“The relationship between dividend policy and bank growth”

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Abstract

The purpose of this study is to investigate the association between bank growth and the retained earnings amount for Jordanian banks between 2010 and 2020. The method to be used is regression models. Bank growth is measured using the change in total assets; income retention is measured by subtracting dividends from earnings per share and by deducting dividend per share from the operating cash flow on the accrual basis and cash basis. In addition, another specification will be used to the association between the growth of a bank's total assets and income retention using the percentage change in the growth of a bank's total assets and income retention on the accrual and cash basis. The findings of pooled OLS regression models and random effect models show that there is no relationship between income retention using the accrual basis and the bank total assets growth (Adj-R² was -0.05). There is a significant relationship between income retention using the cash basis and the bank growth in total assets (Adj-R² was 14%). There is no significant association between change in income retention using the cash basis and the bank growth in total assets, and bank size affects the relationship between income retention and bank growth in total assets. Users of financial statements need to be aware of the association between the several variables used in this study to make sound decisions.

Mohammad Fawzi Shubita (Jordan)

INTRODUCTION

A firm can use several sources of funds, it can finance its assets (the resources that generate future potential benefits) from outside (liabilities) or inside (owner equity). The best source of funds is retained earnings. Retained earnings are the amount that a company retains after distributing dividends. Therefore, net income can be used in two ways such as dividends or retained earnings. A company finds itself with two sources that it obtains, to pay dividends (part of the net income to owners) or retain a part of the net income to reinvest for growth and expansion. Dividend policy should be determined by balancing the rate of growth and the level of distribution.

The study problem is to investigate whether the Jordanian banks used the retained earnings amount to expand and growth, so we can answer the study’s main question: Is there any relationship between income retention on an accrual basis and a cash basis and bank growth?

To provide prosperity for the owner, a firm distributes dividends (Yasmita & Widanaputra, 2018; Perera & Thrikawala, 2010). Some investors choose to receive dividends rather than generate capital gains because they believe that dividends do not depend on stock price movements. In addition, investors expect the good prospects of the firm in the future when they have a high level of dividends.
A firm’s growth affects earnings generated. Profits have an impact on the dividends distributed decision. Firms with high total assets growth rates will also produce high earnings. Investors expect the dividend level to increase with large earnings (Hardi & Andrestiana, 2018; Abdollahi et al., 2020). However, several problems will often appear where the firms’ managers have different objectives that conflict with the main investors’ goals (Dambra, 2018; Frankel & Sun, 2018). Because the firm appoints managers, ideally they prioritize and act in the interests of the firm. They will want to use the firm’s profits to be reinvested in investments that generate more profits and forget the investors’ interests, and this will influence the percentage of dividend payments to be lower than they should (Al Sharawi, 2021). In this study, the banking sector was selected because this sector has experienced several movements of growth recently.

Dividend strategy is one of the significant issues that can influence a firm’s performance (Suadiye, 2012). Dividends are a vital issue that enters into the company investment decisions and self-financing process; if these decisions rely on the available operating cash flow, and these decisions influence the firm’s investment opportunities. This study will try to reduce these ambiguities and focus on this important topic by analyzing the influence of dividend policy on the financial performance of firms in emerging markets like Jordan.

1. LITERATURE REVIEW

The findings of previous studies that examined the association between income retention and firm growth rate using different measures were mixed. The relationship between a company’s growth and retention is abundant. It is expected that higher retained income in the present implies higher expected earnings in the future, but several recent kinds of research believe that low dividend payouts are indicators of expected future income (Arnott & Asness, 2003).

Wahjudi (2020) found that total assets have insignificant and negative effect on the dividend policy of manufacturing firms. The study also found a negative and significant growth in net assets and dividend policy. Therefore, the higher growth in net assets will lower the dividend policy of manufacturing firms. In addition, the results showed that higher liquidity will lower the dividend policy of manufacturing firms. Furthermore, the leverage had a significant and negative relationship with dividend policy.

Al-Debi’e and Al-Rai (2012) studied the relationship between assets growth and retention ratio using accrual and cash bases on Jordanian industrial and service listed firms from 2000 to 2009. They used pooled and cross-sectional regression and found a positive relationship between earning retention measured using the accrual bases and growth in total assets and a negative relationship between earnings retention measured using the accrual bases and growth in total assets.

Chandra et al. (2021) indicated that the factors that influence profitability include uniqueness, liquidity, firm age, growth, asset turnover, volatility, tangibility, and advertising. In addition, growth opportunities have a significant and negative impact on capital structure. An increase in debt will reduce growth opportunities. The study also found that growth opportunities and capital structure have a negative association.

Amar et al. (2021) aimed to determine if dividend policy, liquidity, and sales growth have an impact on company value in industrial firms listed on the Indonesia Stock Exchange. Using the regression models, the study found that the liquidity and dividend policy had an important impact on the company value.

Setiawati and Yesisca (2016), Puspita and Nugroho (2012), Gultom (2015), and Permana (2016) concluded that firm growth had a negative influence on dividend policy. The higher the need for cash to finance a firm’s activities, the higher the firm’s growth rate.

Kanakriyah (2020) aimed to determine the relationship between a firm’s financial performance and dividend policy in Jordan. The study included (92) service and industrial sector listed firms from 2015 to 2019. The study used cross-sectional time-series
data and panel data analysis to find that the dividend policy has an impact on firm performance.

Aivazian et al. (2003) showed that companies in the emerging markets have a similar dividend behavior to United States companies for that the dividends are explained by market-to-book ratio, profitability, and debt. Carpenter and Peterson (2002) showed that there is a direct relationship between internal finance and growth in assets for large companies. On the other hand, Zhou and Rulan (2006) presented an opposite finding when growth is measured as earnings. The study findings showed that high dividend payout firms tend to experience strong expected earnings growth in the future. Gardner et al. (2011) found at Coca-Cola as a case study that a firm can achieve a high growth level in sales using internally generated funds only. Johnson and Soenen (2003) did not reach to an important evidence that the growth can determine successful companies. Several studies documented the relationship between cash dividends and total assets (e.g. Liu & Hu, 2005; Al-Twaijry, 2007; Bajkowski, 2010).

Dewasiri et al. (2019) used fixed effect panel regression to study the determinants of dividend payout using 191 Sri Lankan companies and found that earnings, corporate governance, company size, dividend decision, state ownership, and investment opportunities were the determinants of dividend payout.

Al-Rai (2001) investigated the association between share value and growth and risk, and earnings as independent variables, and found, using estimation models, a positive association between the growth in total assets and market valuation. This means that the retention rate increase leads to a positive increase in a company’s assets that, which leads to a growth in the firm valuation.

In another study, Al-Rai (2001) examined the impact of return on equity on a company’s value and found, using regression models, a positive relationship between return on equity and company market value.

Pattiruhu and Paais (2020) investigated the association between Return-on-Assets (ROA), Return-on-Equity (ROE), Debt-to-Equity Ratio (DER), company size, and Current Ratio (CR) on dividend policy for property and real estate listed firms on Indonesia Stock Exchange in the period 2016–2019. Using linear regression, the study found that company size had not a significant relationship with dividend policy; on other hand, DER and ROA have a significant and positive relationship with dividend policy.

2. AIM AND HYPOTHESES

The aim of the study is to examine the impact of Jordanian banks’ dividend policy on bank growth to show if the firms benefit from their retained earnings fund amount in expanding and increasing their assets and resources.

2.1. Study hypotheses

The study hypotheses are:

\[ H_{01} : \text{There is no relationship between accrual income retention and bank growth.} \]

\[ H_{02} : \text{There is no relationship between cash retention using a cash basis and bank growth in total assets.} \]

\[ H_{03} : \text{There is no relationship between changes in accrual income retention and bank growth in total assets.} \]

\[ H_{04} : \text{There is no relationship between change in cash retention and bank growth in total assets.} \]

\[ H_{05} : \text{Company size does not affect the relationship between income retention and bank growth in total assets.} \]

3. METHODS

3.1. Study models

The study questions are:

First: Is there any significant association between earnings per share after subtracting the dividend per share for Jordanian banks and the growth in its total assets?
Expressed in notations, the first model is:

\[ G_{it} = A_0 + A_1 \left( EPS_{it} - DPS_{it} \right) + \varepsilon_{it}, \]  

where \( A_0, A_1 = \text{OLS regression coefficients}; G_{it} \) is the measure of the bank’s growth rate and equals the change percentage in total assets for bank \( i \) in year \( t \) \((TA_{it} - TA_{it-1})/TA_{it-1}\). \( DPS_{it} \) is dividend per share; \( EPS_{it} \) is earnings per share; \( \varepsilon_{it} \) is OLS regression error.

Second: Is there any significant association between cash flows from operations per share after subtracting the dividend per share for Jordanian banks and the growth of its total assets?

Expressed in notations, the second model is:

\[ G_{it} = A_0 + A_1 \left( CPS_{it} - DPS_{it} \right) + \varepsilon_{it}, \]  

where \( A_0, A_1 = \text{OLS regression coefficients}; G_{it} \) is the measure of the bank’s growth rate and equals the change percentage in total assets for bank \( i \) in year \( t \) \((TA_{it} - TA_{it-1})/TA_{it-1}\). \( CPS_{it} \) is dividend per share; \( EPS_{it} \) is earnings per share; \( \varepsilon_{it} \) is OLS regression error.

Third: Is there any important association between the change percentage of earnings per share after subtracting the dividend per share for Jordanian banks and the growth of its total assets?

Expressed in notations, the third model is:

\[ \Delta G_{it} = A_0 + A_1 \cdot \Delta \left( EPS_{it} - DPS_{it} \right) + \varepsilon_{it}, \]  

where \( A_0, A_1 = \text{OLS regression coefficients}; \Delta G_{it} \) is the change percentage in the bank’s growth rate and equals the change percentage in total assets for bank \( i \) in year \( t \) \((G_{it} - G_{it-1})/G_{it-1}\); \( DPS_{it} \) is dividend per share; \( EPS_{it} \) is earnings per share; \( \varepsilon_{it} \) is OLS regression error.

Fourth: Is there any important association between the change percentage of the operating cash flow per share after subtracting the dividend per share for Jordanian banks and the growth of its total assets?

Expressed in notations, the fourth model is:

\[ \Delta G_{it} = A_0 + A_1 \cdot \Delta \left( CPS_{it} - DPS_{it} \right) + \varepsilon_{it}, \]  

where \( A_0, A_1 = \text{OLS regression coefficients}; G_{it} \) is the measure of the bank’s growth rate and equals the change percentage in total assets for bank \( i \) in year \( t \) \((TA_{it} - TA_{it-1})/TA_{it-1}\). \( CPS_{it} \) is dividend per share; \( EPS_{it} \) is earnings per share; \( \varepsilon_{it} \) is OLS regression error.

The fifth hypothesis documented significant differences in large and small banks; these subsamples of banks are motivated by the findings of many studies (e.g. Shubita, 2021; Kim & Kross, 2005; Senan, 2019; Shubita, 2019; Ogneva, 2012).

3.2. Study variables

The variables in this study are the growth in total assets (\( G \)), income retention using the accrual basis (\( EPS - DPS \)), and income retention using the cash basis (\( EPS - CPS \)), the control variable is bank size measured using total assets. Earnings per share are calculated by dividing net income over the average outstanding shares of banks, on the other hand, dividend per share equals the total dividends of the average outstanding shares of banks. Lastly, the operating cash flow per share equals the cash flow from operations over the average outstanding shares of the banks.

3.3. Study sample

The sample includes thirteen banks listed on the Amman Stock Exchange from 2010 to 2020. The total observations are 143 firm-year observations before deleting the outliers. Outliers increase the data variability, which decreases statistical power. Consequently, excluding outliers can cause the study findings to become statistically significant. The Amman Stock Exchange includes a huge number of several sectors with different firms and is considered one of the important Arab financial markets and that attach significant importance to dividend policy.
3.4. Banking in Jordan

There are twenty-five different banks in Jordan, including 16 local banks, which are divided into 9 international banks, 3 Islamic banks, and 13 commercial banks. The number of branches of these banks in 2017 was 786. According to the bank density index, at the end of 2017, there were about 12,127 people per branch. Jordan’s banking sector assets equal 172% of GDP, loans for 113%, and deposits accounted for 116% of GDP, which reflects the banking sector’s contribution to social development and economy in Jordan.

4. RESULTS

4.1. Descriptive analysis

Table 1 shows descriptive measures for studying main variables after deleting the outliers; it includes the mean, median, standard deviation, minimum and maximum. Jordanian banks have a positive growth rate, which means that total assets increase on average by 6.64% annually. The high standard division compared to the mean can be justified by the high differences between Jordanian banks. The study variables mean is near the median, which refers to the normal distribution.

It can be seen that the retention ratio using the cash basis is higher than the accrual basis, this result is similar to Al-Debi’e and Al-Rai (2012), which means that the banks used the cash flow from operations more than the net income to distribute the dividends. In other words, Jordanian banks focus more on the cash surplus to distribute dividends. Moreover, this also means that there are high amounts of accrual adjustments.

The variables have a wide range (the difference between the maximum and minimum values) that will reflect positively on the study findings’ strength. Positive median and mean values for income retention measures indicate that Jordanian banks distribute dividends less than the amount of cash flow from operations or income earned. Finally, it seems from the standard deviation values and the ranges values for both income retention measures that accrual income is more stable than operating cash flow for Jordanian banks.

| Table 1. Descriptive analysis |
|-------------------------------|
| Variable | Mean | Median | Std. | Min | Max |
| Growth (G) | 0.0664 | 0.050 | 0.095 | −0.15 | 0.46 |
| EPS – DPS | 0.0905 | 0.0700 | 0.9617 | −0.10 | 0.66 |
| CFS – DPS | 0.1384 | 0.220 | 0.885 | −2.72 | 2.57 |

4.2. Correlation

Table 2 presents correlation coefficients between the study variables, Pearson and Spearman correlation factors is positive and significant, however, the correlation between income retention under the accrual basis and growth is insignificant. This will be reflected in the study findings.

| Table 2. Pearson (Spearman) correlation matrix |
|-----------------------------------------------|
| Variable | EPS – DPS | CFS – DPS |
| Growth (G) | −0.045 (0.062) | 0.382** (0.338)** |
| EPS – DPS | − | 0.084 (0.140)* |

Note: * 0.1 level, ** 0.01 level.

4.3. Regression analysis

4.3.1. First: OLS analysis

Table 3 shows the OLS findings of the relationship between the bank growth and retention ratio under accrual basis, the independent variable coefficient is insignificant and the R2 and Adj-R2 is low, which leads to rejecting the first hypothesis; this in turn means that there is no relationship between income retention using the accrual basis and the bank growth in a total asset. This result is not consistent with previous studies like Al-Debi’e and Al-Rai (2012). This inability to reject the first hypothesis can be explained by the that bank growth can be financed from another source of funds such as loans and debts instead of retained earnings, so the income retained did not help banks increase their assets. The high payout ratio will lead to a decrease in the income retention because the management wants to compensate investors and owners by distributing a high level of dividends, or because of losses, the company does not pay dividends, which leads to a decrease in the amount retention for expanding the entity.
Table 3. The first model

| Variable       | Coefficients | Errors | t    | Sig. |
|----------------|--------------|--------|------|------|
| Constant       | 0.070        | 0.011  | 6.440| 0.00 |
| EPS – DPS      | –0.044       | 0.083  | –0.535| 0.593|
| R^2            | 0.002        |        |      | –0.005|
| F-Statistics   | 0.287        | Sig.   |      | 0.593|
| VIF            | 1            | Durbin Watson | 1.450 |

The case is different in model 2 (Table 4). The independent variable coefficient is significant and the Adj-R2 is 14%, which means that the retention ratio using the cash basis can explain 14% of the change in total assets, so the second null hypothesis is rejected and there is a significant relationship between cash retention using the cash basis and bank growth in the total asset. This result is consistent with the study expectation and the previous studies’ results. The cash retained amount increases because of higher EPS or lower payout ratio. A bank’s payout ratio is a function of its cash flow from operations, which is, in turn, a function of total assets growth and expansion.

Table 4. The second model

| Variable       | Coefficients | Errors | t    | Sig. |
|----------------|--------------|--------|------|------|
| Constant       | 0.061        | 0.007  | 8.156| 0.00 |
| CPS – DPS      | 0.041        | 0.008  | 4.902| 0.00 |
| R^2            | 0.146        | Adjusted R^2 | 0.140 |
| F-Statistics   | 24.032       | Sig.   |      | 0.00 |
| VIF            | 1.00         | Durbin Watson | 1.452 |

Table 5. The third model

| Variable       | Coefficients | Errors | t    | Sig. |
|----------------|--------------|--------|------|------|
| Constant       | 23.657       | 18.209 | 1.299| 0.196|
| \( \Delta (EPS_{it} – DPS_{it}) \) | –18.465 | 8.473  | –2.179| 0.031|
| R^2            | 0.033        | Adjusted R^2 | 0.026 |
| F-Statistics   | 4.749        | Sig.   |      | 0.031|
| VIF            | 1.00         | Durbin Watson | 2.090 |

The negative association has been documented by other studies like Rozeff (1982) and Al-Debi’e and Al-Rai (2012). It can be explained that banks cannot make enough change in operating cash flows to distribute dividends, and high depreciation rates lead to negative total assets growth percentage.

Table 6. The fourth model

| Variable       | Coefficients | Errors | t    | Sig. |
|----------------|--------------|--------|------|------|
| Constant       | 18.102       | 18.508 | 0.978| 0.330|
| \( \Delta (CPS_{it} – DPS_{it}) \) | –1.158 | 2.298   | –0.504| 0.615|
| R^2            | 0.002        | Adjusted R^2 | 0.005 |
| F-Statistics   | 0.254        | Sig.   |      | 0.615|
| VIF            | 1.00         | Durbin Watson | 2.005 |

Table 7. Regression results according to size

| Variable       | Constant | EPS – DPS | CPS – DPS | R^2 | Adjusted R^2 | F   | N  |
|----------------|----------|-----------|-----------|-----|---------------|-----|-----|
| **Panel 1: Full sample** |           |           |           |     |               |     |     |
| Model 1        | 0.070    | –0.044    | –         | 0.002| –0.005        | 0.287| 142 |
| Model 2        | 0.061    | –         | 0.041     | 0.146| –             | 24.032| 142 |
| **Panel 2: Small companies** |           |           |           |     |               |     |     |
| Model 1        | 0.075    | 0.197     | –         | 0.009| –0.006        | 0.613| 71  |
| Model 2        | 0.073    | –         | 0.103 (6.567)** | 0.385| 0.376         | 43.123**| 71  |
| **Panel 3: Large companies** |           |           |           |     |               |     |     |
| Model 1        | 0.046    | –0.002 (–0.028) | – | 0.00 | –0.014 | 0.001 | 71  |
| Model 2        | 0.044    | –         | 0.017 (2.142)* | 0.062| 0.049         | 4.588* | 71  |

Note: * 0.05 level. ** 0.01 level.
To test the fifth hypothesis, the sample is divided into large and small banks; panel 2 related to small banks’ results shows that the Adj-R\(^2\) for model 2 is higher than for large banks. This leads to rejecting the fifth null hypothesis, so the bank size affects the relationship between income retention and the bank growth in total assets.

### 4.3.3. Second: Balanced data analysis

#### 4.3.3.1. Pooled OLS

Table 8 shows the pooled OLS results for the study models.

| Variable       | Coefficient | Std. error | t-statistic | Prob.  |
|----------------|-------------|------------|-------------|--------|
| EPS – DPS      | -0.046495   | 0.082896   | -0.560886   | 0.5758 |
| Constant       | 0.071106    | 0.010920   | 6.511682    | 0.0000 |
| R\(^2\)        | 0.002226    |            |             |        |
| Adjusted R\(^2\) | -0.004850  |            |             |        |
| F-statistic    | 0.314593    |            |             |        |
| Prob. (F-statistic) | 0.57566  |            |             |        |
| Durbin-Watson stat | 1.473003 |            |             |        |

#### 4.4. Hausman test

The Hausman test helps determine which method is better (Random effect model or fixed effect model). This test was run for the two models (Ahmed et al., 2021). The main result (see Table 7) shows that the random effect model is better. Since the probability value is more than 5%, this study failed to reject the null hypothesis, which indicated that the random effect model is more preferred than the fixed one (Gujarati, 2021).

#### 4.5. Random effect models

Based on the Hausman test results, the random effect method is more preferred for the study equations.

| Equation number | Chi-Sq. statistic | Chi-Sq. d.f. | Prob.  | Result        |
|-----------------|-------------------|--------------|--------|---------------|
| Model 1         | 3.40              | 1            | 0.0617 | Random is better |
| Model 2         | 0.632             | 1            | 0.4265 | Random is better |
| Model 3         | 2.1328            | 1            | 0.1442 | Random is better |
| Model 4         | 0.1414            | 1            | 0.7069 | Random is better |

Table 9. Hausman test results
The empirical evidence of the study model indicated the same outcomes of the OLS model previous section. The main advantage of using the random effect model is to delete the heteroscedasticity problem (Gujarati, 2021). This model uses the general least square or the principle of maximum likelihood, which is different from the fixed effect and common effect that use the ordinary least square principle.

The above results are consistent with the study results and highlight the importance of distinguishing between cash and accrual basis, as bank profitability is a vital element in evaluating banks.

### 4.5.1. Multicollinearity

The study examines the multicollinearity problem using the Variance Inflation Factor (VIF). It was (1) for the study models, which is less than 5; this means that there is no multicollinearity problem in the study models (Gujarati, 2021).

### Table 10. Random effect models

| Variable | Coefficient | Std. error | t-statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| Model 1  |             |            |             |       |
| EPS – DPS | 0.040380    | 0.083580   | 0.483128    | 0.6298 |
| Constant | 0.063220    | 0.014847   | 4.257965    | 0.0000 |
| Weighted statistics | | | | |
| R²       | 0.001624    | | | |
| Adjusted R² | −0.005457 | | | |
| F-statistic | 0.229360 | | | |
| Prob. (F-statistic) | 0.632741 | | | |
| Durbin-Watson stat | 1.770913 | | | |
| Model 2  |             |            |             |       |
| CPS – DPS | 0.037627    | 0.007762   | 4.847877    | 0.0000 |
| Constant | 0.061677    | 0.012452   | 4.953092    | 0.0000 |
| Weighted statistics | | | | |
| R-squared | 0.142713 | | | |
| Adjusted R-squared | 0.136633 | | | |
| F-statistic | 23.47232 | | | |
| Prob. (F-statistic) | 0.000003 | | | |
| Durbin-Watson stat | 1.763105 | | | |
| Model 3  |             |            |             |       |
| Δ (EPS – DPS) | −18.47676 | 8.467582 | −2.182059 | 0.0308 |
| Constant | 23.66454    | 18.19901   | 1.300320    | 0.1956 |
| Weighted statistics | | | | |
| R-squared | 0.032633 | | | |
| Adjusted R-squared | 0.025772 | | | |
| F-statistic | 4.756416 | | | |
| Prob. (F-statistic) | 0.030847 | | | |
| Durbin-Watson stat | 2.279197 | | | |
| Model 4  |             |            |             |       |
| Δ (CPS – DPS) | −1.218127 | 2.306672 | −0.528089 | 0.5983 |
| Constant | 18.04465    | 20.57497   | 0.877019    | 0.3820 |
| Weighted statistics | | | | |
| R-squared | 0.001986 | | | |
| Adjusted R-squared | 0.0005092 | | | |
| F-statistic | 0.280586 | | | |
| Prob. (F-statistic) | 0.597150 | | | |
| Durbin-Watson stat | 2.232487 | | | |
CONCLUSION AND RECOMMENDATIONS

The purpose of the study is to investigate the relationship between dividend policy and bank growth rate. The issue of distributions is considered based on choosing between the ability to retain the earnings for the expansion opportunities and projects and for growth and the current cash distributions, since growth is one of the components of the distribution model. Investors hope that with the positive firm growth, the firm will be able to distribute high dividends. On the other hand, the higher the firm's growth rate, the lower the dividends paid in reality, and the firm with a high growth rate, which wants to be more active, will affect the dividend policy. This study was aimed at proving the influence of dividend policy, which is moderated by company size, on firm growth.

The main implications and conclusions derived from this study are as follows: There is no significant relationship between the growth of a bank’s total assets and the retained earnings on an accrual basis. There is a significant relationship between the growth of a bank’s total assets and the retained earnings on an accrual basis. There is a significant relationship between change in income retention using the accrual basis and the bank growth in the total asset. There is no significant relationship between change in income retention using the cash basis and the bank total asset growth. And the bank size affects the relationship between income retention and bank growth in the total asset.

The retention ratio using the cash basis does not work as well as the retention ratio using the accrual basis. There are many reasons for this difference, such as measurement problems in computing accrual income, non-cash items like depreciation, several provisions, and inventory valuation problems. The study recommends that researchers use different model specifications and investigate the role of different control variables such as leverage.

AUTHOR CONTRIBUTIONS

Conceptualization: Mohammad Fawzi Shubita.
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