0.0	0.8
1.0	1.0	(2.1)
-	1.1	18.8
(0.3)	0.7	(1.1)
(0.1)	(0.0)	-
-	-	-
1.1	(12.2)	-
-	-	-
(7.7)	(5.4)	(3.3)
(3.0)	2.0	3.4
(1.8)	(1.5)	(1.7)
-	-	-
-	-	-
-	2.6	(2.6)
-	-	-
-	-	-
3.7	1.0	0.2
(2.3)	(1.9)	(2.3)
(1.4)	(0.9)	0.1
0.0	(1.6)	0.6
(3.7)	-	-
-	-	-
2.5	(2.8)	(1.1)
-	-	-
5.5	(3.2)	21.8
-	-	-
(6.7)	(1.4)	3.2
0.7	(6.9)	1.3
-	-	-
80.8	(80.4)	(30.4)
(3.5)	(0.1)	0.4
-	-	-
-	-	-
19.0	191.6	18.5
74.1	(187.5)	(3.4)
582.3	9,293.3	4,345.2
443.7	227.3	(629.8)
-	-	0.9
-	-	0.3
72.5	(26.2)	(11.6)
(19.0)	(6.6)	10.2
27.4	6.7	(151.4)
(399.4)	(8,623.2)	4,466.6
0.0	0.1	13.4
13.2	126.7	(47.5)
0.7	(39.6)	310.2
4.0	18.0	(9.7)
0.5	1.1	8.6
(57.5)	-	1.2
(65.2)	17.6	18.3
-	-	-
(6.7)	(34.8)	0.4
(67.0)	(88.5)	(48.6)
10.3	21.7	11.6
(106.4)	9.0	26.6
27.4	6.7	(151.4)
(528.9)	(930.4)	14.1
3.2	87.0	18.3
(174.0)	271.1	(289.4)
(161.8)	(77.6)	17.3
(30.0)	(10.0)	1.2
36.8	(64.5)	25.2
-	-	2.7
-	-	-
-	-	79.0
-	-	7.2
-	-	-
(1,578.1)	2,405.1	(2,378.6)
35.0	(40.0)	55.0
-	-	-
2.2	(0.6)	5.1
1.2	11.3	(1.5)
10.8	4.0	18.7
(60.8)	9.1	11.4
(6.3)	45.6	3.0
8.0	(8.8)	2.8
20.3	22.0	(8.0)
(166.1)	(10.0)	(3.2)
(33.3)	(65.7)	3.2
(9.1)	3.5	22.2
-	-	0.5
-	-	0.0
(40.9)	(60.6)	2.7
-	-	0.7
(24.3)	(86.4)	1.1
208.2	100.7	(263.5)
0.3	(85.9)	(150.5)
(4.1)	8.1	(0.3)
38.1	52.8	(254.1)

Step 1 Results

DEP			TACC			A_(t-1)				1 TACC / A (t-1)		
2017	2018	2019	2017	2018	2019	2016 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A
111.0	113.0	103.0	(683.0)	433.0	(457.0)	3,765.0	3,782.0	3,167.0	3,202.0	-0.18	0.11	-0.14
460.7	532.1	533.2	(1,508.5)	(2,715.1)	485.1	11,438.3	12,205.4	15,621.6	15,010.2	-0.13	-0.22	0.03
15.0	17.1	17.5	(194.1)	186.4	(7.4)	2,100.9	2,043.1	1,956.8	1,785.0	-0.09	0.09	0.00
23.3	31.5	26.9	139.2	(230.4)	1.8	1,260.9	1,159.8	938.3	977.0	0.11	-0.20	0.00
30.4	28.7	29.3	(27.7)	5.7	(68.1)	635.2	650.2	665.7	606.8	-0.04	0.01	-0.10
150.8	139.4	135.1	21.1	(260.8)	(305.3)	5,756.3	5,801.0	5,497.0	5,486.8	0.00	-0.04	-0.06
34.7	33.4	32.2	(57.4)	(47.8)	(26.9)	1,215.6	1,102.5	1,030.1	989.9	-0.05	-0.04	-0.03
81.4	75.8	72.7	(170.5)	(160.2)	38.5	3,492.0	3,408.8	3,333.3	3,481.4	-0.05	-0.05	0.01
10.2	8.3	6.7	(28.2)	(24.4)	(74.6)	691.7	720.6	642.6	599.2	-0.04	-0.03	-0.12
31.6	28.9	31.7	(11.0)	(19.4)	(17.0)	409.5	379.0	387.7	478.6	-0.03	-0.05	-0.04
54.7	56.3	63.7	(98.4)	(23.7)	(81.7)	1,791.7	1,835.2	2,032.2	2,155.3	-0.05	-0.01	-0.04
88.3	84.6	82.3	(40.1)	(1,177.0)	(175.9)	3,473.4	3,527.7	2,892.4	2,450.4	-0.01	-0.33	-0.06
9.9	10.0	12.9	(486.7)	(142.9)	(65.5)	10,014.9	8,669.8	9,046.2	9,020.6	-0.05	-0.02	-0.01
444.8	279.5	278.9	(198.1)	(685.2)	(312.4)	15,226.0	15,843.6	18,137.4	17,494.1	-0.01	-0.04	-0.02
6.0	5.7	5.2	(129.8)	(73.6)	32.9	1,054.5	1,397.8	1,370.1	1,422.2	-0.12	-0.05	0.02
225.4	237.4	237.4	17.4	1,759.7	(234.9)	35,185.8	35,225.8	37,069.7	35,870.3	0.00	0.05	-0.01
140.0	155.1	174.9	(232.1)	(44.7)	149.8	3,709.6	3,898.0	3,773.0	3,498.2	-0.06	-0.01	0.04
91.1	91.3	104.2	(120.2)	186.2	29.0	4,597.8	4,581.2	4,738.4	4,778.8	-0.03	0.04	0.01
487.3	489.1	434.4	(308.8)	(49.5)	(498.7)	11,117.4	10,428.5	10,342.9	10,766.9	-0.03	0.00	-0.05
25.4	25.1	23.5	(96.1)	16.7	74.6	2,039.7	2,062.3	2,291.0	2,527.8	-0.05	0.01	0.03
284.0	273.9	265.6	(1,596.5)	(1,856.8)	(936.6)	22,057.6	18,805.4	17,807.5	17,670.8	-0.07	-0.10	-0.05
197.8	190.4	209.1	(1,216.7)	(491.1)	82.7	11,339.7	12,431.3	13,774.8	12,653.2	-0.11	-0.04	0.01
75.9	96.9	92.0	(585.0)	209.0	(492.8)	7,731.9	11,561.5	12,999.3	13,436.8	-0.08	0.02	-0.04
57.7	66.1	111.2	(99.5)	(117.9)	(49.8)	2,209.3	2,219.4	2,400.9	2,545.8	-0.05	-0.05	-0.02
28.2	31.4	27.4	(91.0)	(42.2)	(43.3)	1,205.8	1,183.6	1,204.9	1,294.8	-0.08	-0.04	-0.04
59.8	70.8	60.0	43.3	97.9	(7.5)	2,142.9	2,242.3	2,068.2	2,142.1	0.02	0.04	0.00
4.7	4.0	4.1	1.1	28.3	52.9	520.9	615.2	641.4	510.8	0.00	0.05	0.08
2.6	5.7	5.5	(10.2)	(5.9)	(10.5)	188.8	171.0	162.3	154.1	-0.05	-0.03	-0.06
0.6	0.6	0.6	(0.8)	(0.7)	(0.2)	22.7	22.0	24.7	26.0	-0.03	-0.03	-0.01
0.3	0.4	0.4	(1.2)	1.1	(0.5)	14.5	13.8	14.3	15.2	-0.08	0.08	-0.03
71.4	64.8	80.3	11.8	(100.3)	(178.6)	1,173.7	1,686.2	2,208.9	2,420.3	0.01	-0.06	-0.08
66.3	70.1	66.2	(38.4)	(31.9)	(256.9)	950.9	932.5	912.4	992.9	-0.04	-0.03	-0.28
1.4	1.5	0.9	(0.7)	1.9	(0.6)	162.6	165.8	168.4	174.3	0.00	0.01	0.00
7.0	7.4	6.5	(2.0)	(0.3)	(23.6)	208.5	195.2	199.8	254.8	-0.01	0.00	-0.12
2.3	2.3	1.9	(3.5)	(6.1)	(3.3)	69.9	68.1	55.9	55.7	-0.05	-0.09	-0.06
0.7	0.7	0.8	(1.2)	(0.6)	(0.2)	12.4	13.3	12.9	12.8	-0.10	-0.04	-0.01
3.7	3.6	3.6	(2.2)	(8.2)	1.5	140.2	142.1	139.4	134.0	-0.02	-0.06	0.01
2.0	2.1	1.9	5.4	(13.9)	(3.3)	58.1	68.9	71.9	67.5	0.09	-0.20	-0.05
2.1	2.1	2.0	3.4	1.2	(1.3)	43.0	42.4	41.1	42.7	0.08	0.03	-0.03
20.3	14.5	17.7	(35.0)	25.4	(33.6)	484.8	426.3	419.5	304.4	-0.07	0.06	-0.08
1.1	1.8	3.0	(1.6)	(1.9)	(5.5)	75.0	80.6	89.5	92.1	-0.02	-0.02	-0.06
2.4	2.3	1.9	(0.4)	(30.9)	42.3	285.3	294.9	330.4	298.7	0.00	-0.10	0.13
2.2	2.0	2.0	(2.2)	(2.0)	(2.0)	65.9	63.9	61.4	60.3	-0.03	-0.03	-0.03
1.9	2.0	2.0	0.4	(3.2)	2.4	32.4	38.4	44.5	48.2	0.01	-0.08	0.05
1.2	0.9	0.8	(0.4)	4.9	(1.4)	51.2	48.5	33.7	32.1	-0.01	0.10	-0.04
0.9	0.8	0.6	(5.3)	(0.8)	(1.7)	27.9	22.9	20.1	15.7	-0.19	-0.03	-0.08
0.0	0.0	0.0	(0.6)	0.6	(1.8)	46.2	46.5	44.3	23.4	-0.01	0.01	-0.04
2.5	3.6	3.9	2.7	(1.7)	(2.1)	85.7	98.5	109.9	118.3	0.03	-0.02	-0.02
9.0	10.9	9.8	(39.7)	(15.7)	(6.1)	259.2	329.3	288.7	294.8	-0.15	-0.05	-0.02
6.3	8.4	9.0	(3.8)	(13.2)	7.0	147.7	161.6	180.8	189.2	-0.03	-0.08	0.04
1.2	1.1	1.2	(4.8)	(1.1)	0.3	30.7	27.6	20.6	20.7	-0.15	-0.04	0.01
1.4	1.1	1.0	10.1	6.2	(5.1)	177.2	177.9	177.2	194.4	0.06	0.03	-0.03
4.0	5.7	5.7	(7.0)	(0.8)	0.3	82.9	95.4	91.6	92.5	-0.08	-0.01	0.00
2.5	2.4	2.4	(6.9)	(10.6)	(2.1)	129.8	137.4	132.8	160.4	-0.05	-0.08	-0.02
0.8	0.8	0.7	0.6	(6.3)	4.2	43.5	53.2	71.2	119.6	0.01	-0.12	0.06
5.6	6.2	6.4	(14.0)	(10.7)	19.3	196.1	198.0	188.9	239.6	-0.07	-0.05	0.10
6.1	3.5	3.2	(16.0)	(16.4)	5.5	400.5	407.7	310.4	426.3	-0.04	-0.04	0.02
10.6	10.8	8.1	(16.7)	(17.1)	4.1	93.2	92.3	95.9	93.2	-0.18	-0.18	0.04
2.0	3.1	3.2	(7.6)	(9.3)	9.0	39.6	68.9	66.5	64.9	-0.19	-0.13	0.14
0.1	0.1	0.1	1.5	(2.3)	0.2	23.3	23.9	25.0	25.0	0.07	-0.10	0.01
29.8	31.4	60.5	3.0	(10.9)	(73.5)	1,544.0	1,728.9	1,843.2	2,082.1	0.00	-0.01	-0.04
8.9	8.3	9.8	(9.3)	(17.8)	(12.3)	300.4	305.7	301.9	316.0	-0.03	-0.06	-0.04
3.1	3.0	3.1	(4.7)	(1.2)	(5.4)	112.9	113.7	112.0	114.3	-0.04	-0.01	-0.05
0.0	0.0	0.0	(3.4)	7.2	(1.0)	374.5	380.8	441.0	465.0	-0.01	0.02	0.00
5.8	6.1	6.6	(65.3)	(224.2)	116.3	1,541.3	1,790.2	3,431.5	3,585.2	-0.04	-0.13	0.03
4.9	5.8	6.0	(488.7)	(235.1)	6.1	20,837.3	21,182.6	21,197.6	20,560.8	-0.02	-0.01	0.00
108.0	100.2	128.8	2,340.1	(1,069.8)	(1,008.4)	58,246.1	61,675.0	64,094.0	74,029.7	0.04	-0.02	-0.02
37.0	51.5	48.6	1,032.9	2,707.1	319.9	94,142.8	95,117.0	98,138.3	97,657.6	0.01	0.03	0.00
5.0	4.3	4.8	44.8	(52.5)	(18.3)	660.9	681.1	692.6	756.4	0.07	-0.08	-0.03
2.8	2.3	1.7	32.2	(29.3)	(35.3)	581.4	560.3	562.9	603.2	0.06	-0.05	-0.06
5.3	3.8	2.7	19.5	57.9	(102.0)	2,310.6	2,257.1	2,120.7	1,943.0	0.01	0.03	-0.05
2.4	1.7	1.6	22.1	(85.4)	(61.6)	1,221.1	1,215.6	1,152.2	1,118.9	0.02	-0.07	-0.05
21.0	10.8	9.3	391.9	(1,744.8)	719.5	22,259.6	21,612.5	21,018.8	19,015.7	0.02	-0.08	0.03
758.7	1,003.2	1,562.7	(16,730.6)	45,301.2	(18,987.1)	313,854.7	321,610.8	319,710.9	300,480.6	-0.05	0.14	-0.06
16.6	13.1	28.8	(131.3)	465.7	137.6	8,227.7	8,346.9	9,504.5	9,662.5	-0.02	0.06	0.01
4.4	5.6	4.0	(168.7)	92.3	(214.7)	2,342.2	2,178.8	2,105.7	1,966.4	-0.07	0.04	-0.10
2.3	1.8	1.7	7.0	(58.2)	(52.7)	2,867.8	2,731.2	2,577.5	2,484.3	0.00	-0.02	-0.02
2.1	1.5	0.3	66.8	19.9	12.6	1,367.4	1,322.5	1,285.6	1,313.9	0.05	0.02	0.01
4.2	5.1	3.7	(5.2)	(77.2)	98.9	1,251.3	1,250.2	1,150.1	1,552.1	0.00	-0.06	0.09
2.7	3.0	2.4	13.8	16.7	(114.1)	2,693.6	2,435.0	2,514.2	2,764.9	0.01	0.01	-0.05
2.3	2.3	2.3	54.1	32.6	18.0	1,927.6	1,884.2	1,874.2	1,813.9	0.03	0.02	0.01
1.4	1.4	1.4	156.9	197.8	7.1	4,273.6	4,156.7	4,115.6	4,200.2	0.04	0.05	0.00
2.7	2.7	3.0	88.6	(62.3)	11.8	4,022.1	3,942.4	3,734.3	3,690.5	0.02	-0.02	0.00
4.4	3.7	2.8	1.1	(84.2)	(0.9)	2,513.2	2,418.2	2,280.3	2,319.3	0.00	-0.03	0.00
0.3	0.4	0.3	211.5	46.5	39.2	1,157.2	1,231.0	1,229.8	1,266.6	0.18	0.04	0.03
25.0	22.6	31.9	(173.0)	(159.2)	(39.4)	5,810.6	5,681.7	5,763.2	5,643.4	-0.03	-0.03	-0.01
21.3	11.4	9.8	(9.3)	(1,468.1)	262.9	25,202.5	25,022.9	24,387.5	22,207.3	0.00	-0.06	0.01
12.9	20.4	38.0	503.3	699.2	(327.7)	20,185.8	19,764.5	19,072.1	18,070.4	0.02	0.04	-0.02
8.2	6.8	1.9	52.2	(89.0)	(23.5)	1,319.5	1,253.8	1,026.7	935.8	0.04	-0.07	-0.02
58.8	71.6	84.2	449.7	187.1	(29.6)	15,803.5	15,980.2	15,379.9	23,991.3	0.03	0.01	0.00
8.3	7.6	23.6	(457.4)	2,485.9	(1,890.2)	41,030.5	40,311.3	40,694.9	35,327.8	-0.01	0.06	-0.05
9.6	9.4	10.8	290.4	(882.2)	363.1	4,422.6	4,552.3	4,696.4	3,802.6	0.07	-0.19	0.08
5.8	5.5	5.1	137.9	(31.3)	79.0	3,816.4	3,934.1	3,586.1	3,646.9	0.04	-0.01	0.02
0.8	0.7	1.2	(33.2)	80.4	422.9	2,239.5	2,270.0	2,224.6	2,331.4	-0.01	0.04	0.19
0.5	0.9	1.0	13.9	(84.0)	88.9	2,026.7	1,988.9	1,898.7	2,056.7	0.01	-0.04	0.05
3.9	4.1	4.3	(106.6)	(61.3)	7.1	3,661.2	4,654.1	5,307.7	5,565.5	-0.03	-0.01	0.00
16.2	13.1	10.5	(117.4)	72.6	(41.2)	4,161.2	3,935.8	3,927.2	3,909.3	-0.03	0.02	-0.01
2.2	4.9	5.1	(3.9)	7.0	(2.1)	47.2	74.7	92.5	110.3	-0.08	0.09	-0.02
76.4	24.1	36.5	386.0	38.0	(2,524.6)	32,585.5	33,993.2	33,565.8	23,018.8	0.01	0.00	-0.08
6.3	6.7	6.6	40.6	46.8	458.7	3,251.6	3,113.5	3,190.0	3,218.8	0.01	0.02	0.14
0.6	0.6	0.6	9.6	5.0	(45.7)	485.7	450.7	467.6	464.3	0.02	0.01	-0.10
0.3	1.5	2.0	11.3	(15.6)	8.1	225.7	244.5	308.1	292.1	0.05	-0.06	0.03
0.8	0.9	1.0	17.3	(2.0)	(17.1)	721.3	808.6	804.8	739.2	0.02	0.00	-0.02
2.9	2.8	2.7	37.9	63.9	(29.3)	1,539.7	1,549.0	1,505.7	1,576.8	0.02	0.04	-0.02
0.3	0.3	0.7	47.5	(28.5)	5.0	390.6	403.1	477.8	489.8	0.12	-0.07	0.01
2.7	4.0	3.3	(76.5)	90.4	(26.7)	1,610.7	1,427.2	1,402.8	1,302.6	-0.05	0.06	-0.02
2.2	2.1	1.9	(35.9)	46.9	(4.4)	546.2	524.6	583.4	452.4	-0.07	0.09	-0.01
25.1	25.7	28.1	(31.4)	(127.6)	(8.2)	1,069.6	1,287.6	1,127.6	1,133.9	-0.03	-0.10	-0.01
9.4	12.6	13.3	(822.3)	(99.1)	315.4	3,123.6	2,966.9	2,839.5	2,820.6	-0.26	-0.03	0.11
6.5	5.5	5.0	(87.9)	(31.3)	(39.2)	1,181.9	1,108.3	1,091.0	1,016.6	-0.07	-0.03	-0.04
6.6	6.7	12.6	43.6	(65.9)	(134.1)	1,937.3	1,855.3	1,710.6	2,252.9	0.02	-0.04	-0.08
0.5	0.7	1.1	2.2	1.3	(1.6)	133.3	132.7	147.0	156.7	0.02	0.01	-0.01
0.3	0.3	0.3	(62.3)	16.9	11.0	116.2	19.1	76.7	62.8	-0.54	0.89	0.14
8.5	3.7	4.0	64.9	(145.5)	(85.0)	1,573.3	1,649.9	1,620.4	1,965.7	0.04	-0.09	-0.05
14.3	13.7	13.9	10.9	(16.8)	(25.8)	466.2	363.8	333.8	345.8	0.02	-0.05	-0.08
1.4	1.8	1.4	55.8	(118.7)	52.9	1,041.2	857.4	747.8	674.3	0.05	-0.14	0.07
18.9	17.6	27.4	(65.0)	(10.9)	(17.7)	3,045.6	2,909.2	2,866.2	2,989.1	-0.02	0.00	-0.01
20.0	12.1	6.0	(123.8)	(95.6)	34.8	2,245.5	1,954.1	1,396.6	1,247.5	-0.06	-0.05	0.02
3.6	3.6	4.1	(17.3)	7.7	(5.2)	643.9	643.2	710.7	673.8	-0.03	0.01	-0.01
8.4	7.6	7.6	(227.6)	(28.9)	(596.0)	3,411.3	3,178.9	2,869.0	2,418.8	-0.07	-0.01	-0.21

2 term1 | | | 3 term2

1 / A (t-1)			Δ(REV)_t			Δ(REC)(t)			(Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A
0.00	0.00	0.00	58.0	20.0	(11.0)	(743.0)	(76.0)	(28.0)	0.21	0.03	0.01
0.00	0.00	0.00	2,086.2	3,137.2	(1,556.5)	507.1	18.4	831.2	0.14	0.26	(0.15)
0.00	0.00	0.00	(48.6)	21.5	(35.6)	(5.7)	(11.8)	(19.7)	(0.02)	0.02	(0.01)
0.00	0.00	0.00	(215.7)	(258.6)	(133.8)	61.7	42.7	73.0	(0.22)	(0.26)	(0.22)
0.00	0.00	0.00	(30.3)	30.0	(47.5)	2.0	22.0	(0.6)	(0.05)	0.01	(0.07)
0.00	0.00	0.00	61.8	(126.4)	(154.0)	103.9	(118.1)	17.0	(0.01)	(0.00)	(0.03)
0.00	0.00	0.00	(53.9)	(25.1)	8.4	(23.1)	(18.5)	3.3	(0.03)	(0.01)	0.00
0.00	0.00	0.00	95.8	59.0	(65.2)	66.7	(20.7)	(3.4)	0.01	0.02	(0.02)
0.00	0.00	0.00	23.5	(5.0)	(17.2)	13.0	(6.9)	(10.0)	0.02	0.00	(0.01)
0.00	0.00	0.00	(0.4)	6.5	(29.7)	(5.3)	(0.9)	(11.1)	0.01	0.02	(0.05)
0.00	0.00	0.00	37.2	(53.1)	(29.3)	7.9	34.9	18.8	0.02	(0.05)	(0.02)
0.00	0.00	0.00	(299.9)	(434.8)	(418.3)	(13.1)	(487.9)	(191.0)	(0.08)	0.02	(0.08)
0.00	0.00	0.00	######	(317.7)	7.6	(560.5)	(83.6)	17.1	(0.07)	(0.03)	(0.00)
0.00	0.00	0.00	(32.4)	(600.3)	(204.5)	258.9	(460.0)	15.9	(0.02)	(0.01)	(0.01)
0.00	0.00	0.00	21.5	(42.9)	17.2	(0.8)	(18.7)	24.7	0.02	(0.02)	(0.01)
0.00	0.00	0.00	(45.8)	1,162.5	(695.2)	73.3	(878.3)	18.0	(0.00)	0.06	(0.02)
0.00	0.00	0.00	(110.8)	(185.6)	(145.1)	52.5	49.3	25.7	(0.04)	(0.06)	(0.05)
0.00	0.00	0.00	(86.0)	(37.2)	(73.2)	8.7	32.4	27.7	(0.02)	(0.02)	(0.02)
0.00	0.00	0.00	(585.9)	116.3	491.6	43.5	38.2	220.9	(0.06)	0.01	0.03
0.00	0.00	0.00	(695.7)	(38.8)	(6.2)	(198.6)	(26.1)	7.4	(0.24)	(0.01)	(0.01)
0.00	0.00	0.00	(60.3)	(71.2)	(18.5)	44.2	(62.6)	(37.5)	(0.00)	(0.00)	0.00
0.00	0.00	0.00	3,647.6	5,783.0	(708.6)	(48.8)	222.0	(1,032.6)	0.33	0.45	0.02
0.00	0.00	0.00	2,155.7	3,732.2	818.2	613.6	(5.2)	369.1	0.20	0.32	0.03
0.00	0.00	0.00	260.7	130.8	(10.8)	(1.7)	(5.4)	0.9	0.12	0.06	(0.00)
0.00	0.00	0.00	1.6	13.6	6.5	(32.6)	(20.0)	3.2	0.03	0.03	0.00
0.00	0.00	0.00	(13.3)	46.0	113.8	10.4	5.4	3.2	(0.01)	0.02	0.05
0.00	0.00	0.00	51.5	20.2	31.7	3.9	(2.1)	0.9	0.09	0.04	0.05
0.01	0.01	0.01	(0.9)	(0.4)	(3.3)	(2.3)	(3.4)	(2.3)	0.01	0.02	(0.01)
0.04	0.05	0.04	0.5	0.1	(0.0)	0.2	0.3	0.2	0.02	(0.01)	(0.01)
0.07	0.07	0.07	6.2	1.5	(0.5)	0.1	0.6	(0.1)	0.42	0.06	(0.03)
0.00	0.00	0.00	188.0	53.6	118.1	26.1	(9.4)	24.1	0.14	0.04	0.04
0.00	0.00	0.00	12.3	26.4	(4.4)	10.7	26.1	6.8	0.00	0.00	(0.01)
0.01	0.01	0.01	2.4	(0.4)	(0.4)	0.0	0.9	0.2	0.01	(0.01)	(0.00)
0.00	0.01	0.01	(20.7)	19.1	(6.9)	(2.5)	12.2	7.7	(0.09)	0.04	(0.07)
0.01	0.01	0.02	(0.9)	(2.9)	0.8	0.0	0.3	(0.2)	(0.01)	(0.05)	0.02
0.08	0.08	0.08	(0.2)	(0.2)	(1.0)	0.1	0.3	0.2	(0.02)	(0.04)	(0.09)
0.01	0.01	0.01	13.6	4.8	(36.9)	0.8	(3.0)	(8.6)	0.09	0.05	(0.20)
0.02	0.01	0.01	28.3	19.5	(12.2)	9.7	(2.4)	0.7	0.32	0.32	(0.18)
0.02	0.02	0.02	(0.6)	(1.7)	0.7	1.4	(0.3)	0.0	(0.05)	(0.03)	0.02
0.00	0.00	0.00	(47.8)	(3.9)	(40.3)	(28.0)	13.3	(58.4)	(0.04)	(0.04)	0.04
0.01	0.01	0.01	0.7	4.6	2.5	(0.5)	1.3	0.1	0.02	0.04	0.03
0.00	0.00	0.00	29.5	217.9	(97.0)	(5.5)	8.1	9.3	0.12	0.71	(0.32)
0.02	0.02	0.02	(5.2)	(1.0)	1.1	0.5	(0.7)	0.2	(0.09)	(0.00)	0.01
0.03	0.03	0.02	3.2	3.7	1.7	1.6	(3.8)	4.4	0.05	0.19	(0.06)
0.02	0.02	0.03	(5.1)	(1.5)	(0.6)	(0.0)	(3.0)	0.7	(0.10)	0.03	(0.04)
0.04	0.04	0.05	(1.3)	(0.3)	(0.2)	0.3	(2.5)	0.1	(0.06)	0.10	(0.01)
0.02	0.02	0.02	(0.2)	0.4	(0.1)	(0.7)	-	(0.0)	0.01	0.01	(0.00)
0.01	0.01	0.01	7.3	7.5	4.0	2.5	1.1	1.4	0.06	0.06	0.02
0.00	0.00	0.00	47.4	30.0	(62.1)	37.4	(42.1)	18.8	0.04	0.22	(0.28)
0.01	0.01	0.01	39.6	11.2	(5.0)	(0.3)	(13.2)	21.3	0.27	0.15	(0.15)
0.03	0.04	0.05	(6.0)	(3.1)	(0.8)	(1.4)	(0.8)	1.8	(0.15)	(0.08)	(0.12)
0.01	0.01	0.01	(27.5)	21.3	(13.6)	(8.2)	(0.0)	(1.0)	(0.11)	0.12	(0.07)
0.01	0.01	0.01	5.1	20.2	(20.7)	5.8	(6.1)	1.0	(0.01)	0.28	(0.24)
0.01	0.01	0.01	(1.3)	1.9	(12.3)	2.1	(4.1)	(1.6)	(0.03)	0.04	(0.08)
0.02	0.02	0.01	0.8	(0.3)	(0.3)	0.6	0.3	0.1	0.01	(0.01)	(0.01)
0.01	0.01	0.01	20.8	0.6	10.1	4.7	(6.8)	13.0	0.08	0.04	(0.02)
0.00	0.00	0.00	(70.5)	(3.0)	15.1	6.6	(18.0)	14.0	(0.19)	0.04	0.00
0.01	0.01	0.01	9.2	2.2	(12.4)	1.5	(1.8)	(1.6)	0.08	0.04	(0.11)
0.03	0.01	0.02	27.9	37.5	(14.2)	20.6	(5.4)	6.0	0.19	0.62	(0.30)
0.04	0.04	0.04	0.6	(0.3)	(0.0)	0.0	0.0	0.1	0.03	(0.01)	(0.01)
0.00	0.00	0.00	173.0	143.2	28.4	61.2	34.3	(6.6)	0.07	0.06	0.02
0.00	0.00	0.00	(1.3)	(1.0)	(14.4)	1.0	(1.8)	(5.4)	(0.01)	0.00	(0.03)
0.01	0.01	0.01	4.1	7.8	(4.7)	(1.3)	(0.2)	(0.4)	0.05	0.07	(0.04)
0.00	0.00	0.00	15.1	3.0	2.8	7.6	3.8	-	0.02	(0.00)	0.01
0.00	0.00	0.00	(51.8)	1,767.0	504.6	64.0	45.1	(38.0)	(0.08)	0.96	0.16
0.00	0.00	0.00	(691.0)	191.8	377.7	523.3	(75.1)	631.5	(0.06)	0.01	(0.01)
0.00	0.00	0.00	9,064.9	6,787.2	(6,936.2)	177.3	(146.6)	(81.7)	0.15	0.11	(0.11)
0.00	0.00	0.00	2,622.1	2,084.8	3,565.5	612.1	322.4	894.9	0.02	0.02	0.03
0.00	0.00	0.00	37.7	9.7	(70.6)	13.5	(3.0)	1.5	0.04	0.02	(0.10)
0.00	0.00	0.00	(113.3)	(41.8)	189.5	(1.0)	(17.0)	21.7	(0.19)	(0.04)	0.30
0.00	0.00	0.00	47.2	18.4	(174.4)	(7.4)	(6.3)	(57.9)	0.02	0.01	(0.05)
0.00	0.00	0.00	91.7	(50.2)	25.3	62.7	(0.2)	38.6	0.02	(0.04)	(0.01)
0.00	0.00	0.00	1,297.3	1,566.6	(1,495.7)	547.6	(69.2)	(134.8)	0.03	0.08	(0.06)
0.00	0.00	0.00	6,767.1	19,362.4	(29,391.0)	2,717.1	(782.3)	(5,228.8)	0.01	0.06	(0.08)
0.00	0.00	0.00	(96.5)	1,100.4	(572.3)	(131.4)	231.8	33.2	0.00	0.10	(0.06)
0.00	0.00	0.00	(185.1)	113.3	(154.3)	(38.4)	62.1	(66.2)	(0.06)	0.02	(0.04)
0.00	0.00	0.00	(285.0)	(67.8)	138.0	(5.2)	(19.0)	3.4	(0.10)	(0.02)	0.05
0.00	0.00	0.00	(107.6)	31.4	78.4	(5.2)	(2.1)	6.1	(0.07)	0.03	0.06
0.00	0.00	0.00	(398.3)	(370.2)	79.8	(20.2)	(8.0)	36.5	(0.30)	(0.29)	0.04
0.00	0.00	0.00	(216.0)	(74.9)	163.1	(70.4)	15.7	5.0	(0.05)	(0.04)	0.06
0.00	0.00	0.00	(79.9)	(17.2)	89.2	(12.7)	(0.6)	0.9	(0.03)	(0.01)	0.05
0.00	0.00	0.00	(712.2)	(176.1)	412.6	(8.0)	(0.2)	4.1	(0.16)	(0.04)	0.10
0.00	0.00	0.00	(369.7)	(149.5)	208.6	(12.0)	12.5	4.9	(0.09)	(0.04)	0.05
0.00	0.00	0.00	(54.0)	(128.2)	32.1	68.6	(41.8)	5.6	(0.05)	(0.04)	0.01
0.00	0.00	0.00	153.2	(28.8)	91.5	4.9	1.1	-	0.13	(0.02)	0.07
0.00	0.00	0.00	(525.4)	(90.2)	(35.4)	468.7	134.2	(109.6)	(0.17)	(0.04)	0.01
0.00	0.00	0.00	1,297.3	1,566.6	(1,495.7)	550.6	(65.9)	(134.0)	0.03	0.07	(0.06)
0.00	0.00	0.00	990.3	407.6	(1,563.6)	726.4	(517.3)	(351.9)	0.01	0.05	(0.06)
0.00	0.00	0.00	38.6	25.6	(14.3)	(16.3)	(45.0)	(25.2)	0.04	0.06	0.01
0.00	0.00	0.00	944.5	576.3	403.9	258.3	(219.4)	182.4	0.04	0.05	0.01
0.00	0.00	0.00	1,375.1	2,279.2	(2,726.8)	(0.3)	265.5	(288.7)	0.03	0.05	(0.06)
0.00	0.00	0.00	245.2	363.7	(153.7)	(30.4)	(25.7)	30.5	0.06	0.09	(0.04)
0.00	0.00	0.00	(351.2)	(305.0)	181.2	88.0	(49.2)	14.5	(0.12)	(0.07)	0.05
0.00	0.00	0.00	(66.5)	(190.5)	186.5	1.8	(14.6)	(1.7)	(0.03)	(0.08)	0.08
0.00	0.00	0.00	(226.1)	(200.2)	366.1	(19.0)	(48.6)	(7.4)	(0.10)	(0.08)	0.20
0.00	0.00	0.00	(377.0)	(226.8)	280.7	(33.4)	(20.5)	39.9	(0.09)	(0.04)	0.05
0.00	0.00	0.00	(593.6)	(65.0)	322.1	(22.1)	73.2	58.2	(0.14)	(0.04)	0.07
0.02	0.01	0.01	(10.5)	7.5	39.0	(1.0)	5.6	3.1	(0.20)	0.03	0.39
0.00	0.00	0.00	2,176.9	(7,731.1)	(46.4)	644.5	(75.8)	(1,068.7)	0.05	(0.23)	0.03
0.00	0.00	0.00	(288.2)	(70.1)	280.8	(28.9)	(23.8)	(5.8)	(0.08)	(0.01)	0.09
0.00	0.00	0.00	(39.3)	17.4	9.0	(6.9)	10.7	1.6	(0.07)	0.01	0.02
0.00	0.00	0.00	(11.5)	10.0	0.6	(5.0)	9.6	16.0	(0.03)	0.00	(0.05)
0.00	0.00	0.00	16.1	(18.2)	(22.3)	15.3	9.8	(7.7)	0.00	(0.03)	(0.02)
0.00	0.00	0.00	136.6	62.6	(142.5)	35.3	(52.7)	3.0	0.07	0.07	(0.10)
0.00	0.00	0.00	103.1	66.2	31.3	42.3	11.3	(18.8)	0.16	0.14	0.10
0.00	0.00	0.00	145.8	25.7	(98.4)	25.3	(5.4)	(14.4)	0.07	0.02	(0.06)
0.00	0.00	0.00	20.4	97.7	(127.9)	11.1	17.0	(18.6)	0.02	0.15	(0.19)
0.00	0.00	0.00	194.7	138.7	42.8	87.6	(18.9)	(81.5)	0.10	0.12	0.11
0.00	0.00	0.00	54.2	1.2	70.2	(9.5)	27.7	(141.3)	0.02	(0.01)	0.07
0.00	0.00	0.00	(14.9)	(163.9)	(128.3)	52.7	(4.0)	49.3	(0.06)	(0.14)	(0.16)
0.00	0.00	0.00	(189.9)	(175.3)	281.8	(18.6)	(31.9)	94.9	(0.09)	(0.08)	0.11
0.01	0.01	0.01	(14.8)	(6.2)	(0.8)	5.1	(1.1)	3.2	(0.15)	(0.04)	(0.03)
0.01	0.05	0.01	18.6	99.1	(37.7)	(61.5)	15.8	2.4	0.69	4.37	(0.52)
0.00	0.00	0.00	27.1	(362.7)	435.4	198.8	(63.5)	174.5	(0.11)	(0.18)	0.16
0.00	0.00	0.00	(129.3)	(46.4)	4.7	(34.9)	(9.0)	8.8	(0.20)	(0.10)	(0.01)
0.00	0.00	0.00	(84.3)	(83.3)	(123.7)	(16.0)	(60.2)	(64.0)	(0.07)	(0.03)	(0.08)
0.00	0.00	0.00	(163.8)	(111.7)	207.0	45.8	12.8	58.8	(0.07)	(0.04)	0.05
0.00	0.00	0.00	(222.1)	(477.5)	(483.8)	(134.8)	(133.6)	(59.4)	(0.04)	(0.18)	(0.30)
0.00	0.00	0.00	17.1	16.6	19.9	(4.0)	13.6	(6.6)	0.03	0.00	0.04
0.00	0.00	0.00	(571.7)	155.3	(167.2)	(151.1)	236.4	(150.7)	(0.12)	(0.03)	(0.01)

4 term3

(PPE)(t) / A (t-1)			FD	FD	FD	FP	FP	FP	FL	FL	FL
2018 A	2019 A	2016 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2017 A	2018 A
0.66	0.63	0.77	(0.0)	(0.1)	(0.0)	0.409	(0.6)	0.7	0	1	0
0.73	0.74	0.61	3.1	0.1	(0.4)	(0.0)	0.0	0.0	0	0	0
0.52	0.54	0.57	0.0	(0.0)	(0.1)	(0.2)	(0.4)	0.5	0	1	0
0.44	0.46	0.57	(0.7)	1.7	0.0	0.1	(0.4)	0.2	0	1	1
1.33	1.30	1.29	0.1	(0.0)	0.0	(0.1)	0.2	(0.4)	1	0	1
0.67	0.65	0.67	(0.1)	0.0	0.1	0.1	(0.0)	(0.0)	0	0	0
0.67	0.75	0.79	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	0.0	0	0	0
1.00	1.04	1.11	(0.1)	(0.1)	0.1	0.1	0.0	(0.0)	0	0	0
0.64	0.61	0.63	0.3	0.1	0.4	(0.3)	(0.4)	(0.2)	1	1	1
1.24	1.34	1.54	(0.3)	(0.1)	0.1	0.0	0.1	0.0	0	0	0
1.00	1.07	1.00	(0.0)	0.2	0.1	(0.0)	(0.1)	(0.0)	0	0	0
0.59	0.59	0.70	0.1	0.7	1.1	(0.1)	(0.9)	(0.8)	0	1	1
0.06	0.07	0.07	(0.2)	0.0	0.0	0.1	0.0	(0.1)	0	0	0
0.76	0.71	0.62	(0.1)	(0.0)	0.0	0.0	0.1	0.0	0	0	0
0.06	0.05	0.06	(1.9)	0.3	(0.1)	(0.0)	(0.0)	(0.0)	0	0	0
0.19	0.20	0.19	(0.0)	(0.0)	0.0	0.1	0.2	(0.4)	0	0	0
1.13	1.11	1.15	0.0	(0.1)	(0.0)	(0.1)	0.1	(0.2)	0	0	0
0.62	0.62	0.62	(0.1)	(0.0)	(0.0)	0.0	(0.0)	(0.1)	0	0	0
0.95	1.02	1.02	(0.1)	0.1	0.1	0.0	(0.1)	0.1	0	1	0
0.49	0.57	0.62	0.0	0.1	0.2	0.3	0.0	(0.2)	0	0	0
0.30	0.36	0.39	(0.2)	(0.2)	(0.0)	(0.1)	0.0	0.0	0	0	0
0.27	0.34	0.35	0.1	(0.0)	(0.2)	(0.0)	(0.0)	0.0	0	0	0
0.17	0.14	0.13	1.3	0.7	0.1	(0.0)	(0.0)	(0.0)	0	0	0
0.62	0.66	0.64	0.0	0.1	0.1	(0.0)	(0.0)	0.0	0	0	0
0.98	1.05	1.10	(0.0)	0.0	0.1	0.0	0.0	(0.0)	0	0	0
0.51	0.51	0.54	(0.0)	(0.1)	0.0	0.0	0.0	(0.0)	0	0	0
0.13	0.11	0.12	0.1	0.0	(0.3)	0.0	(0.0)	(0.0)	0	0	0
0.83	0.91	0.96	0.7	0.8	1.1	(1.0)	0.7	(0.2)	1	1	1
0.76	0.80	0.71	(0.0)	0.1	(0.0)	0.6	(0.5)	0.1	0	0	0
0.83	0.90	0.94	0.0	0.0	0.0	0.1	0.0	(0.0)	1	0	1
2.16	1.81	1.53	0.4	0.5	0.2	0.0	(0.0)	(0.1)	0	0	0
0.77	0.77	0.84	0.1	(0.1)	0.1	(0.1)	0.1	0.0	0	0	0
0.20	0.20	0.07	(0.0)	(0.0)	0.0	(0.1)	0.0	0.0	0	0	0
0.91	0.98	1.09	(0.0)	0.1	0.4	(0.1)	(0.1)	0.0	0	0	0
0.71	0.72	0.90	0.1	0.1	0.1	(0.0)	0.0	0.0	1	1	0
1.13	1.06	1.11	0.1	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	0	0	0
0.51	0.50	0.53	0.0	(0.1)	(0.1)	(0.0)	0.0	(0.0)	0	0	0
0.69	0.60	0.58	0.1	0.1	(0.0)	(0.0)	(0.0)	(0.0)	0	0	0
0.88	0.90	0.95	(0.0)	(0.0)	0.0	0.0	(0.0)	0.1	0	0	0
0.54	0.57	0.56	(0.0)	0.1	(1.8)	0.0	0.0	(0.1)	1	0	1
1.07	1.08	0.99	0.2	0.3	0.3	(0.2)	0.0	(0.2)	0	0	1
0.19	0.18	0.18	(0.3)	0.4	(0.4)	0.0	(0.0)	0.0	0	0	0
1.10	1.12	1.15	0.0	0.0	0.0	(0.8)	(0.3)	0.5	1	1	1
0.84	0.77	0.68	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	0	0	0
0.25	0.16	0.25	0.1	(0.2)	(0.1)	1.4	0.4	(1.1)	1	0	1
0.44	0.45	0.53	(0.3)	(0.2)	0.2	0.5	(0.2)	(1.5)	0	1	1
0.17	0.17	0.18	(0.0)	0.0	0.0	4.6	(2.4)	(0.1)	0	0	0
0.73	0.71	0.64	(0.0)	(0.1)	(0.2)	0.0	0.0	0.0	0	0	0
0.33	0.27	0.30	1.3	(1.1)	0.1	0.0	0.0	0.0	0	0	0
0.85	0.88	0.82	(0.0)	0.0	(0.2)	(0.0)	0.0	0.0	0	0	0
0.64	0.72	0.93	0.6	0.2	(0.1)	(0.3)	0.1	0.4	1	1	1
0.23	0.23	0.25	(0.1)	(0.1)	(0.1)	0.1	(0.0)	(0.0)	0	0	0
0.45	0.45	0.52	0.2	(0.1)	(0.1)	0.0	(0.0)	(0.0)	0	0	0
0.36	0.40	0.28	(0.0)	(0.1)	0.2	0.0	(0.0)	(0.1)	0	0	0
0.03	0.02	0.01	(0.1)	(0.0)	0.2	0.1	0.0	(0.0)	0	0	0
0.70	0.68	0.74	(0.7)	(0.0)	0.9	0.1	(0.1)	(0.1)	0	0	1
0.34	0.18	0.62	0.2	(0.7)	1.0	0.2	(0.1)	(0.1)	0	0	0
1.38	1.49	1.46	(0.3)	(0.2)	(0.0)	0.0	0.1	(0.1)	0	0	0
0.76	0.46	0.49	1.2	(0.3)	(0.4)	(0.0)	0.0	0.0	0	0	0
0.21	0.20	0.20	(0.0)	0.0	(0.0)	0.1	0.0	(0.2)	0	0	0
0.35	0.29	0.27	0.1	0.0	0.1	0.0	0.0	(0.0)	0	0	0
0.93	0.93	0.95	(0.0)	0.0	(0.1)	(0.0)	(0.1)	(0.0)	0	0	0
0.98	1.02	1.07	0.0	(0.0)	0.0	0.1	0.0	0.0	0	0	0
0.00	0.00	0.00	0.0	(0.0)	(0.0)	34.1	0.3	0.0	0	0	0
1.01	1.87	1.02	0.3	2.6	(1.2)	(0.0)	(0.0)	0.0	0	0	0
1.08	1.09	1.04	0.1	0.0	(0.0)	(0.1)	(0.1)	0.0	0	0	0
1.08	1.06	1.27	(0.8)	(0.0)	1.3	0.0	(0.0)	(0.0)	0	0	1
0.98	0.99	1.00	(0.1)	(0.1)	(0.3)	0.1	0.1	(0.2)	0	0	1
0.95	1.16	1.32	0.0	(0.0)	0.0	(0.0)	(0.0)	(0.0)	0	0	0
0.48	0.51	0.52	(0.0)	0.0	0.1	(0.1)	(0.0)	0.0	0	0	0
1.40	1.45	1.58	0.0	(0.2)	(0.0)	0.1	0.1	(0.2)	1	0	1
0.86	0.89	0.94	(0.1)	0.4	0.1	0.1	(0.3)	0.2	0	1	1
0.92	0.95	0.98	(0.4)	(0.5)	(0.4)	0.1	0.0	(0.1)	0	0	0
1.09	1.09	1.16	(0.0)	(0.1)	(0.2)	0.0	0.0	(0.1)	0	0	0
1.24	1.29	1.20	(0.0)	(0.0)	0.0	(0.0)	0.1	(0.0)	0	0	0
0.81	0.87	0.93	0.4	0.1	0.2	(0.1)	0.1	(0.1)	1	1	1
1.08	1.14	1.21	(0.0)	(0.0)	(0.1)	(0.3)	(0.2)	0.4	1	1	0
0.89	0.93	0.96	(0.0)	(0.0)	(0.0)	(0.3)	(0.2)	0.3	0	1	0
0.62	0.63	0.72	0.0	(0.0)	0.8	(0.0)	(0.1)	(0.0)	0	1	1
1.20	1.32	1.28	(0.1)	0.0	0.0	(0.1)	(0.0)	0.1	0	0	0
1.25	1.27	1.28	(0.0)	(0.0)	(0.1)	(0.4)	(0.5)	0.8	1	1	0
1.54	1.60	1.62	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	0.1	0	0	0
1.61	1.49	1.59	0.0	0.0	(0.0)	(0.1)	(0.2)	0.1	0	0	0
0.54	0.97	1.06	(0.1)	0.0	0.0	(0.1)	(0.4)	0.3	0	1	0
0.94	0.89	0.90	(0.1)	(0.0)	(0.2)	0.6	(0.3)	0.3	0	0	0
0.53	0.54	0.55	(0.0)	0.7	0.3	(0.0)	(0.0)	(0.0)	0	1	1
0.81	0.82	0.84	(0.4)	(0.3)	(0.3)	0.2	(0.0)	(0.0)	0	0	0
1.03	1.09	1.16	(0.1)	(0.1)	0.0	(0.0)	(0.0)	(0.1)	0	0	0
1.12	1.14	1.41	0.5	5.8	2.6	0.1	(0.1)	0.2	1	1	1
1.03	1.06	1.43	(0.2)	(0.2)	(0.8)	0.1	0.0	(0.1)	0	0	0
1.13	1.16	1.16	(0.2)	(0.3)	(0.2)	0.0	0.1	(0.2)	0	0	1
0.80	0.84	0.81	0.0	(0.0)	(0.3)	(0.1)	(0.0)	0.0	0	0	0
1.37	1.35	1.51	0.2	(0.0)	(0.0)	(0.1)	(0.4)	0.3	0	1	0
1.06	1.00	1.03	(0.0)	(0.0)	(0.0)	(0.2)	0.2	0.0	0	0	0
1.15	1.18	1.25	(0.0)	0.0	(0.0)	(0.1)	(0.1)	0.2	0	0	0
1.85	1.66	1.55	0.3	0.2	(0.0)	(0.2)	(0.2)	0.4	0	1	0
1.81	1.93	1.98	0.1	0.0	0.0	(0.1)	(0.0)	(0.0)	0	0	0
1.02	0.82	0.66	(0.1)	0.0	(0.1)	0.0	0.0	(0.0)	0	0	0
0.57	0.47	0.20	(0.4)	(0.5)	(0.7)	0.1	0.0	(0.4)	0	0	1
0.75	0.80	0.80	(0.1)	0.0	(0.1)	(0.1)	(0.1)	0.1	0	0	0
1.42	1.60	1.59	(0.0)	(0.0)	0.0	(0.5)	0.6	(0.0)	1	0	0
1.08	0.04	1.04	0.1	0.4	0.1	(0.0)	(0.1)	(0.1)	0	1	1
0.72	0.64	0.58	(0.0)	(0.0)	0.0	0.3	(0.2)	(0.7)	0	0	1
1.14	1.18	1.31	(0.1)	(0.1)	0.2	(0.1)	0.0	(0.1)	0	0	0
0.73	0.81	0.73	(0.6)	0.3	(0.3)	(0.1)	(0.0)	0.0	0	0	0
1.33	1.51	1.68	(0.6)	(1.0)	0.0	1.8	0.1	(0.1)	1	0	0
0.91	0.94	0.86	0.1	0.2	(0.1)	(0.1)	0.1	(0.3)	1	0	1
0.74	0.62	0.75	0.3	0.2	(0.1)	(0.0)	(0.2)	0.2	0	1	0
0.45	0.47	0.63	(0.1)	0.3	(0.4)	0.1	(0.0)	0.0	0	0	0
0.49	0.54	0.56	(0.1)	0.1	0.0	0.0	(0.1)	(0.1)	0	0	1
0.46	0.52	0.89	(0.2)	0.6	0.8	(0.0)	(0.2)	0.1	0	1	0
0.59	0.57	0.56	(0.1)	0.2	0.1	(0.0)	(0.0)	(0.0)	0	0	0
0.04	0.27	0.08	0.6	(0.6)	0.0	17.1	5.8	(0.2)	1	0	1
0.54	0.44	0.45	(0.1)	0.1	0.3	(0.0)	(0.0)	(0.0)	0	0	0
1.13	1.45	1.61	(0.2)	(0.1)	0.1	(0.1)	(0.1)	0.0	0	0	0
0.51	0.62	0.72	(0.4)	0.1	(0.1)	(0.1)	(0.2)	0.1	0	1	1
1.19	1.39	1.44	0.1	0.2	0.1	(0.1)	(0.1)	0.2	1	1	0
0.89	0.76	1.05	1.8	(0.7)	4.6	0.1	(0.0)	(0.1)	1	1	1
0.53	0.56	0.53	0.0	0.0	(0.0)	0.1	0.1	(0.0)	1	0	0
0.44	0.45	0.50	(0.2)	1.0	2.9	0.0	(0.1)	(0.2)	1	1	1

	Coefficient
α1	-0.348
α2	0.12
α3	-0.017

Result Step 2	α1 1 / A (t-1)			α2 (Δ(REV)_t - Δ(REC)_t) / A (t-1)			α3 (PPE)(t) / A (t-1)			DACC - ε t			Result Step 3 NDACC		
	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A
	(0.00)	(0.00)	(0.00)	0.03	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.20)	0.12	(0.13)	0.01	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.02	0.03	(0.02)	(0.01)	(0.01)	(0.01)	(0.14)	(0.24)	0.06	0.00	0.02	(0.03)
	(0.00)	(0.00)	(0.00)	(0.00)	0.00	(0.00)	(0.01)	(0.01)	(0.01)	(0.08)	0.10	0.01	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.03)	(0.03)	(0.03)	(0.01)	(0.01)	(0.01)	0.14	(0.16)	0.04	(0.03)	(0.04)	(0.04)
	(0.00)	(0.00)	(0.00)	(0.01)	0.00	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	0.03	(0.07)	(0.03)	(0.02)	(0.03)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	0.02	(0.03)	(0.04)	(0.01)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	(0.01)	(0.01)	(0.01)	(0.03)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.00)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	0.03	(0.02)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.00)	(0.01)	(0.01)	(0.01)	(0.03)	(0.02)	(0.10)	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	0.00	0.01	(0.02)	(0.02)	(0.03)	(0.01)	(0.03)	(0.01)	(0.02)	(0.02)	(0.03)
	(0.00)	(0.00)	(0.00)	0.00	(0.01)	(0.00)	(0.02)	(0.02)	(0.02)	(0.04)	0.01	(0.02)	(0.02)	(0.02)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.01)	0.00	(0.01)	(0.01)	(0.01)	(0.01)	0.01	(0.33)	(0.04)	(0.02)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	0.00	(0.03)	(0.01)	(0.02)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.12)	(0.05)	0.03	0.00	(0.00)	(0.00)
	(0.00)	(0.00)	(0.00)	(0.00)	0.01	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.05	(0.00)	(0.00)	0.00	(0.01)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.04)	0.01	0.06	(0.02)	(0.03)	(0.03)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	0.05	0.02	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.02)	(0.02)	(0.02)	(0.00)	0.01	(0.03)	(0.02)	(0.02)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.03)	(0.00)	0.00	(0.01)	(0.01)	(0.01)	(0.01)	0.02	0.04	(0.04)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	(0.01)	(0.01)	(0.01)	(0.07)	(0.09)	(0.05)	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.04	0.05	0.00	(0.00)	(0.01)	(0.01)	(0.14)	(0.09)	0.01	0.03	0.05	(0.00)
	(0.00)	(0.00)	(0.00)	0.02	0.04	0.00	(0.00)	(0.00)	(0.00)	(0.10)	(0.02)	(0.04)	0.02	0.04	0.00
	(0.00)	(0.00)	(0.00)	0.01	0.01	(0.00)	(0.01)	(0.01)	(0.01)	(0.05)	(0.05)	(0.01)	0.00	(0.00)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.02)	(0.02)	(0.02)	(0.06)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.01	(0.01)	(0.01)	(0.01)	0.03	0.05	(0.00)	(0.01)	(0.01)	(0.00)
	(0.00)	(0.00)	(0.00)	0.01	0.00	0.01	(0.00)	(0.00)	(0.00)	(0.01)	0.04	0.08	0.01	0.00	0.00
	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.00)	(0.01)	(0.02)	(0.02)	(0.04)	(0.02)	(0.05)	(0.02)	(0.02)	(0.02)
	(0.02)	(0.02)	(0.01)	0.00	(0.00)	(0.00)	(0.01)	(0.01)	(0.02)	(0.01)	0.00	0.02	(0.03)	(0.03)	(0.03)
	(0.02)	(0.03)	(0.02)	0.05	0.01	(0.00)	(0.01)	(0.02)	(0.02)	(0.10)	0.12	0.01	0.01	(0.03)	(0.04)
	(0.00)	(0.00)	(0.00)	0.02	0.00	0.01	(0.04)	(0.03)	(0.03)	0.03	(0.03)	(0.06)	(0.02)	(0.03)	(0.02)
	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.00)	(0.01)	(0.01)	(0.01)	(0.03)	(0.02)	(0.27)	(0.01)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.02	0.00	(0.00)	(0.01)	(0.00)
	(0.00)	(0.00)	(0.00)	(0.01)	0.00	(0.01)	(0.02)	(0.02)	(0.02)	0.02	0.01	(0.09)	(0.03)	(0.01)	(0.03)
	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)	0.00	(0.01)	(0.01)	(0.02)	(0.03)	(0.07)	(0.04)	(0.02)	(0.02)	(0.02)
	(0.03)	(0.03)	(0.03)	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)	(0.02)	(0.05)	0.00	0.04	(0.05)	(0.05)	(0.06)
	(0.00)	(0.00)	(0.00)	0.01	0.01	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.05)	0.05	(0.00)	(0.00)	(0.04)
	(0.01)	(0.01)	(0.00)	0.04	0.04	(0.02)	(0.01)	(0.01)	(0.01)	0.07	(0.23)	(0.01)	0.02	0.02	(0.04)
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	0.00	(0.01)	(0.02)	(0.02)	0.11	0.06	(0.01)	(0.03)	(0.03)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	(0.06)	0.07	(0.08)	(0.01)	(0.02)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.02)	(0.02)	(0.02)	(0.00)	(0.01)	(0.04)	(0.02)	(0.02)	(0.02)
	(0.00)	(0.00)	(0.00)	0.01	0.09	(0.04)	(0.00)	(0.00)	(0.00)	(0.01)	(0.19)	0.17	0.01	0.08	(0.04)
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	0.00	(0.02)	(0.02)	(0.02)	0.00	(0.01)	(0.01)	(0.03)	(0.02)	(0.02)
	(0.01)	(0.01)	(0.01)	0.01	0.02	(0.01)	(0.01)	(0.01)	(0.01)	0.03	(0.09)	0.08	(0.02)	0.00	(0.03)
	(0.01)	(0.01)	(0.01)	(0.01)	0.00	(0.00)	(0.00)	(0.00)	(0.00)	0.02	0.11	(0.02)	(0.02)	(0.01)	(0.02)
	(0.01)	(0.02)	(0.02)	(0.01)	0.01	(0.00)	(0.01)	(0.01)	(0.01)	(0.16)	(0.02)	(0.05)	(0.03)	(0.01)	(0.03)
	(0.01)	(0.01)	(0.01)	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.02	(0.03)	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.01	0.01	0.00	(0.01)	(0.01)	(0.01)	0.04	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	0.03	(0.03)	(0.01)	(0.00)	(0.01)	(0.15)	(0.07)	0.02	(0.00)	0.02	(0.04)
	(0.00)	(0.00)	(0.00)	0.03	0.02	(0.02)	(0.01)	(0.01)	(0.01)	(0.04)	(0.08)	0.07	0.02	0.00	(0.03)
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.11)	(0.00)	0.06	(0.04)	(0.03)	(0.05)
	(0.00)	(0.00)	(0.00)	(0.01)	0.01	(0.01)	(0.00)	(0.00)	(0.00)	0.08	0.03	(0.01)	(0.02)	0.01	(0.01)
	(0.00)	(0.00)	(0.00)	(0.00)	0.03	(0.03)	(0.01)	(0.01)	(0.01)	(0.07)	(0.03)	0.04	(0.01)	0.02	(0.04)
	(0.00)	(0.00)	(0.00)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	(0.00)	(0.04)	(0.07)	0.00	(0.01)	(0.00)	(0.02)
	(0.01)	(0.01)	(0.00)	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.02	(0.11)	0.06	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.01	0.00	(0.00)	(0.01)	(0.01)	(0.01)	(0.07)	(0.05)	0.12	(0.00)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.02)	0.00	0.00	(0.01)	(0.00)	(0.01)	(0.01)	(0.04)	0.03	(0.03)	0.00	(0.01)
	(0.00)	(0.00)	(0.00)	0.01	0.01	(0.01)	(0.02)	(0.03)	(0.02)	(0.16)	(0.16)	0.09	(0.02)	(0.02)	(0.04)
	(0.01)	(0.01)	(0.01)	0.02	0.07	(0.04)	(0.01)	(0.01)	(0.01)	(0.19)	(0.20)	0.19	0.00	0.06	(0.05)
	(0.01)	(0.01)	(0.01)	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.08	(0.08)	0.02	(0.02)	(0.02)	(0.02)
	(0.00)	(0.00)	(0.00)	0.01	0.01	0.00	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.04)	0.00	0.00	(0.00)
	(0.00)	(0.00)	(0.00)	(0.00)	0.00	(0.00)	(0.02)	(0.02)	(0.02)	(0.01)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
	(0.00)	(0.00)	(0.00)	0.01	0.01	(0.00)	(0.02)	(0.02)	(0.02)	(0.03)	0.00	(0.02)	(0.01)	(0.01)	(0.03)
	(0.00)	(0.00)	(0.00)	0.00	(0.00)	0.00	(0.00)	(0.00)	(0.00)	(0.01)	0.02	(0.00)	0.00	(0.00)	(0.00)
	(0.00)	(0.00)	(0.00)	(0.01)	0.12	0.02	(0.02)	(0.03)	(0.02)	(0.02)	(0.21)	0.03	(0.03)	0.08	0.00
	(0.00)	(0.00)	(0.00)	(0.01)	0.00	(0.00)	(0.02)	(0.02)	(0.02)	0.00	0.01	0.02	(0.03)	(0.02)	(0.02)
	(0.00)	(0.00)	(0.00)	0.02	0.01	(0.01)	(0.02)	(0.02)	(0.02)	0.04	(0.01)	0.02	0.00	(0.00)	(0.03)
	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.02)	(0.02)	(0.02)	0.03	0.04	0.02	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.01)	(0.02)	(0.02)	(0.02)	0.08	(0.06)	0.01	(0.01)	(0.02)	(0.04)
	(0.00)	(0.00)	(0.00)	(0.02)	(0.01)	0.04	(0.01)	(0.01)	(0.01)	0.09	(0.04)	(0.09)	(0.03)	(0.01)	0.03
	(0.00)	(0.00)	(0.00)	0.00	0.00	(0.01)	(0.02)	(0.02)	(0.03)	0.03	0.05	(0.01)	(0.02)	(0.02)	(0.03)
	(0.00)	(0.00)	(0.00)	0.00	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)	0.03	(0.05)	(0.04)	(0.01)	(0.02)	(0.02)
	(0.00)	(0.00)	(0.00)	0.00	0.01	(0.01)	(0.02)	(0.02)	(0.02)	0.03	(0.07)	0.06	(0.01)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	0.00	0.01	(0.01)	(0.02)	(0.02)	(0.02)	(0.04)	0.15	(0.03)	(0.02)	(0.01)	(0.03)
	(0.00)	(0.00)	(0.00)	0.00	0.01	(0.01)	(0.02)	(0.02)	(0.02)	0.00	0.07	0.04	(0.02)	(0.01)	(0.03)
	(0.00)	(0.00)	(0.00)	(0.01)	0.00	(0.01)	(0.01)	(0.01)	(0.02)	(0.05)	0.05	(0.08)	(0.02)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	0.01	(0.02)	(0.02)	(0.02)	0.03	0.00	(0.01)	(0.03)	(0.02)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.01)	0.00	0.01	(0.02)	(0.02)	(0.02)	0.07	0.03	0.02	(0.02)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.04)	(0.03)	0.00	(0.01)	(0.01)	(0.01)	0.04	(0.02)	0.09	(0.05)	(0.05)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	0.01	(0.02)	(0.02)	(0.02)	0.03	0.03	(0.03)	(0.03)	(0.03)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.01	(0.02)	(0.02)	(0.02)	0.05	0.04	0.03	(0.03)	(0.02)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.02)	(0.01)	0.01	(0.03)	(0.03)	(0.03)	0.08	0.08	0.02	(0.05)	(0.03)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	0.01	(0.03)	(0.03)	(0.03)	0.06	0.01	0.02	(0.04)	(0.03)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	0.00	(0.01)	(0.02)	(0.02)	0.02	(0.01)	0.02	(0.02)	(0.02)	(0.02)
	(0.00)	(0.00)	(0.00)	0.02	(0.00)	0.01	(0.02)	(0.02)	(0.02)	0.18	0.06	0.04	(0.00)	(0.02)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	0.00	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	0.00	(0.03)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	0.00	0.01	(0.01)	(0.01)	(0.01)	(0.01)	0.01	(0.05)	0.03	(0.01)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	0.00	0.01	(0.01)	(0.02)	(0.02)	(0.02)	0.04	0.05	0.01	(0.02)	(0.01)	(0.03)
	(0.00)	(0.00)	(0.00)	0.00	0.01	0.00	(0.02)	(0.02)	(0.02)	0.05	(0.06)	0.00	(0.01)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	0.01	0.01	0.00	(0.02)	(0.02)	(0.02)	0.04	0.02	0.02	(0.01)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	0.00	0.01	(0.01)	(0.02)	(0.02)	(0.02)	0.00	0.08	(0.02)	(0.02)	(0.01)	(0.03)
	(0.00)	(0.00)	(0.00)	0.01	0.01	(0.00)	(0.01)	(0.01)	(0.01)	0.07	0.19	0.10	(0.01)	(0.00)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	0.01	(0.02)	(0.02)	(0.03)	0.07	0.02	0.04	(0.04)	(0.03)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	0.01	(0.02)	(0.02)	(0.02)	0.01	0.06	0.20	(0.02)	(0.03)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	0.02	(0.02)	(0.02)	(0.02)	0.04	(0.01)	0.04	(0.03)	(0.03)	0.00
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	0.01	(0.03)	(0.03)	(0.03)	0.01	0.02	0.02	(0.04)	(0.03)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	0.01	(0.03)	(0.03)	(0.03)	0.02	0.06	0.02	(0.05)	(0.04)	(0.03)
	(0.01)	(0.00)	(0.00)	(0.02)	0.00	0.05	(0.02)	(0.01)	(0.01)	(0.03)	0.11	(0.05)	(0.05)	(0.02)	0.03
	(0.00)	(0.00)	(0.00)	0.01	(0.03)	0.00	(0.01)	(0.01)	(0.00)	0.02	0.04	(0.08)	(0.00)	(0.04)	0.00
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	0.03	0.03	0.15	(0.02)	(0.02)	(0.00)
	(0.00)	(0.00)	(0.00)	(0.01)	0.00	0.00	(0.02)	(0.03)	(0.03)	0.05	0.04	(0.07)	(0.03)	(0.03)	(0.03)
	(0.00)	(0.00)	(0.00)	(0.00)	0.00	(0.01)	(0.02)	(0.00)	(0.02)	0.07	(0.06)	0.05	(0.02)	(0.00)	(0.02)
	(0.00)	(0.00)	(0.00)	0.00	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	0.04	0.01	(0.01)	(0.01)	(0.02)	(0.01)
	(0.00)	(0.00)	(0.00)	0.01	0.01	(0.01)	(0.02)	(0.02)	(0.02)	0.04	0.05	0.01	(0.01)	(0.01)	(0.03)
	(0.00)	(0.00)	(0.00)	0.02	0.02	0.01	(0.01)	(0.01)	(0.01)	0.12	(0.07)	0.01	0.01	0.00	(0.00)
	(0.00)	(0.00)	(0.00)	0.01	0.00	(0.01)	(0.02)	(0.03)	(0.03)	(0.03)	0.09	0.02	(0.01)	(0.02)	(0.04)
	(0.00)	(0.00)	(0.00)	0.00	0.02	(0.02)	(0.02)	(0.02)	(0.01)	(0.05)	0.09	0.03	(0.01)	0.00	(0.04)
	(0.00)	(0.00)	(0.00)	0.01	0.01	0.01	(0.01)	(0.01)	(0.01)	(0.03)	(0.10)	(0.01)	(0.00)	0.00	0.00
	(0.00)	(0.00)	(0.00)	0.00	(0.00)	0.01	(0.01)	(0.01)	(0.01)	(0.26)	(0.02)	0.11	(0.01)	(0.01)	(0.00)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.06)	(0.00)	(0.01)	(0.02)	(0.03)	(0.03)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	0.01	(0.01)	(0.01)	(0.02)	0.04	(0.02)	(0.08)	(0.02)	(0.02)	(0.00)
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	0.05	0.03	0.00	(0.03)	(0.02)	(0.02)
	(0.00)	(0.02)	(0.00)	0.08	0.52	(0.06)	(0.00)	(0.00)	(0.00)	(0.62)	0.39	0.21	0.08	0.50	(0.07)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	0.02	(0.01)	(0.01)	(0.01)	0.06	(0.06)	(0.06)	(0.02)	(0.03)	0.01
	(0.00)	(0.00)	(0.00)	(0.02)	(0.01)	(0.00)	(0.02)	(0.02)	(0.03)	0.07	(0.01)	(0.05)	(0.04)	(0.04)	(0.03)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	0.07	(0.12)	0.09	(0.02)	(0.01)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	0.01	(0.02)	(0.02)	(0.02)	0.01	0.03	0.01	(0.03)	(0.03)	(0.02)
	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	(0.02)	(0.01)	(0.02)	(0.04)	(0.01)	0.08	(0.02)	(0.03)	(0.05)
	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.02)	0.02	(0.00)	(0.01)	(0.01)	(0.01)
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.04)	0.00	(0.20)	(0.02)	(0.01)	(0.01)

5.12.2 Saudi Arabia GCC Listed Companies DACC Results

58. Saudi Arabia Companies Figures

Δ(CA)_t		
2017	2018	2019
(249.7)	(0.2)	(77.5)
(63.1)	28.0	135.2
(70.8)	(15.3)	(69.8)
13.8	(125.4)	170.2
(116.0)	(261.4)	(109.8)
(24.8)	8.5	(70.7)
(315.5)	(65.9)	(295.1)
9.6	(11.9)	272.4
(88.2)	(18.4)	18.0
(64.8)	(88.7)	(61.4)
(63.6)	58.0	(13.5)
(2.9)	13.7	7.2
1.7	5.2	7.1
3,151.8	1,889.6	(3,116.1)
(251.0)	(241.0)	301.2
20.2	(57.6)	55.7
(81.2)	1.5	(88.9)
33.2	(18.4)	15.4
(1.8)	(126.4)	(29.5)
620.6	3,746.7	(127.7)
(7.6)	10.5	47.9
12.2	(103.0)	396.2
27.9	26.3	(15.2)
16.2	(61.6)	(119.3)
175.9	442.9	(1,238.3)
10,137.6	(10,175.6)	(20,065.5)
(247.9)	1,057.7	(82.0)
1,165.2	200.1	(4,163.7)
(20.3)	9.8	(4.8)
16.6	13.9	(17.7)
19.9	(2.7)	(20.1)
225.2	(140.5)	(14.7)
(82.9)	29.7	(31.5)
(9.3)	73.9	(87.4)
(56.4)	205.0	(141.5)
643.9	695.3	(1,249.6)
213.0	(355.5)	(384.8)
(17.0)	(91.0)	(59.3)
328.5	(638.2)	1,127.8
180.0	101.6	(812.8)
697.2	2,379.2	(3,757.1)
(9.4)	21.1	81.5
(40.0)	(66.7)	(44.1)
25.8	18.1	175.9
(250.1)	44.6	31.3
106.3	34.1	87.2
18.2	54.2	14.7
7.5	9.7	22.8
156.9	(252.7)	77.7
(131.4)	(115.7)	(62.7)
(70.3)	121.8	21.5
(15.5)	(31.4)	69.0
(39.2)	56.2	233.4
66.5	(45.8)	82.3
(184.8)	79.3	147.6
40.7	20.7	9.5
(27.2)	(111.8)	22.7

ΔCash		
2017	2018	2019
(54.0)	(32.8)	(20.2)
(0.8)	(9.9)	3.3
32.8	(32.2)	(3.8)
54.6	(31.3)	52.2
54.3	(68.1)	(8.4)
(18.4)	(3.2)	(68.6)
3.5	(26.3)	(3.5)
(35.4)	2.2	44.0
(42.3)	3.1	17.2
(12.7)	1.5	(1.4)
0.2	39.7	(23.4)
0.6	(3.0)	0.8
4.3	1.1	7.7
(1,254.8)	1,136.8	(947.6)
325.8	(269.0)	17.3
7.5	(0.0)	52.1
(1.7)	(31.6)	30.3
(3.4)	(2.2)	(5.6)
(55.0)	(66.0)	(27.2)
(18.1)	1,041.5	(1,788.3)
(23.2)	17.3	56.3
(4.2)	56.5	(129.8)
(6.8)	13.0	16.0
19.3	(121.3)	(6.7)
(355.5)	985.7	(765.9)
18,790.9	(53,912.2)	1,390.6
(40.4)	509.0	(61.0)
105.2	373.8	(185.8)
(27.9)	4.4	39.6
(7.2)	12.4	(17.9)
(14.5)	(18.9)	(18.4)
7.6	(3.3)	6.5
(19.0)	(9.2)	5.0
(10.4)	(7.6)	(18.6)
(56.9)	(63.1)	44.8
273.8	999.7	(448.6)
(624.0)	(1,026.1)	110.1
0.2	(1.4)	(10.9)
(99.9)	(709.2)	777.8
(192.7)	(67.5)	(144.8)
1,127.0	(137.4)	(1,463.9)
(80.3)	1.1	69.5
(35.8)	(1.0)	10.1
75.6	17.9	(240.0)
(66.5)	6.3	91.7
17.3	(26.8)	34.0
(18.2)	(2.5)	8.8
3.7	(3.1)	4.0
38.0	(241.7)	(42.3)
(29.2)	(78.6)	(43.9)
(63.9)	(50.3)	57.6
(19.3)	37.3	(27.1)
(115.1)	(8.2)	235.1
(13.1)	(46.5)	125.3
(98.3)	30.0	230.9
16.9	(7.1)	(7.9)
(38.6)	(50.1)	3.7

Δ(CL)_t		
2017	2018	2019
451.0	109.1	(389.2)
(121.7)	100.5	275.6
(55.6)	(23.0)	(28.6)
213.6	(0.3)	(155.2)
(66.1)	(195.7)	(292.7)
3.2	8.4	(1.3)
(61.6)	34.5	42.7
(69.3)	67.1	312.1
(71.2)	(18.4)	13.4
(133.6)	(59.7)	(113.3)
(1.8)	1.1	(1.5)
(6.3)	14.8	7.4
0.7	(3.1)	0.4
2,540.9	11,015.9	3,056.3
(18.8)	69.8	268.3
91.2	352.1	(100.8)
97.9	61.9	44.0
6.6	(78.9)	66.4
3.4	(12.2)	12.1
12.5	173.8	662.3
(19.4)	20.2	25.5
17.9	(86.3)	431.9
(8.7)	90.4	39.0
44.6	(28.1)	(24.8)
145.8	1,197.8	(1,352.6)
6,919.1	(11,191.0)	434.8
(92.8)	70.0	(173.9)
(980.5)	2,169.4	(3,868.4)
(2.6)	(0.2)	0.8
6.8	13.9	14.9
24.9	29.8	(6.6)
244.2	(13.2)	(49.1)
3.6	(10.0)	(10.1)
42.7	23.8	(63.4)
42.1	413.6	(152.2)
385.4	1,159.0	(1,225.1)
(208.1)	(979.3)	(191.1)
(74.4)	79.6	(8.5)
(254.0)	83.4	6.0
42.7	1,032.0	(1,040.7)
(142.4)	(54.5)	(409.2)
6.0	16.6	(10.5)
(12.9)	(48.7)	306.9
(17.4)	(80.8)	(5.7)
(195.6)	(55.2)	(470.6)
(112.6)	35.8	25.2
(72.1)	94.0	11.7
5.5	0.8	15.8
12.0	(49.7)	61.1
0.4	20.1	48.8
94.8	86.5	1.8
(10.6)	14.4	6.3
(82.4)	(134.8)	(10.2)
(18.4)	25.5	(57.3)
(160.4)	29.6	29.6
(97.9)	10.4	15.4
(61.1)	(69.7)	(31.4)

Δ(DCL)_t		
2017	2018	2019
(166.1)	(10.0)	(3.2)
(9.1)	3.5	22.2
(33.3)	(65.7)	3.2
208.2	100.7	(263.5)
0.3	(85.9)	(150.5)
(4.1)	8.1	(0.3)
38.1	52.8	(254.1)
(40.9)	(60.6)	2.7
-	-	0.7
(24.3)	(86.4)	1.1
-	-	0.0
-	-	0.5
-	-	-
582.3	9,293.3	4,345.2
74.1	(187.5)	(3.4)
19.0	191.6	18.5
13.2	126.7	(47.5)
10.8	4.0	18.7
-	-	0.9
443.7	227.3	(629.8)
-	-	0.3
0.5	1.1	8.6
(19.0)	(6.6)	10.2
72.5	(26.2)	(11.6)
27.4	6.7	(151.4)
(399.4)	(8,623.2)	4,466.6
0.0	0.1	13.4
(1,578.1)	2,405.1	(2,378.6)
-	-	-
1.2	11.3	(1.5)
2.2	(0.6)	5.1
20.3	22.0	(8.0)
(6.3)	45.6	3.0
8.0	(8.8)	2.8
(106.4)	9.0	26.6
27.4	6.7	(151.4)
(528.9)	(930.4)	14.1
3.2	87.0	18.3
(174.0)	271.1	(289.4)
(30.0)	(10.0)	1.2
(161.8)	(77.6)	17.3
4.0	18.0	(9.7)
0.7	(39.6)	310.2
-	-	2.7
35.0	(40.0)	55.0
10.3	21.7	11.6
(60.8)	9.1	11.4
-	-	-
36.8	(64.5)	25.2
-	-	79.0
-	-	7.2
-	-	-
-	-	-
(6.7)	(34.8)	0.4
(57.5)	-	1.2
(65.2)	17.6	18.3
(67.0)	(88.5)	(48.6)

Step 1 Results

1

DEP		
2017	2018	2019
9.4	12.6	13.3
6.6	6.7	12.6
6.5	5.5	5.0
18.9	17.6	27.4
20.0	12.1	6.0
3.6	3.6	4.1
8.4	7.6	7.6
8.5	3.7	4.0
14.3	13.7	13.9
1.4	1.8	1.4
0.3	0.3	0.3
0.5	0.7	1.1
0.0	0.0	0.0
108.0	100.2	128.8
4.9	5.8	6.0
5.8	6.1	6.6
4.4	5.6	4.0
2.9	2.8	2.7
5.0	4.3	4.8
37.0	51.5	48.6
2.8	2.3	1.7
4.2	5.1	3.7
2.4	1.7	1.6
5.3	3.8	2.7
21.0	10.8	9.3
758.7	1,003.2	1,562.7
16.6	13.1	28.8
76.4	24.1	36.5
0.6	0.6	0.6
0.8	0.9	1.0
0.3	1.5	2.0
25.1	25.7	28.1
2.7	4.0	3.3
2.2	2.1	1.9
25.0	22.6	31.9
21.3	11.4	9.8
12.9	20.4	38.0
8.2	6.8	1.9
58.8	71.6	84.2
9.6	9.4	10.8
8.3	7.6	23.6
2.1	1.5	0.3
2.3	1.8	1.7
0.8	0.7	1.2
6.3	6.7	6.6
0.3	0.4	0.3
0.3	0.3	0.7
2.2	4.9	5.1
5.8	5.5	5.1
3.9	4.1	4.3
16.2	13.1	10.5
0.5	0.9	1.0
1.4	1.4	1.4
2.7	2.7	3.0
2.7	3.0	2.4
2.3	2.3	2.3
4.4	3.7	2.8

TACC		
2017	2018	2019
(822.3)	(99.1)	315.4
43.6	(65.9)	(134.1)
(87.9)	(31.3)	(39.2)
(65.0)	(10.9)	(17.7)
(123.8)	(95.6)	34.8
(17.3)	7.7	(5.2)
(227.6)	(28.9)	(596.0)
64.9	(145.5)	(85.0)
10.9	(16.8)	(25.8)
55.8	(118.7)	52.9
(62.3)	16.9	11.0
2.2	1.3	(1.6)
(3.4)	7.2	(1.0)
2,340.1	(1,069.8)	(1,008.4)
(488.7)	(235.1)	6.1
(65.3)	(224.2)	116.3
(168.7)	92.3	(214.7)
37.9	63.9	(29.3)
44.8	(52.5)	(18.3)
1,032.9	2,707.1	319.9
32.2	(29.3)	(35.3)
(5.2)	(77.2)	98.9
22.1	(85.4)	(61.6)
19.5	57.9	(102.0)
391.9	(1,744.8)	719.5
(16,730.6)	45,301.2	(18,987.1)
(131.3)	465.7	137.6
386.0	38.0	(2,524.6)
9.6	5.0	(45.7)
17.3	(2.0)	(17.1)
11.3	(15.6)	8.1
(31.4)	(127.6)	(8.2)
(76.5)	90.4	(26.7)
(35.9)	46.9	(4.4)
(173.0)	(159.2)	(39.4)
(9.3)	(1,468.1)	262.9
503.3	699.2	(327.7)
52.2	(89.0)	(23.5)
449.7	187.1	(29.6)
290.4	(882.2)	363.1
(457.4)	2,485.9	(1,890.2)
66.8	19.9	12.6
7.0	(58.2)	(52.7)
(33.2)	80.4	422.9
40.6	46.8	458.7
211.5	46.5	39.2
47.5	(28.5)	5.0
(3.9)	7.0	(2.1)
137.9	(31.3)	79.0
(106.6)	(61.3)	7.1
(117.4)	72.6	(41.2)
13.9	(84.0)	88.9
156.9	197.8	7.1
88.6	(62.3)	11.8
13.8	16.7	(114.1)
54.1	32.6	18.0
1.1	(84.2)	(0.9)

A_(t-1)			
2016 A	2017 A	2018 A	2019 A
3,123.6	2,966.9	2,839.5	2,820.6
1,937.3	1,855.3	1,710.6	2,252.9
1,181.9	1,108.3	1,091.0	1,016.6
3,045.6	2,909.2	2,866.2	2,989.1
2,245.5	1,954.1	1,396.6	1,247.5
643.9	643.2	710.7	673.8
3,411.3	3,178.9	2,869.0	2,418.8
1,573.3	1,649.9	1,620.4	1,965.7
466.2	363.8	333.8	345.8
1,041.2	857.4	747.8	674.3
116.2	19.1	76.7	62.8
133.3	132.7	147.0	156.7
374.5	380.8	441.0	465.0
58,246.1	61,675.0	64,094.0	74,029.7
20,837.3	21,182.6	21,197.6	20,560.8
1,541.3	1,790.2	3,431.5	3,585.2
2,342.2	2,178.8	2,105.7	1,966.4
1,539.7	1,549.0	1,505.7	1,576.8
660.9	681.1	692.6	756.4
94,142.8	95,117.0	98,138.3	97,657.6
581.4	560.3	562.9	603.2
1,251.3	1,250.2	1,150.1	1,552.1
1,221.1	1,215.6	1,152.2	1,118.9
2,310.6	2,257.1	2,120.7	1,943.0
22,259.6	21,612.5	21,018.8	19,015.7
313,854.7	321,610.8	319,710.9	300,480.6
8,227.7	8,346.9	9,504.5	9,662.5
32,585.5	33,993.2	33,565.8	23,018.8
485.7	450.7	467.6	464.3
721.3	808.6	804.8	739.2
225.7	244.5	308.1	292.1
1,069.6	1,287.6	1,127.6	1,133.9
1,610.7	1,427.2	1,402.8	1,302.6
546.2	524.6	583.4	452.4
5,810.6	5,681.7	5,763.2	5,643.4
25,202.5	25,022.9	24,387.5	22,207.3
20,185.8	19,764.5	19,072.1	18,070.4
1,319.5	1,253.8	1,026.7	935.8
15,803.5	15,980.2	15,379.9	23,991.3
4,422.6	4,552.3	4,696.4	3,802.6
41,030.5	40,311.3	40,694.9	35,327.8
1,367.4	1,322.5	1,285.6	1,313.9
2,867.8	2,731.2	2,577.5	2,484.3
2,239.5	2,270.0	2,224.6	2,331.4
3,251.6	3,113.5	3,190.0	3,218.8
1,157.2	1,231.0	1,229.8	1,266.6
390.6	403.1	477.8	489.8
47.2	74.7	92.5	110.3
3,816.4	3,934.1	3,586.1	3,646.9
3,661.2	4,654.1	5,307.7	5,565.5
4,161.2	3,935.8	3,927.2	3,909.3
2,026.7	1,988.9	1,898.7	2,056.7
4,273.6	4,156.7	4,115.6	4,200.2
4,022.1	3,942.4	3,734.3	3,690.5
2,693.6	2,435.0	2,514.2	2,764.9
1,927.6	1,884.2	1,874.2	1,813.9
2,513.2	2,418.2	2,280.3	2,319.3

TACC / A (t-1)		
2017 A	2018 A	2019 A
-0.26	-0.03	0.11
0.02	-0.04	-0.08
-0.07	-0.03	-0.04
-0.02	0.00	-0.01
-0.06	-0.05	0.02
-0.03	0.01	-0.01
-0.07	-0.01	-0.21
0.04	-0.09	-0.05
0.02	-0.05	-0.08
0.05	-0.14	0.07
-0.54	0.89	0.14
0.02	0.01	-0.01
-0.01	0.02	0.00
0.04	-0.02	-0.02
-0.02	-0.01	0.00
-0.04	-0.13	0.03
-0.07	0.04	-0.10
0.02	0.04	-0.02
0.07	-0.08	-0.03
0.01	0.03	0.00
0.06	-0.05	-0.06
0.00	-0.06	0.09
0.02	-0.07	-0.05
0.01	0.03	-0.05
0.02	-0.08	0.03
-0.05	0.14	-0.06
-0.02	0.06	0.01
0.01	0.00	-0.08
0.02	0.01	-0.10
0.02	0.00	-0.02
0.05	-0.06	0.03
-0.03	-0.10	-0.01
-0.05	0.06	-0.02
-0.07	0.09	-0.01
-0.03	-0.03	-0.01
0.00	-0.06	0.01
0.02	0.04	-0.02
0.04	-0.07	-0.02
0.03	0.01	0.00
0.07	-0.19	0.08
-0.01	0.06	-0.05
0.05	0.02	0.01
0.00	-0.02	-0.02
-0.01	0.04	0.19
0.01	0.02	0.14
0.18	0.04	0.03
0.12	-0.07	0.01
-0.08	0.09	-0.02
0.04	-0.01	0.02
-0.03	-0.01	0.00
-0.03	0.02	-0.01
0.01	-0.04	0.05
0.04	0.05	0.00
0.02	-0.02	0.00
0.01	0.01	-0.05
0.03	0.02	0.01
0.00	-0.03	0.00

2 term1 | **3 term2**

1 / A (t-1)			Δ(REV)_t			Δ(REC)(t)			(Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A
0.00	0.00	0.00	54.2	1.2	70.2	(9.5)	27.7	(141.3)	0.02	(0.01)	0.07
0.00	0.00	0.00	(189.9)	(175.3)	281.8	(18.6)	(31.9)	94.9	(0.09)	(0.08)	0.11
0.00	0.00	0.00	(14.9)	(163.9)	(128.3)	52.7	(4.0)	49.3	(0.06)	(0.14)	(0.16)
0.00	0.00	0.00	(163.8)	(111.7)	207.0	45.8	12.8	58.8	(0.07)	(0.04)	0.05
0.00	0.00	0.00	(222.1)	(477.5)	(483.8)	(134.8)	(133.6)	(59.4)	(0.04)	(0.18)	(0.30)
0.00	0.00	0.00	17.1	16.6	19.9	(4.0)	13.6	(6.6)	0.03	0.00	0.04
0.00	0.00	0.00	(571.7)	155.3	(167.2)	(151.1)	236.4	(150.7)	(0.12)	(0.03)	(0.01)
0.00	0.00	0.00	27.1	(362.7)	435.4	198.8	(63.5)	174.5	(0.11)	(0.18)	0.16
0.00	0.00	0.00	(129.3)	(46.4)	4.7	(34.9)	(9.0)	8.8	(0.20)	(0.10)	(0.01)
0.00	0.00	0.00	(84.3)	(83.3)	(123.7)	(16.0)	(60.2)	(64.0)	(0.07)	(0.03)	(0.08)
0.01	0.05	0.01	18.6	99.1	(37.7)	(61.5)	15.8	2.4	0.69	4.37	(0.52)
0.01	0.01	0.01	(14.8)	(6.2)	(0.8)	5.1	(1.1)	3.2	(0.15)	(0.04)	(0.03)
0.00	0.00	0.00	15.1	3.0	2.8	7.6	3.8	-	0.02	(0.00)	0.01
0.00	0.00	0.00	9,064.9	6,787.2	(6,936.2)	177.3	(146.6)	(81.7)	0.15	0.11	(0.11)
0.00	0.00	0.00	(691.0)	191.8	377.7	523.3	(75.1)	631.5	(0.06)	0.01	(0.01)
0.00	0.00	0.00	(51.8)	1,767.0	504.6	64.0	45.1	(38.0)	(0.08)	0.96	0.16
0.00	0.00	0.00	(185.1)	113.3	(154.3)	(38.4)	62.1	(66.2)	(0.06)	0.02	(0.04)
0.00	0.00	0.00	136.6	62.6	(142.5)	35.3	(52.7)	3.0	0.07	0.07	(0.10)
0.00	0.00	0.00	37.7	9.7	(70.6)	13.5	(3.0)	1.5	0.04	0.02	(0.10)
0.00	0.00	0.00	2,622.1	2,084.8	3,565.5	612.1	322.4	894.9	0.02	0.02	0.03
0.00	0.00	0.00	(113.3)	(41.8)	189.5	(1.0)	(17.0)	21.7	(0.19)	(0.04)	0.30
0.00	0.00	0.00	(398.3)	(370.2)	79.8	(20.2)	(8.0)	36.5	(0.30)	(0.29)	0.04
0.00	0.00	0.00	91.7	(50.2)	25.3	62.7	(0.2)	38.6	0.02	(0.04)	(0.01)
0.00	0.00	0.00	47.2	18.4	(174.4)	(7.4)	(6.3)	(57.9)	0.02	0.01	(0.05)
0.00	0.00	0.00	1,297.3	1,566.6	(1,495.7)	547.6	(69.2)	(134.8)	0.03	0.08	(0.06)
0.00	0.00	0.00	6,767.1	19,362.4	(29,391.0)	2,717.1	(782.3)	(5,228.8)	0.01	0.06	(0.08)
0.00	0.00	0.00	(96.5)	1,100.4	(572.3)	(131.4)	231.8	33.2	0.00	0.10	(0.06)
0.00	0.00	0.00	2,176.9	(7,731.1)	(46.4)	644.5	(75.8)	(1,068.7)	0.05	(0.23)	0.03
0.00	0.00	0.00	(39.3)	17.4	9.0	(6.9)	10.7	1.6	(0.07)	0.01	0.02
0.00	0.00	0.00	16.1	(18.2)	(22.3)	15.3	9.8	(7.7)	0.00	(0.03)	(0.02)
0.00	0.00	0.00	(11.5)	10.0	0.6	(5.0)	9.6	16.0	(0.03)	0.00	(0.05)
0.00	0.00	0.00	194.7	138.7	42.8	87.6	(18.9)	(81.5)	0.10	0.12	0.11
0.00	0.00	0.00	145.8	25.7	(98.4)	25.3	(5.4)	(14.4)	0.07	0.02	(0.06)
0.00	0.00	0.00	20.4	97.7	(127.9)	11.1	17.0	(18.6)	0.02	0.15	(0.19)
0.00	0.00	0.00	(525.4)	(90.2)	(35.4)	468.7	134.2	(109.6)	(0.17)	(0.04)	0.01
0.00	0.00	0.00	1,297.3	1,566.6	(1,495.7)	550.6	(65.9)	(134.0)	0.03	0.07	(0.06)
0.00	0.00	0.00	990.3	407.6	(1,563.6)	726.4	(517.3)	(351.9)	0.01	0.05	(0.06)
0.00	0.00	0.00	38.6	25.6	(14.3)	(16.3)	(45.0)	(25.2)	0.04	0.06	0.01
0.00	0.00	0.00	944.5	576.3	403.9	258.3	(219.4)	182.4	0.04	0.05	0.01
0.00	0.00	0.00	245.2	363.7	(153.7)	(30.4)	(25.7)	30.5	0.06	0.09	(0.04)
0.00	0.00	0.00	1,375.1	2,279.2	(2,726.8)	(0.3)	265.5	(288.7)	0.03	0.05	(0.06)
0.00	0.00	0.00	(107.6)	31.4	78.4	(5.2)	(2.1)	6.1	(0.07)	0.03	0.06
0.00	0.00	0.00	(285.0)	(67.8)	138.0	(5.2)	(19.0)	3.4	(0.10)	(0.02)	0.05
0.00	0.00	0.00	(66.5)	(190.5)	186.5	1.8	(14.6)	(1.7)	(0.03)	(0.08)	0.08
0.00	0.00	0.00	(288.2)	(70.1)	280.8	(28.9)	(23.8)	(5.8)	(0.08)	(0.01)	0.09
0.00	0.00	0.00	153.2	(28.8)	91.5	4.9	1.1	-	0.13	(0.02)	0.07
0.00	0.00	0.00	103.1	66.2	31.3	42.3	11.3	(18.8)	0.16	0.14	0.10
0.02	0.01	0.01	(10.5)	7.5	39.0	(1.0)	5.6	3.1	(0.20)	0.03	0.39
0.00	0.00	0.00	(351.2)	(305.0)	181.2	88.0	(49.2)	14.5	(0.12)	(0.07)	0.05
0.00	0.00	0.00	(377.0)	(226.8)	280.7	(33.4)	(20.5)	39.9	(0.09)	(0.04)	0.05
0.00	0.00	0.00	(593.6)	(65.0)	322.1	(22.1)	73.2	58.2	(0.14)	(0.04)	0.07
0.00	0.00	0.00	(226.1)	(200.2)	366.1	(19.0)	(48.6)	(7.4)	(0.10)	(0.08)	0.20
0.00	0.00	0.00	(712.2)	(176.1)	412.6	(8.0)	(0.2)	4.1	(0.16)	(0.04)	0.10
0.00	0.00	0.00	(369.7)	(149.5)	208.6	(12.0)	12.5	4.9	(0.09)	(0.04)	0.05
0.00	0.00	0.00	(216.0)	(74.9)	163.1	(70.4)	15.7	5.0	(0.05)	(0.04)	0.06
0.00	0.00	0.00	(79.9)	(17.2)	89.2	(12.7)	(0.6)	0.9	(0.03)	(0.01)	0.05
0.00	0.00	0.00	(54.0)	(128.2)	32.1	68.6	(41.8)	5.6	(0.05)	(0.04)	0.01

4 term3

(PPE)(t) / A (t-1)		
2018 A	2019 A	2016 A
0.45	0.47	0.63
0.46	0.52	0.89
0.49	0.54	0.56
1.19	1.39	1.44
0.89	0.76	1.05
0.53	0.56	0.53
0.44	0.45	0.50
0.54	0.44	0.45
1.13	1.45	1.61
0.51	0.62	0.72
0.04	0.27	0.08
0.59	0.57	0.56
0.00	0.00	0.00
1.08	1.06	1.27
1.08	1.09	1.04
1.01	1.87	1.02
0.81	0.87	0.93
1.14	1.18	1.31
0.95	1.16	1.32
0.98	0.99	1.00
0.48	0.51	0.52
0.62	0.63	0.72
0.86	0.89	0.94
1.40	1.45	1.58
0.92	0.95	0.98
1.09	1.09	1.16
1.24	1.29	1.20
0.57	0.47	0.20
1.42	1.60	1.59
0.72	0.64	0.58
1.08	0.04	1.04
0.74	0.62	0.75
1.33	1.51	1.68
0.91	0.94	0.86
0.53	0.54	0.55
0.81	0.82	0.84
1.03	1.09	1.16
1.12	1.14	1.41
1.03	1.06	1.43
0.80	0.84	0.81
1.13	1.16	1.16
0.89	0.93	0.96
1.08	1.14	1.21
1.06	1.00	1.03
0.75	0.80	0.80
0.94	0.89	0.90
0.73	0.81	0.73
1.02	0.82	0.66
1.37	1.35	1.51
1.85	1.66	1.55
1.81	1.93	1.98
1.15	1.18	1.25
1.54	1.60	1.62
1.61	1.49	1.59
1.20	1.32	1.28
1.25	1.27	1.28
0.54	0.97	1.06

FD	FD	FD
2017 A	2018 A	2019 A
(0.1)	0.3	(0.4)
(0.2)	0.6	0.8
(0.1)	0.1	0.0
0.1	0.2	0.1
1.8	(0.7)	4.6
0.0	0.0	(0.0)
(0.2)	1.0	2.9
(0.1)	0.1	0.3
(0.2)	(0.1)	0.1
(0.4)	0.1	(0.1)
0.6	(0.6)	0.0
(0.1)	0.2	0.1
0.0	(0.0)	(0.0)
(0.8)	(0.0)	1.3
0.1	0.0	(0.0)
0.3	2.6	(1.2)
0.4	0.1	0.2
(0.1)	(0.1)	0.2
0.0	(0.0)	0.0
(0.1)	(0.1)	(0.3)
(0.0)	0.0	0.1
0.0	(0.0)	0.8
(0.1)	0.4	0.1
0.0	(0.2)	(0.0)
(0.4)	(0.5)	(0.4)
(0.0)	(0.1)	(0.2)
(0.0)	(0.0)	0.0
(0.4)	(0.5)	(0.7)
(0.0)	(0.0)	0.0
(0.0)	(0.0)	0.0
0.1	0.4	0.1
0.3	0.2	(0.1)
(0.6)	(1.0)	0.0
0.1	0.2	(0.1)
(0.0)	0.7	0.3
(0.4)	(0.3)	(0.3)
(0.1)	(0.1)	0.0
0.5	5.8	2.6
(0.2)	(0.2)	(0.8)
0.0	(0.0)	(0.3)
(0.2)	(0.3)	(0.2)
(0.0)	(0.0)	(0.0)
(0.0)	(0.0)	(0.1)
(0.0)	(0.0)	(0.0)
(0.1)	(0.1)	0.0
(0.1)	0.0	(0.1)
(0.1)	(0.0)	(0.2)
(0.6)	0.3	(0.3)
(0.1)	0.0	(0.1)
0.2	(0.0)	(0.0)
0.3	0.2	(0.0)
0.1	0.0	0.0
(0.0)	0.0	(0.0)
(0.0)	(0.0)	(0.0)
0.0	0.0	(0.0)
(0.1)	0.0	0.0
(0.0)	(0.0)	(0.1)
(0.1)	0.0	0.0

FP	FP	FP
2017 A	2018 A	2019 A
0.086	(0.0)	0.0
(0.0)	(0.2)	0.1
0.0	(0.1)	(0.1)
(0.1)	(0.1)	0.2
0.1	(0.0)	(0.1)
0.1	0.1	(0.0)
0.0	(0.1)	(0.2)
(0.0)	(0.0)	(0.0)
(0.1)	(0.1)	0.0
(0.1)	(0.2)	0.1
17.1	5.8	(0.2)
(0.0)	(0.0)	(0.0)
34.1	0.3	0.0
0.0	(0.0)	(0.0)
(0.1)	(0.1)	0.0
(0.0)	(0.0)	0.0
(0.1)	0.1	(0.1)
(0.1)	0.0	(0.1)
(0.0)	(0.0)	(0.0)
0.1	0.1	(0.2)
(0.1)	(0.0)	0.0
(0.0)	(0.1)	(0.0)
0.1	(0.3)	0.2
0.1	0.1	(0.2)
0.1	0.0	(0.1)
0.0	0.0	(0.1)
(0.0)	0.1	(0.0)
0.1	0.0	(0.4)
(0.5)	0.6	(0.0)
0.3	(0.2)	(0.7)
(0.0)	(0.1)	(0.1)
(0.0)	(0.2)	0.2
1.8	0.1	(0.1)
(0.1)	0.1	(0.3)
(0.0)	(0.0)	(0.0)
0.2	(0.0)	(0.0)
(0.0)	(0.0)	(0.1)
0.1	(0.1)	0.2
0.1	0.0	(0.1)
(0.1)	(0.0)	0.0
0.0	0.1	(0.2)
(0.3)	(0.2)	0.3
(0.3)	(0.2)	0.4
(0.2)	0.2	0.0
(0.1)	(0.1)	0.1
0.6	(0.3)	0.3
(0.1)	(0.0)	0.0
0.0	0.0	(0.0)
(0.1)	(0.4)	0.3
(0.2)	(0.2)	0.4
(0.1)	(0.0)	(0.0)
(0.1)	(0.1)	0.2
(0.1)	(0.1)	0.1
(0.1)	(0.2)	0.1
(0.1)	(0.0)	0.1
(0.4)	(0.5)	0.8
(0.1)	(0.4)	0.3

FL	FL	FL
2017 A	2017 A	2018 A
0	0	0
0	1	0
0	0	1
1	1	0
1	1	1
1	0	0
1	1	1
0	0	0
0	0	0
0	1	1
1	0	1
0	0	0
0	0	0
0	0	1
0	0	0
0	0	0
1	1	1
0	0	0
0	0	0
0	0	0
0	1	1
0	1	1
1	0	1
0	0	0
0	0	0
0	0	0
0	0	1
1	0	0
0	0	1
0	1	1
0	1	0
1	0	0
1	0	1
0	1	1
0	0	0
0	0	0
1	1	1
0	0	0
0	0	0
0	0	1
0	1	0
1	1	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	1	0
0	1	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
1	1	0
0	1	0

Coefficient	
α1	4.874
α2	0.105
α3	-0.007

Result Step 2	α1 1 / A (t-1)			α2 (Δ(REV)_t - Δ(REC)_t) / A (t-1)			α3 (PPE)(t) / A (t-1)			DACC - ε t			Result Step 3 NDACC		
	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A
	0.00	0.00	0.00	0.00	(0.00)	0.01	(0.00)	(0.00)	(0.00)	(0.26)	(0.03)	0.11	0.00	(0.00)	0.01
	0.00	0.00	0.00	(0.01)	(0.01)	0.01	(0.00)	(0.00)	(0.01)	0.03	(0.03)	(0.09)	(0.01)	(0.01)	0.01
	0.00	0.00	0.00	(0.01)	(0.02)	(0.02)	(0.00)	(0.00)	(0.00)	(0.07)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)
	0.00	0.00	0.00	(0.01)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	(0.01)	0.01	(0.00)	(0.01)	(0.01)	(0.00)
	0.00	0.00	0.00	(0.00)	(0.02)	(0.03)	(0.01)	(0.01)	(0.01)	(0.05)	(0.03)	0.06	(0.01)	(0.02)	(0.04)
	0.01	0.01	0.01	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.03)	0.01	(0.01)	0.01	0.00	0.01
	0.00	0.00	0.00	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.21)	(0.01)	(0.00)	(0.00)
	0.00	0.00	0.00	(0.01)	(0.02)	0.02	(0.00)	(0.00)	(0.00)	0.05	(0.07)	(0.07)	(0.01)	(0.02)	0.02
	0.01	0.01	0.01	(0.02)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	0.04	(0.04)	(0.08)	(0.02)	(0.01)	0.00
	0.00	0.01	0.01	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	0.06	(0.14)	0.08	(0.01)	(0.00)	(0.01)
	0.04	0.26	0.06	0.07	0.46	(0.05)	(0.00)	(0.00)	(0.00)	(0.65)	0.18	0.14	0.11	0.71	0.01
	0.04	0.04	0.03	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.04)	0.02	0.03	0.03
	0.01	0.01	0.01	0.00	(0.00)	0.00	(0.00)	(0.00)	(0.00)	(0.02)	0.01	(0.01)	0.02	0.01	0.01
	0.00	0.00	0.00	0.02	0.01	(0.01)	(0.01)	(0.01)	(0.01)	0.03	(0.02)	0.00	0.01	0.00	(0.02)
	0.00	0.00	0.00	(0.01)	0.00	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.01	(0.01)	(0.01)	(0.01)
	0.00	0.00	0.00	(0.01)	0.10	0.02	(0.01)	(0.01)	(0.01)	(0.03)	(0.22)	0.02	(0.01)	0.09	0.01
	0.00	0.00	0.00	(0.01)	0.00	(0.00)	(0.01)	(0.01)	(0.01)	(0.06)	0.04	(0.09)	(0.01)	(0.00)	(0.01)
	0.00	0.00	0.00	0.01	0.01	(0.01)	(0.01)	(0.01)	(0.01)	0.02	0.04	(0.00)	0.00	0.00	(0.02)
	0.01	0.01	0.01	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.01)	0.06	(0.08)	(0.01)	0.00	0.00	(0.01)
	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	0.02	0.03	0.01	(0.00)	(0.00)	(0.00)
	0.01	0.01	0.01	(0.02)	(0.00)	0.03	(0.00)	(0.00)	(0.00)	0.07	(0.05)	(0.10)	(0.02)	0.00	0.04
	0.00	0.00	0.00	(0.03)	(0.03)	0.00	(0.00)	(0.00)	(0.01)	0.03	(0.03)	0.08	(0.03)	(0.03)	0.00
	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	0.02	(0.06)	(0.05)	0.00	(0.01)	(0.00)
	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.01)	0.01	0.03	(0.03)	(0.01)	(0.01)	(0.01)
	0.00	0.00	0.00	0.00	0.01	(0.01)	(0.01)	(0.01)	(0.01)	0.02	(0.08)	0.05	(0.00)	0.00	(0.01)
	0.00	0.00	0.00	0.00	0.01	(0.01)	(0.01)	(0.01)	(0.01)	(0.05)	0.14	(0.04)	(0.01)	(0.00)	(0.02)
	0.00	0.00	0.00	0.00	0.01	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.05	0.03	(0.01)	0.00	(0.01)
	0.00	0.00	0.00	0.00	(0.02)	0.00	(0.00)	(0.00)	(0.00)	0.01	0.03	(0.08)	0.00	(0.03)	0.00
	0.01	0.01	0.01	(0.01)	0.00	0.00	(0.01)	(0.01)	(0.01)	0.03	0.01	(0.10)	(0.01)	0.00	0.00
	0.01	0.01	0.01	0.00	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	0.02	(0.00)	(0.02)	0.00	(0.00)	0.00
	0.02	0.02	0.02	(0.00)	0.00	(0.01)	(0.01)	(0.00)	(0.01)	0.04	(0.08)	0.02	0.01	0.02	0.00
	0.00	0.00	0.00	0.01	0.01	0.01	(0.01)	(0.00)	(0.01)	(0.04)	(0.11)	(0.02)	0.01	0.01	0.01
	0.00	0.00	0.00	0.01	0.00	(0.01)	(0.01)	(0.01)	(0.01)	(0.05)	0.07	(0.00)	0.00	(0.00)	(0.01)
	0.01	0.01	0.01	0.00	0.02	(0.02)	(0.01)	(0.01)	(0.01)	(0.07)	0.07	0.01	0.00	0.02	(0.02)
	0.00	0.00	0.00	(0.02)	(0.00)	0.00	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.00)
	0.00	0.00	0.00	0.00	0.01	(0.01)	(0.01)	(0.01)	(0.01)	0.00	(0.06)	0.02	(0.00)	0.00	(0.01)
	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.01)	(0.01)	(0.01)	0.03	0.04	(0.00)	(0.01)	(0.00)	(0.01)
	0.00	0.00	0.00	0.00	0.01	0.00	(0.01)	(0.01)	(0.01)	0.04	(0.07)	(0.02)	0.00	0.00	(0.00)
	0.00	0.00	0.00	0.00	0.01	0.00	(0.01)	(0.01)	(0.01)	0.03	0.01	0.01	(0.00)	(0.00)	(0.01)
	0.00	0.00	0.00	0.01	0.01	(0.00)	(0.01)	(0.01)	(0.01)	0.06	(0.20)	0.09	0.00	0.00	(0.01)
	0.00	0.00	0.00	0.00	0.01	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.06	(0.03)	(0.00)	(0.00)	(0.01)
	0.00	0.00	0.00	(0.01)	0.00	0.01	(0.01)	(0.01)	(0.01)	0.06	0.02	0.01	(0.01)	(0.00)	0.00
	0.00	0.00	0.00	(0.01)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	0.02	(0.01)	(0.02)	(0.02)	(0.01)	(0.00)
	0.00	0.00	0.00	(0.00)	(0.01)	0.01	(0.01)	(0.01)	(0.01)	(0.01)	0.05	0.19	(0.01)	(0.01)	0.00
	0.00	0.00	0.00	(0.01)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	0.02	0.02	0.14	(0.01)	(0.01)	0.01
	0.00	0.00	0.00	0.01	(0.00)	0.01	(0.01)	(0.01)	(0.01)	0.17	0.04	0.03	0.01	(0.00)	0.01
	0.01	0.01	0.01	0.02	0.01	0.01	(0.01)	(0.01)	(0.01)	0.10	(0.09)	(0.01)	0.02	0.02	0.02
	0.10	0.07	0.05	(0.02)	0.00	0.04	(0.01)	(0.01)	(0.00)	(0.16)	0.03	(0.11)	0.07	0.06	0.09
	0.00	0.00	0.00	(0.01)	(0.01)	0.00	(0.01)	(0.01)	(0.01)	0.06	0.01	0.03	(0.02)	(0.02)	(0.00)
	0.00	0.00	0.00	(0.01)	(0.00)	0.00	(0.01)	(0.01)	(0.01)	(0.01)	0.00	0.01	(0.02)	(0.02)	(0.01)
	0.00	0.00	0.00	(0.01)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	(0.00)	0.03	(0.00)	(0.03)	(0.02)	(0.01)
	0.00	0.00	0.00	(0.01)	(0.01)	0.02	(0.01)	(0.01)	(0.01)	0.02	(0.03)	0.03	(0.02)	(0.01)	0.01
	0.00	0.00	0.00	(0.02)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	0.06	0.06	0.00	(0.03)	(0.01)	0.00
	0.00	0.00	0.00	(0.01)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	0.04	(0.00)	0.01	(0.02)	(0.01)	(0.00)
	0.00	0.00	0.00	(0.01)	(0.00)	0.01	(0.01)	(0.01)	(0.01)	0.02	0.02	(0.04)	(0.01)	(0.01)	(0.00)
	0.00	0.00	0.00	(0.00)	(0.00)	0.00	(0.01)	(0.01)	(0.01)	0.04	0.02	0.01	(0.01)	(0.01)	(0.00)
	0.00	0.00	0.00	(0.01)	(0.00)	0.00	(0.00)	(0.01)	(0.01)	0.01	(0.03)	0.00	(0.01)	(0.01)	(0.00)

5.12.3 Kuwait GCC Listed Companies DACC Results

59. Kuwait Companies Figures

ΔCash		
2017	2018	2019
6.7	24.5	(44.5)
0.6	(0.6)	0.4
0.2	7.1	1.3
(4.0)	0.6	13.6
2.8	(1.1)	(0.5)
5.2	(3.8)	0.6
0.1	6.5	8.8
13.6	(5.4)	0.7
(0.1)	0.8	0.5
(2.4)	(3.2)	(0.0)
0.4	(2.4)	20.9
6.3	(2.3)	(7.4)
(2.4)	(1.6)	-
2.4	2.5	(8.7)
(2.0)	2.3	2.9
(0.6)	(2.1)	8.0
2.4	0.9	(3.0)
2.8	1.5	(3.2)
3.1	(2.4)	(0.7)
31.4	0.2	5.0
(1.6)	(2.0)	0.1
3.2	(1.6)	2.8

Δ(CL)_t		
2017	2018	2019
2.4	38.3	(34.1)
1.1	0.4	0.4
0.2	(0.2)	(1.3)
(0.4)	(9.0)	(0.4)
(1.5)	(0.9)	0.4
(0.2)	0.2	0.6
0.8	0.1	(0.1)
75.0	(28.2)	(2.1)
5.9	12.1	(6.2)
(0.4)	(3.4)	0.8
(9.7)	(12.7)	(5.3)
10.4	(4.9)	(5.2)
5.7	(3.4)	(0.3)
(0.7)	5.7	(4.8)
13.5	(9.9)	29.1
9.6	(34.3)	26.5
0.8	4.6	(8.6)
29.3	(3.9)	(4.7)
(0.2)	1.0	(0.2)
103.5	(46.8)	(16.0)
0.1	(0.1)	(5.4)
1.0	(0.9)	1.1

Δ(DCL)_t		
2017	2018	2019
(1.8)	(1.5)	(1.7)
-	-	-
-	-	-
-	2.6	(2.6)
-	-	-
-	-	-
3.7	1.0	0.2
(2.3)	(1.9)	(2.3)
(1.4)	(0.9)	0.1
0.0	(1.6)	0.6
(3.7)	-	-
-	-	-
2.5	(2.8)	(1.1)
-	-	-
5.5	(3.2)	21.8
-	-	-
(6.7)	(1.4)	3.2
0.7	(6.9)	1.3
-	-	-
80.8	(80.4)	(30.4)
(3.5)	(0.1)	0.4
-	-	-

DEP		
2017	2018	2019
2.4	2.3	1.9
2.2	2.0	2.0
1.9	2.0	2.0
1.2	0.9	0.8
0.9	0.8	0.6
0.0	0.0	0.0
2.5	3.6	3.9
9.0	10.9	9.8
6.3	8.4	9.0
1.2	1.1	1.2
1.4	1.1	1.0
4.0	5.7	5.7
2.5	2.4	2.4
0.8	0.8	0.7
5.6	6.2	6.4
6.1	3.5	3.2
10.6	10.8	8.1
2.0	3.1	3.2
0.1	0.1	0.1
29.8	31.4	60.5
8.9	8.3	9.8
3.1	3.0	3.1

Step 1 Results

TACC		
2017	2018	2019
(0.4)	(30.9)	42.3
(2.2)	(2.0)	(2.0)
0.4	(3.2)	2.4
(0.4)	4.9	(1.4)
(5.3)	(0.8)	(1.7)
(0.6)	0.6	(1.8)
2.7	(1.7)	(2.1)
(39.7)	(15.7)	(6.1)
(3.8)	(13.2)	7.0
(4.8)	(1.1)	0.3
10.1	6.2	(5.1)
(7.0)	(0.8)	0.3
(6.9)	(10.6)	(2.1)
0.6	(6.3)	4.2
(14.0)	(10.7)	19.3
(16.0)	(16.4)	5.5
(16.7)	(17.1)	4.1
(7.6)	(9.3)	9.0
1.5	(2.3)	0.2
3.0	(10.9)	(73.5)
(9.3)	(17.8)	(12.3)
(4.7)	(1.2)	(5.4)

A_(t-1)			
2016 A	2017 A	2018 A	2019 A
285.3	294.9	330.4	298.7
65.9	63.9	61.4	60.3
32.4	38.4	44.5	48.2
51.2	48.5	33.7	32.1
27.9	22.9	20.1	15.7
46.2	46.5	44.3	23.4
85.7	98.5	109.9	118.3
259.2	329.3	288.7	294.8
147.7	161.6	180.8	189.2
30.7	27.6	20.6	20.7
177.2	177.9	177.2	194.4
82.9	95.4	91.6	92.5
129.8	137.4	132.8	160.4
43.5	53.2	71.2	119.6
196.1	198.0	188.9	239.6
400.5	407.7	310.4	426.3
93.2	92.3	95.9	93.2
39.6	68.9	66.5	64.9
23.3	23.9	25.0	25.0
1,544.0	1,728.9	1,843.2	2,082.1
300.4	305.7	301.9	316.0
112.9	113.7	112.0	114.3

1

TACC / A (t-1)		
2017 A	2018 A	2019 A
0.00	-0.10	0.13
-0.03	-0.03	-0.03
0.01	-0.08	0.05
-0.01	0.10	-0.04
-0.19	-0.03	-0.08
-0.01	0.01	-0.04
0.03	-0.02	-0.02
-0.15	-0.05	-0.02
-0.03	-0.08	0.04
-0.15	-0.04	0.01
0.06	0.03	-0.03
-0.08	-0.01	0.00
-0.05	-0.08	-0.02
0.01	-0.12	0.06
-0.07	-0.05	0.10
-0.04	-0.04	0.02
-0.18	-0.18	0.04
-0.19	-0.13	0.14
0.07	-0.10	0.01
0.00	-0.01	-0.04
-0.03	-0.06	-0.04
-0.04	-0.01	-0.05

2 term1

1 / A (t-1)		
2017 A	2018 A	2019 A
0.00	0.00	0.00
0.02	0.02	0.02
0.03	0.03	0.02
0.02	0.02	0.03
0.04	0.04	0.05
0.02	0.02	0.02
0.01	0.01	0.01
0.00	0.00	0.00
0.01	0.01	0.01
0.03	0.04	0.05
0.01	0.01	0.01
0.01	0.01	0.01
0.01	0.01	0.01
0.02	0.02	0.01
0.01	0.01	0.01
0.00	0.00	0.00
0.01	0.01	0.01
0.03	0.01	0.02
0.04	0.04	0.04
0.00	0.00	0.00
0.00	0.00	0.00
0.01	0.01	0.01

Δ(REV)_t		
2017 A	2018 A	2019 A
29.5	217.9	(97.0)
(5.2)	(1.0)	1.1
3.2	3.7	1.7
(5.1)	(1.5)	(0.6)
(1.3)	(0.3)	(0.2)
(0.2)	0.4	(0.1)
7.3	7.5	4.0
47.4	30.0	(62.1)
39.6	11.2	(5.0)
(6.0)	(3.1)	(0.8)
(27.5)	21.3	(13.6)
5.1	20.2	(20.7)
(1.3)	1.9	(12.3)
0.8	(0.3)	(0.3)
20.8	0.6	10.1
(70.5)	(3.0)	15.1
9.2	2.2	(12.4)
27.9	37.5	(14.2)
0.6	(0.3)	(0.0)
173.0	143.2	28.4
(1.3)	(1.0)	(14.4)
4.1	7.8	(4.7)

Δ(REC)(t)		
2017 A	2018 A	2019 A
(5.5)	8.1	9.3
0.5	(0.7)	0.2
1.6	(3.8)	4.4
(0.0)	(3.0)	0.7
0.3	(2.5)	0.1
(0.7)	-	(0.0)
2.5	1.1	1.4
37.4	(42.1)	18.8
(0.3)	(13.2)	21.3
(1.4)	(0.8)	1.8
(8.2)	(0.0)	(1.0)
5.8	(6.1)	1.0
2.1	(4.1)	(1.6)
0.6	0.3	0.1
4.7	(6.8)	13.0
6.6	(18.0)	14.0
1.5	(1.8)	(1.6)
20.6	(5.4)	6.0
0.0	0.0	0.1
61.2	34.3	(6.6)
1.0	(1.8)	(5.4)
(1.3)	(0.2)	(0.4)

3 term2		
(Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
0.12	0.71	(0.32)
(0.09)	(0.00)	0.01
0.05	0.19	(0.06)
(0.10)	0.03	(0.04)
(0.06)	0.10	(0.01)
0.01	0.01	(0.00)
0.06	0.06	0.02
0.04	0.22	(0.28)
0.27	0.15	(0.15)
(0.15)	(0.08)	(0.12)
(0.11)	0.12	(0.07)
(0.01)	0.28	(0.24)
(0.03)	0.04	(0.08)
0.01	(0.01)	(0.01)
0.08	0.04	(0.02)
(0.19)	0.04	0.00
0.08	0.04	(0.11)
0.19	0.62	(0.30)
0.03	(0.01)	(0.01)
0.07	0.06	0.02
(0.01)	0.00	(0.03)
0.05	0.07	(0.04)

4 term3		
(PPE)(t) / A (t-1)		
2018 A	2019 A	2016 A
0.19	0.18	0.18
1.10	1.12	1.15
0.84	0.77	0.68
0.25	0.16	0.25
0.44	0.45	0.53
0.17	0.17	0.18
0.73	0.71	0.64
0.33	0.27	0.30
0.85	0.88	0.82
0.64	0.72	0.93
0.23	0.23	0.25
0.45	0.45	0.52
0.36	0.40	0.28
0.03	0.02	0.01
0.70	0.68	0.74
0.34	0.18	0.62
1.38	1.49	1.46
0.76	0.46	0.49
0.21	0.20	0.20
0.35	0.29	0.27
0.93	0.93	0.95
0.98	1.02	1.07

FD	FD	FD
2017 A	2018 A	2019 A
(0.3)	0.4	(0.4)
0.0	0.0	0.0
(0.0)	(0.0)	(0.0)
0.1	(0.2)	(0.1)
(0.3)	(0.2)	0.2
(0.0)	0.0	0.0
(0.0)	(0.1)	(0.2)
1.3	(1.1)	0.1
(0.0)	0.0	(0.2)
0.6	0.2	(0.1)
(0.1)	(0.1)	(0.1)
0.2	(0.1)	(0.1)
(0.0)	(0.1)	0.2
(0.1)	(0.0)	0.2
(0.7)	(0.0)	0.9
0.2	(0.7)	1.0
(0.3)	(0.2)	(0.0)
1.2	(0.3)	(0.4)
(0.0)	0.0	(0.0)
0.1	0.0	0.1
(0.0)	0.0	(0.1)
0.0	(0.0)	0.0

FP	FP	FP
2017 A	2018 A	2019 A
0.002	(0.0)	0.0
(0.8)	(0.3)	0.5
0.0	0.0	(0.0)
1.4	0.4	(1.1)
0.5	(0.2)	(1.5)
4.6	(2.4)	(0.1)
0.0	0.0	0.0
0.0	0.0	0.0
(0.0)	0.0	0.0
(0.3)	0.1	0.4
0.1	(0.0)	(0.0)
0.0	(0.0)	(0.0)
0.0	(0.0)	(0.1)
0.1	0.0	(0.0)
0.1	(0.1)	(0.1)
0.2	(0.1)	(0.1)
0.0	0.1	(0.1)
(0.0)	0.0	0.0
0.1	0.0	(0.2)
0.0	0.0	(0.0)
(0.0)	(0.1)	(0.0)
0.1	0.0	0.0

FL	FL	FL
2017 A	2017 A	2018 A
0	0	0
1	1	1
0	0	0
1	0	1
0	1	1
0	0	0
0	0	0
0	0	0
0	0	0
1	1	1
0	0	0
0	0	0
0	0	0
0	0	0
0	0	1
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

	Coefficient
α1	-0.62
α2	-0.167
α3	-0.036

Result Step 2

α1 1 / A (t-1)		
2017 A	2018 A	2019 A
(0.00)	(0.00)	(0.00)
(0.01)	(0.01)	(0.01)
(0.02)	(0.02)	(0.01)
(0.01)	(0.01)	(0.02)
(0.02)	(0.03)	(0.03)
(0.01)	(0.01)	(0.01)
(0.01)	(0.01)	(0.01)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.02)	(0.02)	(0.03)
(0.00)	(0.00)	(0.00)
(0.01)	(0.01)	(0.01)
(0.00)	(0.00)	(0.00)
(0.01)	(0.01)	(0.01)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.01)	(0.01)	(0.01)
(0.02)	(0.01)	(0.01)
(0.03)	(0.03)	(0.02)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.01)	(0.01)	(0.01)

α2 (Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
(0.02)	(0.12)	0.05
0.01	0.00	(0.00)
(0.01)	(0.03)	0.01
0.02	(0.01)	0.01
0.01	(0.02)	0.00
(0.00)	(0.00)	0.00
(0.01)	(0.01)	(0.00)
(0.01)	(0.04)	0.05
(0.05)	(0.03)	0.02
0.02	0.01	0.02
0.02	(0.02)	0.01
0.00	(0.05)	0.04
0.00	(0.01)	0.01
(0.00)	0.00	0.00
(0.01)	(0.01)	0.00
0.03	(0.01)	(0.00)
(0.01)	(0.01)	0.02
(0.03)	(0.10)	0.05
(0.00)	0.00	0.00
(0.01)	(0.01)	(0.00)
0.00	(0.00)	0.00
(0.01)	(0.01)	0.01

α3 (PPE)(t) / A (t-1)		
2017 A	2018 A	2019 A
(0.01)	(0.01)	(0.01)
(0.04)	(0.04)	(0.04)
(0.03)	(0.03)	(0.02)
(0.01)	(0.01)	(0.01)
(0.02)	(0.02)	(0.02)
(0.01)	(0.01)	(0.01)
(0.03)	(0.03)	(0.02)
(0.01)	(0.01)	(0.01)
(0.03)	(0.03)	(0.03)
(0.02)	(0.03)	(0.03)
(0.01)	(0.01)	(0.01)
(0.02)	(0.02)	(0.02)
(0.01)	(0.01)	(0.01)
(0.00)	(0.00)	(0.00)
(0.03)	(0.02)	(0.03)
(0.01)	(0.01)	(0.02)
(0.05)	(0.05)	(0.05)
(0.03)	(0.02)	(0.02)
(0.01)	(0.01)	(0.01)
(0.01)	(0.01)	(0.01)
(0.03)	(0.03)	(0.03)
(0.04)	(0.04)	(0.04)

DACC - ε t		
2017 A	2018 A	2019 A
0.03	0.02	0.08
0.00	0.02	0.02
0.07	(0.01)	0.08
(0.00)	0.12	(0.02)
(0.16)	0.03	(0.03)
0.01	0.03	(0.02)
0.07	0.03	0.01
(0.13)	0.00	(0.06)
0.05	(0.02)	0.05
(0.14)	(0.00)	0.06
0.05	0.07	(0.03)
(0.06)	0.06	(0.01)
(0.04)	(0.05)	(0.01)
0.03	(0.11)	0.07
(0.03)	(0.02)	0.13
(0.06)	(0.03)	0.04
(0.11)	(0.12)	0.08
(0.12)	(0.00)	0.11
0.10	(0.07)	0.04
0.03	0.01	(0.03)
0.00	(0.02)	(0.01)
0.01	0.04	(0.01)

Result Step 3

NDACC		
2017 A	2018 A	2019 A
(0.03)	(0.13)	0.05
(0.03)	(0.05)	(0.05)
(0.06)	(0.08)	(0.03)
(0.00)	(0.02)	(0.02)
(0.03)	(0.06)	(0.05)
(0.02)	(0.02)	(0.02)
(0.04)	(0.04)	(0.03)
(0.02)	(0.05)	0.03
(0.08)	(0.06)	(0.01)
(0.02)	(0.03)	(0.04)
0.01	(0.03)	(0.00)
(0.02)	(0.07)	0.01
(0.01)	(0.03)	(0.00)
(0.02)	(0.01)	(0.01)
(0.04)	(0.03)	(0.03)
0.02	(0.01)	(0.02)
(0.07)	(0.07)	(0.04)
(0.07)	(0.13)	0.02
(0.04)	(0.03)	(0.03)
(0.03)	(0.02)	(0.01)
(0.03)	(0.04)	(0.03)
(0.05)	(0.05)	(0.04)

Oman GCC Listed Companies DACC Results

Oman Companies Figures

Δ(CA)_t		
2017	2018	2019
0.6	9.4	7.6
1.3	(5.8)	(0.1)
0.2	(0.1)	0.0
5.1	0.4	(5.2)
12.0	3.9	(3.5)
2.6	2.4	2.0
(50.4)	23.9	(47.7)
(0.5)	1.4	1.5

ΔCash		
2017	2018	2019
(3.3)	(3.4)	(0.8)
(0.0)	0.1	(0.4)
(0.4)	-	(0.0)
0.1	10.2	(2.2)
(1.5)	0.4	1.0
(2.6)	(0.6)	0.7
(7.7)	(1.6)	0.2
0.1	(0.6)	0.2

Δ(CL)_t		
2017	2018	2019
(1.1)	6.7	44.3
2.2	(1.3)	0.6
1.0	(0.2)	(0.5)
3.6	(5.3)	(8.1)
7.2	3.2	(3.1)
(0.3)	(0.4)	0.6
(35.7)	(19.9)	(35.4)
(3.2)	4.1	7.1

Δ(DCL)_t		
2017	2018	2019
-	1.1	18.8
(0.3)	0.7	(1.1)
(0.1)	(0.0)	-
-	-	-
1.1	(12.2)	-
-	-	-
(7.7)	(5.4)	(3.3)
(3.0)	2.0	3.4

DEP		
2017	2018	2019
7.0	7.4	6.5
2.3	2.3	1.9
0.7	0.7	0.8
3.7	3.6	3.6
2.0	2.1	1.9
2.1	2.1	2.0
20.3	14.5	17.7
1.1	1.8	3.0

Step 1 Results

TACC		
2017	2018	2019
(2.0)	(0.3)	(23.6)
(3.5)	(6.1)	(3.3)
(1.2)	(0.6)	(0.2)
(2.2)	(8.2)	1.5
5.4	(13.9)	(3.3)
3.4	1.2	(1.3)
(35.0)	25.4	(33.6)
(1.6)	(1.9)	(5.5)

A_(t-1)			
2016 A	2017 A	2018 A	2019 A
208.5	195.2	199.8	254.8
69.9	68.1	55.9	55.7
12.4	13.3	12.9	12.8
140.2	142.1	139.4	134.0
58.1	68.9	71.9	67.5
43.0	42.4	41.1	42.7
484.8	426.3	419.5	304.4
75.0	80.6	89.5	92.1

1

TACC / A (t-1)		
2017 A	2018 A	2019 A
-0.01	0.00	-0.12
-0.05	-0.09	-0.06
-0.10	-0.04	-0.01
-0.02	-0.06	0.01
0.09	-0.20	-0.05
0.08	0.03	-0.03
-0.07	0.06	-0.08
-0.02	-0.02	-0.06

2 term1

1 / A (t-1)		
2017 A	2018 A	2019 A
0.00	0.01	0.01
0.01	0.01	0.02
0.08	0.08	0.08
0.01	0.01	0.01
0.02	0.01	0.01
0.02	0.02	0.02
0.00	0.00	0.00
0.01	0.01	0.01

Δ(REV)_t		
2017 A	2018 A	2019 A
(20.7)	19.1	(6.9)
(0.9)	(2.9)	0.8
(0.2)	(0.2)	(1.0)
13.6	4.8	(36.9)
28.3	19.5	(12.2)
(0.6)	(1.7)	0.7
(47.8)	(3.9)	(40.3)
0.7	4.6	2.5

Δ(REC)(t)		
2017 A	2018 A	2019 A
(2.5)	12.2	7.7
0.0	0.3	(0.2)
0.1	0.3	0.2
0.8	(3.0)	(8.6)
9.7	(2.4)	0.7
1.4	(0.3)	0.0
(28.0)	13.3	(58.4)
(0.5)	1.3	0.1

3 term2

(Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
(0.09)	0.04	(0.07)
(0.01)	(0.05)	0.02
(0.02)	(0.04)	(0.09)
0.09	0.05	(0.20)
0.32	0.32	(0.18)
(0.05)	(0.03)	0.02
(0.04)	(0.04)	0.04
0.02	0.04	0.03

4 term3

(PPE)(t) / A (t-1)		
2018 A	2019 A	2016 A
0.91	0.98	1.09
0.71	0.72	0.90
1.13	1.06	1.11
0.51	0.50	0.53
0.69	0.60	0.58
0.88	0.90	0.95
0.54	0.57	0.56
1.07	1.08	0.99

FD	FD	FD
2017 A	2018 A	2019 A
(0.0)	0.1	0.4
0.1	0.1	0.1
0.1	(0.0)	(0.0)
0.0	(0.1)	(0.1)
0.1	0.1	(0.0)
(0.0)	(0.0)	0.0
(0.0)	0.1	(1.8)
0.2	0.3	0.3

FP	FP	FP
2017 A	2018 A	2019 A
(0.143)	(0.1)	0.0
(0.0)	0.0	0.0
(0.1)	(0.0)	(0.0)
(0.0)	0.0	(0.0)
(0.0)	(0.0)	(0.0)
0.0	(0.0)	0.1
0.0	0.0	(0.1)
(0.2)	0.0	(0.2)

FL	FL	FL
2017 A	2017 A	2018 A
0	0	0
1	1	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
1	0	1
0	0	1

Coefficient	
α1	-0.098
α2	-0.085
α3	-0.037

Result Step 2

α1 1 / A (t-1)		
2017 A	2018 A	2019 A
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.01)	(0.01)	(0.01)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)

α2 (Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
0.01	(0.00)	0.01
0.00	0.00	(0.00)
0.00	0.00	0.01
(0.01)	(0.00)	0.02
(0.03)	(0.03)	0.02
0.00	0.00	(0.00)
0.00	0.00	(0.00)
(0.00)	(0.00)	(0.00)

α3 (PPE)(t) / A (t-1)		
2017 A	2018 A	2019 A
(0.03)	(0.04)	(0.04)
(0.03)	(0.03)	(0.03)
(0.04)	(0.04)	(0.04)
(0.02)	(0.02)	(0.02)
(0.03)	(0.02)	(0.02)
(0.03)	(0.03)	(0.04)
(0.02)	(0.02)	(0.02)
(0.04)	(0.04)	(0.04)

DACC - ε t		
2017 A	2018 A	2019 A
0.02	0.04	(0.08)
(0.02)	(0.07)	(0.02)
(0.05)	(0.00)	0.03
0.01	(0.03)	0.01
0.15	(0.15)	(0.04)
0.11	0.06	0.01
(0.06)	0.08	(0.06)
0.02	0.02	(0.02)

Result Step 3

NDACC		
2017 A	2018 A	2019 A
(0.03)	(0.04)	(0.03)
(0.03)	(0.02)	(0.04)
(0.05)	(0.04)	(0.04)
(0.03)	(0.02)	(0.00)
(0.05)	(0.05)	(0.01)
(0.03)	(0.03)	(0.04)
(0.02)	(0.02)	(0.02)
(0.04)	(0.04)	(0.04)

Qatar GCC Listed Companies DACC Results

Qatar Companies Figures

Δ(CA)_t		
2017	2018	2019
(1,234.1)	129.7	(96.2)
592.1	161.3	(674.2)
(370.6)	(52.6)	29.0
93.4	3,199.0	(147.7)
203.2	(170.7)	(135.9)
13.8	251.9	41.5
(552.3)	569.4	590.1
(124.5)	78.6	21.8
(2,431.4)	(1,876.8)	(501.7)
1,194.6	538.6	(3,182.7)
2,040.6	549.8	(413.3)
(140.5)	147.5	(202.1)
(50.2)	(18.7)	(20.1)
95.6	(132.6)	92.4
91.0	42.7	(171.7)
(8.2)	(3.1)	(2.9)

ΔCash		
2017	2018	2019
(205.2)	256.2	(86.6)
425.0	681.9	(679.4)
14.4	(56.9)	(16.0)
(350.5)	1,260.0	(48.0)
216.9	(301.3)	(398.0)
(96.4)	104.8	(56.1)
(646.6)	(45.2)	34.5
57.0	40.0	(109.2)
(728.9)	(246.5)	50.4
1,195.4	631.7	(1,981.5)
209.3	36.6	(24.3)
(139.9)	151.8	(215.9)
5.3	(8.5)	(18.3)
(38.7)	(143.9)	(38.9)
32.3	(2.1)	(103.6)
(0.4)	(0.1)	0.5

Δ(CL)_t		
2017	2018	2019
(944.9)	(136.1)	88.4
107.3	904.6	32.4
(261.2)	72.1	7.0
201.1	(58.1)	(102.2)
78.4	20.1	(62.6)
139.2	(130.5)	(35.7)
(126.4)	212.0	538.0
(114.2)	37.6	59.6
(2,844.1)	(1,144.2)	114.8
1,018.0	207.5	(1,493.0)
3,076.1	3.9	(24.8)
41.5	47.8	(22.1)
2.8	1.2	14.0
31.2	(157.4)	78.7
52.9	13.0	(125.3)
10.7	(20.7)	1.0

Δ(DCL)_t		
2017	2018	2019
(392.7)	(142.6)	45.4
186.9	1,019.5	(6.3)
-	-	-
-	-	-
-	-	-
-	-	-
(42.2)	36.9	(82.0)
(3.4)	40.8	26.7
(2,454.2)	(1,096.8)	(4.1)
-	-	-
735.7	(203.4)	(36.6)
0.4	0.4	25.4
(4.6)	0.5	(0.1)
-	-	-
-	0.5	(0.2)
11.0	(17.7)	(0.6)

Step 1 Results

DEP		
2017	2018	2019
9.9	10.0	12.9
444.8	279.5	278.9
6.0	5.7	5.2
225.4	237.4	237.4
140.0	155.1	174.9
91.1	91.3	104.2
487.3	489.1	434.4
25.4	25.1	23.5
284.0	273.9	265.6
197.8	190.4	209.1
75.9	96.9	92.0
57.7	66.1	111.2
28.2	31.4	27.4
59.8	70.8	60.0
4.7	4.0	4.1
2.6	5.7	5.5

TACC		
2017	2018	2019
(486.7)	(142.9)	(65.5)
(198.1)	(685.2)	(312.4)
(129.8)	(73.6)	32.9
17.4	1,759.7	(234.9)
(232.1)	(44.7)	149.8
(120.2)	186.2	29.0
(308.8)	(49.5)	(498.7)
(96.1)	16.7	74.6
(1,596.5)	(1,856.8)	(936.6)
(1,216.7)	(491.1)	82.7
(585.0)	209.0	(492.8)
(99.5)	(117.9)	(49.8)
(91.0)	(42.2)	(43.3)
43.3	97.9	(7.5)
1.1	28.3	52.9
(10.2)	(5.9)	(10.5)

A_(t-1)			
2016 A	2017 A	2018 A	2019 A
10,014.9	8,669.8	9,046.2	9,020.6
15,226.0	15,843.6	18,137.4	17,494.1
1,054.5	1,397.8	1,370.1	1,422.2
35,185.8	35,225.8	37,069.7	35,870.3
3,709.6	3,898.0	3,773.0	3,498.2
4,597.8	4,581.2	4,738.4	4,778.8
11,117.4	10,428.5	10,342.9	10,766.9
2,039.7	2,062.3	2,291.0	2,527.8
22,057.6	18,805.4	17,807.5	17,670.8
11,339.7	12,431.3	13,774.8	12,653.2
7,731.9	11,561.5	12,999.3	13,436.8
2,209.3	2,219.4	2,400.9	2,545.8
1,205.8	1,183.6	1,204.9	1,294.8
2,142.9	2,242.3	2,068.2	2,142.1
520.9	615.2	641.4	510.8
188.8	171.0	162.3	154.1

1

TACC / A (t-1)		
2017 A	2018 A	2019 A
-0.05	-0.02	-0.01
-0.01	-0.04	-0.02
-0.12	-0.05	0.02
0.00	0.05	-0.01
-0.06	-0.01	0.04
-0.03	0.04	0.01
-0.03	0.00	-0.05
-0.05	0.01	0.03
-0.07	-0.10	-0.05
-0.11	-0.04	0.01
-0.08	0.02	-0.04
-0.05	-0.05	-0.02
-0.08	-0.04	-0.04
0.02	0.04	0.00
0.00	0.05	0.08
-0.05	-0.03	-0.06

2 term1

1 / A (t-1)		
2017 A	2018 A	2019 A
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.01	0.01	0.01

Δ(REV)_t		
2017 A	2018 A	2019 A
(1,224.9)	(317.7)	7.6
(32.4)	(600.3)	(204.5)
21.5	(42.9)	17.2
(45.8)	1,162.5	(695.2)
(110.8)	(185.6)	(145.1)
(86.0)	(37.2)	(73.2)
(585.9)	116.3	491.6
(695.7)	(38.8)	(6.2)
(60.3)	(71.2)	(18.5)
3,647.6	5,783.0	(708.6)
2,155.7	3,732.2	818.2
260.7	130.8	(10.8)
1.6	13.6	6.5
(13.3)	46.0	113.8
51.5	20.2	31.7
(0.9)	(0.4)	(3.3)

Δ(REC)(t)		
2017 A	2018 A	2019 A
(560.5)	(83.6)	17.1
258.9	(460.0)	15.9
(0.8)	(18.7)	24.7
73.3	(878.3)	18.0
52.5	49.3	25.7
8.7	32.4	27.7
43.5	38.2	220.9
(198.6)	(26.1)	7.4
44.2	(62.6)	(37.5)
(48.8)	222.0	(1,032.6)
613.6	(5.2)	369.1
(1.7)	(5.4)	0.9
(32.6)	(20.0)	3.2
10.4	5.4	3.2
3.9	(2.1)	0.9
(2.3)	(3.4)	(2.3)

3 term2

(Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
(0.07)	(0.03)	(0.00)
(0.02)	(0.01)	(0.01)
0.02	(0.02)	(0.01)
(0.00)	0.06	(0.02)
(0.04)	(0.06)	(0.05)
(0.02)	(0.02)	(0.02)
(0.06)	0.01	0.03
(0.24)	(0.01)	(0.01)
(0.00)	(0.00)	0.00
0.33	0.45	0.02
0.20	0.32	0.03
0.12	0.06	(0.00)
0.03	0.03	0.00
(0.01)	0.02	0.05
0.09	0.04	0.05
0.01	0.02	(0.01)

4 term3

(PPE)(t) / A (t-1)		
2018 A	2019 A	2016 A
0.06	0.07	0.07
0.76	0.71	0.62
0.06	0.05	0.06
0.19	0.20	0.19
1.13	1.11	1.15
0.62	0.62	0.62
0.95	1.02	1.02
0.49	0.57	0.62
0.30	0.36	0.39
0.27	0.34	0.35
0.17	0.14	0.13
0.62	0.66	0.64
0.98	1.05	1.10
0.51	0.51	0.54
0.13	0.11	0.12
0.83	0.91	0.96

FD	FD	FD
2017 A	2018 A	2019 A
(0.2)	0.0	0.0
(0.1)	(0.0)	0.0
(1.9)	0.3	(0.1)
(0.0)	(0.0)	0.0
0.0	(0.1)	(0.0)
(0.1)	(0.0)	(0.0)
(0.1)	0.1	0.1
0.0	0.1	0.2
(0.2)	(0.2)	(0.0)
0.1	(0.0)	(0.2)
1.3	0.7	0.1
0.0	0.1	0.1
(0.0)	0.0	0.1
(0.0)	(0.1)	0.0
0.1	0.0	(0.3)
0.7	0.8	1.1

FP	FP	FP
2017 A	2018 A	2019 A
0.128	0.0	(0.1)
0.0	0.1	0.0
(0.0)	(0.0)	(0.0)
0.1	0.2	(0.4)
(0.1)	0.1	(0.2)
0.0	(0.0)	(0.1)
0.0	(0.1)	0.1
0.3	0.0	(0.2)
(0.1)	0.0	0.0
(0.0)	(0.0)	0.0
(0.0)	(0.0)	(0.0)
(0.0)	(0.0)	0.0
0.0	0.0	(0.0)
0.0	0.0	(0.0)
0.0	(0.0)	(0.0)
(1.0)	0.7	(0.2)

FL	FL	FL
2017 A	2017 A	2018 A
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	1	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
1	1	1

Coefficient	
α1	-2.96
α2	-0.076
α3	-0.028

Result Step 2

α1 1 / A (t-1)		
2017 A	2018 A	2019 A
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.00)	(0.00)	(0.00)
(0.01)	(0.00)	(0.00)
(0.02)	(0.02)	(0.02)

α2 (Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
0.01	0.00	0.00
0.00	0.00	0.00
(0.00)	0.00	0.00
0.00	(0.00)	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	(0.00)	(0.00)
0.02	0.00	0.00
0.00	0.00	(0.00)
(0.02)	(0.03)	(0.00)
(0.02)	(0.02)	(0.00)
(0.01)	(0.00)	0.00
(0.00)	(0.00)	(0.00)
0.00	(0.00)	(0.00)
(0.01)	(0.00)	(0.00)
(0.00)	(0.00)	0.00

α3 (PPE)(t) / A (t-1)		
2017 A	2018 A	2019 A
(0.00)	(0.00)	(0.00)
(0.02)	(0.02)	(0.02)
(0.00)	(0.00)	(0.00)
(0.01)	(0.01)	(0.01)
(0.03)	(0.03)	(0.03)
(0.02)	(0.02)	(0.02)
(0.03)	(0.03)	(0.03)
(0.01)	(0.02)	(0.02)
(0.01)	(0.01)	(0.01)
(0.01)	(0.01)	(0.01)
(0.00)	(0.00)	(0.00)
(0.02)	(0.02)	(0.02)
(0.03)	(0.03)	(0.03)
(0.01)	(0.01)	(0.02)
(0.00)	(0.00)	(0.00)
(0.02)	(0.03)	(0.03)

DACC - ε t		
2017 A	2018 A	2019 A
(0.05)	(0.02)	(0.01)
0.01	(0.02)	(0.00)
(0.12)	(0.05)	0.03
0.01	0.06	(0.00)
(0.03)	0.02	0.07
(0.01)	0.06	0.02
(0.01)	0.02	(0.02)
(0.05)	0.03	0.05
(0.06)	(0.09)	(0.04)
(0.07)	0.00	0.02
(0.06)	0.05	(0.03)
(0.02)	(0.03)	(0.00)
(0.04)	(0.00)	(0.00)
0.03	0.06	0.02
0.02	0.06	0.09
(0.01)	0.01	(0.02)

Result Step 3

NDACC		
2017 A	2018 A	2019 A
0.00	(0.00)	(0.00)
(0.02)	(0.02)	(0.02)
(0.01)	(0.00)	(0.00)
(0.01)	(0.01)	(0.00)
(0.03)	(0.03)	(0.03)
(0.02)	(0.02)	(0.02)
(0.02)	(0.03)	(0.03)
0.00	(0.02)	(0.02)
(0.01)	(0.01)	(0.01)
(0.03)	(0.04)	(0.01)
(0.02)	(0.03)	(0.01)
(0.03)	(0.02)	(0.02)
(0.03)	(0.03)	(0.03)
(0.01)	(0.02)	(0.02)
(0.02)	(0.01)	(0.01)
(0.04)	(0.04)	(0.04)

Bahrain GCC Listed Companies DACC Results

Bahrain Companies Figures

Δ(CA)_t		
2017	2018	2019
(0.7)	1.3	(0.3)
(1.1)	1.3	(0.1)
118.1	61.1	(43.1)
30.7	14.5	34.1
1.9	(8.7)	2.6

ΔCash		
2017	2018	2019
(0.1)	(0.7)	(1.0)
(0.2)	(0.5)	0.2
11.0	26.4	(22.5)
(13.7)	(15.9)	32.7
2.0	(9.5)	1.9

Δ(CL)_t		
2017	2018	2019
(0.5)	2.0	0.2
0.0	0.2	(0.2)
0.6	122.7	156.0
21.9	(7.7)	192.9
0.3	(1.5)	(1.7)

Δ(DCL)_t		
2017	2018	2019
-	-	-
-	-	-
(23.2)	52.5	78.4
5.4	0.0	0.8
1.0	1.0	(2.1)

Step 1 Results

DEP		
2017	2018	2019
0.6	0.6	0.6
0.3	0.4	0.4
71.4	64.8	80.3
66.3	70.1	66.2
1.4	1.5	0.9

TACC		
2017	2018	2019
(0.8)	(0.7)	(0.2)
(1.2)	1.1	(0.5)
11.8	(100.3)	(178.6)
(38.4)	(31.9)	(256.9)
(0.7)	1.9	(0.6)

A_(t-1)			
2016 A	2017 A	2018 A	2019 A
22.7	22.0	24.7	26.0
14.5	13.8	14.3	15.2
1,173.7	1,686.2	2,208.9	2,420.3
950.9	932.5	912.4	992.9
162.6	165.8	168.4	174.3

1

TACC / A (t-1)		
2017 A	2018 A	2019 A
-0.03	-0.03	-0.01
-0.08	0.08	-0.03
0.01	-0.06	-0.08
-0.04	-0.03	-0.28
0.00	0.01	0.00

2 term1

1 / A (t-1)		
2017 A	2018 A	2019 A
0.04	0.05	0.04
0.07	0.07	0.07
0.00	0.00	0.00
0.00	0.00	0.00
0.01	0.01	0.01

Δ(REV)_t		
2017 A	2018 A	2019 A
0.5	0.1	(0.0)
6.2	1.5	(0.5)
188.0	53.6	118.1
12.3	26.4	(4.4)
2.4	(0.4)	(0.4)

Δ(REC)(t)		
2017 A	2018 A	2019 A
0.2	0.3	0.2
0.1	0.6	(0.1)
26.1	(9.4)	24.1
10.7	26.1	6.8
0.0	0.9	0.2

3 term2

(Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
0.02	(0.01)	(0.01)
0.42	0.06	(0.03)
0.14	0.04	0.04
0.00	0.00	(0.01)
0.01	(0.01)	(0.00)

4 term3

(PPE)(t) / A (t-1)		
2018 A	2019 A	2016 A
0.76	0.80	0.71
0.83	0.90	0.94
2.16	1.81	1.53
0.77	0.77	0.84
0.20	0.20	0.07

FD	FD	FD
2017 A	2018 A	2019 A
(0.0)	0.1	(0.0)
0.0	0.0	0.0
0.4	0.5	0.2
0.1	(0.1)	0.1
(0.0)	(0.0)	0.0

FP	FP	FP
2017 A	2018 A	2019 A
0.591	(0.5)	0.1
0.1	0.0	(0.0)
0.0	(0.0)	(0.1)
(0.1)	0.1	0.0
(0.1)	0.0	0.0

FL	FL	FL
2017 A	2017 A	2018 A
0	0	0
1	0	1
0	0	0
0	0	0
0	0	0

Coefficient	
α1	0.37
α2	-0.049
α3	-0.04

Result Step 3

Result Step 2	α1 1 / A (t-1)			α2 (Δ(REV)_t - Δ(REC)_t) / A (t-1)			α3 (PPE)(t) / A (t-1)			DACC - ε t			NDACC		
	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A	2017 A	2018 A	2019 A
	0.02	0.02	0.01	(0.00)	0.00	0.00	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	0.01	(0.02)	(0.01)	(0.01)
	0.03	0.03	0.03	(0.02)	(0.00)	0.00	(0.03)	(0.04)	(0.04)	(0.05)	0.09	(0.02)	(0.03)	(0.01)	(0.01)
	0.00	0.00	0.00	(0.01)	(0.00)	(0.00)	(0.09)	(0.07)	(0.06)	0.10	0.01	(0.02)	(0.09)	(0.07)	(0.06)
	0.00	0.00	0.00	(0.00)	(0.00)	0.00	(0.03)	(0.03)	(0.03)	(0.01)	(0.00)	(0.25)	(0.03)	(0.03)	(0.03)
	0.00	0.00	0.00	(0.00)	0.00	0.00	(0.01)	(0.01)	(0.00)	0.00	0.02	(0.00)	(0.01)	(0.01)	(0.00)

UAE GCC Listed Companies DACC Results

UAE Companies Figures

Δ(CA)_t		
2017	2018	2019
(294.0)	(386.0)	14.0
(160.0)	3,115.9	(638.9)
8.3	(33.0)	(34.6)
(97.3)	(148.2)	35.1
16.5	38.3	(23.3)
151.7	(305.1)	(86.4)
(36.4)	(26.2)	56.4
32.6	(6.6)	60.1
55.4	(36.4)	(37.9)
(18.2)	17.8	47.6
0.3	156.9	28.5
94.6	(607.0)	(290.2)

ΔCash		
2017	2018	2019
306.0	(201.0)	18.0
(1,048.0)	2,687.5	(726.9)
(1.1)	35.9	(27.2)
(75.4)	(23.7)	-
(1.5)	11.1	(6.5)
92.0	(192.4)	58.9
(7.2)	(14.3)	52.4
(36.2)	22.7	27.6
0.1	1.1	0.8
(6.1)	14.1	37.5
5.1	8.5	(40.0)
4.5	(80.7)	(29.0)

Δ(CL)_t		
2017	2018	2019
(28.0)	(731.0)	350.0
1,935.8	2,611.4	(930.3)
188.4	59.9	(214.9)
(184.3)	74.4	6.4
21.6	(4.0)	23.8
(66.4)	10.7	55.0
(5.2)	(3.1)	(24.5)
62.9	758.5	11.8
77.6	(7.3)	56.2
(34.2)	(24.0)	(3.8)
(16.3)	113.9	120.5
41.9	566.1	(167.6)

Δ(DCL)_t		
2017	2018	2019
-	-	-
-	-	-
-	332.2	(197.5)
-	-	-
6.3	3.2	1.7
45.9	2.1	30.2
1.2	(5.6)	(23.2)
(95.0)	703.4	90.6
4.4	14.0	26.9
(1.5)	(18.2)	0.7
(55.1)	(1.9)	34.0
-	-	-

Step 1 Results

DEP		
2017	2018	2019
111.0	113.0	103.0
460.7	532.1	533.2
15.0	17.1	17.5
23.3	31.5	26.9
30.4	28.7	29.3
150.8	139.4	135.1
34.7	33.4	32.2
81.4	75.8	72.7
10.2	8.3	6.7
31.6	28.9	31.7
54.7	56.3	63.7
88.3	84.6	82.3

TACC		
2017	2018	2019
(683.0)	433.0	(457.0)
(1,508.5)	(2,715.1)	485.1
(194.1)	186.4	(7.4)
139.2	(230.4)	1.8
(27.7)	5.7	(68.1)
21.1	(260.8)	(305.3)
(57.4)	(47.8)	(26.9)
(170.5)	(160.2)	38.5
(28.2)	(24.4)	(74.6)
(11.0)	(19.4)	(17.0)
(98.4)	(23.7)	(81.7)
(40.1)	(1,177.0)	(175.9)

A_(t-1)			
2016 A	2017 A	2018 A	2019 A
3,765.0	3,782.0	3,167.0	3,202.0
11,438.3	12,205.4	15,621.6	15,010.2
2,100.9	2,043.1	1,956.8	1,785.0
1,260.9	1,159.8	938.3	977.0
635.2	650.2	665.7	606.8
5,756.3	5,801.0	5,497.0	5,486.8
1,215.6	1,102.5	1,030.1	989.9
3,492.0	3,408.8	3,333.3	3,481.4
691.7	720.6	642.6	599.2
409.5	379.0	387.7	478.6
1,791.7	1,835.2	2,032.2	2,155.3
3,473.4	3,527.7	2,892.4	2,450.4

1

TACC / A (t-1)		
2017 A	2018 A	2019 A
-0.18	0.11	-0.14
-0.13	-0.22	0.03
-0.09	0.09	0.00
0.11	-0.20	0.00
-0.04	0.01	-0.10
0.00	-0.04	-0.06
-0.05	-0.04	-0.03
-0.05	-0.05	0.01
-0.04	-0.03	-0.12
-0.03	-0.05	-0.04
-0.05	-0.01	-0.04
-0.01	-0.33	-0.06

2 term1

1 / A (t-1)		
2017 A	2018 A	2019 A
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Δ(REV)_t		
2017 A	2018 A	2019 A
58.0	20.0	(11.0)
2,086.2	3,137.2	(1,556.5)
(48.6)	21.5	(35.6)
(215.7)	(258.6)	(133.8)
(30.3)	30.0	(47.5)
61.8	(126.4)	(154.0)
(53.9)	(25.1)	8.4
95.8	59.0	(65.2)
23.5	(5.0)	(17.2)
(0.4)	6.5	(29.7)
37.2	(53.1)	(29.3)
(299.9)	(434.8)	(418.3)

Δ(REC)(t)		
2017 A	2018 A	2019 A
(743.0)	(76.0)	(28.0)
507.1	18.4	831.2
(5.7)	(11.8)	(19.7)
61.7	42.7	73.0
2.0	22.0	(0.6)
103.9	(118.1)	17.0
(23.1)	(18.5)	3.3
66.7	(20.7)	(3.4)
13.0	(6.9)	(10.0)
(5.3)	(0.9)	(11.1)
7.9	34.9	18.8
(13.1)	(487.9)	(191.0)

3 term2

(Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
0.21	0.03	0.01
0.14	0.26	(0.15)
(0.02)	0.02	(0.01)
(0.22)	(0.26)	(0.22)
(0.05)	0.01	(0.07)
(0.01)	(0.00)	(0.03)
(0.03)	(0.01)	0.00
0.01	0.02	(0.02)
0.02	0.00	(0.01)
0.01	0.02	(0.05)
0.02	(0.05)	(0.02)
(0.08)	0.02	(0.08)

4 term3

(PPE)(t) / A (t-1)		
2018 A	2019 A	2016 A
0.66	0.63	0.77
0.73	0.74	0.61
0.52	0.54	0.57
0.44	0.46	0.57
1.33	1.30	1.29
0.67	0.65	0.67
0.67	0.75	0.79
1.00	1.04	1.11
0.64	0.61	0.63
1.24	1.34	1.54
1.00	1.07	1.00
0.59	0.59	0.70

FD	FD	FD
2017 A	2018 A	2019 A
(0.0)	(0.1)	(0.0)
3.1	0.1	(0.4)
0.0	(0.0)	(0.1)
(0.7)	1.7	0.0
0.1	(0.0)	0.0
(0.1)	0.0	0.1
(0.0)	(0.1)	(0.1)
(0.1)	(0.1)	0.1
0.3	0.1	0.4
(0.3)	(0.1)	0.1
(0.0)	0.2	0.1
0.1	0.7	1.1

FP	FP	FP
2017 A	2018 A	2019 A
0.409	(0.6)	0.7
(0.0)	0.0	0.0
(0.2)	(0.4)	0.5
0.1	(0.4)	0.2
(0.1)	0.2	(0.4)
0.1	(0.0)	(0.0)
(0.0)	(0.1)	0.0
0.1	0.0	(0.0)
(0.3)	(0.4)	(0.2)
0.0	0.1	0.0
(0.0)	(0.1)	(0.0)
(0.1)	(0.9)	(0.8)

FL	FL	FL
2017 A	2017 A	2018 A
0	1	0
0	0	0
0	1	0
0	1	1
1	0	1
0	0	0
0	0	0
0	0	0
1	1	1
0	0	0
0	0	0
0	1	1

Coefficient	
α1	8.332
α2	-0.253
α3	-0.067

Result Step 2

α1 1 / A (t-1)		
2017 A	2018 A	2019 A
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.01	0.01	0.01
0.01	0.01	0.01
0.00	0.00	0.00
0.01	0.01	0.01
0.00	0.00	0.00
0.01	0.01	0.01
0.02	0.02	0.02
0.00	0.00	0.00
0.00	0.00	0.00

α2 (Δ(REV)_t - Δ(REC)_t) / A (t-1)		
2017 A	2018 A	2019 A
(0.05)	(0.01)	(0.00)
(0.03)	(0.06)	0.04
0.01	(0.00)	0.00
0.06	0.07	0.06
0.01	(0.00)	0.02
0.00	0.00	0.01
0.01	0.00	(0.00)
(0.00)	(0.01)	0.00
(0.00)	(0.00)	0.00
(0.00)	(0.00)	0.01
(0.00)	0.01	0.01
0.02	(0.00)	0.02

α3 (PPE)(t) / A (t-1)		
2017 A	2018 A	2019 A
(0.04)	(0.04)	(0.05)
(0.05)	(0.05)	(0.04)
(0.04)	(0.04)	(0.04)
(0.03)	(0.03)	(0.04)
(0.09)	(0.09)	(0.09)
(0.04)	(0.04)	(0.05)
(0.04)	(0.05)	(0.05)
(0.07)	(0.07)	(0.07)
(0.04)	(0.04)	(0.04)
(0.08)	(0.09)	(0.10)
(0.07)	(0.07)	(0.07)
(0.04)	(0.04)	(0.05)

DACC - ε t		
2017 A	2018 A	2019 A
(0.09)	0.16	(0.09)
(0.05)	(0.11)	0.03
(0.07)	0.13	0.03
0.08	(0.24)	(0.02)
0.02	0.09	(0.05)
0.05	(0.00)	(0.02)
(0.02)	(0.00)	0.02
0.02	0.03	0.08
(0.01)	(0.00)	(0.09)
0.04	0.02	0.03
0.01	0.04	0.02
0.00	(0.29)	(0.04)

Result Step 3

NDACC		
2017 A	2018 A	2019 A
(0.10)	(0.05)	(0.05)
(0.08)	(0.11)	(0.00)
(0.03)	(0.04)	(0.03)
0.03	0.04	0.03
(0.06)	(0.08)	(0.06)
(0.04)	(0.04)	(0.04)
(0.03)	(0.04)	(0.05)
(0.07)	(0.07)	(0.07)
(0.03)	(0.03)	(0.03)
(0.07)	(0.07)	(0.07)
(0.07)	(0.05)	(0.06)
(0.02)	(0.04)	(0.02)