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Impact of Operating Cycles and Accruals on the Relationship between Macroeconomic Variables and Firm's Stock Returns

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ABSTRACT

The aim of this study is to examine: The Impact Of Operating Cycle and Accruals on the Relationship Between Macroeconomic Variables and Firm's Stock Returns Listed in Tehran Stock Exchange. Hence, 108 Firm's were chosen during Seven-years period 2004-2010 . that the macroeconomic variables are indicative of the economic situation. economic activities expansion that reduced unemployment, increased production and price levels Simulanously, can lead to improve in the stock indices. As a result of macroeconomic variables (GDP, etc.) with the fundamental accounting variables (earnings, sales, ...) and capital market variables (output, ...) have a significant positive relation. The nine hypotheses formulated to check the Impact of accounting variables on the relationship between macroeconomic variables(GDP growth rate, unemployment rate(UR) and industrial production index(IPI)) and stock returns. The results shows, relationship between the operating cycle and quality of accruals are statistically significant and inverse. it also has a relation with longer operating cycles and low quality of accruals, the explanatory power of current stock returns and predicted power of future stock returns by macroeconomic variables is reduced.

KEYWORDS: Accrual Quality, Operating Cycle, Current Stock Return, Future Stock Returns, Macroeconomic Variables

1. INTRODUCTION

An important economic section of every country is capital market. A governmental policy is capital market prosperity. Capital market is closely related with the economic structure of the countries whose strength and weakness points can reflect the economic status of that country. Economy consists of two financial and real sections. Financial section includes monetary and capital markets (stock market). These markets provide financial resources for the real economic section. Financial section's efficiency optimizes rare resource allocation to economic activities and it leads to national economy's growth. Macroeconomic conditions of every country affect financial markets and especially security exchange markets. The clear point is that Macroeconomic variables affect economical status. Decreasing GDP, unemployment, industrial products, and yield reflect economic depression. Consumption behavior patterns and investment are closely related with Macroeconomic variables of behavioral patterns like GDP. There is a positive relation between sale growth, asset and profit growth and their changes with GDP (Qinglu2005). The positive relation between GDP and accounting variables causes the reduction of sale and return in the Firms. When they decrease, the management has to report the profit based on the investors 'expectations. This pressure causes profit management through accruals and operational cycles (Xie,2001).Operational cycles in economic corporations refer to the time in which the cash invested for the main activities of the corporation returns to the Firm by reoffering that service. The longer the time of invested money's return, the more operational risk it will face while receiving it. So, operational cycles resulting from the sum of liability return and product cycling time can be regarded as a discrimination variable for recognizing operational risk. From the other hand, the concept of accruals refers to the basis of operation through creating commitment voluntarily or involuntarily. So, the existence of excessive accruals will reduce the possibility of receiving the cash resulting from selling products or representing services. To simply put, the higher accruals in accounting information of the companies, the higher the operational risk of the company will be. In this way, another discrimination variable resulting from operational risk (accruals) can be recognized.

Different factors can impress the consistency of accruals (Martin,2007). Profit consistency refers to the repeatability of current profit. The more consistent the profit, the more able the firm is to preserve current profits and the higher profit quality will exist (Haghighat & Iranshah2011). Longer operational cycles cause more accruals fluctuations. The firms with higher accruals' fluctuations tend more to manage the profits. So, the profits of the

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firms with longer operational cycles have lower quality (Hao,2009). Large amount of accruals show more opportunistic behaviors of the manger which affects the quality of accruals and profit quality as well.

An important issue to consider in accounting is the relation between information quality and capital cost. Based on the results from researches, information quality is measured via different methods. So, there is no consensus on the point that information quality affects capital cost or on the mechanisms of information quality and capital cost. These somehow related issues have a great importance in the concepts of profit quality (Kim & Qi2010).

Risk can be divided in fundamental and information quality risks. In the case of the lack of fundamental risk, information quality risk can't affect capital cost. Increasing fundamental risk, information quality risk affects capital cost more (Yee, 2006). It must be notified that capital cost for cash supplier is like the return for the investors (Lambert et al 2007). The effect of accruals' quality on capital cost increases by rising fundamental risk. In the case of low fundamental risk, the effect of accruals on capital cost is not high. So, the quality of accruals is related to the fundamental risk. So, the effect of pricing accruals on capital cost may come from the fundamental risk related to information risk (chen et al 2008). In fact, the adoption extent of the Firm's profit with cash flows shows the quality of accruals whose decrease make increasing information risks (Francis et al 2005). Existing risks in the firm impress stockholders expectations. Complicated, vague, and unclear reports can't offer any information about the existing risks in the firm. Expected return of the investors is impressed by information risks. Information risk depends on the amount of confidential information, lack of accuracy in public information, and information transparency. The less transparent the information is, the more risky the expected return of the investors will be (Kordestani & Seyedmostafavi 2011) .Information risk has no variety and the firms with higher information risk have higher capital costs (Lambert et al2007). The results of Francis et al (2005), Gary et al (2009), Ognove (2010) and Kim et al (2010) show that the quality of accruals is a risk indicator in determining capital cost and the risk of information inaccuracy is measured with accruals' quality. Disclosure quality is an index of information risk (Hussainey. & Mouselli2010) So, there is no agreement on an index for information risk. Based on the researches by Mouselli et al, the positive correlation between disclosure quality and accruals quality was proved. Moreover, with similar information content and replacement nature, the factors of accruals 'quality and disclosure quality were confirmed (Mouselli et al2011) .In the firms with higher disclosure quality, profit management is less and accruals quality is higher (Francis et al 2008). Darngenidou et al (2011) showed that disclosure and accruals have common effect on expected profits including the returns of current stocks. The firms with higher disclosure levels have stronger relation between current stock return and future profits rather than the firms with lower disclosure rate (Jesper & Plenborg 2008).

Based on multi-factor model of Fama and French (1993), securities' return comes from different factors like the effect of Macroeconomic variables (GDP, unemployment rate, and industrial products index) on stock return. So far, in previous researches the relationship between different Macroeconomic variables and stock return has been examined. This paper also tries to examine the effects of accepted Macroeconomic variables (operational cycles and accruals) on the stock return of the firms in security exchange markets.

1. LITERATURE

1.1 Operational cycles and accruals' quality literature

In a study titled " the quality of accruals and profit: the role of estimation errors of accruals", Dechow et al (2002) concluded that accruals' quality has a negative correlation with firm features like operational cycles, sale fluctuations, cash flow fluctuations, accruals and sale fluctuations, damage numbers reported during different periods, and accruals size . But, it has a positive correlation with firm size. Increasing estimation error of accruals (accruals quality decrease) profit sustainability (profit quality) decreases. Investigating the relation between financial and non-financial properties of the firms with accruals and profit quality, Dastgir et al (2011) concluded that accruals' quality has a positive relation with firm size and negative relation with operational cycles, cash flow, accruals, profit, reported damage times in different periods, and accruals size. Studying the quality of accruals stressing the role of accruals estimation, Noravesh et al (2007) concluded that high levels of accruals decreases profit and accruals' quality. They didn't find any significant correlation between accruals' quality and firm variables like sale standard deviation, operational cycles, firm size, and cash flow. Investigating the relation between accruals and profit quality in accepted firms in Tehran security exchange, Homayoon (2006) concluded a negative relation between accruals and their quality but a positive relation between sale, firm size, profit, cash flow, and accruals' quality. They didn't find any significant relation between operational cycle and accruals' quality.

2.2 Macroeconomic variables and stock return literature

Adegoke and Gbadebo (2012) examined the effect of Macroeconomic variables on the performance of stock return in Nigeria which was related to GDP, money supply, consumer price index, interest rate, and mentioned variables were confirmed to be the best indices for explaining stock return of Nigeria. Mohd Hussin et al(2012)

examined the relation between Macroeconomic Variables and Malaysian Islamic Stock Market: A Time Series Analysis. The findings showed that Islamic stock prices are co-integrated with the selected macroeconomic variables in which the stock price is related positively and significantly with IPI and CPI variables but related negatively and significantly with M3 and MYR variables. Meanwhile, its relation with IIR variables is foundnegative but insignificant. From the aspect of Granger causal relationship it is found that variables of CPI, M3 and MYR are the Granger cause for KLSI and the KLSI is the Granger cause for IPI, CPI and MYR. Rasool et al(2012) investigated the Impact of Macroeconomic Variables on Stock Prices: An Empirical Analysis of Karachi Stock Exchange". The monthly data of all macroeconomic variables and stock prices was taken from January 2001 to December 2010. In this paper, the variables which have not been previously studied by the researchers in Pakistan were also included. The set of macroeconomic variables used in this study as an independent variables were Exchange Rate (ER), Foreign Exchange Reserves (FER), Industrial Production Index (IPI), Interest Rate (IR), Imports (M), Money Supply (MS), Wholesale Price Index (WPI) and Exports (X). FER, IR, M, MS and WPI showed a positive and significant relationship with stock prices, while ER and X indicated a negative and insignificant impact on stock prices but IPI has a negative but significant relationship with stock prices. The two error correction terms like Vecm1 (-1) and Vecm2 (-1) were resulted from VECM, the first error correction term was significant and indicated short term adjustments towards the equilibrium path. The results of Granger Causality showed that MS and WPI have bi-directional relation while ER, FER and M have uni-directional relationship with the stock prices but IPI, IR and X showed not any casual relationship. Singh et al (2011) investigated the relation between Macroeconomic variables and stock return in Taiwan. The results showed that exchange rate and GDP impress stock return for all portfolios while inflation rate, exchange rate, and money supply have negative relation with portfolios of large and intermediate firms. Bizer and Latger (2011) studied the effects of Macroeconomic variables on the stock return and concluded that new documents and current news about GDP and unemployment impress stock return. Hsing (2011) examined the relation between Macroeconomic variables on the stock return of Lithuania and concluded that real GDP, the ratio of money supply to GDP and stock market index in USA and Germany have positive effect on the index of Lithuania' s stock. Singh (2010) examined the casual relation between Macroeconomic variables on the stock return in India. Based on Granger test, just industrial products' index has a casual relation with stock market index and retailing price index has a unilateral relation with stock market index. Buyok Salvarci (2010) examined the casual relation between Macroeconomic variables on stock market index in Turkey from 2003-2010. Economic variables were the index of producer consumption price, money supply, gold price, and interest rate. The results showed that interest rate, industrial products' index, and oil price have no significant effect on the index of stock market in Turkey. Tiona (2010) examined the relation between Macroeconomic variables (exchange rate, USA dollar, gold price in an ounce, IPI, PPI, ICOP, NFER , and IPM on stock return using Johansson test . The results showed a long term relation between stock return and all mentioned variables. Based on Grenger test results, a bilateral relation was observed between stock return and industrial productions' index. There was also a unilateral relation from USA dollar, petroleum international price, money supply, and imports to stock return. There was also a unilateral relation from stock return to producer price index. Based on VAR model, there was a negative relation between USA dollar, gold price, and stock return. There was also a positive relation between industrial products index, exports, money supply, exchange savings net, petroleum international price, and stock return. Flannery et al (2004) examined the relation between Macroeconomic variables with the stock return. The results showed that house, employment, user price index, and producer price index impress stock return but GDP and industrial productions don't have any relation with stock return. Flannery et al (2002) examined the relation between Macroeconomic variables with the stock return. The results showed that GDP, industrial productions, and unemployment have no significant effect on stock return. Bozorgasl and Razavi (2010) examined the relation between Macroeconomic variables with the stock return of accepted firms in Tehran Security Exchange and found the significant relation between interest rate and stock return. Poorheidari (2009) examined the relation between Macroeconomic variables with the stock return and found a significant and positive correlation between inflation rate and stock return. No significant and positive correlation between money amount, GDP, and stock return was observed. Kamali (2009) examined the relation between Macroeconomic variables with the stock return and found no relation between inflation and employment rate growth and stock return. But GDP and stock price index growth impact stock return.

2. Research hypotheses

H1.There is a negative and significant correlation between operational cycles and accruals 'quality.

H2. The longer the operational cycles, the less explanatory power of current stock return via Macroeconomic variables will exist.

H3. The longer the operational cycles, the prediction power of future stock return by Macroeconomic variables will decrease.

H4.The more accruals 'quality decreases, the explanatory power of current stock return by Macroeconomic variables reduces.
H5.The longer operational cycles and the less accrual's quality, the explanatory power of current stock return by Macroeconomic variables reduces.
H6.The less accrual's quality and the longer operational cycles, the explanatory power of current stock return by Macroeconomic variables reduces.
H7.The less accrual's quality, the predicted power of future stock return by Macroeconomic variables reduces.
H8.The longer operational cycles and the less accrual's quality, the predicted power of future stock return by Macroeconomic variables reduces.
H9. The less accrual's quality and the longer operational cycles, the predicted power of current stock return by Macroeconomic variables reduces.

3. METHODOLOGY

This study aimed to examine the effects of operational cycles and accruals on the relation between Macroeconomic variables and the Firms stock return. So, it is of applied type using correlation analysis.

4. Definitions of variables

4.1 Accruals Quality

The sum of current accruals of Firm j in year t can be calculated in the following way:

$$TCA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDEBT_{j,t}$$

TCAjt: Total accruals of firm j in year t, $\Delta CA_{j,t}$: Changes in current assets of firm j from year t-t-1, $\Delta CL_{j,t}$: Changes in current liabilities of firm j from year t, t-1, $\Delta Cash_{j,t}$: Changes in cash amount of firm j from year t , t-1, $\Delta STDEBT_{j,t}$: Changes in short term liabilities of firm j from year t , t-1

To measure accruals 'quality, the modified model of Dechow et al (2002) was used(all variables are scaled by average assets):

$$1)\ TCA_{j,t} = \varphi_{0,j} + \varphi_{1,j} CFO_{j,t-1} + \varphi_{2,j} CFOj.t + \varphi_{3,t} CFO_{j,t+1} + \varphi_4 \Delta REV_{j,t} + \varphi_{5,j} PPE_{j,t} + v_{j,t},$$

Then, using the from equation 1, the values of current non-discretionary accruals and discretionary accruals were calculated.

$$2)\ NDCA_{j,t} = \varphi_{0,j} + \varphi_{1,j} CFO_{j,t-1} + \varphi_{2,j} CFO_{j,t} + \varphi_{3,t} CFO_{j,t+1} + \varphi_{4,j} \Delta REV_{j,t} + \varphi_{5,j} PPE_{j,t}$$

In the final step, we calculate the amount of discretionary current accruals:

$$3)\ DCA_{j,t} = TCA_{j,t} - NDCA_{j,t}$$

The values form above equation will replace accruals quality in this study. Larger values for discretionary accruals reveal their low quality and vice versa. To examine the relation between accruals' quality and operational cycles, pattern 1 of Francis et al and Dechow et al (2002) was used.

$$1)\ AQ = \delta_0 + \delta_1 Size_{j,t} + \delta_2 Std(CFO)_{j,t} + \delta_3 Std(Sales)_{j,t} + \delta_4 OperCycle_{j,t} + \delta_5 NegEarn_{j,t} + \varepsilon_{j,t}$$

where, AQ is accruals' quality, Size is firm 's size measured by total log of firm 's assets, Std (CFO) is standard deviation cash from operations, scaled by the total asset, Std (Sales) is standard deviation of income from sales, Scaled by the total asset, OperCycle: Operation Length is the sum of the accounting receivable
cycle and the inventory cycle.

4.2 Stock Return

Stock return refers to the advantages belonging to common stock during a period and includes the differences in stock price at the beginning and end of a specific time period and benefits like dividend profit or benefits from capital increase.

4.2.1. Current stock return

$$R_{it} = \frac{p_t(1 + \alpha + \beta) - (P_{t-1} + C\alpha) + D}{P_{t-1} + C\alpha}$$

Rit: fulfilled (current) return, C: Per Value, α: cash invers, β is increase percentage from cumulative profit and savings, D is distributed cash profit, P_t is stock price at the end of financial period, and Pt-1 is stock price at the beginning of financial period.

4.2.2.Future stock return

To calculate future stock return (R_{it}+1), the fulfilled return of the next year is used for current year. To examine the effect of operational cycles and accruals on the relation between Macroeconomic variables and stock return pattern 2 is used.

$$2)\ R_{ij} = a_0 + a_1 \sum_{i=1}^{3} ME_{it} + a_2 \sum_{j=1}^{3} Contorl_{it} + \varepsilon_{it}$$

In Ri.j (stock return), j is calculated once based on t and once based on t-1. ME is independent variable for stock return including GDP rate, unemployment rate(UR), industrial production index(IPI). To calculate Macroeconomic variables, the information from central bank, global bank indices, and economic was used.

Control variables for stock return

- firm size = (ln mvE) , MVE=current stock number× final stock price
- Growth opportunities: To measure growth opportunities Tobin-Q ratio is used.

$$Q-Tobin=\frac{BV(Debt)+MV(Stock)}{BV(Asset)}$$

- B/M: The ratio of stock book value to its market value

5. Statistical population and sample

All accepted Firms in Tehran security exchange were the Statistical population of this study. The firms with the following conditions were selected as the study sample.

1. They had no activity or financial year change during study period.2. Their financial year ended in March. 3. Transaction breakage at least once in a year should be observed in the stocks of sample firms. 4. Investment, holding, banks, insurances, and retirement firms excluded from the sample. Based on the mentioned criteria, 108 firms were selected.

6. Hypothesis test

To test the hypotheses, linear regression analysis with combined least square analysis was used. H1-H9 could be confirmed if modified determination Coefficient($\bar{R}^2$)is less than other patterns.

7.RESULTS

7.1.Descriptive statistics

Descriptive statistics of the study variables including means, maximums, minimums, observation numbers, and standard deviation will be represented in section(1).

Table 1 : Descriptive statistics

variable	Minimum	Maximum	Mean	Std. Deviation	N Statistic
TCA	-4.74	4.03	.0686	.29523	756
CFOt-1	-.46	1.41	.1581	.16974	756
CFOt	-.46	1.41	.1505	.16765	756
CFOt+1	-.46	1.41	.1411	.15861	756
PPE	.00	9.61	.4110	.43583	756
AQ	-3.03	3.78	.0000	.26361	756
SDCFO	.00	7.01	.0894	.26299	756
SDSALE	.00	5.77	.1802	.31869	756
OPCYC	28	116	257.139	128.93	756
R_{it}	-15.46	40.62	.9640	24.16	756
SIZE	10.02	14.03	11.5487	.65527	756
Q-TOBIN	.276	43.7	1.7	2.34	756
BM	-.33	11.5	..66	.75	756
UR	10	12	11.07	78.5	756
IPI	100.00	175	130	24.701	756
rGDP	1.80	7.82	4.94	12.10	756

7.2.Hypothesis test *results*

H1 test results: To test H1, the following model was used whose results are shown in Table 2.

$$AQ=\delta_0+\delta_1\text{Size}_{j,t}+\delta_2\text{Std(CFO)}_{j,t}+\delta_3\text{Std(Sales)}_{j,t}+\delta_4\text{OperCycle}_{j,t}+\delta_5\text{NegEarn}_{j,t}+\varepsilon_{j,t}$$

In all tables, (*) shows the significance of independent variables. Based to Table 2, operational cycle variable had a positive and significant correlation with discretionary accruals. According to the negative correlation between accruals' quality and discretionary accruals, a negative and significant operational cycles and accrual's quality could be concluded with 99% confidence, confirming H1. Modified determination Coefficient of $\bar{R}^2$ shows that on average, 16065% of dependent variable changes can be expressed by independent variable. Durbin-Watson(DW) value confirms the lack of correlation in the components of model error.

Table 2: H1 test results			
Variable	**Coefficient**	**t-Statistic**	**Prob[1]**
C	-0.092402	-7.566815	0.0000
SIZE	-0.003859	-3.251205	0.0011
SDCFO	-0.089686	-22.92266	0.0000*
SDSALE	0.023024	7.077469	0.0000*
OPCYC	0.022591	14.33099	0.0000*
AR(1)	-0.392280	-112.2865	0.0000
$\bar{R}^2$: 0.160653	DW: 2.488072	Prob. $_F$: 0.000000	F : 2230.046

H2 test results: For H2 test, the following model was used whose results are shown in Table 3.

$$R_{i,t} = SIZE_{j,t} + Q_{j,t} + B/M_{j,t} + UR_{j,t} + IPI_{j,t} + rGDP_{j,t}$$

Due to the low $\bar{R}^2$ in longer operational cycles (CH) compared with their shorter counterparts (CL), it can be said that explanatory power of stock return behaviors decreases by Macroeconomic variables when operational cycles are completed in long term. The effect of IPI and UR is significant and negative but the impact of GDP rate is significant and positive. So, H2 is confirmed. DW value of 2.062685 also confirms the correlation of model error segments. F statistics and significance level related to CH pattern show the significance of regression model with 99% confidence.

Table 3: H2 test results				
variable	**CL**		**CH**	
	Coefficient	**prob.**	**Coefficient**	**Prob.**
C	3.388771	0.0009	-2.19635	0.0039
SIZE	-0.011615	0.0000	0.394255	0.0000
Q	0.175489	0.0048	6.36429	0.0001
BM	-0.005676	0.0000	-0.43845	0.0000
UR	-0.181252	0.0000*	-0.20854	0.0000*
IPI	-0.013899	0.0032*	-0.00327	0.0090*
rGDP	0.169346	0.0011*	0.150740	0.0000*
$\bar{R}^2$	0.41709		0.208989	
DW	2.327945		2.062685	
prob. $_F$	0.000000		0.000000	
F	15.78762		109.1476	

H3 test results: To test H3, the following model was used whose results are shown in Table 4.

$$R_{i,t+1} = SIZE_{j,t} + Q_{j,t} + B/M_{j,t} + \mathrm{UR}_{j,t} + IPI_{j,t} + rGDP_{j,t}$$

Due to the smaller $\bar{R}^2$ in longer operational cycles 'pattern (PH) compared with shorter operational cycles pattern (PL) it is confirmed that the predictability of stock return by Macroeconomic variables decreases when operational cycles are completed in longer time. IPI and UR variables had negative and significant effect, but GDP rate had positive and significant impact in the pattern with longer operational cycles. But these effects are different in short operational cycles, so, H3 is confirmed. Moreover, (DW) value of 2.3127 shows the lack of correlation between model error segments. F statistics and significance level related to PH pattern confirmed the significance of regression model with 99% confidence.

Table 4: H3 test results					
variable	**PL**		**PH**		
	Coefficient	**Prob.**	**Variable**	**Coefficient**	**Prob.**
C	-0.565707	0.0002	C	8.408085	0.0000
SIZE	-0.408785	0.0000	SIZE	0.136276	0.0254
Q	-0.297031	0.0000	Q	2.882606	0.0000
BM	0.383990	0.0000	BM	-0.258976	0.0002
UR	0.923703	0.0000*	UR	-0.559606	0.0000*
IPI	-0.044421	0.0000*	IPI	-0.030714	0.0000*
rGDP	0.268386	0.0000*	GDP	0.014395	0.0040*
LNR(-1)	0.012716	0.0095	AR(1)	0.245091	0.0000
$\bar{R}^2$	0.675081		$\bar{R}^2$	0.398889	
DW	1.800482		DW	2.31276	
$\mathrm{Pro}_{b.F}$	0.000000		Prob.$_F$	0.000000	
F	393.3865		F	146.7997	

1 To avoid writing two values of t-test and critical value, the concept of Prob. is used which is shown by EViews software. If Prob. is smaller than 5%, that estimation is significant in 95%. If Prob. was 0.01% or smaller, it means significance in 99%.

H4 test results: To test H4, the following model was used whose results are shown in Table 5.

$$R_{i,t} = SIZE_{j,t} + Q_{j,t} + B/M_{j,t} + \mathrm{UR}_{j,t} + IPI_{j,t} + rGDP_{j,t}$$

Due to the smaller $\bar{R}^2$ in low quality accruals (CH) compared with high quality accruals (CL) it is confirmed that the predictability of stock return by Macroeconomic variables decreases when accruals quality reduces. IPI and UR variables had negative and significant effect, but GDP rate had positive and significant impact. So, H4 is confirmed. Moreover, DW value of 1.955401 shows the lack of correlation between model error segments. F statistics and significance level related to CH pattern show the significance of regression model with 99% confidence.

Table 5: H4 test results

variable	CL		CH	
	Coefficient	prob.	Coefficient	prob.
C	2.932686	0.0000	2.523638	0.0000
SIZE	0.256126	0.0000	0.009855	0.0360
Q	0.039387	0.0000	0.070179	0.0000
BM	-0.097598	0.0000	-0.192032	0.0000
UR	-0.350015	0.0000*	-0.236762	0.0000*
IPI	-0.016198	0.0000*	-0.006847	0.0000*
rGDP	0.090393	0.0000*	0.209244	0.0000*
$\bar{R}^2$	0.303866		0.290374	
DW	2.046893		1.955401	
prob. F	0.000000		0.000000	
F	853.4203		855.3264	

H5 test results: To test H5, the following model was used whose results are shown in Table 6.

$$R_{i,t} = SIZE_{j,t} + Q_{j,t} + B/M_{j,t} + \mathrm{UR}_{j,t} + IPI_{j,t} + rGDP_{j,t}$$

Since in first pattern, longer operational cycles, and lower accruals quality had determination Coefficient of 25.6% which is higher than determination Coefficient of the second pattern with longer operational cycles and higher accruals quality (CHL), based on H5 , it was expected that the prediction ability of first pattern be less than other patterns. So, H5 is not confirmed

Table6:: H5 test results

variable	CHH		CHL		CLH		CLL	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	prob.	Coefficient	prob.
C	2.272257	0.0003	3.448906	0.0000	5.632320	0.0000	1.689499	0.0011
SIZE	0.108345	0.0139	0.263237	0.0000	-0.04649	0.0070	0.114856	0.0000
Q	0.209313	0.0000	-0.01219	0.0423	0.116335	0.0000	0.126194	0.0000
BM	0.112104	0.0307	-0.55912	0.0000	0.172574	0.0000	-0.00547	0.0000
UR	-0.30399	0.0000*	-0.41392	0.0000*	-0.41817	0.0000*	-0.14656	0.0001*
IPI	-0.00901	0.0000*	-0.01131	0.0000*	-0.01030	0.0000*	-0.01370	0.0000*
rGDP	0.170774	0.0000*	0.038477	0.0062*	0.209726	0.0000*	0.148937	0.0000*
$\bar{R}^2$	0.256829		0.210182		0.378670		0.380773	
DW	2.547403		1.888857		2.208694		1.963103	
prob. F	0.000000		0.000000		0.000000		0.000000	
F	181.3382		118.3120		340.9722		316.3496	

H6 test results To test H6, the following model was used whose results are shown in Table 7.

$$R_{i,t} = SIZE_{j,t} + Q_{j,t} + B/M_{j,t} + UR_{j,t} + IPI_{j,t} + rGDP_{j,t}$$

Since the first pattern with longer operational cycles and less accruals quality (CHH) had determination Coefficient of 8%, it is less than determination Coefficient of other patterns. It was expected that explanatory ability of first pattern is less than other patterns to confirm H6.as Macroeconomic variables UR -IPI-and GDP rate had a positive and significant effect, confirming H6. Moreover, DW value of 2.133122 shows the lack of correlation between model error segments. F statistics and significance level related to CHH pattern show the significance of regression model with 99% confidence.

Table7:: H6 test results								
Variable	CHH		CHL		CLH		CLL	
	Coefficient	prob.	Coefficient	prob.	Coefficient	prob.	Coefficient	prob.
C	-21.27317	0.0000	-10.29892	0.0000	-9.839357	0.0000	-5.298620	0.0001
SIZE	1.364685	0.0000	-0.071027	0.0000	0.992682	0.0000	0.444153	0.0000
Q	1.740206	0.0002	0.572314	0.0323	4.693907	0.0090	3.107809	0.0084
BM	-0.683823	0.0000	0.001163	0.0000	-1.689984	0.0000	-0.200486	0.0001
UR	0.244746	0.0070*	1.219018	0.0000*	-0.210315	0.0096*	0.080416	0.0159*
IPI	0.012370	0.0009*	-0.023028	0.0000*	0.010686	0.0000*	-0.010422	0.0001*
rGDP	0.576501	0.0000*	0.091114	0.0163*	0.187339	0.0000*	0.437584	0.0000*
$\bar{R}^2$	0.083248		0.160734		0.113739		0.1041240.	
DW	2.133122		2.132681		2.100950		2.185769	
prob. F	0.000000		0.000000		0.000000		0.000000	
F	78.21706		163.8534		110.1287		99.83079	

H7 test results: To test H7, the following model was used whose results are shown in Table 8.

$$R_{i,t+1} = SIZE_{j,t} + Q_{j,t} + B/M_{j,t} + \mathrm{UR}_{j,t} + IPI_{j,t} + rGDP_{j,t}$$

Due to the smaller $\bar{R}^2$ in low quality accruals (PH) compared with high quality accruals pattern (PLL) it is confirmed that the predictability of stock return by Macroeconomic variables decreases when accruals' quality reduces. IPI variable had negative and significant effect, but GDP rate and unemployment rate had positive and significant impact. So, H7 is confirmed. Moreover, DW value of 1.769284 shows the lack of correlation between model error segments. F statistics and significance level related to CH pattern show the significance of regression model with 99% confidence.

Table8: : H7 test results				
variable	PL		PH	
	Coefficient	Prob.	Coefficient	prob.
C	3.485119	0.0000	-1.144088	0.0002
SIZE	-0.29031	0.0000	-0.159387	0.0000
Q	0.059205	0.0000	0.060682	0.0000
BM	0.054140	0.0003	0.132782	0.0000
UR	0.241408	0.0000*	0.534030	0.0000*
IPI	-0.02599	0.0000*	-0.026102	0.0000*
rGDP	0.134460	0.0000*	0.116172	0.0000*
$\bar{R}$ 2	0.388512		0.353106	
DW	2.272639		1.769284	
prob. F	0.000000		0.000000	
F	1293.209		1042.390	

H8 test results*:* To test H8, the following model was used whose results are shown in Table 9.

$$R_{i,t+1} = SIZE_{j,t} + Q_{j,t} + B/M_{j,t} + \mathrm{UR}_{j,t} + IPI_{j,t} + rGDP_{j,t}$$

Since in first pattern, longer operational cycles, and lower accruals quality (PHH) had determination Coefficient of 33% which is less than determination Coefficient of the second pattern, it was expected that predictability of first pattern is less than other patterns to confirm H8. In all patterns, IPI variable had negative and significant effect, but GDP rate and UR had positive and significant impact. So, H7 is confirmed. Moreover, DW value of 1.715006 shows the lack of correlation between model error segments. F statistics and significance level related to PHH pattern show the significance of regression model with 99% confidence.

Table9: H8 test results								
variable	PHH		PHL		PLH		PLL	
	Coefficient	prob.	Coefficient	prob.	Coefficient	prob.	Coefficient	prob.
C	-0.272399	0.0096	7.888659	0.0000	2.835228	0.0000	-3.379986	0.0000
SIZE	-0.138084	0.0041	-0.463154	0.0000	-0.178186	0.0000	-0.388199	0.0000
Q	-0.063284	0.0050	0.018836	0.0001	-0.117489	0.0000	0.025962	0.0000
BM	0.016018	0.0152	-0.118755	0.0230	0.099429	0.0003	0.012662	0.0210
UR	0.291124	0.0000*	0.096922	0.0000*	0.298056	0.0000*	0.893822	0.0000*
IPI	-0.017227	0.0000*	-0.030224	0.0000*	-0.031758	0.0000*	-0.021090	0.0000*
rGDP	0.195331	0.0000*	0.050143	0.0032*	0.064829	0.0000*	0.173809	0.0000*
$\bar{R}^2$	0.330622		0.350143		0.403171		0.490131	
DW	1.715006		2.003955		2.358374		1.861744	
prob. F	0.000000		0.000000		0.000000		0.000000	
F	256.5230		248.2195		353.5105		472.3509	

H9 test results: To test H9, the following model was used whose results are shown in Table 10.

$$R_{i,t+1} = SIZE_{j,t} + Q_{j,t} + B/M_{j,t} + \mathrm{UR}_{j,t} + IPI_{j,t} + rGDP_{j,t}$$

Since in first pattern, longer operational cycles, and lower accruals quality had determination Coefficient of 32% which is less than determination Coefficient of the other patterns, it was expected that predictability of first pattern is less than other patterns to confirm H9. In all patterns, IPI variable had negative and significant effect, but GDP rate and UR had positive and significant impact. So, H7 is confirmed. Moreover, DW value of 2.112584 shows the lack of correlation between model error segments. F statistics and significance level related to PHH pattern show the significance of regression model with 99% confidence.

Table10: H9 test results

variable	PHH		PHL		PLH		PLL	
	Coefficient	prob.	Coefficient	prob.	Coefficient	prob.	Coefficient	prob.
C	1.93471	0.0049	1.993048	0.0002	6.803708	0.0000	-3.8466	0.0000
SIZE	-0.31620	0.0000	-0.12542	0.0000	-0.37507	0.0000	-0.35292	0.0000
Q	0.079656	0.0000	-0.13824	0.0000	4.581127	0.0020	0.028854	0.0000
BM	0.055276	0.0081	0.114417	0.0000	-0.09352	0.0000	0.131155	0.0000
UR	0.245519	0.0000*	0.344124	0.0000*	0.057150	0.0001*	0.898481	0.0000*
IPI	-0.01799	0.0000*	-0.03245	0.0000*	-0.02670	0.0000*	-0.02105	0.0000*
rGDP	0.234032	0.0000*	0.016075	0.0030*	0.080431	0.0000*	0.166607	0.0000*
$\bar{R}^2$	0.32121		.371633		0.4078800		0.496445	
DW	2.112584		2.034991		1.681867		2.119883	
prob. F	0.000000		0.000000		0.000000		0.000000	
F	357.3636		314.9489		220.0642		471.1002	

8.Conclusion

Examining H1 showed a negative and significant correlation between operational cycles and accruals' quality. So, longer operational cycles cause lack of confidence, more estimation errors, and lower accruals' quality. The results of this hypothesis agree with the studies of Dechow et al (2002), Dastgir et al (2011), Homayoon (2006), and Noravesh et al (2007).

Examining H2-H9 showed that lengthening operational cycles and decreasing accruals' quality reduces the prediction ability of current and future stock return by Macroeconomic variables. Considering the positive correlation of Macroeconomic variables and accounting variables and the fact that economic variables stem from economic status during recession period, when sale growth and firm's profit decreases, the management is under pressure to report the profit based on investors' expectations. This pressure leads to profit management via manipulating accruals through operational cycles. So, due to the inverse relation between operational cycles and accruals' quality, accruals' quality and information quality decreases and firms disclose less information. This causes information risk which increases current and future stock return; but, explanatory power of current and future stock return behaviors by Macroeconomic variables decreases as well. As one of Macroeconomic variables, GDP rate had a positive and significant correlation with current and future stock return. This result agrees with the findings of Singh et al (2011) and Hsing (2011). UR (unemployment rate) had as significant and negative correlation in H2, H3, and H4 but a significant and positive correlation in H6, H7, H8, and H9. This result agrees with the findings of Birzegene et al (2011), and Flannery et al (2004). Industrial production index had a negative and significant effect in H2, H3, H4, H7, H8, and H9. This result agrees with Buyoksalvarci (2010). It had a positive relation with stock return in H6 which agrees with the studies of Tiona (2010), Mukherjee et al (1995). It also has a bilateral and casual relation with stock return based on Singh (2010). for further researches we propose the following items:

- In this study in order to measure the quality of accruals we use adjusted model of Dechow and Dichev(2002) .we propose for future researches to apply Kasznik model (1999) or modified Jones model (1995).
- In this study, the classification of firms and accruals have been on the basis of operating cycle.so to continue in the future we propose to class the firms on the basis of operating earnings variability.
- In this study, the GDP growth rate, unemployment rate, industrial production index and the macroeconomic variables were effective. It is recommended in future studies of other macroeconomic variables such as inflation, index producer.

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