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Accruals reliability, investment effectiveness and stock returns: EGX-based evidence

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Abstract

This paper investigates the drivers of accruals effect on stock returns in the Egyptian stock exchange. Prior literature documents the negative accruals measures implications on stock returns. The paper applies the OLS regression tests to estimate the relative effects of growth and accounting distortions components of accruals during the sample period 2010-2014. The findings indicate a negative accruals and stock returns relation but it does not support a significant effect of total accruals as an accounting based measure for stock returns pricing. However, decomposing total accruals into sales growth and accounting distortions reflects a rational pricing effect consistent with the q theory of investment; the findings showed growth as the only contributing factor for the negative accruals-returns relation but not for the total accruals persistence level. The non-significant findings for accounting distortions indicates a complementary non-opportunistic role; as listed Egyptian companies managers tend to use accounting distortions as signals for future prospective investment opportunities.

Keywords: Accruals, accounting distortions, growth, q theory and stock returns

1. Introduction

The efficient market theory of investment assumes stock returns always integrate and reflect all available information. Accordingly, no market participant can beat the market; higher returns are only associated with acquiring higher risk investments. However, asset pricing anomalies do not relate risk exposure differences to cross-sectional differences in expected future returns. Seminally, Sloan (1996) showed that risk differences by the Capital Asset Pricing Model (CAPM) do not explain return differences in high versus low accruals firms. Sloan (1996) reported abnormal high (low) stock returns for with low (high) accruals firms. Sloan's (1996) analysis showed the differential behavior of the non-cash earnings component (accruals), with negative implications for earnings persistence. Sloan (1996) claimed that potential investors with the ability to distinguish the accruals different behavior would mitigate opportunities for abnormal gains by a possible inefficiency. This phenomenon is commonly referred to as the accruals anomaly. Reasons for the accruals anomaly, its generalizability potential along with its implications for market efficiency are still attractive interests for researchers (e.g., Xie et al., 2001; Fairfirld et al., 2003; Pincus et al. 2007; Dechow et al., 2008; Titman et al., 2013; and Papanastasopoulos and Tsiritakis, 2015). Various accruals-stock returns implications are investigated including return predictability, earnings persistence and economic exploitation,

but mostly within the developed stock markets. Rationalizing the accruals abnormal returns effect attempts suggest that one reasoning may be complex. Prior research provides three broad interpretations that are not necessarily to be mutually exclusive. First, naïve investors earnings fixation (e.g., Xie et al., 2001); investors fixate on bottom-line earnings and do not distinguish the accounting distortions. Second, investment growth; accruals capture investment and growth information, which can affect returns because of investors optimism mispricing effect (e.g., Fairfield et al., 2003) or opportunistic managers empire-building incentives (Li, 2013, 2014). Third, rational risk pricing; mangers tend to invest in projects with low discount rates in response to lower cost of capital (optimal q investment theory) (e.g., Wu et al., 2010; and Wanatabe et al., 2013). Prior research emphasized that growth and accounting distortions may complement each other. With empire-building managers distort accounting numbers to falsely signal overinvestment growth opportunities (e.g., Richardson et al., 2006; and Li, 2014). Alternatively, with financial constraints managers may make use of accounting distortions (discretionary accruals) to convey valuable investment projects information to the market (e.g., Linck et al., 2013; Doukakis and Papanastasopoulos, 2014; and Robin and Wu, 2015).

The literature international accruals anomaly investigations (e.g., Pincus et al., 2007; Titman et al., 2013; and Wanatabe et al., 2013) indicated the negative accruals-returns association generalizability to the emerging capital markets as well. The institutional and cultural factors (inadequate regulatory system, poor investors protection, intense use of accrual-based accounting...etc) of the emerging capital markets would provide the incentives of such market inefficiency (e.g., Dechow et al., 2010). Egypt is an emerging market case with diverse predictions about the accruals superiority as an accounting-based performance measure. In the Egyptian capital market, the financial analysis industry is still not long established, forecasted financial information is not commonly disclosed by listed firms (Ragab and Omran, 2006; and Ebaid, 2010). So, hardcopy/online financial statements could be the core information source for the potential Egyptian capital market investors. Accordingly, most Egyptian market stock transactions are based on accrual accounting information. Therefore, the significance of accruals-based measures for stock pricing appears to be very high in the Egyptian context (e.g., Ragab and Omran, 2006; Hassan et al., 2009; and Ebaid, 2010). However, Egypt's (code-law country example) institutional structures raise the doubt in regards the financial reports quality; the reliability and value relevance of earnings components (specifically accruals) as a firm performance measure in Egypt (Picus et al., 2007).

Previous research studies suggested that Egyptian listed companies may engage in manipulating earnings (Kamel and Elbana, 2010) to keep previous year earnings performance, avoid reporting losses, ease the external financial and achieve high-share valuation (Ebaid, 2012). In an EGX context, Ebaid (2010) investigated the accruals persistence and showed that the earnings performance is more attributable to cash than accruals. Testing the accruals reliability, Ebaid (2010) showed higher earning persistence

performance for more reliable accruals components. However, the analysis did not consider the accruals and stock returns relation and its possible determinants. Thus, whether accruals reliability is negatively related with future returns within the EGX stock market and its possible drivers issues are still under debate. In addition, no previous research has further investigates the dissection of the accounting distortions and growth/investment as possible alternative drives of the accruals-stock returns relation in the EGX context.

Over 2010-2014, the EGX witnessed unique market crash (the Egyptian revolution crisis) with adverse shocks that triggered a sudden loss of investor confidence in the EGX market. In such crisis period, managers may be motivated to opportunistically manipulate earnings using discretionary accruals choices to cover poor firm performance. However, after many firms collapse during the crisis; investors may have less confidence about these discretionary accounting choices. Investors' confidence loss in return would lead to a significant decline in the relative discretionary accruals value relevance. To the best of the author's knowledge, no previous research has examined the information value of reported accruals and their components in regards to future returns, more particularly, during the Egyptian revolution crisis.

2. Literature review and hypotheses development

2.1. Earnings fixation hypothesis: Accounting distortions

Firstly, Sloan (1996) argued that naïve fixation of investors on earnings bottom line is the main justification for the abnormal low (high) returns for high (low) accruals stocks. Since then, a stream of research papers extended Sloan's (1996) original hypothesis and pointed that higher abnormal returns are associated with accruals reflecting accounting distortions and/or earnings management (e.g., Chan et al., 2009; Topco, 2011; and Chen and Li, 2012. These research papers refereed the fixation argument on investors' inability to understand the inherent greater subjectivity of accruals estimation process.

Doing further analysis, some research papers attempted to identify and distinguish the specific accruals components with greater issues of estimation reliability (e.g., Subramanyam, 1996; Xie, 2001; Chan et al. 2006; Cotton, 2009; and Lewellen and Resutek, 2014). Separating the discretionary part of accruals showed that investors may fixate on earnings and misprice the discretionary accruals ignoring the relevant financial statements information (e.g., Xie et al., 2001; Zach, 2003; and Dechow et al., 2006).

Extending the original Sloan (1996) working capital accruals measure, Richardson et al. (2005) introduced a more broad definition of accruals including long term investing and financing assets. Richardson et al. (2005) categorized total accruals according to the broad balance sheet classifications. Also, based on their assessment of reliability; they ranked the accruals classifications. Richardson et al. (2005) showed that the accruals lower persistence is primarily attributable to the less reliable accrual categories. Replicating Richardson et al.'s (2005) analysis, Lim et al. (2015) used more

recent data to study how accruals reliability affects earnings persistence and whether investors anticipate the lower earnings persistence through stock returns. The results corroborated Richardson et al.'s (2005) conclusions. Consistent evidence supporting the accruals reliability driver of the lower earnings persistence is shown in a Canadian context (Boubakri, 2012), in an Australian context (Oei and Mather, 2008), and in an Egyptian context (Ebaid, 2010). Also, across the developed European equity markets, Papanastasopoulos and Tsiritakis (2015) provided additional insights that negative relation between accruals and stock returns could be attributable to accounting distortions.

On the other side, accruals uncertainty could be driven by economic fundamentals (innate factors) as well as management choices (discretionary factors) (e.g., Subramanyam, 1996; and Francis et al., 2005). In other words, accrual accounting estimation errors could be the output of lacking perfect foresight, the application of aggressive or conservative accounting, and environmental uncertainty but not necessarily involve intentional earnings manipulation (Allen et al., 2013). Managerial accruals discretion could enhance earnings informativeness (Watts and Zimmerman, 1986; Holthausen, 1990; Healy and Palepu, 1993; and Linck et al., 2013) by allowing private information communication. Francis et al. (2005) found discretionary accruals are incrementally informative indicating investor understanding of the accruals uncertainty nature. Using portfolio-based analysis, Ecker et al. (2006) reported that loadings of portfolio returns are positively related to higher values of discretionary earnings quality measure. Similar findings are reported by Gray et al. (2009), Kim and Qi (2010) and Ogenva (2012). Accordingly, the following hypothesis is formulated as follows:

H_1: The market misestimates the persistence of, and thus overprices the accruals accounting distortions component of earnings relative to its association with one-year ahead earnings.

2.2. Growth hypothesis: optimal investment versus overinvestment

A second line of research, pioneered by Fairfield et al. (2003) argued that the negative accruals-returns relation is more expected to be related with firm growth/investment economic factors than accounting distortions. Fairfield et al. (2003) interpreted accruals as growth in net operating assets and showed that the lower persistence extends from the working capital accruals considered by Sloan (1996) to growth in noncurrent operating capital. Their evidence showed a market that equivalently misprices total accruals and growth in long-term net operating assets. Fairfield et al. (2003) referred accruals abnormal returns to investors' overreaction (mispricing) to reflecting growth information accruals. Fairfield et al. (2003) argued that diminishing marginal returns to increased investment or the application of more conservative accounting methods (temporary accounting distortions) could be behind the lower accruals persistence arising from investment growth interaction.

Extending Fairfield et al.'s (2003) work, Zhang (2005) tested whether the negative accruals-stock returns relation is attributable to growth; decomposing accruals into growth related and growth unrelated components. Isolating the

growth information contained in accruals revealed that the predictive power of accruals for future stock returns critically depends on firms' business models. In further analysis, Zhang (2007) found that accruals would more strongly predict stock returns as are more highly co-varied with employee growth. Consistently, Dechow et al. (2008) indicated that distributed earnings to debt and equity holders are rationally priced by investors. However, retained earnings are overpriced; this suggests investors' optimism in regards to investment prospects.

However, growth lower rates of return may include both optimal real investment and value reduction overinvestment (Fairfield et al., 2003). The accounting contracting-based theory usually postulates that managers make opportunistic accounting procedures against the sake of stakeholders. An optimistic picture of firm performance may be portrayed by non-value maximizing management to justify high investment levels (Richasrdson et al., 2006; and Li, 2013, 2014). For example, Li (2013) showed that the negative accruals-returns associations are, indeed, exacerbated when firms have high free cash flow, low leverage, or over-valued equity. However, investigating the asset growth effect on the accrual anomaly in international financial markets, Wanatabe et al. (2013) found that cross sectional relation between asset growth and stock returns is more likely due to an optimal investment effect than overinvestment or other forms of mispricing.

Some researchers (e.g., Zhang et al., 2008; Wu et al., 2010; and Hou et al., 2015) indicated the important role of q investment theory (discount rate hypothesis) as a rational risk-based explanation for the accruals implications on stock returns. The optimal investment q-theory states that firms would perform investments till reaching the expected cost of capital and expected return on investment equivalence point. More specifically, low costs of capital give the managerial rise to high investment and vice versa. Accordingly, firms are expected to invest more when the future returns on their stocks are lower. Consistently, firms would optimally adjust their accruals in response to discount rate changes. A higher (lower) discount rate means less (more) profitable investments and lower (higher) accruals. Hence, the optimal investment q-theory expects investment expenditures and expected stock returns negative relation (e.g., Steven, 2005; Titman et al., 2013; and Wanatabe et al., 2013). For example, Zhang et al. (2008) and Wu et al. (2010) found accruals level co-varies negatively with discount rate estimates and accruals with more reliability issues are highly correlated with investment-to-assets. Their empirical evidence revealed that accruals negative implications on stock returns is more subject to optimal investment than excessive growth investor overreaction or over-investment. Such evidence is also in line with Fairfield et al. (2003) and Dechow et al. (2008) who supported that accruals measure changes in invested capital, and that changes in invested capital are associated with new investment diminishing marginal returns (and related overinvestment). On an international basis, Titman et al. (2013) found that consistently with q-theory, capital expenditures and stock returns are negatively correlated. Accordingly, the following hypothesis is formulated as follows:

H_2: The market misestimates the persistence of, and thus overprices the accruals growth component of earnings relative to its association with one-year ahead earnings.

3. Research Design

Following Richardson et al.'s (2005) comprehensive total accruals measurement including long-term asset/liability accounts changes; and building on the framework of Richardson et al. (2006), accruals would be decomposed into a ''growth'' component and an ''efficiency'' component. New optimal investment returns will be reflected in the accruals growth component (SG). The accruals efficiency component (AT), in contrast, will pick up either accounting distortions and/or inefficient capital use (Richardson et al., 2006; and Li, 2014). Richardson et al. (2006) based their decomposition on the indication that accruals change in an increasable way with sales growth rate and change adversely with reductions in Net Operating Assets (NOA) efficiency, as measured by the ratio of sales to NOA (AT) (Doukakis and Papanastasopoulos, 2014). In regards, any accruals measurement operational issues, such as the estimation subjectivity and earnings opportunism, are prospectively to be represented by the efficiency than growth component of accruals. The interaction term reflects growth and accounting distortions correlated changes. In the absence of sales growth, decreases (increases) in the efficiency component lead to proportional increases (decreases) in accruals (Doukakis and Papanastasopoulos, 2014). Thus, the efficiency accrual component is more expected to have a positive relation with future returns: with low (high) efficiency firms are more likely to gain low (high) future stock returns.

$$ACC_t = \frac{\Delta Sales_t}{Sales_{t-1}} - \frac{\Delta AT_t}{AT_t} - \left(\frac{\Delta Sales_{t-1}}{Sales_t}\right) \times \left(\frac{\Delta AT_t}{AT_t}\right)$$

3.1. Operationalization of variables

The balance sheet indirect method is followed to compute total accruals (ACC) as the percentage change in net operating assets (NOA) (Richardson et al., 2005). The difference between operating assets (OA) and operating liabilities (OL) is the measurement followed to calculate NOA (Doukakis and Papanastasopoulos, 2014). Following Hirshleifer et al. (2004), operating assets are calculated as the residual amount from total assets (TA) after subtracting cash and cash equivalents (C), and operating liabilities are calculated as the residual amount from total assets after subtracting minority interest (MINT), ordinary and preferred stock (OPS), and total debt (TD) (Doukakis and Papanastasopoulos, 2014). Therefore, NOA and ACC are equal to:

$$NOA_t = (TA_t - C_t) - (TA_t - MINT_t - OPS_t - TD_t)$$

$$ACC_t = \frac{\Delta NOA_t}{NOA_{t-1}}$$

For the accruals decomposition of growth versus accounting distortions, sales growth (SG) is measured as the percentage change in sales, while efficiency is measured as change in NOA turnover ratio (AT) (Richardson et al., 2006; and Doukakis and Papanastasopoulos, 2014):

$$SG_t = \left(\frac{Sales_t - Sales_{t-1}}{Sales_{t-1}}\right)$$

$$\frac{\Delta AT_t}{AT_t} = \left(\frac{Sales_t}{NOA_t}\right) - \left(\frac{Sales_{t-1}/NOA_{t-1}}{Sales_t/NOA_t}\right)$$

Following previous research (Sloan, 1996; Fairfield et al., 2003; and Richardson et al., 2006), return on net operating assets (RNOA) is measured as earnings deflated by lagged net operating assets. Current and one-year-ahead earnings represents operating earnings before interest and tax. Following Doukakis and Papanastasopoulos (2014), the raw stock returns calculation starts three months after the financial year-end, since this is the period within which financial statements are required to be published in the EGX. Stock returns (rj) are identified as the theoretical growth in the value of a share-holding unit of equity at the closing price (Doukakis and Papanastasopoulos, 2014). The raw equity return for a firm at month j is calculated as:

$$r_j = RI_{j+1}/RI_j - 1.$$

In reference to Doukakis and Papanastasopoulos (2014), once firm-monthly returns are collected, one-year-ahead annual raw stock returns (RETt+1) are calculated using compounded 12-monthly buy-and-hold returns (Doukakis and Papanastasopoulos, 2014). Table 1 summarizes all the operational measurements of the research variables.

3.2. Sample and data

The sample includes all listed Egyptian firms with accessible financial-based and market-based information (market capitalization value at year end and stock returns) for the period 2010–2014. Banks and financial institutions are excluded from the sample. Following Doukakis and Papanastasopoulos (2014), observations are eliminated for negative net operating assets value firm-years, and for measurement insufficient information of total accruals, sales, current and one-year-ahead earnings and one-year-ahead raw returns.

Table 1: Variables operational measurement

Earnings (RNOA): Income before interest and tax deflated by net operating assets.
Accruals (ACC): The percentage change in net operating assets (NOA).
Change in net operating assets (NOA): The difference between operating assets (OA) and operating liabilities (OL). Operating assets are calculated as the residual amount from total assets (TA) after subtracting cash and cash equivalents (C), and operating liabilities are calculated as the residual amount from total assets after subtracting minority interest (MINT), ordinary and preferred stock (OPS), and total debt.
Growth component (SG): Sales growth (SG) is measured as the percentage change in sales.
Efficiency component (AT): Change in NOA turnover ratio
Raw returns (RET_{t+1}): Stock returns are defined as the theoretical growth in the value of a share-holding unit of equity at the closing price. The raw equity return for a firm at month is calculated the percentage change in returns.

4. Empirical results

4.1. Descriptive analysis

Table 2 provides descriptive statistics for earnings, accruals and accruals components. The mean values for ACC, SG and AT are positive, indicating that the typical firm's operating assets have grown over the sample period. The standard deviation of SG is 0.3, indicating that sales growth is considered as an important source of variation in ACC. However, the standard deviation of AT is 102, indicating a huge variation between sample firm-years in accounting distortions that could be the output of an inefficient managerial use of assets or opportunistic earnings management. As expected, the mean value of one year ahead earnings ($RNOA_{t+1}$) are higher than those of current year earnings ($RNOA_t$).

Table 2: Descriptive statistics for total accruals and related financial variables

	Minimum	Maximum	Mean	Std. Deviation
RNOAt+1	.00	.42	.1105	.08303
RNOAt	-.02	.42	.1171	.08911
ACC	-18.40	250.04	1.1246	17.51087
SG	-.55	2.30	.1402	.34494
AT	-236.88	1456.06	6.8734	102.84289

4.2. Accruals-stock returns relation

To provide evidence on the persistence of accruals in relation to future earnings, One year-ahead earnings ($RNOA_{t+1}$) are regressed on current earnings ($RNOA_t$) and accruals (ACC) (table 3, panel A). The coefficient on ACC represents the difference between the accrual and the cash component of $RNOA_t$. Consistent with prior literature (Richardson et al., 2006; Ebaid, 2010; Doukakis and Papanastasopoulos, 2014; and Li, 2014), the ACC coefficient (-.005) is negative, confirming the lower persistence of accruals in the EGX. However, this negative coefficient is not statistically significant. Investigation the accrual-stock returns relation in the EGX, Panel B, table 3 shows a negative but non-significant relationship between ACC and future raw stock returns (RET_{t+1}). The negative coefficient (-0.021) does not confirm the predictive power of total accruals on future stock price performance.

The total accruals coefficients in panel B are higher than in panel A which gives support concerning the market misestimating of the accruals persistence, and thus overpricing the accrual relative to its implications on one-year ahead earnings. The regression results in panel A of table 4 show that the growth component is positively related to future earnings ($RNOA_{t+1}$). On the other hand, AT has a (non-significant) negative coefficient. This finding is consistent with Richardson et al. (2006) and Li (2014). A positive coefficient on the interaction term is found. This implies that SG and AT may have complementary effects.

Table 3: Regressions of future earnings and returns on total accruals

$$Panel\ A: RNOA_{t+1} = \gamma_0 + \gamma_1 RNOA_t + \gamma_2 ACC_t + \upsilon_{t+1}$$

γ0 Constant	γ1 RNOAt	γ2 ACC	R2
.020	.833	-.005	.691
3.714	**21.593**	-.127	

$$Panel\ B: RET_{t+1} = \gamma_0 + \gamma_1 RNOA_t + \gamma_2 ACC_t + \upsilon_{t+1}$$

γ_0 Constant	γ_1 $RNOA_t$	γ_2 ACC	R^2
.258	-.046	-.021	.002
1.685	-.655	-.305	

4.3. Growth versus efficiency decomposition: Stock returns implications

That is, high growth may intensify the persistence of AT (accounting distortions). This is important, as firm growth provides a context where accounting distortions may be more likely. Extending Richardson et al. (2006) and following Doukakis and Papanastasopoulos (2014), the accruals decomposition implications on future EGX stock returns are examined. Panel B of table 4 presents the results for the one year ahead raw returns. The negative significant coefficient of SG (-0.161) suggests an important role for this component as a contributing factor to the accrual effect with respect to future returns. The non-significant positive coefficient of the efficiency component (0.018) does not give support as an important factor. Findings for interaction term (non-significant negative coefficient) suggest that growth and efficiency components have complementary implications for future stock returns. Accounting distortions could be used as a tool to signal the prospect investment opportunities. Taken together, H_1 and H_2 concerning the market mispricing of the relative accruals growth and accounting distortions components are not supported. The findings suggest that growth only contributes to the accrual effect on stock returns. Such finding seems to be more consistent with the q theory; an interpretation suggesting optimal investment by firm executives in response to discount rate reductions as the driving force of the negative relationship between accruals and stock returns.

5. Conclusion

This paper examines the accruals-stock returns relation in the EGX stock market and its driving factors. The empirical findings do not confirm the existence of the accrual anomaly in the EGX stock market. Growth only contributes to the accrual effect on stock returns. Besides, the findings show that accounting distortions and growth, in a way, complement each other in explaining the accrual effect on stock returns. This is consistent with rational explanation based on the q theory of investment.

Table 4: Regressions of future earnings and returns on accruals components

$Panel\ A: RNOA_{t+1} = \gamma_0 + \gamma_1 RNOA_t + \gamma_2 SG_t - \gamma_3 \Delta AT_t - \gamma_4 (SG_t * \Delta AT_t) + \upsilon_{t+1}$					
γ_0Constant	$\gamma_1 RNOA_t$	γ_2SG	γ_3AT	γ_4SG*AT	R^2
0.018	0.831	0.057	-0.067	0.045	0.698
3.336	21.47	1.457	-0.322	0.218	
$Panel\ B: RET_{t+1} = \gamma_0 + \gamma_1 RNOA_t + \gamma_2 SG_t - \gamma_3 \Delta AT_t - \gamma_4 (SG_t * \Delta AT_t) + \upsilon_{t+1}$					
γ_0Constant	$\gamma_1 RNOA_t$	γ_2SG	γ_3AT	γ_4SG*AT	R^2
0.33	-0.038	-0.161	0.118	-0.104	0.028
2.122	-0.545	-2.298	0.318	-0.28	

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