"*Capital Investment Anomaly*" and "*Accruals Anomaly*": Independent or Inter-Dependent? – Evidence from South Asia

("Anomali Pelaburan Modal" dan "Anomali Terakru": Bebas atau Saling Bergantung? – Bukti dari Asia Selatan)

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ABSTRACT

The purpose of this research is to determine the impact of "Capital investment anomaly" and "Accrual anomaly" on stock returns after controlling the size and book-to-market effects. This study aims to fill a gap regarding the implications of capital investment anomaly and accrual anomaly in South Asian economies, and primarily focused on two developing economies from SAARC region; India and Pakistan. This study uses 320 company-year observations using a sample period of 2009-2014. The sample is representative of 50% of non-financial companies selected systematically from nine different sectors included in Pakistan Stock Exchange (KSE-100 index) and Bombay Stock Exchange (BSE-100 index) each. Selection is based on market capitalization to mitigate any bias in results. Preliminary analysis includes understanding stock performance of capital investment-based, and accrual-based portfolios, followed by stock performance of combined effect portfolios, and sector analysis. Lastly, regression analysis allows determining impact of both anomalies on returns as well as their independence or interdependence. The results of this study show that there exists a negative relationship between Stock Returns and Capital Investment/Accruals. In addition to this, we found that both anomalies are not distinct and work together and are attributed to country characteristics specific to the SAARC/South Asia region. All of the coefficients are statistically significant. The separate results for India and Pakistan are helpful for practitioners to know what strategy to adopt in order to maximize the returns. Combined results are beneficial for prospective investors. The mixed trend of returns for different sectors is useful for both managers and investors in the sense that both anomalies are independent of each other. From a theory development perspective, it reveals the differences in existing literature due to change in geographical context.

Keywords: Accruals anomaly; capital investment anomaly; India; Pakistan; sector analysis

ABSTRAK

Tujuan penyelidikan ini adalah untuk menentukan kesan "Anomali pelaburan modal" dan "Anomali terakru" ke atas pulangan saham selepas mengawal faktor saiz dan kesan nilai buku-kepada – nilai pasaran. Kajian ini bertujuan untuk mengisi jurang mengenai implikasi anomali pelaburan modal dan anomali terakru dalam ekonomi Asia Selatan, terutamanya tertumpu kepada dua ekonomi membangun dari rantau SAARC; iaitu India dan Pakistan. Kajian ini menggunakan 320 pemerhatian bilangan syarikat-tahun bagi tempoh sampel 2009-2014. Sampel ini masing-masing mewakili 50% syarikat bukan kewangan yang dipilih secara sistematik daripada sembilan sektor yang berbeza dalam Bursa Saham Pakistan (indeks KSE-100) dan Bursa Saham Bombay (BSE-100 indeks). Pemilihan adalah berdasarkan permodalan pasaran bagi mengurangkan sebarang bias dalam keputusan. Analisis awal merangkumi pemahaman prestasi saham berasaskan pelaburan modal, dan portfolio berasaskan nilai terakru, diikuti dengan prestasi saham bagi kesan portfolio gabungan, serta analisis sektor. Akhir sekali, analisis regresi menentukan kesan kedua-dua anomali pada pulangan serta faktor bebas atau saling kebergantungan mereka. Hasil kajian menunjukkan terdapat hubungan negatif antara Pulangan Saham dan Pelaburan Modal/Akruan. Di samping itu, kami mendapati bahawa kedua-dua anomali tidak berbeza dan bekerjasama serta dikaitkan dengan ciri-ciri khusus negara untuk SAARC/rantau Asia Selatan. Semua koefisien adalah signifikan secara statistik. Hasil yang berasingan untuk India dan Pakistan sangat berguna bagi para pengamal untuk mengetahui strategi yang sesuai untuk memaksimumkan pulangan. Gabungan keputusan juga adalah bermanfaat untuk bakal pelabur. Trend pulangan yang bercampur bagi sektor yang berlainan berguna untuk kedua-dua pengurus dan pelabur dalam erti kata bahawa kedua-dua anomali adalah bebas antara satu sama lain. Dari perspektif pembangunan teori, ia mendedahkan perbezaan dalam literatur sedia ada akibat daripada perubahan dalam konteks geografi.

Kata kunci: Anomali terakru; anomali pelaburan modal; India; Pakistan; analisis sektor

INTRODUCTION

Different strategies are used to create a positive net value within a certain time period. In order to create more cash from existing cash, organizations have a tendency to make large investments to earn a moderate and balanced return. This anomaly is frequently referred to as "*Capital Investment Anomaly*." On the other hand, same is true for Accruals that can be characterized as the unearned segment of income and referred to as "*Accrual Anomaly*."

Firstly, both anomalies may be connected to administrative vulnerability. Titman, Wei and Xie (2004) discovered a negative relationship between capital investment and stock returns for organizations with high levels of cash flow and lower debt ratio. This inverse relationship is attributed to administrative fault. Baker, Stein and Wurgler (2002) also reported a negative relationship. Anderson and Garcia-Feijoo (2006) observed that this negative relationship is due to value characteristic and that accelerated investments have a tendency to lower subsequent returns.

Secondly, the stock prices do reflect the un-earned part of profit. Sloan (1996) reported that stock market prices don't completely mirror the majority of the data that is freely accessible. Xie (2001) stated that market overestimation overprices both abnormal and normal accruals.

Understanding the impact of both anomalies on returns is essential to determine the consistency of academic theory in practice, especially when altering the environment. Existing literature emphasizes predominance of these anomalies in developed economies, with no understanding of its behavior in underdeveloped markets. The difference between this study and existing literature is that we explicitly examined the market mispricing of capital investments and accruals anomaly in light of the possibility that managers may build up production capacity and inventory in their overoptimism about future growth in sales in India and Pakistan. This study intersects the existing literature by attempting to determine the separate and combined impact of both anomalies on returns. It further determines the sector wise impacts on returns, allowing a practical understanding of the anomalies for portfolio formation. Lastly, this study also attempts to determine if capital investment anomaly and accruals anomaly are independent or interdependent, and how significant they are in the South Asian economy.

OBJECTIVE OF THE STUDY

Previous research focuses on economically developed countries and no particular study was conducted for other parts of the world especially South Asia. The purpose of this research is to determine the impact of both these anomalies on stock returns after controlling the size and book-to-market effects in two major South Asian economies. In the nutshell, this study aims to answer the following research questions:

1. Does a strategy based on two anomalies present better returns than a strategy based on any one of these?
2. Do capital investment anomaly and accrual anomaly dependent upon each other?
3. Do both anomalies provide sufficient appropriate evidence regarding the pricing of the common stocks?

This study could reveal results that will be important for academia as well as practitioners. From a theory development perspective, it could reveal the differences in existing literature due to change in geographical context. From a practitioners' perspective, the findings will benefit managers as well as investors.

LITERATURE REVIEW

Researchers conducted large number of studies regarding capital investment and accruals. Accruals were found as the main determinant of earnings, and effectively stock returns (Dechow 1994). Accruals are anticipated to relieve timing and matching issues in cash flows so earnings are relied to be a better predictor than cash flows. In industries with short operating cycle, cash flows and earnings are similarly helpful. But cash flows are generally anticipated to be a poor measure of firm performance for industries having a long operating cycle. In the nutshell, working capital accruals are fundamentally more important long-term operating accruals (Hribar & Yehuda 2015). Moreover, that financial information quality is essential in studying the impacts of anomalies on profitability (Rad & Embong 2013).

ACCRUALS ANOMALY

Sloan (1996) argued that investors pay attention to earnings as a measure of stock returns but fail to investigate the components of these earnings. He pointed out that the key difference between the accruals components and cash flow components of earnings identified was that accruals exhibit subjectivity since foreseeable and deferred cash flows are incorporated into the accruals. Moreover, he also found that a negative relationship exists between the cash flows and the accruals and that stock market does not mirror all the information available resulting in a security misprice. An extended study conducted by Scott et al. (2005) from 1991-2001 found that earning persistence was lower due to less reliable accruals and common stocks were mispriced as the investors do not fully expect this low persistence.

The studies available on the subject of accruals documented a negative relationship. Chan et al. (2001) studied the earnings' quality of UK firms in which significant accruals are embedded. Most of the investors earned low returns on their investments in long-run

because of their intense focus on earnings. This is because of the fact that various components of earnings and accounting profits differ from cash flows and are also subject to manipulations because of the timing and matching principles.

Investors demand greater returns on their investments if the cost of capital is found to be higher. Francis et al. (2005) found that higher interest cost to interest-bearing debt was associated with poorer accruals quality. Using Dechow and Dichev (2002) matrix of accruals quality, innate accruals were found to have higher effect on cost of capital than the discretionary component of accruals. In addition, research shows that earnings management increases the value relevance of accounting information and underinvestment moderates the relationship between earnings management and share price (Hassan et al. 2016).

Sometimes a firm which is going for IPO wants to manipulate earnings in order to attract the prospective investors. Teoh, Wong and Rao (1998) studied the behavior of IPO and observed that such firms tend to under-perform in the subsequent 3 years. The observed behavior further revealed that firms placed in 'aggressive' quartile of IPOs earned 20-30 % lesser than those placed in 'conservative' quartile of IPOs. Ball and Shivakumar (2008) reported that IPOs tend to report more cautious results in UK. These results were supported by the hypothesis that regulators, auditors and the readers of financial statements demand more transparent and accurate information.

CAPITAL INVESTMENT ANOMALY

The quality of earnings can be manipulated if investments are increased substantially and/or, if the conservative accounting measures are taken. If the current rate of return is taken as a measure of long-term 'sustainable' profits, then any potential investor may be misled with the reported figures. Using C-scores and Q-Scores for non-financial firms listed of NYSE and AMEX during 1975-1997, Penman and Zhang (2002) revealed that that stock market does not take the effect of quality of earnings for firms that practice conservative accounting. Titman, Wei and Xie (2004) documented negative relationship between capital investments and forthcoming returns. The study was supported by the hypothesis that managers tend to invest for their personal benefit rather than shareholders. Negative response from market may cause the prices to fall down leading to a negative stock return. Research also shows that forecasting quality is positively associated with the quality of both acquisition and capital expenditure decisions. Evidence suggests that externally observed forecasting quality can be used to infer the quality of capital budgeting decisions within firms (Goodman et al. 2013).

It is widely believed that there exists an inverse relationship between discount rate and investment. Lamont (2000) concluded that expected investment had a negative relationship with the expected returns. On the other hand, Chen, Cheng and Hwang (2005) found positive relationship between the stated variables during the study of listed companies in Taiwan for the period 1992-2002. Baker, Stein and Wurgler (2002) discussed sensitivity of capital investment to stock prices of equity-dependent firms. They pointed out that firms that are reliant on equity mode for incremental investments ought not to proceed with undervalued share prices. Firms were ranked according to KZ index for dependence on equity. It was found that investments of firms in highest quintiles were three times more sensitive to common stock prices.

COMBINED EFFECT OF ACCRUAL ANOMALY AND CAPITAL INVESTMENT ANOMALY

Beneish, Lee and Tarpley (2001) made use of accruals and capital expenditure in regression model as independent variables coupled with seven other variables. The results revealed that these variables are negatively statistically significant. Scott et al. (2005) linked accrual reliability to earnings persistence and showed that less reliable accruals lead to lower earnings persistency and less security pricing. Another study by Wei and Xie (2008) tested an additional hypothesis to determine the impact on forthcoming returns and concluded that capital investments and accruals were negatively related to stock returns. Furthermore both anomalies were distinct and were, in no way, dependent upon each other. Polk and Sapienza (2009) used capital investment and accruals as dependent and independent variables.

RESEARCH FRAMEWORK

First of all, this study explored that whether two anomalies are distinct. Therefore, following hypothesis is developed:

H_1 Both anomalies are dependent upon each other

Studies by Penman and Zhang (2002), Scott et al. (2005) and Polk and Sapienza (2009) suggested that accruals cannot predict common stock prices and that the market was mispriced. Sloan (1996) suggested that accruals and cash flows were not capable of giving evidence about the pricing of common stock. It may be concluded that accruals and capital investment, both, are not capable of providing sufficient evidence regarding pricing of common stock. Therefore, following hypothesis is developed:

H_2 Both anomalies are capable of proving sufficient evidence about the pricing of common stock

Lamont (2000), Titman, Wei and Xie (2004), Anderson and Garcia-Feijoo (2006) and Wei and Xie (2008) found that capital investment had a negative relationship with return. A positive relation between capital investment and stock returns was only found in Taiwan by Chen, Cheng and Hwang (2005). Teoh, Wong and Rao (1998), Chan et

al. (2001) and Wei and Xie (2008) suggested a negative relationship between accruals and stock returns. Several hypothesis can be developed for no, negative or positive relationship, we omitted the condition of 'no relationship' from the scenario. Thus, the hypothesis for each has been developed as under:

H_{3a} Capital investment is negatively related with stock returns

H_{3b} Accruals are negatively related with stock returns

RESEARCH METHODOLOGY

SAMPLE SELECTION

All of the quantitative data in the sample was collected from reliable secondary sources including websites of relevant stock exchanges and companies. The sample represents market capitalization of 50% of non-financial companies from KSE-100 index and BSE-100 index each. In order to conduct sector-wise analysis and to mitigate any bias in results, equal number of companies was selected for 2009-2014 from 9 different sectors of both countries. So this study used 320 company-year observations. Independent variables are scaled by total assets and closing balances of fixed assets of past year. Moreover, in order to convert the data in one uniform currency in order to make comparisons, the direct quotes existing on closing date of financial year of a company were obtained from websites of Reserve Bank of India and State Bank of Pakistan. All the figures were converted to USD for ease of comparison.

Capital Investment was calculated as capital expenditure incurred by a company in a given year scaled by closing net fixed assets of the previous year. Similarly accruals were calculated as the difference between company's after tax profit and cash flows from operations scaled by closing total assets of the previous year. These variables are recorded in the form of following equation:

$$Capital\ Investment = \frac{Corporate\ Capital\ Expenditure}{Closing\ Net\ Fixed\ Assets}$$

$$Accruals = \frac{After\ Tax\ Net\ Income - Net\ Cash\ Flows\ from\ Operations}{Closing\ Total\ Assets}$$

RESEARCH DESIGN

For first research question, companies were broken down and sorted according to investment level on x axis for the year t. For each quintile, companies were further sorted in quintiles according to their levels of accruals for year t. This matrix produced 25 portfolios based upon the investment level and accrual level. Returns were placed into these matrixes and observed.

For remaining research questions Fama and MacBeth (1973) regression model is used:

$$R_{at+1} = \alpha + \beta_1 CAPEX_{at} + \beta_2 ACC_{at} + \beta_3 (CAPEX_{at} \times ACC_{at}) + \beta_4 Ln\ (Size)_{at} + \beta_5 Ln\ (B2M)_{at} + \varepsilon_{at+1}$$

Where

$CAPEX_{at}$ was defined as capital investment made by company a in time t while ACC_{at} were defined as accruals of company a in year t. R_{at+1} was dependent variable, which measured the return of company a in year $t + 1$. ($CAPEX_{at} \times ACC_{at}$) was an interactive term incorporated in regression model and the coefficient of this interactive term would let us know whether both anomalies were distinct or not. Logarithm of size and book-to-market was incorporated into model as control variables because literature suggested both of these have an ability to predict future stock returns (Fama 1992).

RESULTS AND DESCRIPTION

On average, companies in India had spent 35.7% on their fixed assets while -0.4% of total assets was introduced as accruals in their financial statements. Of the 160 company-year observations, the minimum percentage of capital investments recorded was 0.3% while the maximum went up to 234.8%. Similarly, for the same sample observations, the minimum accruals injected in financial statements were recorded at -26.5%. On the other hand, the maximum was 55.6% of the total assets. Correlation matrix shows a weakly positive relation between both which again mitigates the issue of any multicollinearity between the independent variables. Considering the sample for Pakistan, the data reveals that companies had made 22.7% of the fixed assets as capital investments during the period while -1.4% of total assets were injected as accruals in the financial statements for the sample period. Minimum percentage of capital investments recorded in Pakistan was 0.01% while the maximum went up to 539.5%. Similarly, in terms of accruals, the minimum accruals injected in financial statements were recorded at -43.3% and the maximum were 32.3%. Moreover, Part B of the same table reports a negative correlation between the two variables. This shows that capital investments are predominant in Pakistan, and accruals are decreasing faster in India. This can be attributed to the growth of companies in the former and changing practices in the latter.

TABLE 1. Descriptive statistics and correlation matrix

	Descriptive Statistics				Correlation Matrix		
Part A	CI	ACC	LnB2M	LnSize	Part B	CI	ACC
Results from India							
Mean	0.357	-0.004	0.018	22.197	CI	1.000	
Std. Dev.	0.327	0.084	0.024	1.772	ACC	0.017	1.000
Min	0.033	-0.265	0.001	16.600			
Max	2.348	0.556	0.142	25.560			
Results from Pakistan							
Mean	0.227	-0.014	0.366	18.434	CI	1.000	
Std. Dev.	0.511	0.109	0.740	2.040	ACC	-0.051	1.000
Min	0.001	-0.433	0.017	10.480			
Max	5.395	0.323	5.319	23.020			

TABLE 2. Portfolio returns

	Portfolios										
	Lowest									Highest	
Measure	1	2	3	4	5	6	7	8	9	10	1 - 10 Hedge
Results from India											
A. CI Sorted	12%	13%	4%	8%	38%	16%	6%	6%	19%	26%	-14%
B. ACC Sorted	22%	15%	14%	3%	1%	15%	17%	23%	22%	14%	9%
Results from Pakistan											
A. CI Sorted	72%	58%	40%	115%	27%	18%	25%	12%	29%	48%	24%
B. ACC Sorted	23%	63%	83%	29%	68%	89%	42%	26%	10%	5%	18%

Deviating from the literature, returns increase with the increase in capital investments. The capital investment anomaly and accruals anomaly operate very differently in India and Pakistan. In India, a complete deviation from existing literature occurs as higher capital investment results in higher returns. This deviates from Titman et al. (2004), and Lamont (2000) who studied developed economies (US) at different time frames. The difference is attributed to stage of development of the economy and the prevailing business practices of India. Companies with lowest amounts of capital investments had their returns recorded at 12% while companies with highest amounts of capital investments, those placed in the 10th portfolio, witnessed annual returns of 26%. This creates a negative difference of 14% of the returns between the extreme portfolios. Holding everything else constant, companies in the 3rd portfolio had made minimum returns amongst all, which recorded annual returns of only 4% while companies with a moderately low amount of capital investments generated maximum returns of 38% annually. While the foundations of accruals anomaly appear to be consistent with past research, the results are not as strongly indicated. This is consistent with studies of Sloan (1996), Sloan et al. (2000), Scott et al. (2005), and Chan et al. (2001). They have all studied developed economies,

specifically the US and UK. A difference of 9% between the extreme portfolios is recorded where companies with the lowest amount of accruals amounting to 22% while companies with the largest amount of Accruals had their returns recorded at 14% per annum.

In Pakistan, moderate levels of capital investment tend to generate highest levels of return. Once again, this is different from Titman et al. (2004), and Lamont (2000) who studied developed economies (US) at different time frames. The difference is attributed to stage of development of the economy and the prevailing business practices of Pakistan. The capital investment sorted portfolios show that companies that have maximum amounts of capital investment earned 72% return on average while companies that had a minimum level of capital investment had their returns standing at 48%, as evident from Table 2. This means that as capital investment increases, subsequent returns tend to fall. The highest returns generated were by the companies that were placed in the 4th portfolio, which had recorded returns of 115% on average. While the findings of accruals anomaly appear to be consistent with past research, the results are better indicated in the Pakistan sample. Once again, this is consistent with Sloan (1996), Sloan et al. (2000), Scott et al. (2005), and Chan et al. (2001). They have all studied developed

economies, specifically the US and UK. For companies that are measured depending upon their accrual level, returns decrease from 23% to 5%, creating a difference of 18% between the extremes. The highest returns generated were by companies that inject a moderately high level of accrual, amounting to 89%. This is closer for companies that are placed in 3rd portfolio, which had 83% positive returns. The lowest returns of 5% are recorded for companies that had the highest amount of accruals injected.

In view of foregoing, a company should make a low percentage of capital investment each year or, on the other hand, record moderately high percentage of accrual in financial statements. But both variables have to work side-by-side and we will have to monitor the returns based on portfolios that take into account both variables. For this purpose, we first sorted portfolios based on the capital investments on X-axis and then within each quintile of the portfolio, we further sorted them according to their level of accruals on Y-axis. Thus, with the help of this matrix, 25 portfolios are created with approximately 13 companies in each quintile sorted portfolio. The results of these quintile sorted portfolios are presented in Table 3 below.

TABLE 3. Results of quintile sorted portfolios

ACC Rank		CI Quintile					
		Lowest			Highest		
		1	2	3	4	5	CI Hedge
Results from India							
Lowest	1	16%	-4%	45%	11%	24%	-8%
	2	15%	11%	9%	-7%	31%	-16%
	3	7%	-26%	53%	6%	-11%	18%
	4	17%	39%	10%	-4%	18%	-1%
Highest	5	7%	12%	18%	20%	48%	-41%
ACC Hedge			9%	-17%	27%	-9%	-24%
Avg. CI Hedge			-10%				
Avg. ACC Hedge			-3%				
(CI 1 + ACC 1) - (CI 5 + ACC 5)			-32%				
Results from Pakistan							
Lowest	1	36%	29%	31%	12%	55%	-19%
	2	155%	53%	41%	11%	57%	98%
	3	13%	209%	32%	15%	33%	-20%
	4	134%	66%	11%	34%	47%	87%
Highest	5	-11%	12%	0%	21%	5%	-16%
ACC Hedge			47%	17%	31%	-9%	50%
Avg. CI Hedge			26%				
Avg. ACC Hedge			27%				
(CI 1 + ACC 1) - (CI 5 + ACC 5)			31%				

The situation in India is very different to that observed previously. The returns generally show an increasing trend with the increase in capital investments and accruals which violate the economic theories in existing literature, especially as seen in the fundamental contribution of Xie and Wei (2008) who study this phenomenon in the US market. Therefore, a strategy that combines a maximum level of capital investment and maximum level of accruals would generate average annual returns of 48% in the Indian market. Alternatively, expenses may be reduced and brought down to a moderate level for both capital investment and accrual which would yield an average return of 53% per annum (CI-3 ACC-3). The maximum return difference that is recorded is, between the hedge portfolio of (CI-1 ACC-1) and (CI-5 ACC-5) companies.

The returns of companies that have a minimum level of accruals embedded in their financial statements and a minimum level of capital investment made is 32% lower. The average stands at 16% return per annum, than those who have employed highest level of capital investment and accrual in their financial statements.

Several results are notable in the analysis of Pakistani companies. Firstly, most of the portfolios that are based upon accruals produce results that are similar to that of India and deviate from the decisive findings of Xie and Wei (2008), and Sullivan and Zhang (2011). A negative hedge is found for companies in ACC-1, ACC-3 and ACC-5 quintile. This is because as accruals increase, returns decrease for companies in respective quintiles. Secondly, there are many outliers, which can be seen in

capital investment sorted portfolios. In ACC-2 portfolio, companies have earned returns up to 155%. This could be a possible reason behind a positive ACC-2 hedge. The other abnormal returns that have been earned are by companies that are placed in (CI-1 ACC-3) quintile, which earned returns of 134% on average. Other than CI-1 portfolio, companies in (CI-2 ACC-3) portfolio also have earned abnormal returns. Their stock prices increased by 209% from the preceding year. This means that companies should keep their accrual levels moderate and capital investments low in order to generate the maximum returns on their stock prices. The lowest recorded return was a loss of 11% which was generated by companies that kept capital investments at minimum level and accruals at extremely high level (CI-3 ACC-5).

SECTOR ANALYSIS

For sector analysis, capital investments and accruals are divided into high and low based on their difference from mean values. Horizontal axis measures capital investments while vertical axis measures accruals in the matrix produced in Table 4. Companies having their capital investments greater than mean value were placed into 'High' and vice versa. Same technique is used for Accruals. Thus, four portfolios are created for each sector.

Consistent with our prediction, capital investment effect is found to be independent of accruals effect. This independence is established by Zhang (2007), Wei and Xie (2008), and Sullivan and Zhang (2011). These studies were all conducted in US, a developed economy. This is evident from Table 10 which highlights the sectored analysis we wanted to pursue. If accruals were tied to capital investments, then returns would have shown a predictable movements for an increase in capital investments since both anomalies are driven by same expectation. However, this is not the case. In some of the cases, returns either increase with increase in capital investments and accruals, or they decrease with increase in capital investments and accruals. This mixed trend of returns for different sectors should mean that both anomalies are independent of each other and are not dependent upon the effect of other.

It is known that with increase in capital investment and accrual, subsequent returns fall. This explanation can be nullified for companies in automobile sector in India and Pakistan. Increasing the independent variables give a push to returns from a loss of 6% to a profit of 22% for portfolio of companies based in India while returns of companies in Pakistan are less sensitive as they increase from 7% to 9% only. Moreover, looking at the sensitivity of accruals and capital investments, Pakistan's returns fluctuate by a larger percentage than India. For example, holding the accruals constant and only injecting more capital investment would increase the returns substantially from 7% to 64% for companies having low amounts of accruals while the returns would drop from 54% to only

9% if capital investment is made by companies having high amounts of accruals. Therefore, Pakistan should focus on keeping the level of capital investments high and accruals at a low level. In India, companies would report a loss of 6% if they keep their capital investments and accruals at ground level. However, companies have an advantage of increasing their returns to either 27% by making more capital investments or 33% by injecting accruals. A beneficial strategy would be a combination of low capital investment and high accruals. By looking at the combined results of both countries and both anomalies, results show less volatility in returns. Overall, the returns would fall by only 1% if both, capital investment and accruals, are increased.

To analyze if capital investment anomaly and accrual anomaly is connected with each other we now move on to analyzing the returns in chemical sector. Returns in chemical sector of Pakistan reveal that both anomalies are connected since the returns increase in every direction; horizontal, vertical and diagonal, which also violate the economic theory on relationship accruals and capital investments have with subsequent returns. In India, although returns decrease from 52% to 20% by increasing both; capital investment and accruals, it seem as if returns are more sensitive to accruals than capital investments. This is because in any given accrual group, returns do not fluctuate by more than 10% from the base returns. However, by injecting more accruals, returns fall from 52% to 30% for companies in low capital investment group and, on the other hand, returns fall from 53% to 20% for companies in high capital investment group. An optimal strategy plan would be to combine high accruals and capital investments for companies in Pakistan and to generate the maximum returns in India, low amount of accruals and high amount of capital investment is well justified. Looking at the portfolio that combines both countries, a strategy similar to that of Pakistan should be implemented where investors earn returns of 80%.

Consistent with previous discussion capital investment effect is found to be independent of accruals effect also in sector analysis. If accruals were tied to capital investments, then returns would have shown predictable movements for an increase in capital investments since both anomalies are driven by same expectation. However in some cases, returns either increase with increase in capital investments and accruals, or decrease with an increase in capital investments and accruals. This mixed trend of returns for different sectors shows that both anomalies are independent of each other and are not dependent upon the effect of other.

Companies have been able to earn abnormal returns, more than 100%, in construction sector of Pakistan. This can be viewed in the low capital investment group where returns stood 108% for companies in low accrual group but they fall by 5% if accruals are injected. Overall, the returns decrease in every direction which again means that both anomalies are not distinct and are connected with each other. A chief of company may consider minimizing

the capital investments and accruals in order to keep returns extremely high. In addition to that, he must also note that returns are sensitive to capital investment too. The connection between capital investment and accrual anomaly can be seen in India too. This is because if capital investments and accruals are increased at the same time, returns increase from 6% to 15%. A strategy would be to combine high capital investments with low amount of accruals which would produce returns of 27% in India.

Returns in energy sector of Pakistan vary by more than 50% in any capital investment group. For instance, for a low capital investment group, if accruals are increased by companies, they are able to move out from the zone where they had been previously occurring losses of 5% to where they can make profits of 59% on their common stocks. Similarly for a high capital investment group, increasing accruals would result from a loss of return from positive 28% to negative 26%. The accruals are also found to be sensitive to capital investments since making higher capital investment would bring down the returns on common stocks from 59% to a loss of 26% for companies in high accrual group. The effect of capital investment is found to be independent of accruals since returns follow an unpredictable pattern when change in either capital investment or accrual is occurred. The chief decision makers of companies from Pakistan should combine less capital investments and more accruals in order to maximize their returns on common stocks. In India, companies that engage lowest level of capital investment and accruals generate negative returns of 21%. Moreover, the loss increases with increase in capital investment. However, a strategy similar to that of Pakistan would generate returns of 8%. Thus, it is advisable that managers should reduce their capital investments and increase accruals in order to push up prices of their common stocks.

TABLE 4. Sectorial results of India and Pakistan

Results from India			Results from Pakistan		
	Capital Investment			Capital Investment	
Accruals	Low	High	Accruals	Low	High
Automobile			*Automobile*		
Low	-6%	27%	Low	7%	64%
High	33%	22%	High	56%	9%
Chemical			*Chemical*		
Low	52%	53%	Low	-2%	15%
High	30%	20%	High	18%	88%
Construction			*Construction*		
Low	6%	27%	Low	108%	12%
High	9%	15%	High	103%	54%
Energy			*Energy*		
Low	-21%	-30%	Low	-5%	28%
High	8%	-23%	High	59%	-26%
Health Care			*Health Care*		
Low	7%	21%	Low	69%	66%
High	23%	22%	High	18%	27%
Oil and Gas			*Oil and Gas*		
Low	8%	2%	Low	20%	57%
High	-6%	5%	High	8%	23%
Personal Care Products			*Personal Care Products*		
Low	9%	33%	Low	33%	175%
High	29%	31%	High	242%	-10%
Telecommunication			*Telecommunication*		
Low	6%	-4%	Low	108%	-19%
High	-8%	-4%	High	-20%	-4%
Tobacco			*Tobacco*		
Low	15%	12%	Low	-50%	22%
High	42%	15%	High	733%	88%

Health care sector in both countries shows a predictable pattern. Returns are decreasing in every direction for companies that are based in Pakistan while returns increase for companies that are based in India. Thus, capital investment anomaly is not found to be different from accrual anomaly in India and Pakistan. Therefore, companies belonging to health sector in Pakistan should minimize their capital investment and accruals in order to gain the maximum on their common stocks while companies that are based in India should keep their capital investments at low level while high level or accruals is suggested which would bring those returns of 23%.

Oil and gas companies in India have not been able to generate returns greater than 10% for the sample period. The maximum that has been recorded is 8% which was achieved by companies that had minimum level of capital investment and accruals recorded in their financial statements. Increasing only the accruals would bring down the returns from 8% to a loss of 6% while increasing only the capital investments bring down the returns to 2% only. However, if both capital investment and accruals are increased at the same time, returns only fall to 5%. This decreasing trend in return shows that capital investment effect is not found to be distinct from accrual effect for these companies. A strategy that makes use of minimum level of capital investment and minimum level of accruals is suggested. For companies that are based in Pakistan, their returns increase in horizontal direction which means increasing capital investment in accrual sorted group of companies increases their returns. However, an increase in accruals results in decrease in returns. The diagonal direction controls for both effects; the effect of capital investment anomaly and accrual anomaly. In this direction, the returns are increasing from 20% to 23%, causing an increase of 3% in returns. This means that the evidence of diminishing returns by increasing capital investment is held wrong for companies that are operating in oil and gas sector in Pakistan while the explanation regarding accrual anomaly found is literature is held true for these companies. Moreover, the returns increase if both are given an increase simultaneously. The maximum returns that companies have been able to generate are by increasing the capital investment while keeping the accruals very low. This strategy generates a return of 57% to which most companies should stick. Any other strategy would fail to bring returns greater than this.

The rest of the sectors; personal product, telecommunication and tobacco have been able to generate abnormal returns in Pakistan while the returns did not vary by large percentage in India. The Pakistani companies that were operating in personal product sector were able to increase their returns by increasing either capital investment or accruals. However, if both were increased simultaneously, returns decrease from 33% to a loss of 10%. Companies that maintained low capital investment and high accruals were able to increase their share prices by 242% while companies that maintained

high capital investment and low amount of accruals were able to increase their returns by 175%. Therefore, companies should keep their investment level low and accrual level high in order to earn the maximum returns. Companies that are based in India should keep their capital investments high since returns amount to 33% for companies in low accrual group and 31% for companies in high accrual group. The best strategy would be to keep capital investment high and accrual low.

Companies from India and Pakistan that operate in telecommunication sector show that capital investment effect is not independent of accrual effect. This is because the returns, that companies are able to generate by keeping capital investment and accrual at minimum level, decrease to a loss in every direction; horizontal, vertical and diagonal. Therefore, companies from both nations should keep their capital investment and accrual level to minimum which generate 108% return in Pakistan and only 6% in India.

The effect of capital investment in India is found to be independent of accrual effect. This is because, in tobacco sector, returns decrease if capital investment is increased, while returns increase if accruals are increased. However, no change occurs if both are increased at the same time. In order to raise the maximum price of common stock, companies should keep their focus on increasing accruals while keep their capital investment low. This strategy, if implemented, would generate 42% returns. On the other hand, capital investment anomaly is not found to be different from accrual anomaly since the returns increase in every dimension. Abnormal returns can be generated if capital investment is kept at minimum while accruals are given a push in financial statements. This strategy would generate 733% return on common stocks.

REGRESSION MODEL

In order to determine how capital investment and accruals are related to forthcoming stock returns and to find out if both anomalies are distinct or not, following regression model is applied:

$$R_{at+1} = \alpha + \beta_1 LnCI_{at} + \beta_2 Accruals_{at} + \beta_3 CIAC_{at} + \beta_4 LnSize_{at} + \beta_5 LnB2M_{at} + \varepsilon_{at+1}$$

Where:

R   = Stock return
LnCI   = Log transformed Capital Investment
Accruals = Accruals
CIAC   = An interactive term incorporated to test another hypothesis within regression equation
LnSize   = Logarithm of Size
LnB2M   = Logarithm of Book-to-Market ratio

Size and book-to-market ratio are included because both variables have the ability to explain forthcoming returns on common stocks (Fama 1992). The beta

coefficients of LnCI and Accruals should be negative. This is because a negative coefficient attached with both would be in-line with the studies conducted by Teoh, Wong and Rao (1998), Lamont (2000), Chan et al. (2001), Titman, Wei and Xie (2004), Anderson and Garcia-Feijoo (2006). The beta coefficient of interactive term should be negative if both anomalies work in same direction while a positive coefficient is attributed towards negative relationship between capital investment anomaly and accrual anomaly (Wei & Xie 2008). However, if both anomalies are distinct, the coefficient should be zero or insignificant.

The correlation matrix has been presented in the Table 5 below which reveals that LnB2M is highly correlated with Ln Size because size is measured as market value of equity, which is again used in B2M formula. Therefore, high correlation between both is again expected.

TABLE 5. Person correlation matrix

	Return	LnCI	Accruals	CIAC	LnSize	LnB2M
Return	1.000					
LnCI	-0.1002	1.000				
Accruals	-0.1117	0.0873	1.000			
CIAC	-0.0733	0.3800***	0.1239*	1.000		
LnSize	-0.2498***	0.3816***	-0.0372	0.1693**	1.000	
LnB2M	0.1792**	-0.5269***	-0.0622	-0.3226***	-0.7520***	1.000

Notes: *** significant at 100% confidence level
          ** significant at 99% confidence level
          * significant at 95% confidence level

We applied the regression model after eliminating all the outliers identified and the output is shown in Table 6 below. The coefficients in Table 6 below show how each variable affects the forthcoming stock returns. Constant represents the intercept or alpha in the regression equation while all others are independent variables. Capital investment is found to have a positive influence on forthcoming stock returns but the impact remains insignificant while Accruals have a significantly negative impact. Moreover, interactive term in our regression model is also found to have an insignificant coefficient representing that both anomalies are distinct. These findings are not in-line with the existing literature (Wei & Xie 2008) possibly due to the fact that earlier studies focused on a western economy while this study is coordinated towards less developed economies; India and Pakistan. In addition to above, LnSize and LnB2M are also found to have a negative but insignificant impact on forthcoming stock returns. The overall explanatory power of regression model, 6.23 adjusted R-squared, suggests that all variables collectively only account for 6.23% variation in forthcoming stock returns.

TABLE 6: Regression results

Source	SS	df	MS	Number of Observations	=	289
Model	3.97195886	5	0.7943918	F (5, 283)	=	4.83
Residual	46.5554588	283	0.1645069	Prob > F	=	0.0003
Total	50.5274176	288	0.1754424	R-Squared	=	0.0786
				Adj R-Squared	=	0.0623
				Root MSE	=	0.40559

Return	Coef.	Std. Error	t	P>|t|	[95% Conf. Interval]	
LnCI	0.0013496	0.027087	0.05	0.960	-0.51968	0.0546673
Accruals	-0.5796281	0.2731365	-2.12	0.035	-1.117265	-0.0419912
CIAC	-0.000011	0.000025	-0.44	0.660	-0.0000602	0.0000382
LnSize	-0.508715	0.152332	-3.34	0.001	-0.0808563	-0.208867
LnB2M	-0.1364	0.0234495	-0.58	0.561	-0.0597975	0.0325175
_cons	1.174423	0.2737803	4.29	0.000	0.6355184	1.1713327

However, when running the regression model after eliminating all the outliers, we found that the assumption of homoscedasticity was being violated as well as residuals were found to be non-normally distributed. On the other hand, the issue of multicollinearity of our control variable, LnB2M was also not being violated any further. To account for homoscedasticity and non-normality of residuals, we used robust command within regression model. This

robust command does not changes the coefficients but the standard errors or our variables take into account the issues of heteroscedasticity.

CONCLUSION AND IMPLICATIONS

This study was directed towards two emerging economies India and Pakistan. By creating portfolio matrix, several strategies were identified that business managers and investors should use in order to maximize their returns. Fama and MacBeth (1973) regression model was tested to identify how the variables are related to forthcoming returns, if both anomalies are distinct or not. We found strong evidence in-line with the literature about relationship of capital investment and accruals with the stock returns. In addition to this, we found that both anomalies are not distinct and work together taking the effect of another anomly. Sector-wise analysis for portfolio matrix was also included as identified in the research gap. To answer the research questions, the results first identified a trading strategy of both economies collectively and then separately. Later on, similar pattern was followed for sector-wise results. Separate results for India and Pakistan identified would enable a manager to know what strategy to adopt in order to maximize the returns. However, the combined results that we included in our study would benefit the investor. Equally weighted portfolio matrixes were created where an investor would be able to know the returns that could be generated by investing in companies with more or less capital investments and accruals. In future the researchers might study the regression model separately for both economies included in our sample size. Moreover, same model can be tested for various sectors operating within other economies.

Deviating from the literature, returns increase with the increase in capital investments. The capital investment anomaly and accruals anomaly operate very differently in India and Pakistan. In India, a complete deviation from existing literature occurs as higher capital investment results in higher returns. While the foundations of accruals anomaly appear to be consistent with past research, the results are not as strongly indicated. In Pakistan, moderate levels of capital investment tend to generate highest levels of return. While the findings of accruals anomaly appear to be consistent with past research, the results are better indicated in the Pakistan sample.

From a strategic perspective, a company should make a low percentage of capital investment each year or, on the other hand, record moderately high percentage of accrual in financial statements. But both variables have to work side-by-side and we will have to monitor the returns based on portfolios that take into account both variables.

For India, a strategy that combines maximum level of capital investment and maximum level of accruals would generate average annual returns of 48% in the Indian market. Alternatively, expenses may be reduced and brought down to a moderate level for both capital investment and accrual which would yield an average return of 53% per annum. This is essential to maximize returns. For Pakistan, there is greater consistency of results with existing literature. The only difference that occurs is in pursuing a combined strategy which can yield abnormally high returns. Lastly, our study shows that across majority portfolios based on accruals, results for India and Pakistan remain relatively similar.

From a managerial perspective, it is important to understand that each anomaly may be driven by a similar expectation of future demand. The trading strategy based on both anomalies is particularly useful to managers. Regarding the standalone impact of capital investment anomaly and accruals anomaly, this study finds that from a managerial perspective, companies should either decrease capital investments, or record moderately high accruals in financial statements to maximize benefits. In addition, abnormal returns in portfolios and industries, as discussed above can guide managerial strategies in changing economic circumstances.

From an academic perspective, this study reinforces the logic that theoretical findings are altered when there are significant differences in the environment. While existing literature finds capital investments are consistently significant, this implication is entirely different in Pakistan and India, where it is determined to be insignificant. Furthermore, while literature also documents that accruals are utilized to increase future profits, our analysis reveals a negative and significant impact on returns. Lastly, where existing literature provides mixed results on the combined effect of these anomalies, it is clear from our findings that these anomalies are interdependent in two major South Asian economies.

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