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Research Paper

Accruals and the prediction of future operating cash-flows: evidence from Tunisian companies

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Abstract

The purpose of this study is to investigate the ability of earnings and its components to predict future cash flows for Tunisian companies. We provide evidence on the ability of aggregate earnings, accruals and its components to forecast one or two-period ahead cash flows.
The results of the models show that disaggregating earnings into cash flows and total accruals enhance the predictive ability of earnings relative to aggregate earnings. Furthermore, consistent with prediction, the disaggregating total ac-cruals into its major components (change in accounts receivable; change in inventory; change in accountant's payable, amortization, and other accruals) significantly enhances the predictive ability of earnings. Each accruals component's proves a significantly power to predict future cash flows.

Keywords: *Earnings; Accruals; Operating Cash Flow; Prediction; Future Cash Flow.*

1. Introduction

Conceptual frameworks of the Financial Accounting Standards Board (FASB 1978, SFAC No1) and the International Accounting Standards Board (IASB; IFRS, 2010) recommend that the primary objective of the financial reporting is to provide quality information that helps users of financial statements to predict the amounts and timing of prospective cash-flow. The operational interpretation of this objective is to compare the performance measures based on their correlations with the future cash flows.
The capacity of accounting earnings to predict future cash flow has been widely discussed in the positions of international standardization bodies. Certainly, the Financial Accounting Standards Board has made it clear in its assertion SFACN°1, paragraph 43 that information on accounting income based on accruals generally is better at indicating the ability of the company to generate future cash flows than information limited to the past cash flow.
Several studies focus on this assertion to compare between the predictive ability of aggregate earnings and cash-flows. The findings of these researches are varied. Some of them have shown that cash flows are more predictive than aggregate earnings (Finger, 1994; Burgastahler et al. 1998; Defond et Hung, 2001). Others have supported the assertion of FASB, emphasizing the superiority of earnings versus cash flows (Dechow et al. 1998; Landsman and Maydew, 2002; Moeinaddin et al. 2012). Barth and al. (2001) explain that this inconsistency result from the fact that many researchers use aggregate earnings as accrual proxy to predict future cash-flows, but do not examine how the components of earnings affect its ability to predict future cash flows. They argue that aggregate earnings only give historical information, whereas accruals components capture different information not only about past transactions, but also about future operating and investing activity.
On the base of this argumentation, Bart and al. (2001), Joni (2013), extend the analysis of Dechow and al. (1998), and propose accrual components as accrual proxy in predicting future cash-flows. They document that disaggregating earnings into cash-flows and aggregate accruals enhance the predictive ability relative to aggregate earnings. Furthermore, they find that disaggregating accruals into its major components significantly increases predictive ability.
Consequently, the main objective of this study is to investigate whether disaggregating earnings in its components increases predictive ability relative to aggregate earnings or not.
The remaining of the paper is organized as follows. Section II exposes the literature related to this study and hypotheses development. Section III describes the methodology of this research. Section IV presents the results. Section V summarizes and concludes.

2. Literature review and hypothesis development

The ability of earnings under an accrual accounting basis to predict future cash flow has been widely discussed in the accounting literature. The FASB position in this case insists that the predictive ability of accrual earning in predicting future cash flows is higher than cash flows. In their study, Greenberg et al. (1986), test this assertion. Their findings show that most of companies (60% of 157 sample companies) indicate that current earning is a better predictor than current (reported) cash flows of future cash flows. Murdoch & Krause (1990), support the findings of Greenberg et al. (1986). Indeed, in their study, these authors have used four predic-

tor variables: earnings before extraordinary items, net sales, cash flow, and cash flow from operations. They concluded that sales have predictive power for future cash flows higher than the cash flow. Similarly, they showed that the variable of cash flow provided information that exceeds accounting income to predict the future cash flows. They also conclude that when adding the variable of cash flow to the components of accounting income, there has been a significant decline in the overall predictive power.

The study of Bowen et al. (1986), describe the empirical relationship between the signals supplied by the earnings and various measures of cash flow. The results of this study attach priority predictive power to traditional measures of cash flow. Finger (1994), tried in his quest to expand the study period based on a period of eight years for a sample of 50 member companies of the Fortune 500 companies. The findings of this study have resulted in four suggestions. The first is that the observations of past accounting income are useful in predicting future results for the majority of the sample firms (88% of companies). The second states that the earnings used only for forecasting cash flows have significant power for eight years for 89% of companies, for four years they are significant for 85% of companies and 56% for two past years. The third shows the earnings used with operating cash flows provide incremental information for the majority of companies (90%). The fourth says that cash flows have better predictive power than earnings, whereas in the long term these data have an approximate power.

Kim and Kross (2005) examined the capacity of past earnings to predict future cash flows over the period (1973-2000). They used time-series and cross-sectional regressions. Their results show that in one-year-ahead predictions of operating cash flows, current earnings perform better than current operating cash flows.

Farshadfar et al. (2008) investigated the relationship between current earnings and one-year ahead operating cash flows over the period (1992-2004) in Australia. They found that current cash flows outperform reported earnings in predicting future cash flow. Habib (2010) extended this study in the same context by examining future cash flow predictions for one-, two- and three-year-ahead forecast horizons. The results revealed that current operating cash flows based prediction model has the strongest predictive ability for future cash flows.

In a recent study for Al-Debi'e (2011), the relative predictive ability of current operating cash flows and current earnings for future operating cash flows has been examined, for a sample of service and industrial share holding companies listed on Amman Stock Exchange in Jordan during the period (2000-2009). The results show that the predictive ability of operating cash fows is stronger than that of earnings for future operating cash flows for one- to three-year-ahead forecast horizons.

Moeinaddin et al. (2013) examined the relative predictive ability of earnings, cash flow from operations as reported in the cash flow statement, and two traditional measures of cash flows (earnings plus depreciation and amortization expense, and working capital from operations) in forecasting future cash flows for Iranian companies. Sample includes 81 companies listed on the Tehran Stock Exchange between 2006 and 2010 (405 firm-years) and the Statistical method used in the research is regression analysis Based on panel data. The research findings showed that while earnings and earning plus depreciation and amortization costs have Remarkable ability to predict future cash flows, there is no relationship between operating cash flow, working capital from operations and future cash flows.

Following the literature reviews and prior researches above, we express a formal alternative hypothesis as follow:

H1: There is a significant relationship between past earnings and future cash flows.

In this first hypothesis, the global accounting earnings are retained as an indicator of forecasting. However, the various results across the accounting literature did not confirm or deny the assertion of the FASB. Barth et al. (2001) suggest that previous studies have not proven the theory imposed by the FASB, because the accounting income by aggregates is adopted as a proxy for accruals. They consider that the accounting result by aggregate (Aggregate earnings) provided historical information, without clarity on future disbursements and receipts, while information disseminated in accruals transmits projections about future events (expected future information).

According to Murdoch and Kraus (1989), there are conceptual arguments that accruals are superior to cash flows. According to these researchers, the accruals that relate to income and expenditure transactions which cashes have not yet received or paid are typically collected or paid during the subsequent period. The FASB cited this temporal association between accruals and cash flows to predict future cash flows.

Similarly, according to Sloan (1996), Bradshaw, Richardson and Sloan (2000), Barth and Hutton (2000), and Anwer et al. (2005), earnings as a whole mask the information contained in its components (accruals and cash flows). Indeed, examining the role of accruals and cash flows operating in financial analysts' forecasts, these researchers show the importance of the information contained in these two components of earning. They find that the separation between operating cash flows and accruals improves forecasting of operating cash flows. These interpretations have been empirically validated by Barth et al. (2001).

On the basis of these suggestions a second hypothesis is formulated:

H2: The disaggregating of earnings in cash flows and total accruals improves the prediction of future operating cash flows.

In the same sense, Konan et al. (2001) confirm that the individual components of accruals may reflect different information for forecasting. The results of their study suggest that current liabilities from operating suppliers are an appropriate indicator on the variation of the conditions of company activity. Similarly, they show that the change in inventories is the most important component of accruals for prediction future returns. These statements are shared by Murdoch and Kraus (1989), Kenneth and Willinger (1996), Kothari and Watts (1998).

Barth et al. (2001) show that the disaggregating of the earning in operating cash flows and individual components of accruals (change in account receivable, account payable in currency, changes in inventory, depreciation, amortization, and other accruals) improves the predictability of future operating cash flows. The same observations also have been proved by Joni (2013).

Based on the empirical evidence presented by these studies, the following hypothesis is formulated.

H3: The disaggregation of accruals into its main components improves forecasting future operating cash flows.

3. Research methodology

3.1. Sample selection

To our sample, three selection criteria were used: 1) the company must be listed on the Tunisian financial market, 2) the companies' data must be observed on the longest possible period of study, 3) the company is not part of the financial sector given the peculiarities it represents in the field of regulation of financial reporting. The final sample thus constructed in this study is composed of 37 companies over the period 1998-2012.

The firms in our sample are part of six sectors: Sector Agriculture, Sector Construction; Sector Manufactures; Sector Transportation, communication, electricity and gas; sector Retail; and Sector services.

Table 1: Distribution of Firms by Sector

Industry	Number of companies
Sector Agriculture	4
Sector Construction	5
Sector Manufactures	15
Sector Transportation, communication	10
Sector Retail	2
Sector services	1
Total	37

3.2. Definition of variables

For cash flows, it's the cash flows from operating activities that are retained. Regarding the earnings, two variables are used: net income and operating earnings. The choice to use two indicators to test the impact of the earnings on the prediction of cash flows from operating activities finds its explanation in the interpretations presented by (Dechow, 1994; and De Angelo, De Angelo and Skinner, 1992; Fedhila, 2003). These authors suggest that while the net income is considered as a global indicator of the business performance, from the viewpoint of shareholders, the operating income (or earnings before financial loads and taxes) obstructs the ability of managers and employees to create value regardless of the tax rate and the capital structure. Operating income is often used as an indicator of performance in the financial statement analysis.

Concerning the accruals and its components, Chalayer and Dumontier (1996), Dechow and Dichev (2001) argue that they are the temporary adjustments that change the cash flows over time.

Variables in our study are as follows:

EARN: Net income

EARNO: Operating earnings

CFO: Operating Cash Flow

ACCR: Accruals = Net income- Operating cash flows

ΔAR: Change in account receivable

ΔAP: Change in account payable

ΔINV: Change in inventory

AMOR: amortization expense

OTHER: net of all other accruals, calculated as EARN – (CF+ΔAR+ΔINV-ΔAP-AMOR)

All variables are divided by total assets.

3.3. Models of research

In our study, models are built to the forecast horizon of one and two previous years. Thus, the dependent variable is represented by cash flows from operating activities to be provided by the independent variables of operating cash flow, earnings, operating earnings, total accruals and accrual components. For the first level models, it is based on lagged values of one year. For the second level models, it is based on multi-annual regressions, as developed previously by Greenberg, Ramesh and Johnson (1986), and Beth (1993). Forecasting models are as follows:

Model (1): $CFO_{i,t} = \beta_0 + \beta_1\ EARN_{i,t-1} + \varepsilon_{i,t}$

Model (2): $OCF_{i,t} = \gamma_0 + \gamma_1\ EARNO_{i,t-1} + \varepsilon_{i,t}$

Model (3): $\mathrm{CFO_{i,t}} = \beta_0 + \beta_1\ \mathrm{EARN_{i,t-1}} + \beta_2 \mathrm{EARN_{i,t-2}} + \varepsilon_{i,t}$

Model (4): $\mathrm{CFO_{i,t}} = \gamma_0 + \gamma_1\ \mathrm{EARNO_{i,t-1}} + \gamma_2 \mathrm{EARNO_{i,t-2}} + \varepsilon_{i,t}$

Model (5): $CFO_{i,t} = \alpha_0 + \alpha_1\ CFO_{i,t-1} + \alpha_2 ACCR_{i,t-1} + \varepsilon_{i,t}$

Model (6): $CFO_{i,t} = \alpha_0 + \alpha_1\ CFO_{i,t-1} + \alpha_2 CFO_{i,t-2} + \alpha_3 ACCR_{i,t-1} + \alpha_4 ACCR_{i,t-2} + \varepsilon_{i,t}$

Model (7): $CFO_{i,t} = \alpha_0 + \alpha_1\ CFO_{i,t-1} + \alpha_2 \Delta AR_{i,t-1} + \alpha_3 \Delta AP_{i,t-1} + \alpha_4 \Delta INV_{i,t-1} + \alpha_5 AMOR_{i,t-1} + \alpha_6 OTHER_{i,t-1} + \varepsilon i,t$

4. Empirical test and results

To estimate the coefficients of our model, fixed effet model versus random effect model were used. The choice between the fixed effect model and the random effect model is carried out through the test of Hausman.

To evaluate the performance of prediction models, we first compare the adjusted R2. However, as stated by Watts and Leftwich (1977), a high adjusted R2 does not necessarily imply a higher predictive power. Therefore, in this study we use the likelihood test ratio. The latter test is a statistical test used to compare the robustness of two models among which the one is considered the null model, and the other the alternative model. This test is based on the ratio of likelihood which allows considering the performance of a model with regard to another one. Afterward, this ratio is used to calculate a p-value to decide whether to reject the null model in favor of the alternative model.

4.1. Descriptive statistics

The descriptive statistics summarized in Table 1, show that the average operating cash flow, earnings and operating earnings are positive. However, significant mean of total accruals, those variations in operating liabilities, changes in stocks and other accruals are negative. The negative sign of total accruals is explained by the presence of component of amortization and provisions. Indeed, this charge is related to the impairment of non-current assets, and the acquisition of these is classified by the SFAC No95 as an investment activity, not an operating activity. These statistics are similar to those found by Sloan (1996) and Barth and al. (2001). They indicate the importance and variation of short-term accruals (change in operating receivables, change in current liabilities, and inventory change) is lower than the long-term accruals (depreciation and provisions).

Panel B of the same table, states that earnings and operating earnings are significantly and positively correlated with operating cash flows and total of accruals. As against, the correlation between these two variables is negative and significant at the 1%. The correlations between the individual components of accruals and operating cash flows are positive and significant at 1%. The correlations show that these components of accruals are generally correlated.

Table 2: Descriptive Statistics Of Operating Cash Flows, Earnings, Operating Earnings, Accruals And Its Components (Firms-Years: 1998-2012)

Panel A: Descriptive statistics

Variable	Mean	SD	Min	Max
CFO	2.839472	19.43516	-37.65193	225.5934
EARN	1.350238	11.20474	-44.36886	94.3214
EARNO	1.972882	14.68963	-38.53392	145.7202
ACCR	-1.48846	14.51501	-131.9909	106.2839
ΔAR	0.60102	10.61503	-59.50349	130.4106
ΔAP	-0.9929426	13.35671	-201.3739	68.47487
ΔINV	-0.2306259	6.898519	-94.01263	53.10969
AMOR	2.537549	14.85135	0.0001936	115.601
OTHER	-5.941301	43.3167	-346.2006	173.4333

Panel B : Les corrélations de Pearson (Spearman) au-dessus (au-dessous) du diagonal

Variable	CFO	EARN	ERANO	ACCR	ΔAR	ΔAP	ΔINV	AMOR	OTHER
CFO	1	0.672**	0.541**	-0.820**	0.484**	0.002	-0.276**	0.306**	-0.822**
EARN	0.418**	1	0.953**	-0.128**	0.300**	-0.228**	-0.415**	-0.069	-0.205**
EARNO	0.395**	0.835**	1	0.012	0.164**	-0.282**	-0.388**	-0.076	-0.101
ACCR	-0.684**	0.210**	0.150**	1	-0.416**	-0.179**	0.050	-0.463**	0.943**
ΔAR	0.235**	-0.036	-0.061	-0.282**	1	-0.561**	0.257**	-0.003	-0.308**
ΔAP	0.037	0.046	0.031	-0.089	-0.326**	1	-0.479**	0.068	-0.139**
ΔINV	0.234**	-0.038	-0.003	-0.275**	0.108*	-0.228**	1	-0.077	0.182**
AMOR	0.223**	-0.12**	-0.081	-0.376**	0.041	-0.127*	-0.029	1	-0.579**
OTHER	-0.599**	0.156**	0.094	0.838**	-0.388**	-0.129*	-0.290**	-0.480**	1

CFO: Operating cash-flows; EARN : Earnings before extraordinary items ; ERNO: Operating earnings ; ACCR : Accruals; AMOR : Amortization expense; ΔAR : Change in accounts receivable; Δ AP : Change in accounts payable; ΔINV: Change in inventory ; OTHER: Net of all other accruals calculated as ACCRUALS +Δ AR -Δ AP +Δ INV -AMOR.

**The correlation is significant at the 1% level; *the correlation is significant at the 5% level4.2. Empirical findings

Table 3 presents the results of model estimates (1) and (2) related to the horizon of one year late. Estimates show that the coeffi-

cients of the two variables are positively significant for predicting operating cash flows for the following year. However, comparing the two variables used to estimate the predictive quality of the earnings, the outputs show that the earnings more interesting predictive ability than operating earnings. R2 show that the explanatory power of the model (1) is 11.19% of future cash flows and the likelihood test ratio illustrate that this model provided the most accurate estimates. This test demonstrates a value of 7.919 and a corresponding p-value of 0.019.

Table 3: The Predictive Power of Earnings and Operating Earnings for Predicting Future Cash Flows: Prediction for Horizon One Year Late

Model (1) : $CFO_{i,t} = \beta_0 + \beta_1 EARN_{i,t-1} + \varepsilon_{i,t}$
Model (2) : $CFO_{i,t} = \gamma_0 + \gamma_1 EARNO_{i,t-1} + \varepsilon_{i,t}$

Variables	Model 1			Model 2		
	Coef	t-sat	P-Value	Coef	t-stat	P-Value
Constant	2.506	2.29	(0.023)**	2.477	1.112	(0.027)**
$EARN_{t-1}$	0.663	6.37	(0.000)***			
$EARNO_{t-1}$				0.46	5.64	(0.000)***
Adj-R^2	2.506			2.29		
Likelihood ratio	-1379.5289			-1383.4888		
F	40.55			31.78		
Likelihood ratio test						
Chi 2 (2) = 7.919			Model (1) more performant than model (2)			
Prob>chi2 = 0.019						

CFO: Operating cash-flows; EARN: Earnings before extraordinary items; ERNO: Operating earnings **** significant at the 1% level; ** significant at the 5% level; *: significant at the 10% level.

According to table 4, the addition to a further delay in the prediction models improves the predictive ability of the models compared to those associated with a horizon of one year. Indeed, for the two predictors we notice a marked improvement in the predictive ability of the models at the level of accuracy of their forecasts. For the two variables, the outputs show that the predictive ability is significant and positive for only one year behind, while she takes the negative sign for the second year. According to the adjusted R2 and the likelihood test ratio, the model (3) based on delays of one and two years of net income offers the greatest performance. In fact, when we compare the model (3) to the model (1), the value of the likelihood test is 508.949 and the corresponding p-value is 3. 04 e-11. This result proved the superiority of the model (3) behind the model (1). The same interpretations are deducted when we compare the model (3) to the model (4).
These results confirm the assertion of the FASB and the interpretations provided by the accounting literature that certain components of earnings are related to strategies whose effects on the future cash flows that will be felt over a period exceeding one year later (Beth, 1993; Finger, 1994; and Barth et al., 2001).

Table 4: The Predictive Power of Earnings and Operating Earnings for Predicting Future Cash Flows: Multi-Annual Models

Model (3): $CFO_{i,t} = \beta_0 + \beta_1 EARN_{i,t-1} + \beta_2 EARN_{i,t-2} + \varepsilon_{i,t}$
Model (4): $CFO_{i,t} = \gamma_0 + \gamma_1 EARNO_{i,t-1} + \gamma_2 EARNO_{i,t-2} + \varepsilon_{i,t}$

Variables	Model 1			Model 2		
	Coef	t-sat	P-Value	Coef	t-stat	P-Value
Constant	1.9	2.19	(0.030)	2.042	2.33	(0.021)**
$EARN_{t-1}$	0.7807	9.72	(0.000)***			
$EARN_{t-2}$	-0.5106	-5.00	(0.000)***			
$EARNO_{t-1}$				0.582	9.15	(0.000)***
$EARNO_{t-2}$				-0.549	-5.85	(0.000)***
Adj-R^2	26.33%			25.15%		
Likeli-ratio	-1125.0542			-1127.2584		
F	50.15			47.20		

CFO: Operating cash-flows; EARN: Earnings before extraordinary items; ERNO: Operating earnings **** significant at the 1% level; ** significant at the 5% level; *: significant at the 10% level.

Table 5: Output of Likelihood Test Ratio

	Comparison Model (3)/Model (1)	Comparison Model (4) /Model (2)	Comparison Model (3)/Model (4)	Comparison Model (4)/Model (1)
Chi2(2)	508.949	512.46	4.408	504.541
Prob>chi2	3.04 e -11	5.25 e - 112	0.011	2.76 e -110

The results summarized in Table 6 show that operating cash flows and accruals of one year delay significantly influence the prediction of future operating cash flows. This impact is positive for the first variable, but negative for the second. Comparison of the results of this regression compared to the first model related to predicting operating cash flows from earnings taken into aggregate, reveals an increase in R2 that passes from 11.19% for the first model to 13.88% for the model based on disaggregation of earnings in the of operating cash flows and total accruals. By the same token, the likelihood test ratio shows that the disaggregating of net income in cash-flows and accruals improve the predictability of future operating cash-flows. Indeed, when we compare model (5) to the model (1), the value of the likelihood test ratio is 10.797 and the p-value is 0.0045.

Table 6: Forecast of Future Cash Flows with the Delay of One Year of Operating Cash Flow and Total Accruals

Model (5) : $CFO_{i,t} = \alpha_0 + \alpha_1 CFO_{i,t-1} + \alpha_2 ACCR_{i,t-1} + \varepsilon_{i,t}$

Variables	Coef	t-stat	P-Value
Constant	1.669	1.51	0.131
CFO_{t-1}	0.316	5.64	(0.000)***
$ACCR_{t-1}$	-1.506 e-07	-2.71	(0.007)***
Adj-R^2	13.88%		
Likelihood ratio	-1374.13		
F	26.3		
Likelihood ratio test			
Chi 2 (2) = 10,797	Model (5) more performant than model (1)		
Prob>chi2 = 0,00045			

CFO: Operating cash-flows; ACCR: accruals; **** significant at the 1% level; ** significant at the 5% level; *: significant at the 10% level.

The adding of another level of delays in the model based on the two components of the earnings shows that accruals and operating cash flows provide a predictive capability for the two years delay retained. Similarly, estimates of the multi-annual model used illustrate an interesting improvement at the overall significance of the prediction model compared to the models presented above. Indeed, the model explains 55.8% in average of future cash flows, and the likelihood test ratio confirms this interpretation. Indeed, when we compare the model (6) to the model (5), the value of the test is 641.196 and the corresponding p-value is 5.83e-140. These results confirm the assertion of the FASB and the interpretations provided by the accounting literature that certain components of earnings are related to strategies whose effects on the future cash flows that will be felt over a period exceeding one year later (Beth, 1993; Finger, 1994; and Barth et al., 2001).

Table 7: Prediction of Operating Future Cash Flows with Cash Flows and Total Accruals Past: Multi-Annual Model

Model(6): $CFO_{i,t} = \alpha_0 + \alpha_1 CFO_{i,t-1} + \alpha_2 CFO_{i,t-2} + \alpha_3 ACCR_{i,t-1} + \alpha_4 ACCR_{i,t-2} + \varepsilon_{i,t}$

Variables	Coef	t-student	P-value
Constant	0.495	0.73	0.468
CFO_{t-1}	0.786	12.48	(0.000)***
CFO_{t-2}	-0.65	-8.15	(0.000)***
$ACCR_{t-1}$	0.655	7.99	(0.000)***
$ACCR_{t-2}$	-1.312	-12.90	(0.000)***
R^2	56.45%		
Adj-R^2	55.80%		
Likelihood ratio	-1053.5319		
Likelihood ratio test			
Chi 2 (2) = 641.196	Model (6) more performant than model (5)		
Prob>chi2 = 5.83 e -140			

CFO: Operating cash-flows; EARN: Earnings before extraordinary items; ERNO: Operating earnings **** significant at the 1% level; ** significant at the 5% level; *: significant at the 10% level.

Table 8 summarizes the statistics related to the estimation of future cash flows from past cash flows and individual components of accruals. The results show that as expected, the five individual components of accruals are significant for predicting future operating cash flows.

Comparing the adjusted R2 associated with the specification with current lags of aggregate earnings in table 3, and disaggregated past earnings in table 5, reveals that disaggregated earnings specification has substantially more predictive ability. Similarly, the likelihood test ratio demonstrates that the model (7) is more efficient than the model (1). Indeed, the value of the test is 434.279 and the p-value is 4.982 e -95. The same interpretation is also deducted when we compare the model (7) with the model (6). The value of 423,481 of the likelihood test ratio and the p-value of 1.102 e- 92 proves this interpretation.

Comparing the predictive power of the model based on the individual components of accruals, with the multi-annual model based on cash flows and total of accruals two years late, shows that the last model proves the predictive capacity most interesting in terms of adjusted R2 and prediction accuracy.

Table 8: Prediction of Operating Future Cash Flows with Past Cash Flows and Accrual Component

Model (7) : $CFO_{i,t} = \alpha_0 + \alpha_1 CFO_{i,t-1} + \alpha_2 \Delta AR_{i,t-1} + \alpha_3 \Delta AP_{i,t-1} + \alpha_4 \Delta INV_{i,t-1} + \alpha_5 AMOR_{i,t-1} + \alpha 6OTHERi,t-1 + \varepsilon i,t$

Variables	Coef	t-student	P-value
Constant	1.218	1.22	0.223
CFO_{t-1}	0.457	3.34	(0.001)***
ΔAR_{t-1}	2.104	4.33	(0.000)***
ΔAP_{t-1}	1.817	3.67	(0.000)***
ΔINV_{t-1}	2.288	3.99	(0.000)***
$AMOR_{t-1}$	3.748	5.11	(0.000)***
$OTHER_{t-1}$	1.302	4.56	(0.000)***
Adj-R^2	28.44%		
Likelihood ratio		-1162.389	
Likelihood ratio test			
Chi 2 (2) = 434.279		Model (7) more performant	
Prob>chi2 = 4.982 e - 95		than model (1)	
Chi 2 (2) = 423.48161		Model (7) more performant	
Prob>chi2 = 1.102 e -92		than model (6)	

CFO: Operating cash-flows; ΔAR: Change in accounts receivable; Δ AP: Change in accounts payable; ΔINV: Change in inventory; AMOR: Amortization expense; OTHER: Net of all other accruals calculated as ACCRUALS +Δ AR -Δ AP +Δ INV-AMOR. **** Significant at the 1% level; ** significant at the 5% level; *: significant at the 10% level.

5. Conclusion

The FASB states that information about earnings and its components, which include accruals, is generally more predictive of future cash-flows than current cash flows. The findings of our research confirmed that aggregate earnings have strong predictive ability. Moreover, the results show that, the addition of the delay of one and two years (multi-year), increase the predictive power of earnings. This result is consistent whit prior research such Greenberg et al. (1986), Finger (1994); Lorek and Willinger (1996); Burgstahler et al. (1998); Defond and Hung (2001), Joni (2013).

Our analysis was later extended by studying the role of accruals and its component in predicting future cash flows. Our predictions are based on the argumentation provide by Dechow et al .(1998) and Barth et al. (2001) that aggregate earnings only gives historical information, without give attention to the future information, whereas accrual information also give expected future information. The result of this research shows that disaggregating earnings into cash flows and total accruals enhance the predictive ability of earnings relative to aggregate earnings. Furthermore, consistent with prediction, the disaggregating total accruals into its major components (change in accounts receivable; change in inventory; change in accountants payable, amortization, and other accruals) significantly enhances the predictive ability of earnings. Each accruals component's proves a significantly power to predict future cash flows.

While the result of this study is interesting, it should be interpreted with some precautions. Studying the predictive capacity of accounting information on a sample of heterogeneous firms could be a source of bias, the fact that the predictive ability of information elements disclosed may depend on the economic circumstances and characteristics of companies. The later works could be engaged to test the sensitivity of results to the firm characteristics.

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