



A TEST OF FINANCIAL ANOMALIES IN NIGERIAN EQUITY MARKET: CONTRARIAN VERSUS MOMENTUM

¹Prof Jegede, Charles Ayodele, ²Ajibola, Arewa (PhD) and ³Oluyemi Akinfenwa

^{1,2&3}Department of Finance, Faculty of Management Sciences, Lagos State University, Lagos, Nigeria

Abstract: In this study, we made an attempt to investigate financial market anomalies based on momentum-contrarian strategies in Nigerian equity market for the sample size January 2012 to December 2018. Our results indicated that the individual monthly average returns exhibit negative value more for short term holding period. However, contrarian portfolio returns do not have negative return for the three month holding period and for the remaining holding periods it displays few negative returns. Momentum portfolio exhibits more negative returns in each of the holding period. In the three-month holding period we have evidence to support that investors can make superior profit using contrarian strategy, while, the momentum strategy investors cannot make superior profit in the Nigeria stock market. We also find that there is significant difference between momentum strategy and contrarian strategy using the three-month holding period scheme. For the rest holding periods, six-month, nine-month and twelve-month, no investor can use momentum or contrarian strategy to make significant profit. Thus, there is no difference between momentum and contrarian strategies in the Nigerian stock market for these periods. We concluded that holding contrarian portfolio for three-month scheme provides the chances to earn more positive return than holding either the bech-mark portfolio or momentum portfolio.

Keywords: Short position, long position, inefficiency, anomalies,

1. Introduction

The existence of abnormal returns provided by momentum and contrarian strategies has been documented in the literature, although there are some controversies about the results. Studies are not unanimous about such evidence. While momentum strategy is a method that attempts to take advantage of the most recent market trends, contrarian investing takes the opposite approach. Market contrarians invest on the premise that the most recent market conditions are not realistic, and therefore they make investment decisions that deviate from the general direction of the markets. Market anomalies are basically referred to as inefficiency or failure of any of the pricing models to hold. Precisely, irregularities such as presences of volatility, normality, linear dependency, serial correlations, autocorrelation and absence of randomness in stock prices or their first differences are common evidences of anomalies. Fama (1974) asserted that prices

and returns are theoretically unpredictable, and if investors can use any strategies to make predictions on profit and prices, then market anomalies exist.

The first academic study on contrarian policy came from Jegadeesh and Titman (1993). They conclude that if performance persists in medium-term periods; stocks should be bought when others are most bullish about them, and sold when others are most bearish. Silva (2010) stresses that anomaly financial market could be seen as a stock market in which the movements of returns deviate from the assumptions of efficient market hypothesis or cannot be explained by any of the widely known acceptable market principles. Madiha, Shanza, Marian and Samia (2011) emphasized that the basic types of anomalies in the world financial markets were fundamental, technical and seasonal anomalies. The most critical of these three is the fundamental that span into future time horizon. Kadir (2010) arguably pointed that the most commonly seen



anomalies were the volume, volatility, cash dividends, equity premium puzzle and predictability. The studies on market anomalies have been mixed to date; for example, Fama and Schwert (1977) discovered that excess returns on the NYSE were predictable; while in the study of Fama and French (1988), it was concluded that dividend yield could be used in predicting stock returns; while, Shiller (1989) identifies excess volatility as a potential anomaly. Obviously, there are different conclusions on the various types of anomalies as revealed by these studies. But the egregious shortcoming of some of these studies is that they are conceptualized studies, a mere review of the literature which poses doubts to their conclusions, concentration on developed world and not detailing it on investment strategies. Therefore, the needs to carry out a thorough empirical study and to identify the types of anomalies in the Nigerian stock markets based on methodological frameworks are the driving forces behind this study. Although, studies on market anomalies have not been essentially carried out in Nigeria; this further justifies the needs for this study. Overall, we are motivated to compare the two competing strategies with themselves and the benchmark index to detect the types and duration of anomalies in the Nigerian equity market, which are somewhat different from those used in the studies that associate with the African emerging markets.

2. Literature Review

It is widely acknowledged that momentum strategies can generate significant returns. Jegadeesh and Titman (1993) is the first academic study that provides evidence on abnormal returns in the US market by using momentum strategies. Rouwenhorst (1998) provided evidence of momentum profits in the European market and was the first one to develop international evidence of momentum profits at the individual stock level. The time period under analysis was from 1980 to 1995 and the sample was composed of 2190 stocks from twelve European countries: Austria, Belgium, Denmark, France, Germany, Italy, Norway, Spain, Sweden, Switzerland, the Netherlands and United Kingdom. This international momentum strategy yields one percent profit per month after accounting for the risk. Moreover, momentum profits are presented in each of

the twelve countries used in the sample and last around one year.

Liew and Vassalou (2000); Hurn and Pavlov (2003); Demir, Muthuswamy and Walter (2004) claimed that momentum strategies are profitable and statistically significant. Durand, Limkriangkrai and Smith (2006) find momentum profits during the 1990 to 2001 period but do not find this evidence for the period from 1980 to 1989. Kassimatis (2008) provided evidence in support of the momentum effect. Zhou (2002) measured the monthly return of all the listed firm in Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE), and his ranking period and holding period was same as that of Wang and Zhao (2001), being 1, 3, 6, 9 and 12 months. And the percentage of stock portfolio took up 5% and 10% of the entire effective stock sample respectively. Zhou found that the application of momentum trading strategy could generate positive abnormal profits; in addition, when the percentage is five, the momentum effect would be more obvious

Bildik and Gülay (2007) analyzed the Istanbul Stock Exchange from the period 1991 to 2000 and show that there are some profitable momentum strategies; nevertheless, the contrarian strategies give higher returns. Barak (2008) stated that past winner investor portfolios became losers or earned less in the following period, while loser portfolios became winners in the following period in the ISE between 1992 and 2004. Tunçel (2013) supported the presence of overreaction hypothesis in Borsa Istanbul in an analysis conducted for the 1998-2012 period. Tetik and Özen (2016) noted in the study they conducted with daily data between January 2010 and June 2016 that BIST 100 index did not comply with the assumptions of the effective market hypothesis and the overreaction hypothesis is valid.

3.1 Data

The study utilizes a sample of 27 quoted companies in Nigerian Stock Exchange (NSE) for a period of 84 months ranging from January 2012 to December 2018. The choice of the monthly sampling interval was in relation to the conclusion of Ball, Kothari and Shanken (1995), they concluded that Fama and French's results hinge on using



monthly returns rather than yearly returns. They argue that the use of annual returns to estimate beta helps to circumvent measurement problems caused by non-synchronous trading, seasonality in returns and trading frictions.

3.2 Method

The study follows the approach of Ludvigsson (2018) to introduce the buy and hold return specification for each stock and cumulative buy and hold return specification. This method has been considered appropriate because it overcome the bid and ask bias in the market adjusted return. Thus.

Buy and Hold Return Specification

$$R_{(B\&H)j} = \left[\prod_{t=-12}^0 (1+r_{jt}) - 1 \right] - \left[\prod_{t=-12}^0 (1+r_{mt}) - 1 \right]$$

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$$CAR_{(B\&H)P,t} = \frac{1}{n} \sum_{j=1}^n \left[\prod_{T=1}^t (1+r_{jt}) - 1 \right] - \left[\prod_{T=1}^t (1+r_{mt}) - 1 \right] \quad p = W, L ; T = 3, 6, 9$$

Where- $CAR_{(B\&H)P,t}$ is the cumulative buy and hold return for either winners' or losers' portfolio at time t; and n is the number of stocks in the portfolio.

4. Results

The study focuses on the test of market anomalies or inefficiency based on momentum and contrarian prepositions. These are the two most commonly used strategies to predict the stock market. Unconsciously, Nigerian investors/professionals initiate investment decisions based on at least one of these strategies. Since, there is no empirical stance in support these decisions, they often run into gambling with what is unknown and slip chances of making profit. Therefore, the question to be

Where- $R_{(B\&H)j}$ is buy and hold return for security j at time t and it is synonymous to market adjusted return. r_{jt} is return on security j at time t and r_{mt} is the return on market at time t, and Π is the multiplication operator.

$$r_{jt} = (cp_t - cp_{t-1}) / cp_{t-1} \quad 2$$

$$r_{mt} = (cmi_t - cmi_{t-1}) / cmi_{t-1} \quad 3$$

Where- cp_t and cmi_t are monthly closing price at time t and monthly closing market index at time t respectively.

Cumulative Buy and Hold Return Specification

addressed in the Nigerian stock market is what investment strategies are appropriate to outperform the market? In view to answer this question, we select stocks of 27 companies that are frequently traded in the floor of the Nigerian Stock Exchange (NSE). Two equally weighted portfolios were formulated (winners and losers) from these stocks. The winners' portfolio is referred to momentum portfolio, while the losers' portfolio is called contrarian portfolio. We have six stocks on each of these portfolios, which are formulated in January 2012 and the holding periods are 3 months, 6 months, 9 months and 12 months respectively throughout the study period 2012 to 2018. The average returns of these stocks over the holding periods are shown in tables 4.1 to 4.4.

Table1.Three-Month Holding Period Individual Stock Return



HOLDING PERIOD	ACCESS	CUTIX	FBNH	FCMB	ETI	DIAMONDBANK	DANGFLOUR	DANGSUGAR	EVANSMED	FO	CONOIL	CUSTODYINS
FEBRUARY 2012-APRIL 2012	-0.01605	-0.01419	-0.02184	-0.04835	0.011614	0.006349398	0.13010242	0.004415076	-0.049473335	0.027847	0.002497	0.014361195
MAY 2012-JULY 2012	0.046869	0.014187	0.053855	-0.07704	-0.03353	0.007462998	-0.004315055	0.030971656	0.247312448	-0.01585	-0.08499	-0.108165349
AUGUST 2012-OCTOBER 2012	0.050517	0.018022	0.059993	0.038767	0.021917	0.157742403	0.0776227	0.107094606	0.044510464	-0.05641	-0.01805	0
NOVEMBER 2012-JANUARY 2013	0.071392	-4E-18	0.037864	0.124774	0.055685	0.150870629	0.067866318	0.072637501	-0.067508088	0.212639	0.054503	0.129552663
FEBRUARY 2013-APRIL 2013	0.073599	0.091479	-0.0011	0.006734	0.053865	0.002911227	-0.010696105	0.094726481	0.383868273	-0.05938	0.028852	-0.019385307
MAY 2013-JULY 2013	0.069692	-0.05812	-0.04111	-0.09148	-0.01426	-0.046587314	-0.006956137	0.045823664	0.072223679	0.340388	0.072152	-0.04479573
AUGUST 2013-OCTOBER 2013	0.07034	0.019273	0.002284	-0.03904	0.008098	0.05138356	0.021142676	0.003044161	-0.05956393	0.358659	0.274656	0.071630137
NOVEMBER 2013-JANUARY 2014	0.070276	0.038845	-0.0654	0.019162	-0.00673	-0.018604926	-0.003490433	0.008969151	-0.061188188	0.461349	-0.08914	0.065043505
FEBRUARY 2014-APRIL 2014	0.070279	-0.03144	-0.37488	-0.17781	0.04451	0.004004052	-0.057283419	-0.041072711	0.580678678	0.451659	-0.02378	0.130065879
NOVEMBER 2014-JANUARY 2015	0.070279	-3E-17	-0.08545	-0.13516	-0.02164	-0.154524246	-0.189359487	-0.037948439	0.025777734	0.452102	-0.13638	-0.008439269
FEBRUARY 2015-APRIL 2015	0.070279	0.047552	0.065786	0.113238	0.090722	0.043975848	0.051518431	0.01518985	-0.059227059	0.452104	0.075399	0.008439269
MAY 2015-JULY 2015	0.070279	-0.06818	-0.14125	-0.08563	-0.05146	-0.112007633	-0.126372093	0.03542725	-0.068352808	0.452104	-0.06954	0
AUGUST 2015-OCTOBER 2015	0.070279	0.035829	-0.03974	-0.06612	-0.04624	0.030050366	-0.057948977	-0.059854311	-0.069053713	0.452104	-0.06468	0.016263388
NOVEMBER 2015-JANUARY 2016	0.070279	0.002116	-0.1124	-0.31579	0.014022	-0.308316265	0.241434116	-0.048548998	-0.068819905	0.452104	-0.15091	-6.93889E-18
FEBRUARY 2016-APRIL 2016	0.070279	-0.01955	0.038021	0.27031	0.024916	-0.177443943	-0.013919907	0.105629368	-0.068851664	0.452104	0.092434	-0.050458918
MAY 2016-JULY 2016	0.070279	0.017433	-0.11911	-0.17223	-0.14911	-0.268541721	-0.065786478	-0.033165735	-0.068849061	0.452104	-0.03722	0.021455125
AUGUST 2016-OCTOBER 2016	0.070279	0.061834	0.00542	-0.00328	-0.05244	-0.040453619	-0.027041848	-0.029470319	-0.068849119	0.452104	0.168586	-0.00788473
NOVEMBER 2016-JANUARY 2017	0.070279	-0.07704	0.00639	-0.02006	0.003364	-0.037919628	0.027041848	0.00389868	-0.068849141	0.452104	0.008586	-0.032568889
FEBRUARY 2017-APRIL 2017	0.070279	0.113741	0.171118	-0.01938	0.02699	0.037919628	0.025011729	0.051699816	-0.068849136	0.452104	-0.00966	-0.003933182
MAY 2017- JULY 2017	0.070279	0.056534	0.025513	-0.01929	0.170275	0.073663566	0.144396552	0.217500993	-0.068849137	0.452104	-0.06831	0.022007034
AUGUST 2017-OCTOBER 2017	0.070279	-0.05812	0.075082	-0.01932	-0.02499	0.027563905	0.158615302	0.096818666	-0.068849137	0.452104	0.003591	0.026680903
NOVEMBER 2017- JANUARY 2018	0.070279	0.037493	0.160324	-0.01931	0.065891	0.207767869	0.156060527	0.059076711	-0.068849137	0.452104	0.076754	0
FEBRUARY 2018- APRIL 2018	0.070279	0.081399	-0.06164	-0.01931	-0.00495	-0.194796064	-0.202890648	-0.079054157	-0.068849137	0.452104	-0.03433	0
MAY 2018-JULY 2018	0.070279	0.092544	-0.01783	-0.01931	-0.00083	-0.012971805	-0.039493868	-0.026517544	-0.068849137	0.452104	-0.08966	0
AUGUST 2018- OCTOBER 2018	0.070279	-0.25914	-0.06893	-0.01931	-0.07542	-0.191200677	-0.085573282	-0.061624193	-0.068849137	0.452104	-0.02565	0

Authors

The first six stocks are winners' stocks, while the last six are losers' stocks. There are about twenty-five holding periods or observations. The returns of two stocks, Access bank from the momentum portfolio and FO from contrarian portfolio remained constant for all the holding

periods in years 2015 to 2018. For the last four holding periods, Custodyins' returns are zero. In few of the holding periods, many of the stocks either from the momentum or contrarian portfolio appear to have negative return.

Table2 Six-Month Holding Period Individual Stock Return

HOLDING PERIOD	ACCESS	FCMB	FBNH	CUTIX	DIAMOND ETI	CONOIL	CUSTODYINS	DANGFLOUR	DANGSUGAR	EVANSME	FO	
FEBRUARY 2012-JULY 2012	0.01541	-0.06269	0.016008	0	0.006906	-0.01096	-0.04125	-0.046902077	0.062893682	0.017693366	0.09892	0.005996
AUGUST 2012- JANUARY 2013	0.060954	0.08177	0.048929	0.009011	0.154307	0.038801	0.018226	0.064776332	0.072744509	0.089866053	-0.0115	0.078115
FEBRUARY 2013- JULY 2013	-0.00457	-0.04237	-0.02111	0.016681	-0.02184	0.019801	0.050502	-0.032090518	-0.008826121	0.070275072	0.228046	0.140503
AUGUST 2013 - Jnuary 2014	-0.05639	-0.00994	-0.03156	0.029059	0.016389	0.000682	0.092757	0.068336821	0.008826121	0.006006656	-0.06038	0.140301
FEBRUARY 2014- JULY 2014	0.041886	0.028593	0.021245	-0.0139	-0.01363	0.023244	0.037351	0.096272382	-0.050896942	-0.042815423	-0.04466	0.155282
AUGUST 2014-JANUARY 2015	-0.07271	-0.10974	-0.11158	-0.03405	-0.07455	-0.00501	-0.11463	-0.000852517	-0.114102046	-0.056690047	0.007938	-0.01176
FEBRUARY 2015 - JULY 2015	-0.03654	0.013806	-0.03773	-0.01031	-0.03402	0.019631	0.00293	0.004219635	-0.037426831	0.02530855	-0.20196	0.02771
AUGUST 2015-JANUARY 2016	-0.03972	-0.19096	-0.07607	0.018973	-0.13913	-0.01611	-0.10779	0.008131694	0.09174257	-0.054201655	-0.04114	0.050897
FEBRUARY 2016 - JULY 2016	0.051912	0.04904	-0.04054	-0.00106	-0.04555	-0.0621	0.027607	-0.014501896	-0.039853193	0.036231816	0	-0.11167
AUGUST 2016 - JANUARY 2017	0.032483	0.031202	0.005905	-0.0076	-0.03919	-0.02454	0.088586	-0.02022681	0	-0.01278582	0	-0.21668
FEBRUARY 2017 - JULY 2017	0.060657	-0.02323	0.098316	0.085138	0.055792	0.098632	-0.03899	0.009036926	0.08470414	0.134600404	0	0.004516
AUGUST 2017 - JANUARY 2018	0.04932	0.143427	0.117703	-0.01031	0.117666	0.020452	0.040172	0.013340451	0.157337914	0.077947689	0	-0.01456
FEBRUARY 2018- JULY 2018	-0.05762	-0.05674	-0.03974	0.086971	-0.10388	-0.00289	-0.062	0	-0.121192258	-0.052785851	0	-0.13478

Authors

In the holding period August 2014 to January 2015, all the stocks report negative returns except Evansmed. However,

in the last five holding periods, the company has zero average returns.

Table 3 Nine-Month Holding Period Individual Stock Return



MONTH	ACCESS	FBNH	FCMB	ETI	CUTIX	DIAMONDBANK	CONOIL	CUSTODYINS	DANGFLOUR	DANGSUGAR	EVANSMED	FO
FEBRUARY 2012-OCTOBER 2012	0.027112	0.030669897	-0.02887	0	0.006007	0.057184933	-0.03351	-0.031268051	0.067803355	0.047493779	0.080783192	-0.01481
NOVEMBER 2012-JULY 2013	0.020753	-0.001448846	0.013343	0.031762	0.01112	0.035731514	0.051836	0.021790542	0.016738025	0.071062548	0.129527955	0.164548
AUGUST 2013-APRIL 2014	-0.00745	-0.145997078	-0.0659	0.015291	0.008894	0.012260895	0.053911	0.088913173	-0.013210392	-0.009686466	0.153308853	-0.48371
MAY 2014-JANUARY 2015	-0.05069	0.064733923	0.005169	-0.00268	-0.02149	-0.060125664	-0.04359	0.020257951	-0.090904852	-0.052646076	-0.218042776	0.672924
FEBRUARY 2015 - OCTOBER 2015	-0.03313	-0.038400524	-0.01283	-0.00233	0.005068	-0.012660473	-0.01961	0.008234219	-0.044267546	-0.003079071	-0.162068336	0.02838
NOVEMBER 2015-JULY 2016	0.016894	-0.064497113	-0.07257	-0.03672	9.64E-18	-0.133138014	-0.0319	-0.009667931	0.053909244	0.007971545	0	-0.05042
AUGUST 2016-APRIL 2017	0.039631	0.060976056	0.01619	-0.00736	0.032846	-0.01348454	0.055836	-0.0147956	0.008337243	0.008709392	0	-0.14846
MAY 2017-JANUARY 2018	0.055343	0.08697326	0.084745	0.070393	0.01197	0.102998447	0.004012	0.016229312	0.153024127	0.124465457	0	-0.00269
FEBRUARY 2018-OCTOBER 2018	-0.06112	-0.049467271	-0.05373	-0.02707	-0.0284	-0.132989515	-0.04988	0	-0.109319266	-0.055731965	0	-0.10156

Authors

The bliss holding period for the momentum portfolio is May 2017 to January 2018, where all the stocks reportedly have positive return, while the bliss holding period for

contrarian portfolio is November 2012 to July 2013. Again, in the last four holding period Evansmed has zero average return.

Table 4 Twelve-Month Holding Period Individual Stock Return

MONTH	ACCESS	FBNH	FCMB	CUTIX	ETI	DIAMONDBANK	CONOIL	CUSTODYINS	DANGFLOUR	DANGSUGAR	EVANSMED
FEBRUARY 2012-JANUARY 2013	0.038182	0.032469	0.009539	0.004506	0.013921	0.080606357	-0.01151	0.008937128	0.067819096	0.05377971	0.043710372
FEBRUARY 2013-JANUARY 2014	-0.03048	-0.02633	-0.02616	0.02287	0.010242	-0.002724363	0.07163	0.018123151	-2.31296E-18	0.038140864	0.083834958
FEBRUARY 2014 -JANUARY 2015	-0.01541	-0.04517	-0.04058	-0.02397	0.009119	-0.044093235	-0.03864	0.047709933	-0.082499494	-0.04975273	-0.018362413
FEBRUARY 2015-JANUARY 2016	-0.03813	-0.0569	-0.08857	0.00433	0.00176	-0.086574421	-0.05243	0.006175664	0.027157869	-0.01444655	-0.121551252
FEBRUARY 2016-JANUARY 2017	0.042198	-0.01732	0.040121	-0.00433	-0.04332	-0.042367756	0.058096	-0.017364353	-0.019926596	0.011722998	0
FEBRUARY 2017-JANUARY 2018	0.054988	0.108009	0.0601	0.037413	0.059542	0.086728742	0.000593	0.011188688	0.121021027	0.106274046	0

Authors

In the last holding period February 2017 to January 2018, all the stocks reportedly have positive average return except Evansmed, which still has zero return. Now, we can see that as the number of holding period increases, the zero and negative returns decline on both portfolios. This is the advantage of long-holding period over short-holding

period. This is buttressed by the convection that investment decision is a long range scheme. We can now proceed to compare the momentum portfolio return with contrarian portfolio return/market portfolio return or vice visa over the 3, 6, 9 and 12 month holding periods.

Table 5

Contrarian, Momentum and Market Portfolio Returns for Three-Month Holding Period



HOLDING PERIOD	Momentum	Contrarian	Market
FEBRUARY 2012-APRIL 2012	-0.01374299	0.021624819	0.030722
MAY 2012-JULY 2012	0.001967504	0.010826746	0.02452
AUGUST 2012-OCTOBER 2012	0.057826457	0.025794693	0.036448
NOVEMBER 2012-JANUARY 2013	0.073430908	0.078281672	0.073941
FEBRUARY 2013-APRIL 2013	0.037914201	0.069663932	0.044463
MAY 2013-JULY 2013	-0.0303104	0.079805911	-0.01392
AUGUST 2013-OCTOBER 2013	0.018722698	0.111594678	0.02371
NOVEMBER 2013-JANUARY 2014	0.006257442	0.063590221	0.00542
FEBRUARY 2014-APRIL 2014	-0.0775546	0.173377672	0.015762
NOVEMBER 2014-JANUARY 2015	-0.0544151	0.017626093	-0.04585
FEBRUARY 2015-APRIL 2015	0.071925601	0.090570546	0.043599
MAY 2015-JULY 2015	-0.06470736	0.037211254	-0.04827
AUGUST 2015-OCTOBER 2015	-0.00265644	0.036137857	-0.02687
NOVEMBER 2015-JANUARY 2016	-0.10834905	0.070877309	-0.03615
FEBRUARY 2016-APRIL 2016	0.093570082	0.086156054	0.039611
MAY 2016-JULY 2016	-0.10354642	0.044756223	-0.00087
AUGUST 2016-OCTOBER 2016	0.006891851	0.081240546	-0.02976
NOVEMBER 2016-JANUARY 2017	-0.0091636	0.06503533	0.001153
FEBRUARY 2017-APRIL 2017	0.066777523	0.074395062	0.050793
MAY 2017- JULY 2017	0.062828938	0.116474955	0.061777
AUGUST 2017-OCTOBER 2017	0.011750651	0.111493349	0.022155
NOVEMBER 2017- JANUARY 2018	0.08707363	0.112524239	0.044243
FEBRUARY 2018- APRIL 2018	-0.02150373	0.011162773	-0.04284
MAY 2018-JULY 2018	0.018646055	0.037929966	-0.02977
AUGUST 2018- OCTOBER 2018	-0.09062107	0.035067228	-0.04036
Mean Value	0.001560511	0.066528765	0.008145

Authors

As shown in the table above the highest respective holding-period average return is 17 percent, which is earned in the holding period of February 2014 to April 2014. This return is earned by the contrarian investors. While the contrarian

portfolio yields positive return throughout the 25 times, market portfolio and momentum portfolios are medley of positive and negative returns. The overall mean values of contrarian, momentum and market portfolios are 7%, 0.2%

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and 0.8% respectively. This means that for the three holding period scheme, losing portfolio (that is the one

that follows contrarian strategy) has the highest mean value.

Table 6

Contrarian, Momentum and Market Portfolio Returns for Six-Month Holding Period

HOLDING PERIOD	MOMENTUM	CONTRARIAN	MARKET
FEBRUARY 2012-JULY 2012	-0.005887744	0.016225783	0.027621
AUGUST 2012- JANUARY 2013	0.065628683	0.052038182	0.055194
FEBRUARY 2013- JULY 2013	-0.008900067	0.074734922	0.015269
AUGUST 2013 - Jnuary 2014	-0.00862586	0.04264197	0.014565
FEBRUARY 2014- JULY 2014	0.014572758	0.025088347	0.008114
AUGUST 2014-JANUARY 2015	-0.067939899	-0.048349289	-0.05364
FEBRUARY 2015 - JULY 2015	-0.014194228	-0.02986957	-0.00234
AUGUST 2015-JANUARY 2016	-0.073836407	-0.008727959	-0.03151
FEBRUARY 2016 -JULY 2016	-0.008049409	-0.01703121	0.019371
AUGUST 2016 - JANUARY 2017	-0.000289726	-0.026850713	-0.0143
FEBRUARY 2017 - JULY 2017	0.062551352	0.032311993	0.056285
AUGUST 2017 - JANUARY 2018	0.073042501	0.045705748	0.033199
FEBRUARY 2018- JULY 2018	-0.028983697	-0.061793426	-0.03631
Mean Value	-7.01341E-05	0.007394214	0.00704

Authors

For the six month holding period scheme, momentum portfolio has the highest number of negative return when compared with the market and contrarian portfolios. The overall mean value of momentum portfolio is 0%, while

the mean value of contrarian and market is approximately 0.7% each. The market portfolio and contrarian portfolio are better than the momentum portfolio for the holding period of six months.

Table 7

Contrarian, Momentum and Market Portfolio Returns for Nine-Month Holding Period



HOLDING PERIOD	MOMENTUM	CONTRARIAN	MARKET
FEBRUARY 2012-OCTOBER 2012	0.015350323	0.019415419	0.030563
NOVEMBER 2012-JULY 2013	0.018543591	0.075917172	0.034827
AUGUST 2013-APRIL 2014	-0.030482148	-0.035078619	0.014964
MAY 2014-JANUARY 2015	-0.010846519	0.047999304	-0.0356
FEBRUARY 2015 - OCTOBER 2015	-0.01571397	-0.032068046	-0.01051
NOVEMBER 2015-JULY 2016	-0.048339393	-0.00501778	0.000862
AUGUST 2016-APRIL 2017	0.021465733	-0.015062193	0.007395
MAY 2017-JANUARY 2018	0.068737018	0.049173546	0.042725
FEBRUARY 2018-OCTOBER 2018	-0.058794293	-0.05274958	-0.03766
Mean Value	-0.004453295	0.00583658	0.005284

Authors
With the nine-month holding period the overall mean value has declined for each respective portfolio. However, the

contrarian and market portfolios still have the highest mean value.

Table 8

Contrarian, Momentum and Market Portfolio Returns for Twelve-Month Holding Period

HOLDING PERIOD	MOMENTUM	CONTRARIAN	MARKET
FEBRUARY 2012-JANUARY 2013	0.029870469	0.034131982	0.041408
FEBRUARY 2013-JANUARY 2014	-0.008762964	0.058688446	0.014917
FEBRUARY 2014 -JANUARY 2015	-0.02668357	-0.011630471	-0.02276
FEBRUARY 2015-JANUARY 2016	-0.044015318	-0.019298765	-0.01692
FEBRUARY 2016-JANUARY 2017	-0.004169567	-0.021940961	0.002533
FEBRUARY 2017-JANUARY 2018	0.067796927	0.039008871	0.044742
Mean Value	0.00233933	0.01315985	0.010652

Authors
We can see that for the longer holding period the mean value of winning and market portfolios has improved. To the contrary, contrarian portfolio has better mean value with the three-month holding period. The crux of the matter is to test if these mean values are significantly

earned. To achieve this we conduct t-test. Here, we basically test the profitability of use the momentum and contrarian strategies to predict the Nigerian stock market. Tables 9 through 12 give the results of the t-test.

Table 9

T-test for the Three-Month Holding Period

Descriptor	DF	T-stat	P-value
Momentum vs Contrarian	48	-4.51	0.00



Momentum vs Market	48	0.47	0.64
Contrarian vs Maket	48	5.34	0.00

Authors

The three hypotheses tested here are 1. Momentum strategy does not provide significant abnormal return to investors in the Nigerian stock market, 2. Contrarian strategy does not provide significant abnormal return to investors in the Nigerian stock market and 3. There is no significant difference between momentum strategy and contrarian strategy. These hypotheses are repeatedly tested in the 3, 6, 9 and 12 month-holding period. The results of the three-month holding period are reported in table 9. As shown in the table, the p value under momentum verses

contrarian is less 1 percent. In addition the p value under contrarian verses market is less 1 percent. While the p value under momentum verses market is larger than 5 percent. This suggests that investors can employ the contrarian strategy to earn superior profit in the Nigerian capital market. But, they cannot use momentum strategy to make superior profit. There is evidence of significant difference between momentum and contrarian strategies in making superior profit in the Nigerian stock market during the three-month holding period.

Table 10
T-test for the Six-Month Holding Period

Descriptor	DF	T-stat	P-value
Momentum vs Contrarian	24	-0.43	0.67
Momentum vs Market	24	0.45	0.66
Contrarian vs Maket	24	0.02	0.98

Authors

For the six-month holding period, we notice that the three hypotheses are rejected. Meaning that there is no investor holding stock for six month can use either contrarian or momentum strategy to earn superior profit in the Nigerian

stock market. Hence, there is no significant difference between momentum and contrarian strategies for the six-month holding period.

Table 11
T-test for the Nine-Month Holding Period

Descriptor	DF	T-stat	P-value
Momentum vs Contrarian	16	-0.52	0.61
Momentum vs Market	16	-0.59	0.56
Contrarian vs Maket	16	0.03	0.97

Authors

The three hypotheses are also rejected in the nine-month holding period. Contrarian and momentum strategies do not provide superior profit to investors in the Nigerian stock market, if they hold the stock for nine months.

Table 12
T-test for the Twelve-Month Holding Period

Descriptor	DF	T-stat	P-value
Momentum vs Contrarian	10	-0.50	0.63
Momentum vs Market	10	0.41	0.69



Contrarian vs Maket	10	0.14	0.89
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Authors

Finally, the twelve-month holding period results are similar to those of the six-month and nine month holding periods. This confirms that when stocks are held for a long term in the Nigerian capital market, momentum or contrarian strategy cannot be used to make significant abnormal profit. In addition there is no difference between the contrarian and momentum strategies.

5. Conclusive Remark

This study is the first attempt to test for evidence of financial anomalies based on momentum and contrarian strategies in Nigerian equity market. Our test results reveal the following positions: holding contrarian portfolio for three-month scheme provides the chances to earn more positive return than holding either the bech-mark portfolio or momentum portfolio. There is evidence of significant difference between contrarian and momentum strategies in the Nigerian stock market for three-month holding period. For longer holding periods (6, 9 and 12 holding periods) no investor can adopt momentum strategy to earn superior profit in the Nigerian stock market.. Therefore, in the six-month, nine-month and twelve-month holding periods, anomaly is not observed, but there is market anomaly in the three-month holding period confirming the claims of Zhou (2002). In the light of this, investors should adopt contrarian strategy by buying stocks that perform poorly in the past and selling stocks that perform brilliantly in the past. They should hold long position in the undervalued stock and short position in the overvalued stock. Three-month holding period is suggested to be adopted by investors who want to take short position in the undervalued stocks.

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