Exploring the Existence of Momentum and Reversal Patterns in Egyptian Stock Market

Sarah Sobhy Mohamed Hassan
Lecturer at Faculty of Commerce
Cairo University
E-mail: sarahsobhy@cu.edu.eg

1. Introduction

A huge number of research papers introduces the empirical evidence of momentum and reversal effect in stock returns in different international financial markets. Stocks that have an extra ordinary performance during several months in the past have the ability to beat the market over the next period. In contrast, reversal pattern reflect the situation in which stocks that have the worst performance in the market to beat the market in the future. A large number of research has presented an evidence that momentum and contrarian profits are existed in US and non US stock markets.

Jegadeesh and Titman (1993) is the pioneer research in the area of momentum and reversal patterns. Stocks are ranked based on their performance in the last 3,6,9,12 months .They found that tracing past returns gaining abnormal returns around 1% every month during the following 12 months. it depends on the analysis of New York stock exchange market and American stock exchange AMEX using data starting 1940.

Based on the conclusion of Jaggdeesh and Titman (1993) many different researchers have tried to track this phenomena in different international markets. For example, Rouwenhorst (1998) confirms the profitability of momentum effect in a number of European markets. Foerster, Prihar, Schmiz (1995) confirms the existence of the momentum effect in Canadian stock market. Investment strategies that exploit such patterns yield abnormal returns. The popularity of these investment strategies becomes internationally indifferent between different stock market such as USA markets and UK markets**.**

On the other hand, some studies confirmed that momentum effect is not existed . For example Griffin,et.al(2004) confirmed that there is no evidence of momentum anomaly in 40 country .The same result has been confirmed by Ryan,R.,Curtin,R.,(2006),It examines whether price performance momentum is existed in seven Asian markets that is India, Indonesia , Malaysia, Hong Kong , Singapore, South Korea , Taiwan. It covers the period from 1991-2000, The methodology that has been followed in this research depends on ranking stocks based on its past returns over the past 12 months. It finds little evidence of the existence of momentum effect in the Asian markets.

Hou,T.,McKnight,P.,(2004) investigates the determinants of momentum strategy in Canadian stock market. Three main variables have been used as basic determinants of momentum performance; book to market ratio, analyst coverage and firm size. it concludes that there is an evidence of momentum anomaly in Canadian stock market. It also confirms that analysts coverage and book-to-market ratios are driving forces to explain momentum returns .It did not find any evidence that size effect plays a role to explain momentum anomaly. A negative relation between book to market ratio and analyst coverage has been confirmed using statistical analysis.

While momentum effect confirms the continuation pattern, mean reversion anomaly means that returns autocorrelation have a negative sign . More specifically, mean reversion happens in financial markets if the past positive returns are expected to be followed by negative future returns over a long run that may be extended to 5 years.

Debondt & Thaler (1985,1987) is the first to introduce the evidence of contrarian strategy .They conclude that loser securities in the past beat the performance of winner securities by 25%. They form two main portfolios , the winner portfolios includes stocks that have the best performers and the loser portfolios includes securities of worst performance over the past 3 years. It concludes that loser portfolios gain high returns while best past securities have weak returns. Following the same methodology many research discover the existence of contrarian anomaly in many different financial markets . For example Antonious ,Galaritious and Spyrous (2005) aims to trace the phenomenon in Athens stock market.

Forming weekly trading strategies confirms the existence of contrarian strategies with a significant returns. On the same direction, Scherer,B., Judice, D., Kessler, S., (2010) searches the main indices of many countries ;USA, Canada, Hong Kong, Japan , Australia , Singapore , Taiwan , India ,Germany , France , England , Spain ,Norway , Sweden) during the period 2001-2009.This study also concludes that there is a significant profits of the contrarian strategy , and the existence of the profits is consistent during the searched period. In Asian stock market , lots of evidences have been introduced to confirm the existence of reversal patterns in many different financial markets. for example Chang(1995) , Chui(2000) , Hamed&Ting (2000) , Kang(2002) indicated the strongly existence of the reversal patters in the Japan financial market, Korea ,Malaysian and Chinese financial markets , they introduce the evidence of the significant returns of the strategy.

Although the previous studies have made important contribution by proving the existence of reversal and momentum patterns in different international context such as USA markets , European markets , Asian markets , research is still in it's early stages in middle east stock market such as Egyptian stock market. The main objective of the current paper is to investigate the profitability of momentum and contrarian strategies in Egyptian stock market and determine at which time horizons this investment strategies are implemented.

2. Data

The sample of the current research includes stock returns of 72 stock traded in Egyptian stock market. Our sample period covers 2000-2013 .Data has been obtained from DataStream UK. For each stock weekly stock returns are calculated according to the following equation:

$Rt = Ln (Pt) – Ln (Pt-1)$

The following table includes names of companies included in research sample:

	Name
1	Coml.Intl.Bank (Egypt)
2	Credit Agricole Egypt
3	Egyptian Gulf Bank
4	El Watany Bank Of Egypt
5	Housing & Dev.Bank
6	National Dev.Bank
7	Qatar National Bank Alahly
8	Suez Canal Bank
9	Abou Kir Fertilizers
10	Egyptian Chemical Ind
11	Egyptian Finl.& Indl.
12	Misr Chemical Industries
13	Kafr El-Zait Pesticides
14	Upper Egypt Contracting
15	Torah Cement
16	Suez Cement
17	Paint & Chmid.(Pachin)
18	National Cement
19	Misr Conditioning (Miraco)
20	Industrial & Engr.Prds.
21	Arab Ceramic
22	Alexandria Cement
23	Acrow Misr
24	Giza General Contracting
25	Egyptian Electric Cable
26	Egyptians Abroad Invs.
27	El Ahli Inv.& Dev.
28	Export Dev.Bk.Of Egypt
29	Ajwa For Food Inds.

30	Alexandria Flour Mills
31	Bisco Misr
32	Cairo Poultry
33	Delta Sugar
34	East Delta Flour Mills
35	Egyptian Strch.& Glucose
36	Extracted Oils Derivatre
37	Mid.& Ws.Delt.Flr.Mls.
38	Middle Egypt Flour Mills
39	Misr Oil
40	South Cairo & Giza Mls.& Bkrs.
41	Upper Egypt Flour Mills
42	Misr Duty Free Shops
43	Oriental Weavers
45	Egypt Aluminium
46	Egypt Iron & Steel
47	El Ezz Aldk.Steel Alexa.
48	United Arab Shipping
49	General Silos & Storage
50	Egyp.Co.For Mobl.Svs. (Mobinil)
51	Delta Insurance
52	Mohandes Insurance
53	Ntrl.Gas & Mng.Project (Egypt Gas)
54	Alexandria Spng.& Wvg.
55	Arab Cotton Ginning
56	El Nasr Clothes & Text. (Kabo)
57	Alexandria For Pharmacy
58	Cairo Pharmaceuticals
59	Egyptian Intl.Pharms. (Epico)
60	Memphis Pharmaceuticals
61	Nile Pharmaceuticals
62	United Housing & Dev.
63	Six Of Oct.Dev.& Inv.
64	Mena Tourism & Rlst.Inv.
65	Medinet Nasr Housing
66	Heliopolis Housing
67	Egyptians Housing Dev.
68	Development & Engr.
69	Eastern Tobacco
70	Orascom Hotels And Dev.
71	Misr For Hotels (Hilton)

Table(1) presents a summary of descriptive statistics of weekly stock returns for 71 company included in study sample. It seems clear that there is a difference between stock returns regarding their different distribution measures. Regarding mean which measures the central location of distribution, it seems that mean values are close to zero for all estimated stocks except Bisco Misr, Delta Insurance ,General Silos storage, and Mohandes insurance. Mohandes insurance has the highest mean 9.73% followed by Bisco Misr stock with 8.76% average return. While General soils and Delta insurance show the lowest average returns. The weekly standard deviations show that there is low volatility of stock returns.

On the other hand, skewness and kurtosis are used to summarize the asymmetry of tail thickness. But, it seems distinctly that all returns distributions are negatively skewed which indicates that they are all non-symmetric, also all of the indicated distributions have high levels of positive kurtosis.

On the other hand, returns distributions for all indices seems to have heavy tails since it includes positive excess kurtosis, this means that there are extreme values are included in this distribution, and such distribution is called leptokurtic.

Regarding normality distribution test, Jarque Bera is used for testing the null hypothesis of normality, according to the result of this test, we cannot accept the normality assumption, and it means that the daily returns of sector's indices are not normally distributed.

Table (1): Descriptive Statistics

Company	Mean	Std. Dev.	Skewness	Kurtosis	Jarque-Bera (P.value)
ABOU_KIR_FERTILIZERS	0.004896	0.082915	0.796606	8.39027	909.6249 (0.000)
ACROW_MISR	0.001495	0.090527	-0.633579	10.64392	1728.513 (0.000)
AJWA_FOR_FOOD_INDS_	0.000103	0.078324	0.613529	7.055924	516.9887 (0.000)
ALEXANDRIA_CEMENT	0.001358	0.070733	-0.012587	6.443998	341.5198 (0.000)
ALEXANDRIA_FLOUR_MILLS	0.001599	0.051827	0.703613	7.677898	687.0559 (0.000)
ALEXANDRIA_FOR_PHARMACY	-0.00041	0.055436	-0.62763	49.84752	63234.16 (0.000)
ALEXANDRIA_SPNG___WVG_	-0.00158	0.078093	-0.124361	6.673603	390.335 (0.000)
ARAB_CERAMIC	0.001718	0.0846	1.896013	18.79863	7600.317 (0.000)
ARAB_COTTON_GINNING	-0.00291	0.112948	-10.52781	207.8399	1220845 (0.000)
BISCO_MISR	1.295502	0.828471	0.018212	1.556863	60.00101 (0.000)
CAIRO_PHARMACEUTICALS	0.000886	0.051225	2.30033	44.90044	51157.4 (0.000)
CAIRO_POULTRY	0.000747	0.068435	-0.774184	11.58748	2192.264 (0.000)
COML_INTL_BANK__EGYPT_	0.002383	0.050195	0.305896	9.234721	1129.959 (0.000)
CREDIT_AGRICOLE_EGYPT	-0.00302	0.14642	-21.3911	526.225	7934831 (0.000)
DELTA_INSURANCE	-3.56E-05	0.057627	0.533867	7.338663	574.7982 (0.000)
DELTA_SUGAR	0.000249	0.05436	0.980827	13.98662	3586.112 (0.000)
DEVELOPMENT___ENGR_	0.00138	0.077809	0.351924	4.749864	102.4243 (0.000)
EAST_DELTA_FLOUR_MILLS	0.000608	0.081952	1.094399	115.9694	367579.7 (0.000)
EASTERN_TOBACCO	0.001052	0.04436	-0.030856	6.776104	410.649 (0.000)
EGYP_CO_FOR_MOBL_SVS___M	-0.00039	0.061102	0.719431	7.68188	690.7213 (0.000)
EGYPT_ALUMINIUM	0.000879	0.064313	0.709802	6.862696	487.607

					(0.000)
EGYPT_IRON___STEEL	0.002384	0.095671	-0.22622	9.32217	1156.692 (0.000)
EGYPTIAN_CHEMICAL_IND	0.001483	0.065433	-0.090923	11.0179	1851.875 (0.000)
EGYPTIAN_ELECTRIC_CABLE	0.001207	0.087361	-0.056361	9.032616	1048.165 (0.000)
EGYPTIAN_FINL___INDL_	0.000537	0.071229	-0.027136	6.239266	302.1913 (0.000)
EGYPTIAN_GULF_BANK	0.000932	0.07329	-0.607504	14.94699	4151.954 (0.000)
EGYPTIAN_INTL_PHARMS___E	0.002373	0.043577	0.504259	10.34304	1581.736 (0.000)
EGYPTIAN_STRCH___GLUCOSE	-0.0013	0.104623	-8.344905	153.6083	661097.2 (0.000)
EGYPTIANS_ABROAD_INVS_	0.000128	0.075692	0.266418	6.361534	333.5177 (0.000)
EGYPTIANS_HOUSING_DEV_	0.001911	0.139185	7.378677	153.0969	654920.1 (0.000)
EL_AHLI_INV___DEV_	-0.00076	0.056886	-0.02675	8.511335	874.624 (0.000)
EL_EZZ_ALDK_STEEL_ALEXA_	0.001611	0.068906	-0.376391	32.93723	25820.49 (0.000)
EL_NASR_CLOTHES___TEXT__	-0.00144	0.082464	-0.120272	21.95522	10346.52 (0.000)
EL_WATANY_BANK_OF_EGYPT	0.00099	0.074144	1.245197	11.24302	2134.888 (0.000)
EXPORT_DEV_BK_OF_EGYPT	0.000382	0.08365	0.355826	40.36266	40206.83 (0.000)
EXTRACTED_OILS_DERIVATRE	0.001282	0.076242	0.081337	7.716436	641.2259 (0.000)
GENERAL_SILOS___STORAGE	-8.76E-05	0.068281	0.674291	13.34869	3135.82 (0.000)
GIZA_GENERAL_CONTRACTING	0.000424	0.087411	3.34454	51.75864	69737.7 (0.000)
HELIOPOLIS_HOUSING	0.002367	0.074607	0.34303	8.708185	951.6812 (0.000)
HOUSING___DEV_BANK	0.000432	0.073503	-1.156762	23.58137	12350.05 (0.000)
INDUSTRIAL___ENGR_PRDS_	0.004846	0.066485	0.535955	5.421977	201.9725 (0.000)
KAFR_EL_ZAIT_PESTICIDES	0.003569	0.12404	0.309869	14.80647	4024.405 (0.000)
MEDINET_NASR_HOUSING	0.002019	0.077494	1.174531	10.45064	1757.159 (0.000)
MEMPHIS_PHARMACEUTICALS	-0.00122	0.062135	0.264228	10.89524	1802.764 (0.000)
MENA_TOURISM___RLST_INV_	-0.00025	0.078286	0.255939	6.481567	356.5366 (0.000)
MID___WS_DELT_FLR_MLS_	0.000236	0.055761	-0.553953	9.779472	1358.641 (0.000)
MIDDLE_EGYPT_FLOUR_MILLS	-0.00025	0.067476	0.607897	13.85874	3437.451 (0.000)

MISR_CHEMICAL_INDUSTRIES	0.001623	0.079584	0.131607	8.810199	973.9556 (0.000)
MISR_CONDITIONING__MIRAC	-0.00178	0.085428	0.007664	64.42773	108641.5 (0.000)
MISR_DUTY_FREE_SHOPS	0.002606	0.102706	2.610572	82.11564	181000.1 (0.000)
MISR_FOR_HOTELS__HILTON_	-0.00163	0.063147	0.757294	7.558274	664.2767 (0.000)
MISR_OIL	-0.00098	0.076597	-0.093093	10.83901	1770.247 (0.000)
MOHANDES_INSURANCE	9.73E-05	0.062927	0.369368	8.967619	1041.055 (0.000)
NATIONAL_CEMENT	0.000249	0.078621	-0.340752	74.52433	147303.7 (0.000)
NATIONAL_DEV_BANK	0.003549	0.051474	0.477788	11.42384	2069.38 (0.000)
NILE_PHARMACEUTICALS	0.000651	0.055727	0.523173	11.55721	2139.819 (0.000)
NORTH_CAIRO_MILLS	-0.00123	0.067548	0.317421	9.650343	1284.974 (0.000)
NTRL_GAS___MNG_PROJECT__	-0.00033	0.05487	-0.055104	11.89063	2276.139 (0.000)
ORASCOM_HOTELS_AND_DEV_	0.001679	0.078599	0.676097	7.553014	649.4929 (0.000)
ORIENTAL_WEAVERS	0.000706	0.051364	-0.030224	5.759337	219.3232 (0.000)
PAINT___CHMID__PACHIN_	-0.00069	0.071165	1.095903	10.79853	1889.339 (0.000)
QATAR_NATIONAL_BANK_ALAH	-0.00286	0.06383	-1.273197	17.94671	6618.863 (0.000)
SIX_OF_OCT_DEV___INV_	0.002109	0.083637	-0.054671	6.351768	323.7998 (0.000)
SOUTH_CAIRO___GIZA_MLS__	0.000647	0.072477	0.347153	15.97138	4858.271 (0.000)
SUEZ_CANAL_BANK	0.002257	0.048518	-1.787215	37.24521	34132.85 (0.000)
SUEZ_CEMENT	0.000646	0.051642	0.673814	9.929186	1434.681 (0.000)
TORAH_CEMENT	-0.00013	0.050682	0.330587	6.521771	369.6855 (0.000)
UNITED_ARAB_SHIPPING	0.000717	0.155922	0.999673	112.953	348196.6 (0.000)
UNITED_HOUSING___DEV_	0.003499	0.072952	-0.058804	6.388096	330.9034 (0.000)
UPPER_EGYPT_CONTRACTING	0.000208	0.054682	-0.514426	11.13365	1935.225 (0.000)
UPPER_EGYPT_FLOUR_MILLS	0.00096	0.056001	0.023119	11.36594	2015.162 (0.000)

3. The Empirical Analysis

In this stage I will follow the methodology followed by Chan et.al(2003). Securities are ranked in ascending order on the basis of their cumulative continuous returns over the previous week. Stocks are then assigned to two main portfolios winner portfolio (Wp) and loser portfolios(Lp) .

Winner portfolios includes stocks with the highest past performance while loser portfolios include stocks with the lowest past performance. Socks to be included in the winner portfolios it should gain higher returns than mean returns of the other stocks, while loser portfolio includes stocks that have gained less cumulative returns than mean returns.

These portfolios are equally weighted at formation and held for the next J months(1,3,12,48).At the end of each holding period loser position is liquidated and replaced by the highest past performance.

The following section display the descriptive statistics of loser and winner portfolios :

a. Autocorrelation tests "Q test"

The main objective of autocorrelation test is to examine the existence of serial correlation between weekly stock returns. The null hypothesis of Box-pierce test Q is that all autocorrelations coefficient are jointly zero. Box-Pierce test Q is calculated and presented in Table (2).

Q test

Table (2): Autocorrelation Coefficients of Winner, Loser and Winner-Loser Groups

Lags	Winner group		Loser group		Winner-Loser	
	AC	Q test (P.value)	AC	Q test (P.value)	AC	Q test (P.value)
1	0.339	79.636	0.442	135.38	0.339	79.636
2	0.338	158.82	0.391	241.25	0.338	158.82
3	0.200	186.50	0.373	337.95	0.200	186.50
4	0.226	221.96	0.353	424.78	0.226	221.96
5	0.167	241.42	0.371	520.59	0.167	241.42
6	0.185	265.20	0.328	595.64	0.185	265.20
7	0.126	276.31	0.292	655.25	0.126	276.31
8	0.126	287.37	0.314	724.14	0.126	287.37
9	0.197	314.43	0.348	808.85	0.197	314.43
10	0.176	336.16	0.311	876.67	0.176	336.16
11	0.175	357.65	0.277	930.45	0.175	357.65
12	0.136	370.71	0.236	969.48	0.136	370.71
13	0.114	379.78	0.279	1024.4	0.114	379.78
14	0.160	397.84	0.343	1107.4	0.160	397.84
15	0.101	405.00	0.247	1150.5	0.101	405.00
16	0.138	418.53	0.277	1204.8	0.138	418.53
17	0.123	429.20	0.253	1250.2	0.123	429.20
18	0.127	440.56	0.250	1294.4	0.127	440.56
19	0.109	449.04	0.238	1334.7	0.109	449.04
20	0.155	466.20	0.268	1385.8	0.155	466.20
21	0.160	484.37	0.255	1432.3	0.160	484.37
22	0.117	494.21	0.270	1484.1	0.117	494.21
23	0.166	513.92	0.289	1544.0	0.166	513.92
24	0.106	521.93	0.274	1597.9	0.106	521.93
25	0.088	527.53	0.244	1640.4	0.088	527.53
26	0.112	536.58	0.276	1695.3	0.112	536.58
27	0.151	553.02	0.295	1757.9	0.151	553.02
28	0.143	567.79	0.254	1804.5	0.143	567.79
29	0.189	593.66	0.258	1852.7	0.189	593.66
30	0.132	606.34	0.280	1909.3	0.132	606.34
31	0.138	620.02	0.304	1976.3	0.138	620.02
32	0.131	632.51	0.254	2023.1	0.131	632.51
33	0.104	640.37	0.237	2063.7	0.104	640.37
34	0.089	646.12	0.260	2112.8	0.089	646.12
35	0.167	666.38	0.251	2158.6	0.167	666.38
36	0.093	672.69	0.248	2203.5	0.093	672.69
37	0.179	696.11	0.222	2239.6	0.179	696.11
38	0.101	703.61	0.238	2280.9	0.101	703.61
39	0.134	716.86	0.228	2319.0	0.134	716.86

40	0.116	726.71	0.218	2353.9	0.116	726.71
41	0.173	748.67	0.279	2411.1	0.173	748.67
42	0.086	754.14	0.227	2448.9	0.086	754.14
43	0.144	769.51	0.280	2506.9	0.144	769.51
44	0.136	783.19	0.243	2550.6	0.136	783.19
45	0.162	802.69	0.266	2603.0	0.162	802.69
46	0.133	815.77	0.221	2639.2	0.133	815.77
47	0.129	828.05	0.246	2684.2	0.129	828.05
48	0.134	841.47	0.269	2737.8	0.134	841.47
49	0.093	847.89	0.213	2771.7	0.093	847.89
50	0.118	858.28	0.262	2822.7	0.118	858.28

It can be seen clearly from the results of Q test that the null hypothesis states that all autocorrelation coefficients are zero cannot be accepted, all the stocks returns are serially correlated, the sign of correlation is positive at all lags, which means that past winner continues to be winner stock and past loser continues to be loser stock as well. Put differently, historical data has the ability to predict the future returns, and also the existence positive serial correlation between stock returns confirms the existence of under-reaction phenomena in our data.

The existence of autocorrelation between the weekly stock returns of winner and loser stocks indicates that stock returns do not have random movements, and this means that the historical information about stock returns carry information that can be used to build trading strategy to beat the market. Autocorrelation coefficients have positive signs that means initially that there is under reaction in Egyptian stock exchange at different time horizons.

B. **Portfolio Formation Analysis**

Our research depends on the methodology followed by Chan, et.al(2003). securities are ranked in ascending order on the basis of their cumulative continuous returns over the previous week. Two main portfolios are formed winner portfolio includes stocks exceeds mean returns of other stocks and loser portfolio includes stocks that gained returns less than the mean returns of their peer stocks . These portfolios are held for (one, three,12months and three years).

Under the null hypothesis of EMH, the average returns on winner-loser portfolio should be zero. If the excess returns are significantly different from zero then EMH should be rejected .The Abnormal returns is an evidence that there is a momentum effect in Egyptian stock market.

Portfolios excess returns (winner portfolios returns-loser portfolios returns) are regressed on a constant at the first place to determine the significance of the generated excess returns :

$$RDt = \alpha 1 + \eta t$$

Here, the test is whether $\alpha 1$ is significant and positive.

To demonstrate the existence of momentum (reversal) effect, current study reports the raw momentum(reversal) profits and the associated t-ratios in table (3), t-ratios are based on Newey-West HAC.

The following table displays the summary of rate of returns gained over different time horizons:

Table (3)

Over short-term period				
Holding periods	Winner portfolios	Loser Portfolios	Winner-Loser portfolios (t-test)	RDt = α1 + ηt t-test
One week	2.509210718	-0.4589781	2.050232618 (2.0095)	α=2.968189 (40.92301)***
One month	2.508088229	-0.45955	2.048538229 (4.0385)	α= 2.473200 (16.54119)***
3 months	2.509830448	-0.50842	2.0014148 2.66228	α= 2.939916 20.95111***
One year	2.502512	-0.19606	2.306452 1.11913E-08	α=2.70922 9.304778***

*** significance level at 0.01

Table (3) presents cumulative raw returns based on trading strategy of subtracting low past returns from high past returns portfolios. These portfolios are formed based on one week Past period of ranking and held for (t) months for different holding periods. The difference between high and low returns of portfolios shows significantly positive cumulative raw returns in short-term to medium term over the subsequent 1,3,12 months. Investment strategies that includes buying high past returns and sell low returns stocks (losers) over last week, yields a significant positive cumulative raw returns of 2.05, 2.048, 2.001 and 2.306 respectively.

On the other hand, regressing the excess returns of winner over losers on a constant confirms the existence of positive significant excess returns. The results consistent with the evidence of short-term to medium-term under-reaction with an implication of conservatism bias. since ranking stocks based on its past change rate of stock returns in to winner and loser portfolios confirms that winner portfolio continue to be winner stocks in the short-term , while in the long-term holding winner stocks and selling loser stocks yields negative returns that imply the existence of mean reversion.

Table (4) shows the cumulative raw returns over a long- term horizon (3 years). It seems clearly that there is an evidence of a mean reversion since subtracting past winner stocks of past loser stocks yields negative returns -0.55778,but this excess return is not statistically significant.

Table (4)

Over long -horizon				
Holding periods	Winner portfolios	Loser Portfolios	Winner-Loser portfolios	$RDt = \alpha 1 + \eta t$
3 years	0.240409	0.354922	-0.5577837	α = - 0.557784 t-test(-1.370667)

B- Consistency Sequence Analysis

This section examines whether investors misclassify a firm past high(low) stock return performance. Consistently high(low) past growth sequence cause a delayed incorporation of the information revealed in stock market in the short horizon and reinforce investors to use representativeness bias in the long horizon.

The following table summarizes trading strategies of consistency sequences on monthly basis over the period 2001-2008 . If the consistent sequences exhibit significant return momentum then they suggest the existence of under-reaction with an implication of conservatism bias .On the other hand if the consistent sequences show significant reversal in returns then they indicate the evidence of overreaction due to representativeness.

Table (5): Return Consistency Analysis

The formed portfolios	Holding periods	
	12 months	3 years
CW	3.495726 (38.6416)***	3.528584 (103.0531)***
CL	2.42775 (21.89061)***	2.397854 (38.21121)***
CW-CL	1.06795 (7.357626)***	1.130730 (14.81762)***

significance level at 0.001

As shown in table (5) the average monthly returns for CW portfolios increased slightly for 3.495 over 12 months to 3.528 over 3 years. However, the average monthly returns for CL portfolios decrease from 2.42 to 2.39. the difference in returns between CW and CL portfolios that is CW-CL is economically and statistically significant ranging from 1.06 over a year (t=7.35) to 1.130 (t=14.817) over a 3 years. This confirms that extrapolative expectation hypothesis is the best description of expectation mechanism by investors.

C - Evaluating the Role of Risk Factors to Explain Return Predictability

To evaluate the effect of behavioural biases on return predictability, previous researches use different versions of asset pricing models to calculate stock returns and re-evaluate the existence of abnormal returns .

If the predictability of trading strategies is a compensation for risk then after controlling for well known risk factors the differences in returns for the trading strategies will appear indistinguishable from zero.

The risk factors that will be considered in the current research are inflation rate, discount rate and interest rate. These variables will be included in my study equation as control variables.

A - Regression Analysis

Table (6): Regression result

Holding periods	Winner group	Loser group	Winner minus loser(WML)
One week	-0.476414 (0.958364)	-2.995978 (6.8126622)***	2.519564 (3.688135)***
One month	5.8633684 (11.93309)***	0.992483 (3.569414)***	5.803996 (11.33066)***
Three months	8.357283 (4.816753)***	0.842916 (1.056967)***	5.803996 (11.33066)***
One year	-19.70337 -0.805460	-40.34897 (-1.301382)***	2.590040 (0.087120)

Table (6) reports the average returns of risk factors alphas(intercepts). As shown in table (8) the average alpha for winner portfolio increase monotonically from -0.476 for stocks with one week holding period to 5.86 for stocks with one month holding period ,and it increases again to 8.35 over 3 months holding period but the excess returns decreased sharply over one year holding period to -19.70337.

In comparison , the average excess returns for loser portfolios tell similar story. For example, the returns for stocks increase from -2.99 for one week holding period to 9.9 for stocks with one month holding period. The returns differential between winner and loser portfolios that is WML increase uniformly from 2.5 to 5.80 for week and month holding periods respectively. But decreased again over one year holding period to 2.59.

The evidence reported in table (8) shows that momentum(reversal) returns remain economically and statistically significant after controlling for the suggested risk factors and this suggest that momentum(reversal) returns has predictive power for the expected returns.

4- Conclusion

Efficient market hypothesis is the most rigorous theory in finance. However many different anomalies have been discovered in different international financial markets. My research investigates two main stock returns anomalies; momentum and reversal patterns. Additionally, examining the robustness of the results has been confirmed. Weekly market returns of all stocks listed in Egyptian stock exchange market for the period 2000-2013 is considered for the empirical analysis of the current research. Weekly market returns are computed as the difference between the natural logarithm of stock's closing price on Wednesday and stock closing price on the following Wednesday.

Securities are ranked in ascending order on the basis of their cumulative continuous returns over the previous week. Stocks are then assigned to two main portfolios winner portfolio (Wp) and loser portfolios(Lp) . Winner portfolios includes stocks with the highest past performance while loser portfolios include stocks with the lowest past performance. Socks to be included in the winner portfolios it should gain higher returns than mean returns of the other stocks , while loser portfolio includes stocks that have gained less cumulative returns than mean returns.

It finds that all the stock returns are serially correlated, the sign of correlation is positive at all lags, which means that past winner continues to be winner stock and past loser continues to be loser stock as well. Put differently, historical data has the ability to predict the future returns, and also the existence positive serial correlation between stock returns confirms the existence of under-reaction phenomena in our data.

On the other hand, Ranking stocks based on its past change rate of stock returns in to winner and loser portfolios confirms that winner portfolio continue to be winner stocks in the short-term , while in the long-term holding winner stocks and selling loser stocks yields negative returns that imply the existence of mean reversion.

Investigating return consistency confirms the existence of conservatism bias. Past winner portfolios continued to be winner over the short-run.

This also confirms the correctness of extrapolative expectation as an alternative expectation mechanism for expectation formulation. This results highlight the importance of formulating an alternative models for expectations formulation for investors. In particular, Regression analysis confirms that risk factors have no role to explain the explored return predictability.

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