

MONTH-OF-THE-YEAR CALENDAR ANOMALIES IN PORTFOLIO EXCESS RETURNS IN THE NIGERIAN STOCK MARKET

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Abstract

The study investigates month-of-the-year calendar anomalies in portfolio excess returns in the Nigerian Stock Market. It uses a sample size of 139 companies listed on the Nigerian Stock Exchange (NSE) for the period 2007 to 2014. Data on share prices, all share index, price-to-book value, firm capitalization, market capitalization, and treasury bill rate were obtained from NSE and CBN official website. The study employed the market model as well as Fama and French and Carhart portfolio construction procedures. Ten portfolios based on market capitalization, price to book value and gainers to losers' criteria were constructed. The time series pooled multiple regression analysis was employed in the study and expressed in the form that excess portfolio returns were regress on monthly calendar dummies. The study found that there was no significant January effect in portfolio excess returns. However, there was strong evidence of July and August anomalies on most portfolios formed. The July and August monthly calendar anomalies were negative and significant at 5% significant level for SH, BH, BPW and BPL portfolios. It was recommended that investors and equity portfolio managers should consider buying for their portfolio construction around July and August due to the existence of statistically significant negative returns around those periods. Also, regulators should ensure prompt release of mid-year report by listed firms to correct the market anomaly.

Keywords: Calendar anomalies, month-of-the-year effect, January effect, Nigerian stock market, portfolio excess returns, market efficiency

Introduction

Market efficiency implies the situation where financial asset's prices incorporate all available information. Fama (1970) posits that a market situation in which security prices fully reflect or incorporate any or all available information can be describe as Efficient Market Hypothesis (EMH). According to Shiller (2001), EMH holds the belief that investors are rational in possessing all available information for maximizing their expected utility. However, with frequent and regular releases and diffusion of information in the environment and within firms, market efficiency now seems to be hard to attain and even more difficult to maintain. Fama (1991) in his review of market efficiency stated "tests of return predictability" as a replacement of the 'weak form' of the EMH (p.1576). Furthermore, Mackey (1841) says there is a feeling of something shockingly wrong with the concept of EMH (cited in Jain, 2012). This, we can say led to the concept of 'anomalies' in stock market and hence 'anomalies of efficient market hypothesis'. The term 'anomaly' can be traced to Field (1934). In the work of Field (1934), stock market seasonality in the form of weekend or holiday effect was first documented. The discovering of anomalies in stock returns infringes on the important EMH concept in finance.

Stock market anomalies refer to a situation when a security or market performs contrary to the notion of EMH. The literature on stock market anomalies reveals that anomalies could be related to calendar effects - pattern in times of week, month and year as well as holiday effects. Some occur once or twice and disappear, while others are

continuous (Archana, Safer & Kevin, 2014). These market anomalies can affect the market as well as influence investors' decision and behaviour in the market. Knowing that investors are always conscious of their returns and will usually want to predict returns in the market as a reward for their investment.

Numerous studies on month-of-the-year calendar anomalies have been conducted and reported for developed and some emerging stock markets. For developed markets in US, Canada, UK, Japan, Australia and Hong Kong; calendar anomalies (turn-of-the-year effect, month-of-the-year effect, Monday effect, January effect, day-of-the-week effect, holiday effect) have been documented [Jaffe & Westerfield (1985); Gerlach & Di Traglia (2003); Schwert (2003)]. Also, for some emerging markets such as Indian Stock Exchange (Archana, *et al*, 2014; Dash, Dutta & Sabaharwal, 2011; Ray, 2012); the Stock Exchange of Mauritius (Bundoo, 2011); and Ghana Stock Exchange (Alagidede & Panagiotidis, 2012). However, studies investigating such anomalies in the Nigerian Stock Exchange as an emerging African stock market are few in number (Ayadi, 1998; Chukwuogor-Ndu, 2007; Idolor, Ogieva & Osamwonyi, 2013). These studies are on individual listed stocks and entire stock market. Therefore, there is a need to investigate the existence of month-of-the-year calendar anomalies in portfolio excess returns in the Nigerian Stock Exchange. This is particularly so, as Nigeria is one of the fastest growing emerging market in Africa in particular and the world at large.

Previous studies have either used the market model, GARCH or ARCH approach or the Capital Assets Pricing Model (CAPM) in analysing market anomalies. The present study employs the market model as well as Fama and French (1993) and Carhart (1997) portfolio construction procedures in investigating month-of-the-year calendar anomalies in the Nigerian Stock Market.

Based on the foregoing problem definition, the objectives of this study are: firstly to find

out if January effect is present in portfolio excess returns in the Nigerian Stock Market. And secondly to examine whether month-of-the-year calendar anomalies are present in the Nigerian Stock Market, particularly when controlling for systematic risk.

Review of Related Literature

Calendar Anomalies: Anomalies in general are significant deviations in the capital market that negates the principle and assumptions of Efficient Market Hypothesis. Keim (2007) explains it as a "regular pattern in an asset's returns" which is regular, reliable and widely known. Also, he explains that "the fact that the pattern is regular and reliable implies a degree of predictability, and the fact that the regularity is widely known implies that many investors can take advantage of it" (Keim, 2007: 7-8). Literature on anomalies reveals that market anomalies could be related to calendar effects (pattern in times of week, month and year effect)

Calendar anomalies are anomalies or market inefficiencies that are linked to a particular time. They can also be described as stock prices anomalies or stock return changes that are attributable to calendar. This implies seasonality in stock market. Fama (1991) explains seasonality in returns as an aspect of returns predictability. The presence of seasonal pattern or calendar effects in stock returns deduced that a market is inefficient and investors should be able to earn abnormal return. Specifically, the existence of the calendar anomalies is a denial of the weak-form of EMH which states that stock prices reflect all past information. It also depicts that returns are invariant, meaning that there exists short-term seasonal pattern in stock returns (Mishra, 2012). Nonetheless, evidence overtime suggests that stock returns do not remain constant and that the market can be outperformed by means of calendar or seasonal dummies. Authors are unanimous on the fact that calendar anomalies are the best known anomalies or inefficiency in the stock market. The popular calendar anomalies/seasonal effects in the stock market are day-of-the-week effect or

weekend effect (Monday effect), the turn-of-the-month effect, month-of-the-year effect (or January effect) and holiday effect. This work considers the month-of-the-year or January calendar effect.

Fama (1991:1586-1587) says "the most mystifying seasonal is the January effect. Stock returns, especially returns on small stocks, are on average higher in January than in other months". January returns are usually positive and significantly higher than other months of the year. Looking at several studies in seasonality of return, the end of the year's effect most commonly referred to as January effect is the most prominent of all monthly calendar anomalies, in which returns are much higher than any other month (Mills & Counts, 1995; Ali & Akbar, 2008). It describes the propensity for stock prices to rise during the trading period beginning with the last trading day in December and ending on the last trading day in January. The work of Wachtel (1942) is the first study to discover January effect on stock markets. The January effect seems robust to sampled period, and it is difficult to reconcile with the EMH because of its persistence, regularity and publicity (Lo, 2007).

Possible Reasons for Calendar Anomalies

Some justifications and explanations have been given by capital market operators, academia and psychologists for calendar anomalies (return abnormalities). Specifically, Li (2013) reports the following five common explanations for the January effect:

- **Tax loss hypothesis (tax-loss selling at year end):** It explains that investors usually sell loser stocks at year end (to take advantage of capital losses tax benefits) and this in turn can be used to offset capital gains thereby lowering an investor's tax liability. Most capital might be reinvested only in January and selling pressure will also decrease in January (Reinganum, 1983). It is established that the tax-loss hypothesis greatly explains the January effect for

firms. However, it has been challenged by the conclusion from various research works.

- **The inter-generational transfer hypothesis:** This is another tax-related explanation for the January effect. The inter-generational transfer hypothesis spreads the position that the January effect is caused by seasonal modal investor taste and preference shifts and also changes in investors' composition (Gamble, 1993).
- **Information release:** Seasonal information flows can be an explanation for January effect. It focuses on the speed and quality of information released. According to the information release hypothesis, negative information (news) tends to be released toward the end of year, whereas positive information is released during the New Year.
- **The Capital Asset Pricing Model (CAPM) mis-specification** is also attributed to the continued existence of January effect. Emphasis here is on the failure of the single beta measure to capture all information on risk components associated with stocks.
- **Institutional investors' behaviour:** The institutional investors engage in window dressing along with individual taxpayers. The institutional money manager window dresses the client's portfolio to maximize returns or the perception of future prospect for higher returns.

Some other explanations for calendar effect (month-of-the-year) are as follows:

- **Trade and settlement date delay:** The calendar effect can arise from the delay between the trade day and the settlement day. The extra days are considered as interest-free loan which create incentives to buyers to buy in December and pushes prices up in January.
- **Shift in the broker-investor balance in decision to buy and sell or information processing hypothesis (Miller, 1988):** the information processing hypothesis says that individual investors could be more active buying/selling after their

year end financial planning and analysis (Osborne, 1962).

- **Risk-based** – it states that risk may vary throughout the year. Market risk in December varies from the market risk on January. Return is a function of risk.

Based on these common justifications and explanations for calendar anomalies, it is clear that calendar anomalies cannot be taken in isolation. Thus, when investors sell their existing securities in December and then repurchased in early January, and realize abnormal returns, the January effect cannot exclusively be isolated from other seasonal factors such as end-of-year-effect and Christmas and New Year holiday effect (Li, 2013).

Theoretical Framework

Portfolio theory was first developed by Markowitz in 1952 in relation to investment in stock market securities. It was later extended and significantly refined by Sharpe (1964), Linter (1965), Mossin (1966), Fama (1965, 1970), Fama and French (1992, 1993) and a number of others. Basically, the theory submits that the risk of an individual asset should not be judged on the basis of possible deviation from its expected return but rather in relation to its marginal contribution to the overall risk of a portfolio of assets. Depending on the correlation of asset with other assets in the portfolio, the asset will be less risky.

The study adopts the Fama and French as well as Carhart Portfolio construction procedures. In their model, they constructed representing portfolio to help take care of some variables in the model. Fama and French divided the market using two ways – size and book-to-market ratio. Size is defined as market capitalization that is, the total market value of equities. The market is divided into two groups by size: group one and group two. After determining the median size, group one contain all stocks in the market that have larger size than the median size and group two contain all stocks with smaller size than the median size. The book-to-market ratio is the book equity to

market equity of all stocks in the market. Here, they divided the market into three groups, defining the break points at 30th and 70th percentile of all stock listed in the stock market. Based on this classification, Fama and French formed six portfolios for each year that fell into the corresponding categories of size and book-to-market ratio.

Carhart (1997) divided the market using three ways – size, book-to-market equity and one-year momentum in stock returns. The size and book-to-market equity are as defined and explained in Fama and French portfolio construction procedure. The one-year momentum returns is constructed as the equal-weight average of firms with the highest 30 percent eleven-months returns lagged one month minus the equal-weight average of firms with lowest 30 percent eleven-month returns lagged one month. Based on the classification, more portfolios were constructed in addition to the Fama and French six portfolios for each year that fell into the corresponding categories of size, book-to-market ratio and one-year momentum is stock returns.

Empirical Review on Calendar Anomalies

Many research studies [for example French (1980), Mehdian and Perry (2001), Chukwuogor-Ndu (2007), Bundoo (2011), Alagidede and Panagiotidis (2012)] have been carried out to explore and empirically test the presence of calendar anomalies in the stock market. There are a number of empirical studies in the developed markets and some emerging markets but very few exist on the Nigerian Stock Exchange as discussed below. Although there are mixed results in literature but most works support the fact that January returns tend to be higher than other months' returns. Evidence generated from studies of Jaffe & Westerfield (1985), Gerlach & Di Traglia (2003) and Schwert (2003) on some developed capital markets of the world shows the presence of January effect. The study by Jaffe & Westerfield (1985) on the United State market on stock returns reveals that on the average, stock returns in January are usually higher than those generated in

other months of the year. The work of Anderson, Gerlach & Di Traglia (2003) also supported the January effects. They found that returns in January are higher than other months of the year in an experimental setting. Similarly, the work of Schwert (2003) documented the presence of the January effect in the United State markets. He estimates the January effect to be 0.4% per day for the periods 1980 to 1989 and 1990 to 2001.

An elaborate study by Hansen and Lunde (2003) examined stock indices returns from 10 countries namely, Denmark, France, Germany, Hongkong, Italy, Japan, Norway, Sweden, United Kingdom, and United States of American. The result shows that month-of-the-year effects were significantly present in almost all the stock markets. However, the work of Li (2013) on Canada finance industry for January effect found a weak January effect in small-capitalization firms while the January effect does not hold for each individual firm in the market. The study thus concluded that there are no abnormal returns to take advantage of the January anomaly.

Some of the recent studies from emerging markets show that there is evidence of month-of-the-year effect but contrary to the January effect in most developed market. The studies of Alagidede and Panagiotidis (2012), Bradfield (1990), Bundoo, (2011), Kuria and Riro (2013) and Ray (2012) documented the month-of-the-year effect or January effects in emerging markets. Bundoo (2011) investigated whether January effect are present in the Stock Exchange of Mauritius over the period January 2004 to December 2006. The findings show a very minimal January effect both at the market and company level. Further investigation reveals that the market has a strong September effect. Kuria and Riro (2013) examined month-of-the-year effects in the Nairobi Securities Exchange. Using the t-test, F-test and the ANOVA analysis model, they found the presence of seasonal effects in the market. In the study of Bradfield (1990) on the Johannesburg Stock Exchange

for the period of 11 years (January 1974 to December 1984), found significant July and December effect for the period contrary to the January effect. Similarly, Alagidede and Panagiotidis (2012) in their paper investigate month-of-the-year effects in the Ghanaian capital market employing the non-linear model from the GARCH family in a rolling framework. They discover an April effect contrary to the January effect pattern in most markets. Ray (2012) examined seasonality in stock returns in Bombay Stock Exchange (BSE) using monthly closing share price/index from January 1991 to December 2010. Employing a combined regression time series model with dummy variables for months, the findings provide evidence of the month-of-the-year effect in BSE and supporting the tax loss hypothesis and January effect. Alagidede and Panagiotidis (2012) in their paper investigate month-of-the-year effects in the Ghanaian capital market. They provide evidence on the presence of the month-of-the-year effect in the market. Stoica and Diaconasu (2012) analysed the influence of day-of-the-week and month-of-the-year effect on emerging Central and Eastern European stock markets. Studying the period from 2000 to 2010, they found the existence of January effect in Czech Republic, Croatia, Macedonia, Romania, Slovenia and Hungary. Again, Singh (2014) did an elaborate study on emerging BRIC markets (Brazil, Russia, India and China market) for the period from 1st January 2003 to 15th June 2013. Using the dummy regression model, the study demonstrates there was no significant month-of-the-year calendar effect in the Brazil, Russia and India markets.

Contrary, Maghayereh (2003) and Silva (2010) documented no evidence of month-of-the-year or January effect in emerging markets. Maghayereh (2003) studied the Amman Stock Exchange in Jordan and found no evidence of month-of-the-year effect or January effect. Silva (2010) studied the Portuguese Stock Exchange and found returns in December, January and February to be the best of the months of the year; however the effect was not significant.

The work of Ayadi (1998) reports mixed findings on January effect in emerging African markets. Ayadi (1998) studied stock return seasonality in low-income African emerging markets using monthly market indices for the Ghanaian stock market (1991 – 1996), Nigerian stock exchange (1984 – 1995), and Zimbabwean stock market (1987 – 1995). The results indicate the absence of seasonality in stock returns on the Nigerian and Zimbabwean stock markets and the presence of seasonality in stock returns for Ghanaian stock market using the Kruskal-Wallis and Friedman tests. In addition, the Wilcoxon-Mann-Whitney test and the dummy-variable regression analysis show the presence of the “January effect” for Ghana market only. Idolor *et al* (2014), in their study tested the existence of calendar effect in the Nigerian Stock Market returns using daily All Shares Prices Index returns for the period ranging from 19th April 2005 to 30th September 2010. Employing descriptive and inferential statistics and the multiple OLS regression technique in testing for the calendar effect, their finding revealed that February, March, April, May and December were consistently associated with negative market returns. While the months of January, August, September, October and November were associated with positive returns.

In conclusion this section reviews literature on the month-of-the-year calendar anomalies and reveals their existence in most markets like in US, Australian, Asian, Kenya and South Africa. However, elaborate review shows mixed results documented in the literature on stock market anomalies. There are rational and behavioural explanations for existence of calendar anomalies in stock market. Therefore, the following null hypotheses are tested in the study:

H₀₁: January effect does not exist in portfolios in the Nigerian Stock Market.

H₀₂: There are no month-of-the-year calendar anomalies in the Nigerian Stock Market particularly when controlling for systematic risk;

Methodology

The appropriate research design for this study considering the research objectives and the various hypotheses is the longitudinal research design. The data for the study is time series and cross-sectional in nature. The population of interest consists of all firms whose stocks were quoted on the Nigerian Stock Exchange (NSE) between 2007 and 2014. As at January 2007, there were 212 listed firms (equities) on the NSE and 200 listed firms (equities) as at December, 2014. This time period is sufficiently long to elicit the necessary information required to achieve the objectives of this study. The characteristics of the population that is of interest in this study are share prices, price-to-book value, firm capitalization and all-share index for individual firm and the market. A sample size of one hundred and thirty-nine (139) stocks was used in the study. The judgmental sampling method was used in the selection of the sample size. This is because the selected firms must conform to some criteria to be selected as part of the sample: be actively traded stocks (stocks with continuous trading) and have data price-to-book ratio from 2007 to 2014. However, the sample size was not the same for each year studied as some firms were delisted and other new firms listed during the period. The data for the study were obtained from secondary sources of data: official daily price list of the NSE Factbook and Cashcraft Asset Management Limited as well as the CBN official website for the period under consideration. The model estimation involves the use of monthly market data.

Model Specification: The study employed the market model with calendar effect. Fama and French (1993) and Ajili (2002) suggest that test of month-of-the-year calendar effect or January effects are standard procedure in asset pricing tests. This study follows the usual econometric procedure in tests of seasonality by adding a dummy variable to the regression which takes the value of “one” in the month and a “zero” on the

remaining months. The model for the test of January effect takes the following form:

$$R_{p,t} - R_{ft} = \alpha_{pt} + JAN_{pt} + \mu_{pt} \dots \dots \dots (1)$$

The model for the test of month-of-the-year calendar effect takes the following form:

$$R_{p,t} - R_{ft} = JAN + FEB + MAR + APR + MAY + JUN + JUL + AUG + SEP + OCT + NOV + DEC + \mu_{pt} \dots \dots \dots (2)$$

Where:

$R_{p,t}$ = Average monthly return of portfolio p in time t
 R_{ft} = Monthly risk free rate

JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEPT, OCT, NOV and DEC are dummy variables, which takes the value of "1" in the month and a "0" on the remaining months. Note: the α sign is not included in the equation (2) to avoid the dummy variable trap.

Preliminary test was carried out on the data. Specifically, descriptive statistics such as mean, stand deviation and normality test were used to profile the data. This study employed time series multiple regression model for data analysis. This was performed using the multiple Ordinary Least Square regression (OLS) techniques with StataC13 software.

Measurements of Variables: Monthly Returns of Companies Stock and the Market: The logarithmic price change was used to calculate monthly companies stock and market returns. This method was adopted because it prevents non-stationarity of the level of stock prices from affecting stock and market returns volatility. The monthly returns for the quoted companies were computed as follows:

$$R_i = \ln\left(\frac{P_i}{P_0}\right) \times 100 \dots \dots \dots (3)$$

Where,

R_i = monthly stock return
 P_i = stock prices at the end of the present month

P_0 = stock prices at the end of the pervious month
 \ln = natural logarithm

Portfolios Classification: In building the different types of portfolios for this study, three criteria were used and these are; (1) Size = Market capitalization (MC) (2) Value = Price to Book (P/B) and (3) Momentum = Price Gainers and Price Losers.

Size and Value Classification: This methodology used by Fama and French (1993) and others requires that the stocks be divided into classes according to size and value.

Size Classification: The stocks used in this study were divided into two classes on the basis of Market capitalization, namely: Small Size Portfolios and Big Size Portfolios. Small Size Portfolios (S) consists of all companies that have market capitalization below the median market capitalization in a year. Big Size Portfolios (B) consists of all companies that have market capitalization above the median market capitalization in a year.

Value (Price-to-Book -P/B) Classification: The firms were ranked and classified into three groups following the P/B ratio calculated. The first group created is called High P/B. This consists of all companies that were above 70 percent of the overall market P/B median and they are also called low BE/ME. They have the highest P/B ratios. The second group is called the Medium P/B ratio, and it is made up of between 70 percent and 50 percent of the overall market P/B median. The last group is referred to as the Low P/B ratio, and it consists of all companies that were below 50% of the overall market P/B median. They are also called High BE/ME. The P/B rather than BE/ME was used to separate stocks into high and low value portfolios. The use of P/B is based on the popularity and easy of accessing this information by equity investors. Fama and French (1993) posit that the split of stocks into these different categories (two ME groups and three

BE/ME groups) was arbitrary. Arguing further, they say that there are no reasons why the test would be sensitive to this choice. Drawing from this argument and on the basis of two MC and three P/B groups, we constructed six portfolios: SL, SM, SH, BL, BM and BH. Where: **SL** consists of all stocks in the small MC group that are also in the low P/B group; **SM** consists of all stocks in the small MC group that are also in the medium P/B group; **SH** consists of all stocks in the small MC group that are also in the high P/B group; **BL** consists of all stocks in the large MC group that are also in the low P/B group; **BM** consists of all stocks in the large MC group that are also in the medium P/B group and **BH** consists of all stocks in the large MC group that are also in the high P/B group.

Momentum (return) (MR) Classification: stocks were classified into two different portfolio based on return momentum - the price gainers/winners (also called good performer) (PW) and the price losers (poor performer) (PL). Price Winners (PW) comprises companies with positive annual

stock returns and Price losers (PL) consist of all companies with negative annual stock returns. On the basis of two MC and MR groups, we constructed six portfolios: BPW, BPL, SPW and SPL. Where: **BPW** consists of all stocks in the large MC group that are also in the price winners group; **BPL** consists of all stocks in the large MC group that are also in the price losers group, **SPW** consists of all stocks in the small MC group that are also in the price winners group and **SPL** consists of all stocks in the small MC group that are also in the price losers group.

Data Analysis and Interpretation

This section presents the analysis and interpretation of data for the purpose of testing stated hypotheses. The results are presented and discussed below.

Portfolios Formation: Table 1 shows the number of stocks used for portfolios formation on a yearly basis from 2007 to 2014. As observed, the sample size for each portfolio constructed in this study was based on availability of market capitalization and price to book (P/B) data.

Table 1: Number of Companies for Portfolio Formation

Year	Sample Size
2007/2008	99
2008/2009	116
2009/2010	132
2010/2011	136
2011/2012	133
2012/2013	139
2013/2014	135

Source: Authors computation (2015)

A look at table 1, shows that in 2007/2008 the sample of listed companies that was used to build equity portfolios was 99, while in 2008/2009, 2009/2010, 2010/2011, 2011/2012, 2012/2013 and 2013/2014 the samples were 116, 132, 136, 133, 139 and 135 respectively. The change in the sample clearly shows that this study allowed for more companies rather than using specific

stocks in the formation of portfolios. The initial years represent years of portfolio formation while the later years were used for portfolio returns evaluation (for example 2007/2008). This method was considered more realistic as most portfolio formations are done at year end using end-of-year market capitalization and price-to-book value as overall median benchmarks.

Table 2: Number of companies/stocks in Portfolios Formed

Year	SL	SM	SH	BL	BM	BH	BPW	BPL	SPW	SPL
2007/2008	16	11	22	5	6	38	-	-	-	-
2008/2009	13	8	37	15	7	35	11	36	24	27
2009/2010	26	12	28	9	7	49	15	51	2	61
2010/2011	26	12	30	4	6	58	42	23	13	42
2011/2012	22	10	45	9	9	57	12	48	10	42
2012/2013	20	13	48	11	12	59	31	29	15	26
2013/2014	27	13	27	6	5	58	57	7	17	28
Total	130	79	237	59	52	354	168	194	81	226
Mean	18	11	34	8	7	50	28	32	13	37

Source: Authors computation (2015)

Table 2 shows the number of companies (stocks) in each of the ten portfolios constructed for each year of the sampled period (2007-2014). As observed, small stock portfolios (consisting of SL, SM and SH) had a total of 446 stocks with 64 stocks on the average annually. This is similar in number to the big stock portfolios (consisting of BL, BM and BH) with total of 465 stocks with an average of 66 stocks annually. The average stocks for small (64) and big (66) portfolios is close, because the median market capitalization of all sampled stocks was used as the break point for size classification. In the case of Price-to-Book (P/B) value, high P/B, medium P/B and low P/B portfolios have an average of 84 stocks, 18 stocks and 26 stocks respectively. This shows that most stocks in the market were overvalued for the period under consideration. The small price losers (SPL) portfolio has an average of 37 stocks annually while SPW has an average of 13 stocks annually. And big price winner and loser portfolios have an average of 28 and 32 stocks annually respectively.

Summary Statistics of Portfolios Excess Returns

The descriptive statistics of the variables are represented by mean, standard deviation, minimum, maximum and normality test using skewness and kurtosis. The results obtained are presented for all ten portfolios' excess returns, in table 3. From the table, the mean returns show that excess portfolio returns from Big and low price to book value (BL) portfolios outperformed the big firm portfolios and the entire portfolios constructed. BL had a positive mean returns (0.002) and a standard deviation (0.273) which is higher than other portfolios. BM is the portfolio with the next highest excess portfolio mean returns (-0.008), however a negative mean return, while BH portfolio had the lowest portfolio's excess mean returns (-0.044). With respect to standard deviation, all the big size portfolios (BL, BM, BH, and BPW) have standard deviations that are higher than their respective small size portfolios (SL, SM, SH and SPW). These therefore mean that big size portfolios seem to offer returns with higher volatility, while the small size portfolios seem to offer returns with lower volatility for the period under consideration.

Table 3: Summary Statistics of Variables

Variables	Mean	Std.Dev	Min	Max	Normality
BL-Rf	0.002	0.273	-0.376	2.032	0.00
SL-Rf	-0.022	0.092	-0.315	0.387	0.00
SH-Rf	-0.040	0.047	-0.187	0.102	0.00
BH-Rf	-0.044	0.012	-0.522	0.250	0.00
BM-Rf	-0.008	0.014	-0.317	0.601	0.00
SM-Rf	-0.028	0.079	-0.230	0.466	0.00
BPW-Rf	-0.028	0.061	-0.180	0.103	0.96
BPL-Rf	-0.030	0.119	-0.353	0.251	0.00
SPW-Rf	-0.023	0.079	-0.159	0.279	0.00

Source: Author's Computation (2015) with StataC 13

The range of variation between the minimum and maximum values is reasonably low for the number of observations (84) considered. On the basis of normality using skewness and kurtosis, all variables except Big Price Winners (BPW) were normally distributed at 1% level of significance.

Test of January and Month-of-the-year Effect

The results for January and monthly calendar anomalies are summarized in Table 4 below. The results presented show that there is no significant January effect for all the portfolios. Despite this, the January effect factor coefficient is negative for six portfolios.

The February effect factor coefficients are not significant for all portfolios except Big Price Winners (BPW) which have a negative factor loading of -0.05 and statistically significant at 5% level. This means that negative returns can be generated from portfolios investment on Big Price Winners in the month of February. The March effect factor coefficients are not significant for all portfolios except BH and SPL which have negative factor loadings of -0.08 and -0.05 respectively and are statistically significant at 5% level. This means that negative returns can be generated from portfolios investment on big and high price to book and small price loser portfolios in the month of March. The June effect factor coefficients are not significant for all portfolios except Big Price

Winners (BPW) which have a negative factor loading of -0.05 and are statistically significant at 5% levels. This means that negative returns can be generated from portfolios investment on Big Price Winners in the month of June also. The November effect factor is not significant for any of the portfolios except SH and BPW which have negative factor loadings of -0.06 and -0.05 respectively and are statistically significant at 5% level. This means that negative returns can be generated from portfolios investment on small and high price to book and big price winner portfolios in the month of November. There are no significant April effects, May effects, September effects and October effects for all the portfolios.

Importantly, the July effect factor coefficients are statistically significant at the 5% level for four portfolios, namely SL, SH, BH and SPL portfolios with negative factor loading of -0.06, -0.05, -0.08 and -0.06 respectively. This means that negative returns can be generated from portfolios investment on small size portfolios (SL, SH and SPL) as well as BH in the month of July. Similarly, the August effect factor coefficients are significant for five portfolios, namely SH, BH, SM, BPW and SPL portfolios with negative factor loadings of -0.06, -0.13, -0.07, -0.07 and -0.06 respectively and are statistically significant at 5% level. This means that negative returns can be generated from portfolios investment on SH, BH, SM, BPW and SPL in the month of August.

Discussion of Findings, Conclusion and Recommendations

The empirical analyses of this study reveal a number of findings which have significant implications for investors and fund/portfolio managers in particular and the market as well as the economy in general. The portfolio formation reveals that the composition of each of the ten portfolios formed is significantly affected by the number of listed stocks on the Nigerian Stock Market which is relatively small. This smallness may constitute potential problem for portfolio construction procedure for fund managers. Hence the needs for the Nigerian Stock Market to be well diversified with more stocks, bonds and commodity. This will enhance better portfolio management for investors in the market. On the basis of the empirical findings, it is clear that there is no January effect in the Nigerian Stock Market. This finding is in agreement with the findings of Ajao (2014) for the NSE, Ajili (2002) for stock market in Nigerian and France respectively. Furthermore, there was strong evidence of July and August anomalies in the Nigerian Stock Market and the effect is negative and significant at between 95% and 99% confidence interval. The negative portfolio returns in July and August means that stock prices are usually low in these months of the year. One may wonder why calendar anomaly in the month of July and August in the Nigerian Stock Market? This could be due to the fact that most companies release mid-year financial statement or reports in July. The speed and quality of information released by the companies could possibly boost investors and fund manager desire to invest or not to invest in the latter part of the year. Investors' behaviour in terms of investor taste or preference shifts could occur in the second half of the year. More so, there could be changes in investors' portfolio composition in the second half of the year.

In conclusion, Based on the findings in this study and the conclusion drawn thereof, the following recommendations are made:

Firstly, the presence of anomalies in the market shows that investors can earn abnormal returns for their investment and that the market is inefficient (not information efficient). This market inefficiency could be as a result of an observation that most market operators in Nigeria are irresponsive to market information. In order to achieve market efficiency, market regulators and operators as well as policy-makers need to work on the level of information efficiency of the market. For example, operators should seek for relevant information, be more sensitive and responsive to information (news) on individual firms and the market. This will ensure that security prices of quoted firms fully reflect all available information in line with calendar period. Also, the policy-makers should promote policies on prompt release of financial statement and audit reports. Furthermore, investors and fund managers should consider buying equity stocks and reconstruct their portfolios in the months of July and August for equities listed on the Nigerian Stock Exchange, because stock prices since low for most firms especially firms with SH and BH during these months of the year.

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