

Sectorial Analysis of the Risk-Return Characteristic of Quoted Stocks in the Nigerian Stock Exchange

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ABSTRACT

This study examines the risk-return dynamics of quoted stocks for the eleven sectors of the Nigerian stock exchange for the period of twenty one weeks March 2015 through July 2015. The study aimed at determining the sectoral risk and returns of the quoted stocks in the Nigerian Stock Market. Using the standard deviation and the mean analysis to estimate the risk and returns of the stocks, the result reveals that the size of the quoted stock risk and return are apparently different on sectoral basis as such they change differently but directly with the size of returns. The magnitude of the risk or return depends mostly on the peculiarity or otherwise of such sectors where the stocks are listed but not on the size of the firms. Therefore the study conclude that for an investor to take a rational investment decisions, it is sacrosanct for such investor or investors to know the risk return characteristics of stocks quoted on the various sectors of the Nigerian stock exchange.

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INTRODUCTION

Investment decisions are influenced by various motives. Some class of investors invests in a business to acquire control and enjoy the prestige

associated with it. While some class invest in expensive yachts and famous villas to display their wealth (Chandra 2012).

However, most investors are largely guided by the pecuniary motives of earning a return on their investment. For earning returns investors have to almost invariably bear some risk. In general, risk and return go hand in hand. While investors like returns they abhor risk. Investment decisions, therefore, involve a tradeoff between risk and return. Since risk and return are central to investment decisions, understanding what risk and return are and how they are measured is essential to understanding why people make some of the investment decisions they do (Nwude 2012 and Chandra, 2012).

Return is the primary motivating force that drives investment. It represents the reward for undertaking investment. Since the game of investing is about returns (after allowing for risk), measurement of realized (historical) returns is necessary to assess how well the investment manager has done. In addition, historical returns are often used as an important input in estimating future (prospective) returns. Since any investment venture contains an element of risk and return. Risk is the possibility of the expected return not being realized. That is the possibility that the actual return from an investment will fall below the expected return. The greater the magnitude of deviation below the expected returns the greater the risk of the investment. Whereas risk is a situation where investor has a probability knowledge of the outcome of return on investment, uncertainty is a situation in which one

has no knowledge at all (zero probability) of the future outcome of the return on investment (Nwude, 2012).

With limited amount of resources at the disposal of these investors, the major problem confronting them will be where to place their limited resources that will maximize their future benefits (Abdullahi and Lawal, 2009). In addition, most investors in the Nigerian stock market do not probably possess the adequate analytical skills to evaluate the performance of the quoted stocks in terms of risk characteristics associated with the returns. It is therefore the crux of this study to sectorally analyze the risk return characteristics of all the listed stocks on the floor of the Nigeria stock exchange.

2. LITERATURE REVIEW

2.1 Theoretical Literature

2.1.1 Return as a Concept

Return is a percentage measure of investment gain or loss relative to the amount invested Nwude, (2012). It is the reward for undertaking investment. The return of an investment consists of two components:

- **Current Return:** The first thing that often comes to mind when one is thinking about return is the periodic cashflow (income), such as dividend or interest, generated by the investment. Current return is

measured as the periodic income in relation to the beginning price of the investment Chandra, (2012).

- **Capital Return:** The second component of return is reflected in the price change called the capital return. It is simply the price appreciation (or depreciation) divided by the beginning price of the asset. Thus, the total return for any security is defined as

$$\text{Total Return} = \text{Current return} + \text{Capital return}$$

The current return can be zero or positive, whereas the capital return can be negative, zero or positive.

2.1.2 Risk as a Concept

You cannot talk about investment return without talking about risk because investment decision invariably involves a trade-off between the two. Risk refers to the possibility that the actual outcome of an investment will differ from its expected outcome Bodie, Kane and Marcus, (2008). More specifically, most investors are concerned about the actual outcome being less than the expected outcome. The wider the range of possible outcomes, the greater the risk.

2.1.3 Sources of Risk

Risk emanates from several sources. The three major ones are:

- **Business Risk:** As a holder of corporate securities (equity shares or debenture), you are exposed to the risk of poor business performance. This may be caused by a variety of factors like heightened competition, emergence of new technologies, development of substitute products, shifts in consumer preferences, inadequate supply of essential inputs, changes in governmental policies, and so on. **Interest Rate Risk:** The changes in interest rate have a bearing on the welfare of investors. As the interest rate goes up, the market prices of existing fixed income securities fall, and vice versa. This happens because the buyer of a fixed income security would not buy it at its par value or face value if its fixed interest is lower than the prevailing interest rate on a similar security. For example, a debenture that has a face value of \$10,000 and a fixed rate of 12 percent will sell at a discount if the interest rate moves up from say, 12 percent to 14 percent. While the changes in interest rate have a direct bearing on the prices of fixed income securities, they affect equity prices too, albeit somewhat indirectly. The changes in the relative yields of debentures and equity shares influence equity prices.
- **Market Risk:** Even if the earning power of the corporate sector and the interest rate structure remain more or less unchanged, prices of

securities, equity shares in particular, tend to fluctuate. While there can be several reasons for this fluctuation, a major cause appears to be the changing sentiment of the investors. There are periods when investor becomes bullish and their investment horizons lengthen. Investor optimism, which may border on euphoria during such periods, drives share prices to great heights. The buoyancy created in the wake of this development is pervasive, affecting almost all the shares. On the hand, when a wave of pessimism (which often is an exaggerated response to some unfavourable political or economic development) sweeps the market, investors turn bearish and myopic. Prices of equity shares register decline as fear and uncertainty pervade the market.

2.2 EMPIRICAL LITERATURE

A plethora of studies have been carried out on risk- return characteristics of listed stocks in frontier, emerging and developed markets. Notably are the works of Oludoyi, (2003), Gorjaev, (2004) Peter & Kanaryan, (2005), Yamaguchi, (2005) Battilosi & Hoopt, (2006), Meggen, (2007) Mayanja & Legesi, (2007) Akingunola, (2007) and Givard & Sinha, (2008), Abdullahi and Lawal, (2009), and Nwude, (2012).

Oludoyi, (2003), examined the risk characteristics of the quoted firms in Nigeria. He found that the covariance of most of the firms with the market portfolio is positive as that the returns on the firms' shares tend to move in the same direction with return on the marked portfolio. The economic implication of the majority of firms in a portfolio having positive beta is that there is limited scope for portfolio diversification.

Akingunola (2007) studied capital Asset Pricing Model (CAPM) and shares value in the Nigerian Stock Market. His findings confirmed the importance of reward volatility analysis in security investment decision and management. Also that correlation test between market beta and systematic risk at 1% level affirmed that the assessment of securities beta as their contribution to the portfolio is undeniable therefore it provided the necessary measure of the systematic risk to be compensated by the market. Furthermore, he also discovered that beta impinges on expected return in responses to changes in the macro-economic environment. Thus, the recent reforms in Nigeria economy significantly affected firms' performance, the stock returns variability, beta instability as well as the presence of high diversifiable risk in holding individual assets.

Abdullahi and Lawal, (2009), empirically investigates the risk-return dynamics of the Nigerian quoted firms for the period of 2000-2004. The

objective of the study is to establish what determines the systematic risk (beta) of firms, the magnitude of such risk (beta) associated with returns in the Nigerian Stock Market. This study employed Ordinary Least Squares (OLS) procedure to estimate the regression in order to obtain the systematic risk (beta) of each of the firm. In addition, market model was used to estimate returns of the firms. This study revealed that the sizes of risks (betas) are different in firms studied; they varied positively with the sizes of returns. In addition, 65% of the firms' risk (beta) is statistically significant at 1% and 5% level and most of the firms' risks (betas) are less than Unity, which imply lower risk as compared to Market Portfolio. More importantly, most firms' betas are positive; suggesting limited scope for diversification in the Nigerian Stock Market. The outcome of this study conformed to similar studies in the emerging stock markets.

Nwude (2012), studied the risk-return relationship in equities with evidence from the automobile sector of the Nigerian stock exchange. Using the standard deviation to model and determine the risk, simple percentage analyses were used to determine returns. The study discovered that there was low positive linear relationship and marginal negative linear relationship between risks and returns in the Dunlop and R.T. Briscoe stocks respectively. Only 16.68 percent of the variations in the return from Dunlop can be explained by systematic risk and only 4.67 percent of the

variations in R.T. Briscoe return were accounted for by systematic risk. Hence unsystematic risk accounted for at least 83.32 percent of the variations of returns in this sector.

3. METHODOLOGY

Data

The trading activities of the eleven sectors on the floor of the Nigeria Stock Exchange were monitored for twenty one weeks with keen interest on the following data: firm's stocks prices, dividend paid or declared as well as the volumes of traded stock, frequency and days of trading. We collected data from 13th March 2015 through 31st July 2015. The study collected the daily price of stocks quoted on the NSE daily official list to arrive at the sectoral opening and closing stock prices and firm's interim dividend were used. An inflationary rate of 8% and the risk-free rate of 7% were used to compute our results. The standard deviation is the model used to determine the sectoral risk of quoted stocks while mean analysis were used to determine the returns.

The Returns Model Specification

The returns of firms' shares can be obtained by using both share pricing and dividends as:

$$R_{jt} = \frac{P_{jt} + D_{jt} - P_{jt-1}}{P_{jt-1}} \quad (1)$$

Where,

R_{jt} = actual return on firm at period t

P_{jt} = Price of firmj at in period t

P_{jt-1} = Price of firmj at in periodt-1.

D_{jt} = dividend paid on each share of firmj at period t

The Risk Model Specification

The most commonly used measure of risk in finance is variance or the square root of its standard deviation. The variance and the standard deviation of a historical return series are model as

$$\sigma^2 = \frac{\sum_{i=1}^n (R_i - \bar{R})^2}{n - 1} \quad (2)$$

$$\sigma = \sqrt{\sigma^2} \quad (3)$$

Where

σ^2 is the variance of return

σ is the standard deviation of return

R_i is the return from the stock in period i (i=1,...,n)

\bar{R} is the arithmetic return and n is the number of period

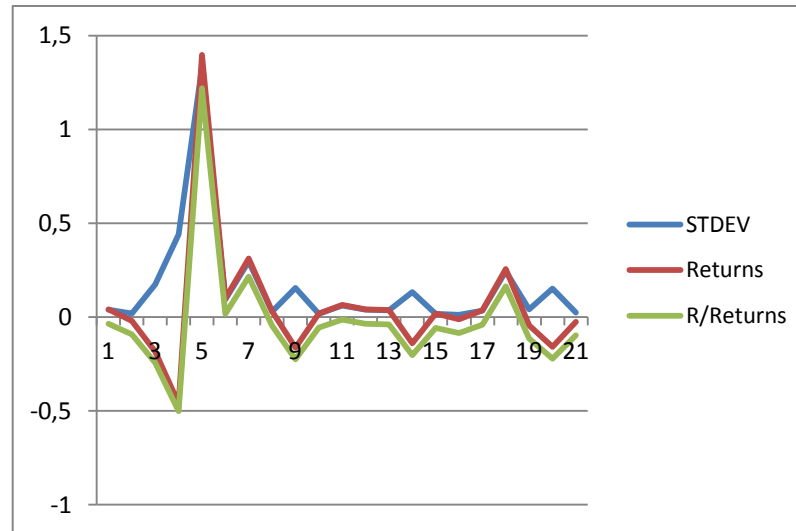
4. Results and Discussion

AGRICULTURAL SECTOR

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	15.48	15.21	1.35	0.106509	1.106509	0.024545	0.005072	0.010289	0.101437	0.010144	0.036509
2	14.82	15.48	1.35	0.044574	1.044574	-0.0328	0.002123	0.001802	0.042451	0.004245	-0.02543
3	11.75	14.82	1.35	-0.11606	0.883941	-0.18154	-0.00553	0.012217	0.110533	0.011053	-0.18606
4	5.98	11.75	1.35	-0.37617	0.62383	-0.42238	-0.01791	0.128348	0.358257	0.035826	-0.44617
5	13.98	5.98	1.35	1.563545	2.563545	1.373653	0.074455	2.217391	1.489091	0.148909	1.493545
6	14.37	13.39	1.35	0.17401	1.17401	0.087047	0.008286	0.027465	0.165724	0.016572	0.10401
7	18.43	14.32	1.35	0.381285	1.381285	0.278968	0.018156	0.131862	0.363128	0.036313	0.311285
8	18.64	18.43	1.35	0.084645	1.084645	0.004301	0.004031	0.006499	0.080614	0.008061	0.014645
9	15.24	18.64	1.35	-0.10998	0.890021	-0.17591	-0.00524	0.010971	0.104741	0.010474	-0.17998
10	15.17	15.24	1.35	0.08399	1.08399	0.003694	0.004	0.006398	0.07999	0.007999	0.01399
11	15.81	15.17	1.35	0.13118	1.13118	0.047389	0.006247	0.015608	0.124933	0.012493	0.06118
12	16.12	15.81	1.35	0.104997	1.104997	0.023145	0.005	0.009999	0.099997	0.01	0.034997
13	16.37	16.12	1.35	0.099256	1.099256	0.017829	0.004726	0.008936	0.094529	0.009453	0.029256
14	13.73	16.37	1.35	-0.0788	0.921197	-0.14704	-0.00375	0.005633	0.07505	0.007505	-0.1488
15	13.63	13.73	1.35	0.091042	1.091042	0.010224	0.004335	0.007518	0.086706	0.008671	0.021042
16	13.12	13.63	1.35	0.061629	1.061629	-0.01701	0.002935	0.003445	0.058694	0.005869	-0.00837
17	13.25	13.12	1.35	0.112805	1.112805	0.030375	0.005372	0.011542	0.107433	0.010743	0.042805
18	16.3	13.25	1.35	0.332075	1.332075	0.233403	0.015813	0.100022	0.316262	0.031626	0.262075
19	15.24	16.3	1.35	0.017791	1.017791	-0.0576	0.000847	0.000287	0.016944	0.001694	-0.05221
20	12.47	15.24	1.35	-0.09318	0.906824	-0.16035	-0.00444	0.007875	0.088739	0.008874	-0.16318
21	11.81	12.47	1.35	0.055333	1.055333	-0.02284	0.002635	0.002777	0.052698	0.00527	-0.01467

AGRICULTURE SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL RETURNS TRENDS

Week	STDEV	Returns	R/Returns
1	0.101437	0.10651	0.024545
2	0.036509	0.024545	0.010289
3	-0.02543	-0.0328	0.001802
4	-0.18606	-0.18154	0.012217
5	-0.44617	-0.42238	0.128348
6	1.493545	1.373653	2.217391
7	0.10401	0.087047	0.027465
8	0.311285	0.278968	0.131862
9	0.014645	0.004301	0.006499
10	-0.17998	-0.17591	0.010971
11	0.01399	0.003694	0.006398
12	0.06118	0.047389	0.015608
13	0.034997	0.023145	0.009999
14	0.029256	0.017829	0.008936
15	-0.1488	-0.14704	0.005633
16	0.021042	0.010224	0.007518
17	-0.00837	-0.01701	0.003445
18	0.042805	0.030375	0.011542
19	0.262075	0.233403	0.100022
20	-0.05221	-0.0576	0.000287
21	-0.16318	-0.16035	0.007875



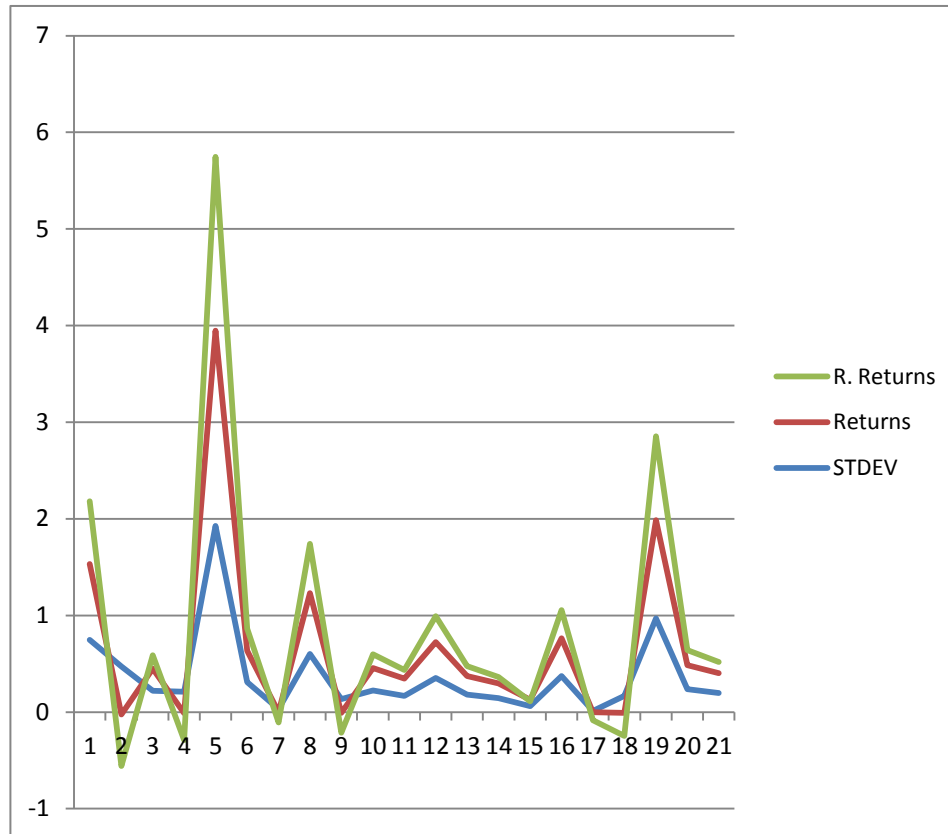
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Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	17.36	10.71	1.75	0.784314	1.784314	0.652142	0.037348	0.557957	0.746965	0.074697	0.714314
2	7	17.36	1.75	-0.49597	0.504032	-0.5333	-0.02362	0.223115	0.47235	0.047235	-0.56597
3	6.86	7	1.75	0.23	1.23	0.138889	0.010952	0.047982	0.219048	0.021905	0.16
4	3.6	6.86	1.75	-0.22012	0.779883	-0.27789	-0.01048	0.043947	0.209635	0.020963	-0.29012
5	9.13	3.6	1.75	2.022222	3.022222	1.798354	0.096296	3.709191	1.925926	0.192593	1.952222
6	10.35	9.13	1.75	0.325301	1.325301	0.227131	0.015491	0.095983	0.309811	0.030981	0.255301
7	8.26	10.35	1.75	-0.03285	0.96715	-0.10449	-0.00156	0.000979	0.031286	0.003129	-0.10285
8	11.72	8.26	1.75	0.630751	1.630751	0.509954	0.030036	0.360858	0.600715	0.060071	0.560751
9	8.31	11.72	1.75	-0.14164	0.858362	-0.20522	-0.00674	0.018196	0.134894	0.013489	-0.21164
10	8.5	8.31	1.75	0.233454	1.233454	0.142087	0.011117	0.049434	0.222337	0.022234	0.163454
11	8.26	8.5	1.75	0.177647	1.177647	0.090414	0.008459	0.028624	0.169188	0.016919	0.107647
12	9.5	8.21	1.75	0.37028	1.37028	0.268778	0.017632	0.12436	0.352648	0.035265	0.30028
13	9.56	9.5	1.75	0.190526	1.190526	0.102339	0.009073	0.032925	0.181454	0.018145	0.120526
14	9.26	9.56	1.75	0.151674	1.151674	0.066364	0.007223	0.020866	0.144451	0.014445	0.081674
15	8.11	9.26	1.75	0.064795	1.064795	-0.01408	0.003085	0.003808	0.061709	0.006171	-0.00521
16	9.54	8.11	1.75	0.392109	1.392109	0.288989	0.018672	0.139455	0.373437	0.037344	0.322109
17	7.68	9.54	1.75	-0.01153	0.98847	-0.08475	-0.00055	0.000121	0.010981	0.001098	-0.08153
18	4.57	7.68	1.75	-0.17708	0.822917	-0.23804	-0.00843	0.028443	0.168651	0.016865	-0.24708
19	7.47	4.57	1.75	1.017505	2.017505	0.868061	0.048453	0.939063	0.969053	0.096905	0.947505
20	7.58	7.47	1.75	0.248996	1.248996	0.156478	0.011857	0.056235	0.237139	0.023714	0.178996
21	7.39	7.58	1.75	0.205805	1.205805	0.116486	0.0098	0.038418	0.196005	0.0196	0.135805



**CONGLOMERATE
SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL RETURNS
TRENDS**

	STDEV	Returns	R. Returns
1	0.74696545	0.7843137	0.6521423
2	0.47235023	-0.495968	-0.533303
3	0.21904762	0.23	0.1388889
4	0.20963487	-0.220117	-0.277886
5	1.92592593	2.0222222	1.7983539
6	0.30981067	0.3253012	0.2271307
7	0.03128594	-0.03285	-0.104491
8	0.60071486	0.6307506	0.5099543
9	0.13489355	-0.141638	-0.205221
10	0.22233683	0.2334537	0.1420867
11	0.16918768	0.1776471	0.0904139
12	0.35264776	0.3702801	0.2687779
13	0.18145363	0.1905263	0.1023392
14	0.14445109	0.1516736	0.0663645
15	0.06170935	0.0647948	-0.014079
16	0.37343667	0.3921085	0.2889894
17	0.01098133	-0.01153	-0.08475
18	0.16865079	-0.177083	-0.23804
19	0.96905283	1.0175055	0.8680606
20	0.23713903	0.248996	0.1564778
21	0.19600452	0.2058047	0.1164859

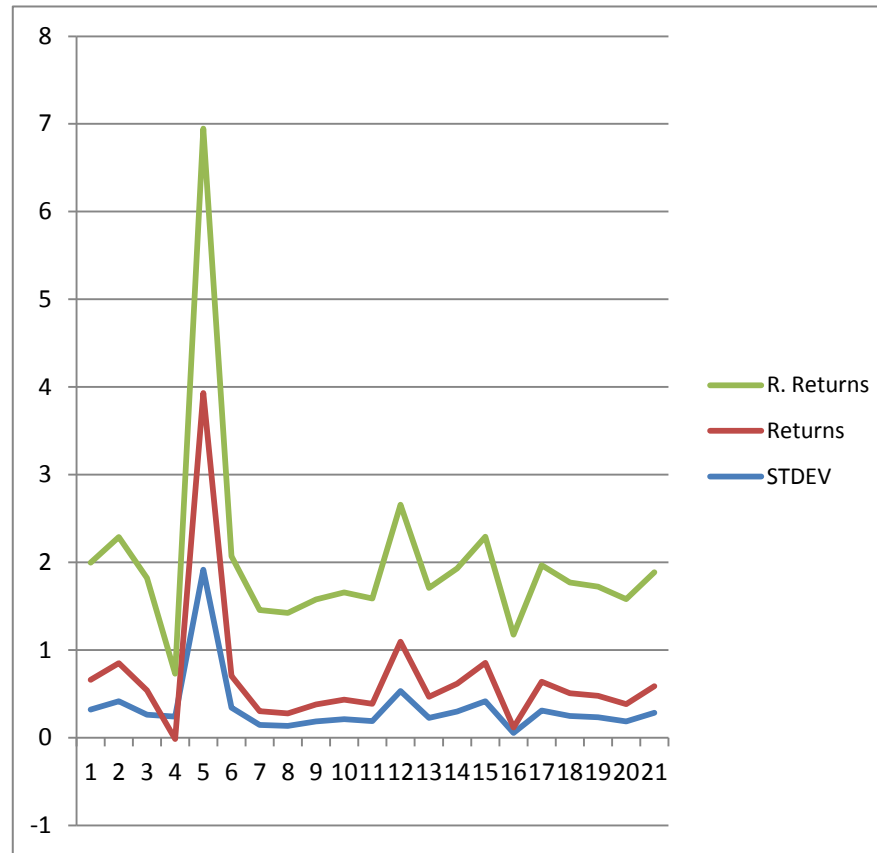


CONSUMER GOODS SECTOR

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	59.99	58.87	18.79	0.338203	1.338203	0.233367	0.016105	0.103747	0.322098	0.03221	0.273203
2	67.41	59.99	18.79	0.436906	1.436906	0.324337	0.020805	0.17314	0.416101	0.04161	0.371906
3	67.36	67.41	18.79	0.278	1.278	0.17788	0.013238	0.070099	0.264762	0.026476	0.213
4	31.36	67.34	18.79	-0.25527	0.744728	-0.31361	-0.01216	0.059105	0.243116	0.024312	-0.32027
5	75.73	31.36	18.79	2.014031	3.014031	1.777908	0.095906	3.679201	1.918124	0.191812	1.949031
6	84.36	75.73	18.79	0.362076	1.362076	0.255369	0.017242	0.118911	0.344834	0.034483	0.297076
7	78.67	84.36	18.79	0.155287	1.155287	0.064781	0.007395	0.021872	0.147892	0.014789	0.090287
8	71.15	78.67	18.79	0.143257	1.143257	0.053693	0.006822	0.018614	0.136435	0.013643	0.078257
9	66.29	71.15	18.79	0.195784	1.195784	0.102105	0.009323	0.034768	0.186461	0.018646	0.130784
10	62.26	66.29	18.79	0.222658	1.222658	0.126874	0.010603	0.044967	0.212055	0.021206	0.157658
11	55.86	62.26	18.79	0.199004	1.199004	0.105073	0.009476	0.035921	0.189528	0.018953	0.134004
12	68.43	55.86	18.79	0.561404	1.561404	0.439082	0.026734	0.285872	0.53467	0.053467	0.496404
13	66.1	68.43	18.79	0.240538	1.240538	0.143353	0.011454	0.052479	0.229084	0.022908	0.175538
14	68.19	66.1	18.79	0.315885	1.315885	0.212797	0.015042	0.090506	0.300843	0.030084	0.250885
15	79.31	68.19	18.79	0.438627	1.438627	0.325924	0.020887	0.174507	0.41774	0.041774	0.373627
16	65.3	79.31	18.79	0.06027	1.06027	-0.02279	0.00287	0.003295	0.0574	0.00574	-0.00473
17	67.92	65.3	18.79	0.327871	1.327871	0.223845	0.015613	0.097505	0.312258	0.031226	0.262871
18	66.86	67.92	18.79	0.261042	1.261042	0.162251	0.012431	0.061808	0.248612	0.024861	0.196042
19	64.45	66.86	18.79	0.24499	1.24499	0.147456	0.011666	0.05444	0.233323	0.023332	0.17999
20	58.37	64.45	18.79	0.197207	1.197207	0.103417	0.009391	0.035275	0.187816	0.018782	0.132207
21	57.16	58.37	18.79	0.301182	1.301182	0.199246	0.014342	0.082277	0.28684	0.028684	0.236182

CONSUMER GOODS SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL RETURNS
TRENDS

Week	STDEV	Returns	R. Returns
1	0.322097924	0.3382028	1.338203
2	0.416101096	0.4369062	1.436906
3	0.264762187	0.2780003	1.278
4	0.243115957	-0.255272	0.744728
5	1.918124393	2.0140306	3.014031
6	0.344834091	0.3620758	1.362076
7	0.147892253	0.1552869	1.155287
8	0.136434897	0.1432566	1.143257
9	0.186460529	0.1957836	1.195784
10	0.212055255	0.222658	1.222658
11	0.189527787	0.1990042	1.199004
12	0.534670008	0.5614035	1.561404
13	0.229083596	0.2405378	1.240538
14	0.300842879	0.315885	1.315885
15	0.417740347	0.4386274	1.438627
16	0.057399835	0.0602698	1.06027
17	0.312258441	0.3278714	1.327871
18	0.248611812	0.2610424	1.261042
19	0.233323362	0.2449895	1.24499
20	0.187816321	0.1972071	1.197207
21	0.286840109	0.3011821	1.301182

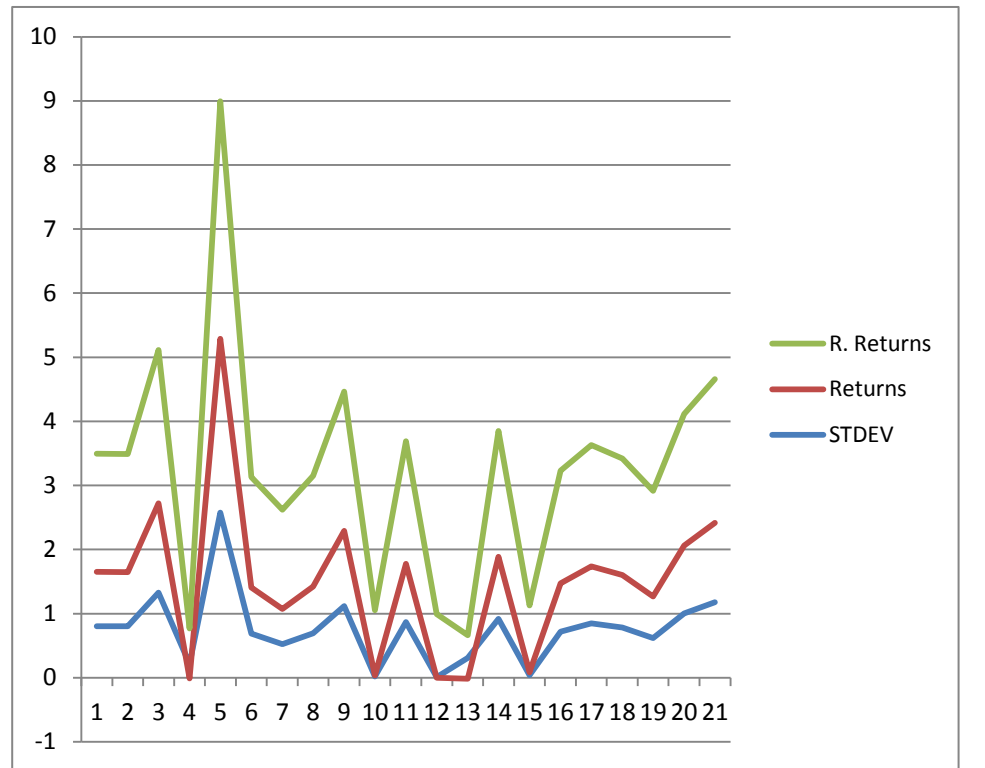


**FINANCIAL SERVICES
SECTOR**

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	3.38	3.29	2.69	0.844985	1.844985	0.700447	0.040237	0.647618	0.804747	0.080475	0.779985
2	3.54	3.38	2.69	0.843195	1.843195	0.698797	0.040152	0.644878	0.803043	0.080304	0.778195
3	5.78	3.54	2.69	1.392655	2.392655	1.205212	0.066317	1.759174	1.326338	0.132634	1.327655
4	1.81	5.79	2.69	-0.2228	0.777202	-0.28368	-0.01061	0.045024	0.212189	0.021219	-0.2878
5	4.02	1.81	2.69	2.707182	3.707182	2.416758	0.128913	6.64747	2.578269	0.257827	2.642182
6	4.23	4.02	2.69	0.721393	1.721393	0.586537	0.034352	0.472025	0.687041	0.068704	0.656393
7	3.86	4.23	2.69	0.548463	1.548463	0.427155	0.026117	0.272845	0.522346	0.052235	0.483463
8	3.98	3.86	2.69	0.727979	1.727979	0.592608	0.034666	0.480684	0.693314	0.069331	0.662979
9	5.96	3.98	2.69	1.173367	2.173367	1.003103	0.055875	1.248789	1.117492	0.111749	1.108367
10	3.38	5.96	2.69	0.018456	1.018456	-0.06133	0.000879	0.000309	0.017578	0.001758	-0.04654
11	3.77	3.38	2.69	0.911243	1.911243	0.761514	0.043393	0.753164	0.86785	0.086785	0.846243
12	1.05	3.77	2.69	-0.00796	0.992042	-0.08568	-0.00038	5.74E-05	0.007579	0.000758	-0.07296
13	4.11	10.05	2.69	-0.32338	0.676617	-0.37639	-0.0154	0.094854	0.307984	0.030798	-0.38838
14	5.39	4.11	2.69	0.965937	1.965937	0.811923	0.045997	0.846289	0.91994	0.091994	0.900937
15	3.35	5.79	2.69	0.043178	1.043178	-0.03855	0.002056	0.001691	0.041122	0.004112	-0.02182
16	3.19	3.35	2.69	0.755224	1.755224	0.617718	0.035963	0.517336	0.719261	0.071926	0.690224
17	3.34	3.19	2.69	0.890282	1.890282	0.742196	0.042394	0.718914	0.847888	0.084789	0.825282
18	3.39	3.34	2.69	0.820359	1.820359	0.67775	0.039065	0.610421	0.781295	0.078129	0.755359
19	2.9	3.39	2.69	0.648968	1.648968	0.519786	0.030903	0.382004	0.618064	0.061806	0.583968
20	3.27	2.9	2.69	1.055172	2.055172	0.894168	0.050246	1.009876	1.004926	0.100493	0.990172
21	4.63	3.27	2.69	1.238532	2.238532	1.063163	0.058978	1.391349	1.179554	0.117955	1.173532

FINANCIAL SERVICES SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL RETURNS
TRENDS

Week	STDEV	Returns	R. Returns
1	0.80474743	0.8449848	1.844985
2	0.80304311	0.8431953	1.843195
3	1.32633844	1.3926554	2.392655
4	0.2121885	-0.222798	0.777202
5	2.57826888	2.7071823	3.707182
6	0.68704099	0.721393	1.721393
7	0.52234605	0.5484634	1.548463
8	0.69331359	0.7279793	1.727979
9	1.11749222	1.1733668	2.173367
10	0.0175775	0.0184564	1.018456
11	0.8678501	0.9112426	1.911243
12	0.00757863	-0.007958	0.992042
13	0.30798389	-0.323383	0.676617
14	0.91993975	0.9659367	1.965937
15	0.0411218	0.0431779	1.043178
16	0.71926084	0.7552239	1.755224
17	0.84788774	0.8902821	1.890282
18	0.78129455	0.8203593	1.820359
19	0.61806433	0.6489676	1.648968
20	1.00492611	1.0551724	2.055172
21	1.17955439	1.2385321	2.238532

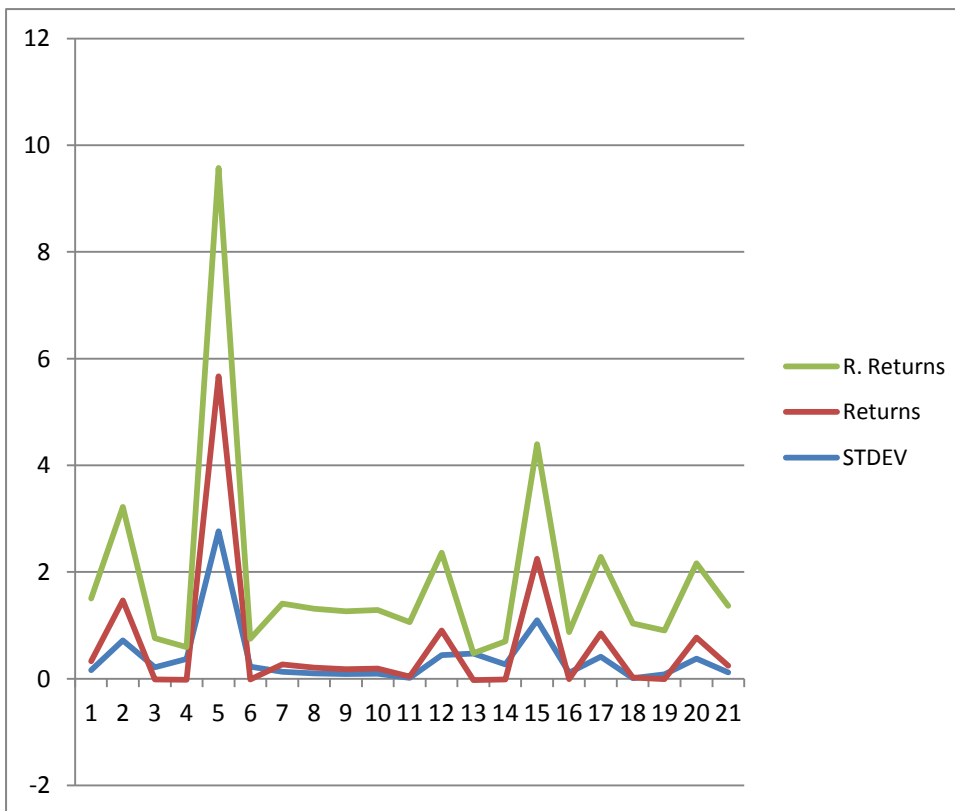


**HEALTH CARE
SECTOR**

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	6.07	6	0.95	0.17	1.17	0.078341	0.008095	0.026213	0.161905	0.01619	0.105
2	9.69	6.07	0.95	0.752883	1.752883	0.61556	0.035852	0.514134	0.717031	0.071703	0.687883
3	6.53	9.69	0.95	-0.22807	0.77193	-0.28854	-0.01086	0.04718	0.21721	0.021721	-0.29307
4	3.04	6.53	0.95	-0.38897	0.611026	-0.43684	-0.01852	0.137234	0.370451	0.037045	-0.45397
5	10.92	3.04	0.95	2.904605	3.904605	2.598715	0.138315	7.652364	2.766291	0.276629	2.839605
6	7.38	10.92	0.95	-0.23718	0.762821	-0.29694	-0.01129	0.051024	0.225885	0.022589	-0.30218
7	7.45	7.38	0.95	0.138211	1.138211	0.049043	0.006581	0.017326	0.13163	0.013163	0.073211
8	7.29	7.45	0.95	0.10604	1.10604	0.019392	0.00505	0.010199	0.100991	0.010099	0.04104
9	7	7.29	0.95	0.090535	1.090535	0.005101	0.004311	0.007435	0.086224	0.008622	0.025535
10	6.74	7	0.95	0.098571	1.098571	0.012508	0.004694	0.008813	0.093878	0.009388	0.033571
11	5.93	6.74	0.95	0.020772	1.020772	-0.0592	0.000989	0.000391	0.019782	0.001978	-0.04423
12	7.72	5.93	0.95	0.462057	1.462057	0.347518	0.022003	0.193648	0.440055	0.044005	0.397057
13	4.11	10.05	0.95	-0.49652	0.503483	-0.53596	-0.02364	0.22361	0.472874	0.047287	-0.56152
14	3.79	6.62	0.95	-0.28399	0.716012	-0.34008	-0.01352	0.073151	0.270465	0.027046	-0.34899
15	7.2	3.79	0.95	1.150396	2.150396	0.981932	0.054781	1.200372	1.095615	0.109562	1.085396
16	5.41	7.2	0.95	-0.11667	0.883333	-0.18587	-0.00556	0.012346	0.111111	0.011111	-0.18167
17	6.81	5.41	0.95	0.434381	1.434381	0.32201	0.020685	0.171144	0.413696	0.04137	0.369381
18	5.94	6.81	0.95	0.011747	1.011747	-0.06751	0.000559	0.000125	0.011188	0.001119	-0.05325
19	4.46	5.94	0.95	-0.08923	0.910774	-0.16058	-0.00425	0.007221	0.084977	0.008498	-0.15423
20	5.27	4.46	0.95	0.394619	1.394619	0.285363	0.018791	0.141246	0.375827	0.037583	0.329619
21	4.98	5.27	0.95	0.125237	1.125237	0.037085	0.005964	0.014226	0.119274	0.011927	0.060237

HEALTH CARE SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL
RETURNS TRENDS

	STDEV	Returns	R. Returns
1	0.16190476	0.17	1.17
2	0.71703146	0.752883	1.752883
3	0.21720969	-0.22807	0.77193
4	0.3704514	-0.388974	0.611026
5	2.76629073	2.9046053	3.904605
6	0.22588523	-0.237179	0.762821
7	0.13162989	0.1382114	1.138211
8	0.10099073	0.1060403	1.10604
9	0.08622379	0.090535	1.090535
10	0.09387755	0.0985714	1.098571
11	0.01978239	0.0207715	1.020772
12	0.44005461	0.4620573	1.462057
13	0.47287373	-0.496517	0.503483
14	0.27046468	-0.283988	0.716012
15	1.09561503	1.1503958	2.150396
16	0.11111111	-0.116667	0.883333
17	0.41369598	0.4343808	1.434381
18	0.01118803	0.0117474	1.011747
19	0.08497675	-0.089226	0.910774
20	0.37582746	0.3946188	1.394619
21	0.11927352	0.1252372	1.125237

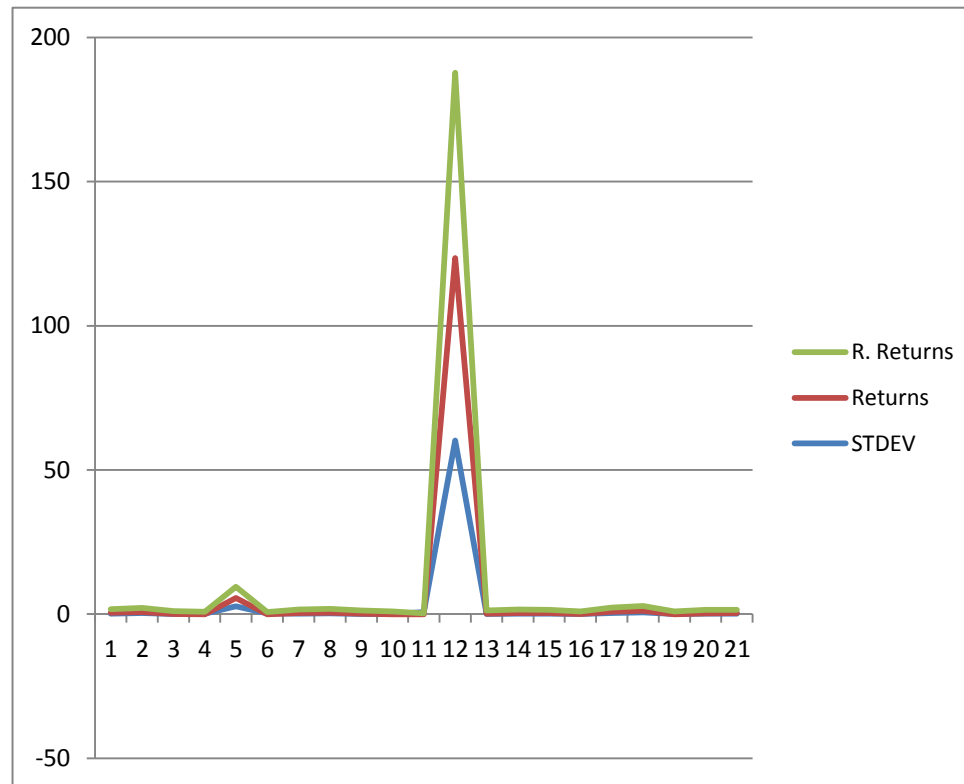


**INDUSTRIAL GOODS
SECTOR**

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	21.7	21.65	4.9	0.228637	1.228637	0.132385	0.010887	0.047415	0.21775	0.021775	0.163637
2	25.08	21.7	4.9	0.381567	1.381567	0.273333	0.01817	0.132057	0.363397	0.03634	0.316567
3	20.98	25.08	4.9	0.031898	1.031898	-0.04894	0.001519	0.000923	0.030379	0.003038	-0.0331
4	12.29	20.98	4.9	-0.18065	0.819352	-0.24484	-0.0086	0.0296	0.172046	0.017205	-0.24565
5	42.65	12.29	4.9	2.868999	3.868999	2.565898	0.136619	7.465901	2.73238	0.273238	2.803999
6	25.1	42.65	4.9	-0.2966	0.7034	-0.35171	-0.01412	0.079793	0.282476	0.028248	-0.3616
7	25.28	25.1	4.9	0.20239	1.20239	0.108194	0.009638	0.037154	0.192753	0.019275	0.13739
8	27.5	25.28	4.9	0.281646	1.281646	0.18124	0.013412	0.071949	0.268234	0.026823	0.216646
9	24.83	27.5	4.9	0.081091	1.081091	-0.0036	0.003861	0.005964	0.077229	0.007723	0.016091
10	19.1	24.83	4.9	-0.03343	0.966573	-0.10915	-0.00159	0.001014	0.031836	0.003184	-0.09843
11	0.5	19.1	4.9	-0.71728	0.282723	-0.73943	-0.03416	0.466655	0.683121	0.068312	-0.78228
12	27.22	0.5	4.9	63.24	64.24	58.20737	3.011429	3627.481	60.22857	6.022857	63.175
13	24.5	27.22	4.9	0.080088	1.080088	-0.00453	0.003814	0.005818	0.076274	0.007627	0.015088
14	24.53	24.5	4.9	0.201224	1.201224	0.107119	0.009582	0.036727	0.191642	0.019164	0.136224
15	23.84	24.53	4.9	0.171627	1.171627	0.07984	0.008173	0.026717	0.163454	0.016345	0.106627
16	18.84	23.84	4.9	-0.00419	0.995805	-0.08221	-0.0002	1.6E-05	0.003995	0.000399	-0.06919
17	21.96	18.84	4.9	0.42569	1.42569	0.314	0.020271	0.164365	0.405419	0.040542	0.36069
18	30.65	21.96	4.9	0.618852	1.618852	0.49203	0.029469	0.347373	0.589383	0.058938	0.553852
19	23.55	30.65	4.9	-0.07178	0.928222	-0.1445	-0.00342	0.004673	0.06836	0.006836	-0.13678
20	22.22	23.55	4.9	0.151592	1.151592	0.061375	0.007219	0.020844	0.144374	0.014437	0.086592
21	21.36	22.22	4.9	0.181818	1.181818	0.089233	0.008658	0.029984	0.17316	0.017316	0.111818

**INDUSTRIAL GOODS
SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL
RETURNS TRENDS**

	STDEV	Returns	R. Returns
1	0.21774992	0.228637	1.228637
2	0.36339697	0.381567	1.381567
3	0.03037898	0.031898	1.031898
4	0.17204594	-0.180648	0.819352
5	2.73238018	2.868999	3.868999
6	0.28247641	-0.2966	0.7034
7	0.1927528	0.20239	1.20239
8	0.26823388	0.281646	1.281646
9	0.07722944	0.081091	1.081091
10	0.03183553	-0.033427	0.966573
11	0.68312142	-0.717277	0.282723
12	60.2285714	63.24	64.24
13	0.07627445	0.080088	1.080088
14	0.19164237	0.201224	1.201224
15	0.16345389	0.171627	1.171627
16	0.00399489	-0.004195	0.995805
17	0.40541907	0.42569	1.42569
18	0.58938329	0.618852	1.618852
19	0.06836013	-0.071778	0.928222
20	0.14437367	0.151592	1.151592
21	0.17316017	0.181818	1.181818

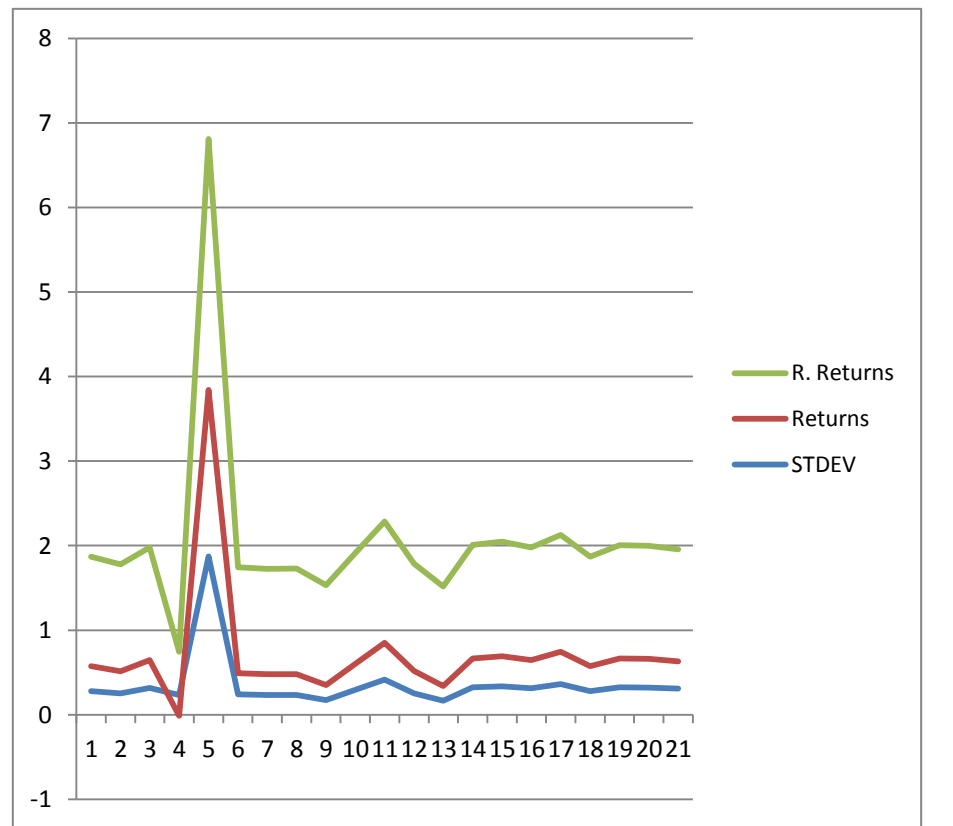


OIL & GAS SECTOR

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	107.29	106.98	31.25	0.295008	1.295008	0.193556	0.014048	0.078939	0.28096	0.028096	0.230008
2	104.34	107.29	31.25	0.263771	1.263771	0.164766	0.012561	0.063107	0.251211	0.025121	0.198771
3	107.66	104.34	31.25	0.331321	1.331321	0.227024	0.015777	0.099568	0.315544	0.031554	0.266321
4	50.02	107.66	31.25	-0.24512	0.754876	-0.30426	-0.01167	0.054499	0.233451	0.023345	-0.31012
5	117.21	50.02	31.25	1.968013	2.968013	1.735496	0.093715	3.512993	1.874298	0.18743	1.903013
6	115.49	117.21	31.25	0.251941	1.251941	0.153863	0.011997	0.057573	0.239944	0.023994	0.186941
7	112.62	115.49	31.25	0.245736	1.245736	0.148143	0.011702	0.054772	0.234034	0.023403	0.180736
8	109.13	112.62	31.25	0.246493	1.246493	0.148841	0.011738	0.05511	0.234755	0.023475	0.181493
9	97.61	109.13	31.25	0.180794	1.180794	0.088289	0.008609	0.029647	0.172184	0.017218	0.115794
10	96.43	97.61	31.25	0.308063	1.308063	0.205588	0.01467	0.086079	0.293393	0.029339	0.243063
11	107.18	96.43	31.25	0.435549	1.435549	0.323087	0.02074	0.172066	0.414809	0.041481	0.370549
12	104.41	107.18	31.25	0.265721	1.265721	0.166563	0.012653	0.064043	0.253068	0.025307	0.200721
13	91.4	104.41	31.25	0.174696	1.174696	0.082669	0.008319	0.027681	0.166377	0.016638	0.109696
14	91.37	91.4	31.25	0.341575	1.341575	0.236475	0.016265	0.105827	0.32531	0.032531	0.276575
15	92.55	91.37	31.25	0.354931	1.354931	0.248784	0.016901	0.114264	0.338029	0.033803	0.289931
16	91.95	92.55	31.25	0.331172	1.331172	0.226887	0.01577	0.099479	0.315402	0.03154	0.266172
17	95.8	91.95	31.25	0.381729	1.381729	0.273483	0.018178	0.13217	0.363552	0.036355	0.316729
18	92.74	95.8	31.25	0.294259	1.294259	0.192865	0.014012	0.078538	0.280247	0.028025	0.229259
19	93.06	92.74	31.25	0.340414	1.340414	0.235405	0.01621	0.105108	0.324204	0.03242	0.275414
20	93.3	93.06	31.25	0.338384	1.338384	0.233533	0.016114	0.103858	0.32227	0.032227	0.273384
21	92.22	93.3	31.25	0.323365	1.323365	0.219692	0.015398	0.094844	0.307967	0.030797	0.258365

OIL & GAS SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL RETURNS
TRENDS

	STDEV	Returns	R. Returns
1	0.28096039	0.295008	1.295008
2	0.25121056	0.263771	1.263771
3	0.31554351	0.331321	1.331321
4	0.23345099	-0.245124	0.754876
5	1.8742979	1.968013	2.968013
6	0.23994377	0.251941	1.251941
7	0.23403387	0.245736	1.245736
8	0.23475489	0.246493	1.246493
9	0.17218433	0.180794	1.180794
10	0.29339305	0.308063	1.308063
11	0.41480867	0.435549	1.435549
12	0.25306783	0.265721	1.265721
13	0.16637706	0.174696	1.174696
14	0.32530999	0.341575	1.341575
15	0.33802905	0.354931	1.354931
16	0.31540223	0.331172	1.331172
17	0.36355162	0.381729	1.381729
18	0.28024655	0.294259	1.294259
19	0.32420387	0.340414	1.340414
20	0.32227032	0.338384	1.338384
21	0.30796713	0.323365	1.323365



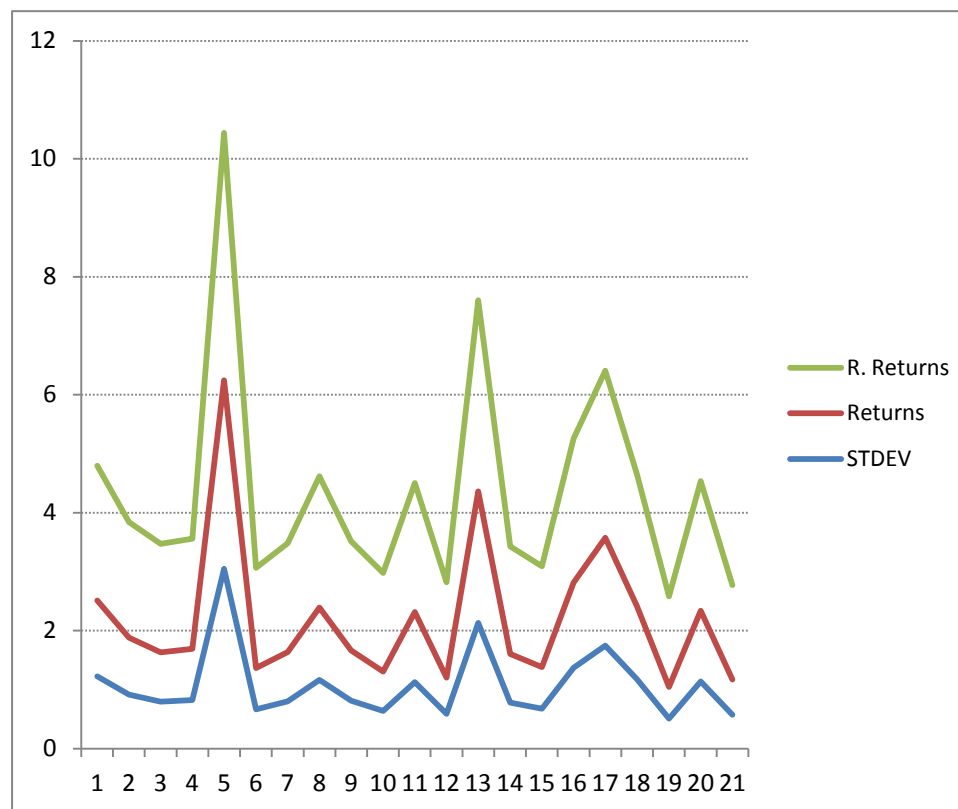
**SERVICES
SECTOR**

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	2.13	1.85	2.1	1.286486	2.286486	1.107361	0.061261	1.501177	1.225225	0.122523	1.221486
2	2.08	2.13	2.1	0.962441	1.962441	0.808702	0.045831	0.840175	0.916611	0.091661	0.897441
3	1.72	2.08	2.1	0.836538	1.836538	0.692662	0.039835	0.634736	0.796703	0.07967	0.771538
4	1.11	1.72	2.1	0.866279	1.866279	0.720073	0.041251	0.680671	0.825028	0.082503	0.801279
5	2.56	1.11	2.1	3.198198	4.198198	2.869307	0.152295	9.277525	3.045903	0.30459	3.133198
6	2.25	2.56	2.1	0.699219	1.699219	0.5661	0.033296	0.443453	0.665923	0.066592	0.634219
7	2.04	2.25	2.1	0.84	1.84	0.695853	0.04	0.64	0.8	0.08	0.775
8	2.44	2.04	2.1	1.22549	2.22549	1.051143	0.058357	1.362201	1.167134	0.116713	1.16049
9	2.42	2.44	2.1	0.852459	1.852459	0.707335	0.040593	0.659126	0.811866	0.081187	0.787459
10	1.94	2.42	2.1	0.669421	1.669421	0.538637	0.031877	0.406463	0.637544	0.063754	0.604421
11	2.14	1.94	2.1	1.185567	2.185567	1.014347	0.056456	1.274893	1.129111	0.112911	1.120567
12	1.36	2.14	2.1	0.616822	1.616822	0.490159	0.029372	0.345097	0.58745	0.058745	0.551822
13	2.3	1.36	2.1	2.235294	3.235294	1.981838	0.106443	4.532009	2.128852	0.212885	2.170294
14	2.09	2.3	2.1	0.821739	1.821739	0.679022	0.03913	0.612476	0.782609	0.078261	0.756739
15	1.47	2.09	2.1	0.708134	1.708134	0.574317	0.033721	0.454833	0.674413	0.067441	0.643134
16	1.49	1.47	2.1	1.442177	2.442177	1.250854	0.068675	1.886507	1.373502	0.13735	1.377177
17	2.12	1.49	2.1	1.832215	2.832215	1.610336	0.087248	3.044908	1.744966	0.174497	1.767215
18	2.64	2.12	2.1	1.235849	2.235849	1.06069	0.05885	1.385327	1.176999	0.1177	1.170849
19	1.97	2.65	2.1	0.535849	1.535849	0.415529	0.025517	0.260439	0.510332	0.051033	0.470849
20	2.23	1.97	2.1	1.19797	2.19797	1.025778	0.057046	1.301706	1.140923	0.114092	1.13297
21	1.47	2.23	2.1	0.600897	1.600897	0.475481	0.028614	0.327508	0.572283	0.057228	0.535897

**SERVICES
SECTOR**

GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL RETURNS TRENDS

	STDEV	Returns	R. Returns
1	1.225225225	1.2864865	2.2864865
2	0.916610776	0.9624413	1.9624413
3	0.796703297	0.8365385	1.8365385
4	0.825027685	0.8662791	1.8662791
5	3.045903046	3.1981982	4.1981982
6	0.665922619	0.6992188	1.6992188
7	0.8	0.84	1.84
8	1.16713352	1.2254902	2.2254902
9	0.81186573	0.852459	1.852459
10	0.637544274	0.6694215	1.6694215
11	1.129111438	1.185567	2.185567
12	0.587449933	0.6168224	1.6168224
13	2.128851541	2.2352941	3.2352941
14	0.782608696	0.8217391	1.8217391
15	0.674413306	0.708134	1.708134
16	1.373501782	1.4421769	2.4421769
17	1.744966443	1.8322148	2.8322148
18	1.176999102	1.2358491	2.2358491
19	0.510332435	0.5358491	1.5358491
20	1.140923374	1.1979695	2.1979695
21	0.572282725	0.6008969	1.6008969

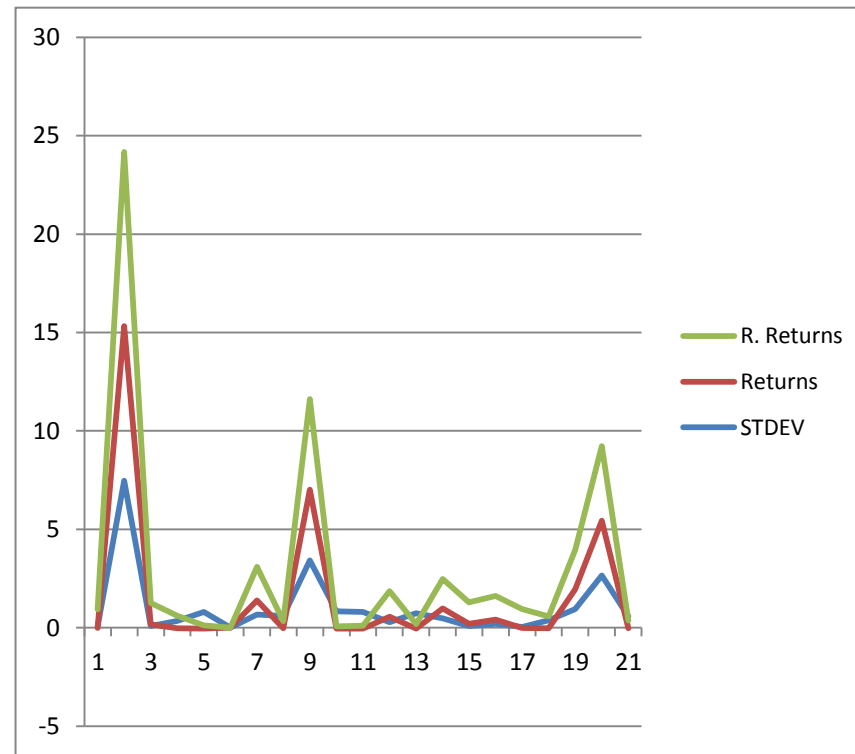


**INFORMATION & COMMUNICATIONS TECHNOLOGY
SECTOR**

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	0.13	0.3	0.15	-0.06667	0.933333	-0.13978	-0.00317	0.004031	0.063492	0.006349	-0.13167
2	1	0.13	0.15	7.846154	8.846154	7.153137	0.373626	55.83867	7.472527	0.747253	7.781154
3	0.94	1	0.15	0.09	1.09	0.004608	0.004286	0.007347	0.085714	0.008571	0.025
4	0.44	0.94	0.15	-0.37234	0.62766	-0.42151	-0.01773	0.125748	0.35461	0.035461	-0.43734
5	0	0.94	0.15	-0.84043	0.159574	-0.85293	-0.04002	0.640649	0.800405	0.080041	-0.90543
6	0	0	0.15	0	0	-0.07834	0	0	0	0	-0.065
7	1.27	0.83	0.15	0.710843	1.710843	0.576814	0.03385	0.45832	0.676994	0.067699	0.645843
8	0.32	1.27	0.15	-0.62992	0.370079	-0.65891	-0.03	0.35991	0.599925	0.059993	-0.69492
9	1.32	0.32	0.15	3.59375	4.59375	3.233871	0.171131	11.71432	3.422619	0.342262	3.52875
10	0	1.32	0.15	-0.88636	0.113636	-0.89527	-0.04221	0.712599	0.844156	0.084416	-0.95136
11	0	1	0.15	-0.85	0.15	-0.86175	-0.04048	0.655329	0.809524	0.080952	-0.915
12	1.14	1	0.15	0.29	1.29	0.18894	0.01381	0.076281	0.27619	0.027619	0.225
13	0.1	1.14	0.15	-0.7807	0.219298	-0.79788	-0.03718	0.55283	0.743525	0.074353	-0.8457
14	0	0.1	0.15	0.5	1.5	0.382488	0.02381	0.226757	0.47619	0.047619	0.435
15	0.95	1	0.15	0.1	1.1	0.013825	0.004762	0.00907	0.095238	0.009524	0.035
16	1	0.95	0.15	0.210526	1.210526	0.115692	0.010025	0.040201	0.200501	0.02005	0.145526
17	0.81	1	0.15	-0.04	0.96	-0.11521	-0.0019	0.001451	0.038095	0.00381	-0.105
18	0.33	0.81	0.15	-0.40741	0.592593	-0.45383	-0.0194	0.150549	0.388007	0.038801	-0.47241
19	0.51	0.33	0.15	1	2	0.843318	0.047619	0.907029	0.952381	0.095238	0.935
20	1.78	0.51	0.15	2.784314	3.784314	2.487847	0.132586	7.031658	2.651727	0.265173	2.719314
21	0.54	1.78	0.15	-0.61236	0.38764	-0.64273	-0.02916	0.340122	0.5832	0.05832	-0.67736

**INFORMATION & COMMUNICATIONS TECHNOLOGY
SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL RETURNS
TRENDS**

	STDEV	Returns	R. Returns
1	0.06349206	-0.066667	0.933333
2	7.47252747	7.8461538	8.846154
3	0.08571429	0.09	1.09
4	0.35460993	-0.37234	0.62766
5	0.80040527	-0.840426	0.159574
6	0	0	0
7	0.67699369	0.7108434	1.710843
8	0.59992501	-0.629921	0.370079
9	3.42261905	3.59375	4.59375
10	0.84415584	-0.886364	0.113636
11	0.80952381	-0.85	0.15
12	0.27619048	0.29	1.29
13	0.74352548	-0.780702	0.219298
14	0.47619048	0.5	1.5
15	0.0952381	0.1	1.1
16	0.20050125	0.2105263	1.210526
17	0.03809524	-0.04	0.96
18	0.38800705	-0.407407	0.592593
19	0.95238095	1	2
20	2.65172736	2.7843137	3.784314
21	0.58319957	-0.61236	0.38764

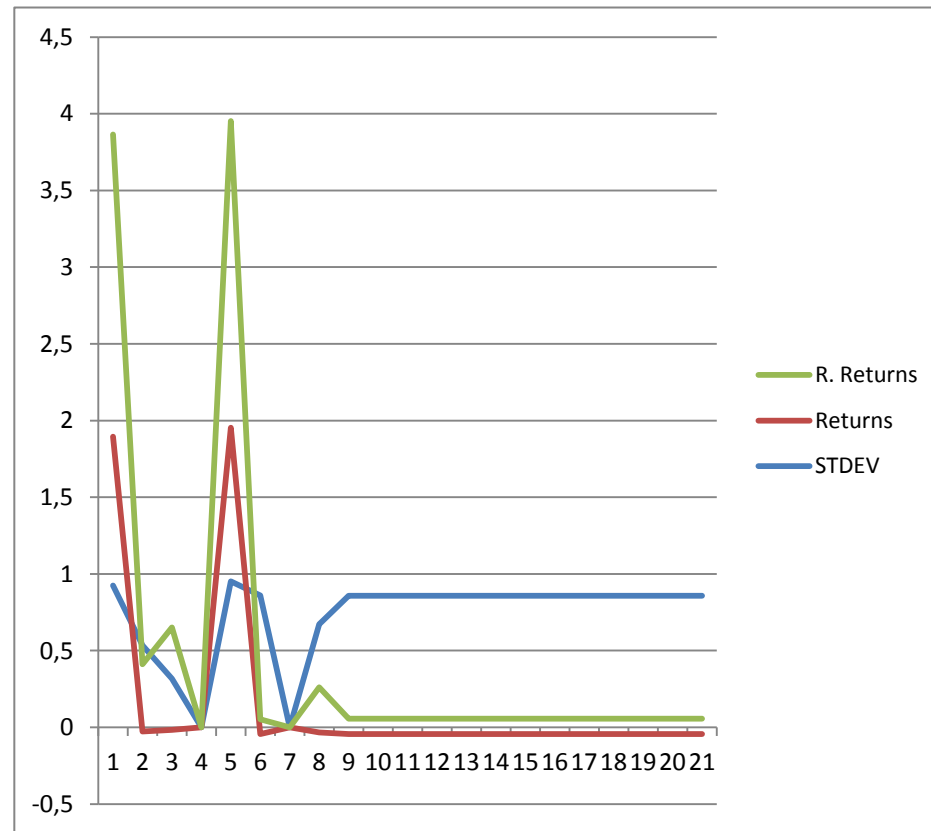


**NATURAL RESOURCES
SECTOR**

Week	Share Price Ending	Share Price Beginning	Dividend Paid	Returns	Relative Return	Real Return	Mean Return	Var (R1-R)^2	Std Dev =SQRT(Var)	Std Dev (Ex PF)	Risk PM (Rm-Rf)
1	0.57	0.34	0.1	0.970588	1.970588	0.81621	0.046218	0.854459	0.92437	0.092437	0.905588
2	0.15	0.57	0.1	-0.5614	0.438596	-0.59576	-0.02673	0.285872	0.53467	0.053467	-0.6264
3	0	0.15	0.1	-0.33333	0.666667	-0.38556	-0.01587	0.100781	0.31746	0.031746	-0.39833
4	0	0	0.1	0	0	-0.07834	0	0	0	0	-0.065
5	1.04	0.57	0.1	1	2	0.843318	0.047619	0.907029	0.952381	0.095238	0.935
6	0	1.04	0.1	-0.90385	0.096154	-0.91138	-0.04304	0.740987	0.860806	0.086081	-0.96885
7	0	0	0.1	0	0	-0.07834	0	0	0	0	-0.065
8	0	0.34	0.1	-0.70588	0.294118	-0.72892	-0.03361	0.451945	0.672269	0.067227	-0.77088
9	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
10	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
11	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
12	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
13	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
14	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
15	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
16	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
17	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
18	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
19	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
20	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965
21	0	1	0.1	-0.9	0.1	-0.90783	-0.04286	0.734694	0.857143	0.085714	-0.965

NATURAL RESOURCES SECTOR
GRAPHICAL ANALYSIS OF STDEV, RETURNS AND REAL RETURNS
TRENDS

	STDEV	Returns	R. Returns
1	0.92436975	0.9705882	1.970588
2	0.53467001	-0.561404	0.438596
3	0.31746032	-0.333333	0.666667
4	0	0	0
5	0.95238095	1	2
6	0.86080586	-0.903846	0.096154
7	0	0	0
8	0.67226891	-0.705882	0.294118
9	0.85714286	-0.9	0.1
10	0.85714286	-0.9	0.1
11	0.85714286	-0.9	0.1
12	0.85714286	-0.9	0.1
13	0.85714286	-0.9	0.1
14	0.85714286	-0.9	0.1
15	0.85714286	-0.9	0.1
16	0.85714286	-0.9	0.1
17	0.85714286	-0.9	0.1
18	0.85714286	-0.9	0.1
19	0.85714286	-0.9	0.1
20	0.85714286	-0.9	0.1
21	0.85714286	-0.9	0.1



Agriculture

Agriculture is the largest sector of the Nigerian economy with GDP contribution of about 40% and 70% of job creation (CBN, 2014). It is the sector that receives only 2 percent of all banks lending in Nigeria. This is simply because banks could not find money trail in this sector (Adesina, 2015). As a result of the institutional reforms in this sector it is believed that the best performing stocks in the Nigeria Stock Exchange are now not banks, but agricultural companies as the reforms started with banks to look at opportunities offered by agriculture.

The return per unit risk of stocks in the agricultural sector range between 10.65 percent in week 1 and -16.04 percent in the last week of this study. While the risk per return of these stock shows 10.14 percent and -16.32 percent respectively. These figures show that the sector performed abysmally poor during the last week of this study. The decline may be attributable to the change of government in Nigeria, absence of the minister to pilot the affairs of the sector and the insurgences in the Northern part of the country.

However, the graph shows that the risk return characteristic of the stocks of agricultural companies maintained unstable movement over the period of this study. This is evidently shown in the graph above. In week six the stocks witnessed the highest return as well as the highest risk while week sixteen witness the lowest return and risk. This collaborate the saying, that the higher the return the higher the risk or the lower the return the lower the risk.

Conglomerates Sector

The stock of the conglomerates sector of the Nigerian Stock Exchange comprises of multinational companies engaged in multi-faceted services ranging from manufacturing and sales of foods and personal care products, sales and distribution of automobiles and equipments.

Going by the results, the sector return per unit of risk range from 78.43 percent in week one against 20.58 percent in last week of this study. Its risk per unit of return fall between 74.69 percent in the first week and 19.60 percent in the last week. As such the sector has been witnessing up's and down in their risk-return profiles. Looking at the graphical analysis, it is evident that the Companies stocks in the stock market continue to deliver good return and with a moderate risk record indicating strong capital appreciation in the medium to long-term.

However, going by the resilience of major companies in the sector and their track record, outlook for the sector remains very positive, in spite of the impact of inflation on disposable Income. The sector will benefit from recent efforts to increase minimum wage, growing population, export opportunities to neighbouring countries.

Consumer Goods Sector

Nigeria has one of the largest and fastest growing populations in Africa, and this combined with increasing income levels has resulted in this being a fast growing consumer market. The consumer goods sector has done well in 2014, and is likely to continue doing well on the back of more rural penetration, as well as more migration from rural to urban areas. We are positive on this sector as a whole for 2016.

However, a look at the graphical analysis indicates that returns of stocks on this sector outweigh their risk. The risk of the stocks stood at 0.3220, 0.4161, 0.2647, 1.9181 percent against the return of 0.3382, 0.4369, 0.2780 and 2.0140 percent for week one, two three and fifth week respectively. The risk and return later stood at 0.2868 and 0.3012 percent in the twelve week.

Financial Services Sector

The financial service sector comprises of the banking and non banking financial institution. This sector continues to dominate activities on the floor of the exchange. Financial service sector has the most active and liquid stock on the exchange. A look at the graphical analysis of standard deviation and returns shows that the sector risk –return characteristic is unstable as such it is volatile. The first week reveals 0.845 percent as returns with a risk of 0.804 percent, while at the tenth week it decline to 0.0175 percent as risk and 0.0185 as returns. It further increased to 1.2385percent for return and 1.1795 percent as risk. This collaborate the statementthat risk and return work hand in hand.

Health Care Sector

Stocks in the healthcare sector are often considered to be defensive because the products and services are essential. Even during economic downturns, people will still require medical and medicine to overcome illness. Having a consistent demand for goods and services makes this sector less sensitive to business cycle fluctuations.Evidently, our analysis shows that this sector has maintained a moderate risk and return though unstable. In the first week of this study the stock records 0.1619 percent as risk and 0.170 percent as return. It increased to 0.7170 and 0.7529 percent in week two. It declined to 0.0862 and 0.0905 percent in week nine. It further increased to 1.0956 and

1.1504 percent in week fifteen and later stood at 0.1192 and 0.1252 percent at the final week of the study.

Industrial Goods Sector

This is another sector that has been hard hit by the lack of key reforms by the government combined with various macro factors. New investments are hardly forthcoming, and most companies in this space are reeling from the challenges of accessing credit and low power supply.

However, there are signs of recovery on the horizon, and we believe that this sector will be one of the biggest gainers in 2016 on the back of renewed focus by both the government as well as investors. Evidently, returns are greater than the risks.

Oil & Gas Sector

The industry both globally and locally is very dynamic making projections about the immediate future a hard task. It is the main stay of the Nigerian economy. It accounts for a greater percentage of the GDP

In Nigeria, the combination of unstable crude oil prices and a potentially keenly-contested national election throws into the mix other factors that exacerbate policy and market uncertainties in the near term. However, it's evident that the returns are higher than the risk which shows that there is hope for investors in the oil and gas industry in Nigeria in 2016, amidst the deeply falling oil prices.

However, a look at the graphical analysis indicates that week five recorded a return of 1.9680 percent and 1.8742 percent for risk. The week records the

highest for this sector. While the rest weeks returns fall between 20-40 percent.

Services Sector

The prospect of Nigeria becoming the leading economy in Africa is being realized. For the past years Nigeria led other African countries as the top destination for Foreign Direct Investment (FDI). Divestment of assets by the International Oil Companies (IOCs) resulted in Nigeria's slip to second position in 2013 – the year global FDI flows also took a tumble as a result of weak economic conditions around the world. There is remarkably improvement as much of the sold assets by the IOCs were snapped up by Nigerian indigenous entities, as local participation in the country's oil and gas sector has increased. The truth is that Nigeria has made even more impressive progress with structural transformation of the economy. The nonoil sectors are now the key drivers of the country's GDP growth, which is expected to rise above 7.3 percent in 2015. As shown in the analysis, the returns are rather high in this sector.

Natural Resources

Natural resource wealth can be harnessed to drive economic growth and development. However, many resource-in Nigeria have grappled with the so-called 'natural resource curse'; characterised by slow economic growth, resource-driven conflict, deindustrialisation and the entrenchment of rentier states. The critical issues are natural resource governance, agrarian policy, energy efficiency and geopolitics, environmental management and climate change. However, the sector appear to be risk-prone due reason that some natural resources are not tapped or unaccounted for.

Information & Communications Technology

The ICT has offered a world of opportunities to Nigerians. The growth of ICT is changing the scale of economic and social development. The new ICT-related tools have been known to make institutions and markets more positive, enhance skill and learning, improve governance at all levels and makes easier for services to be accessed. Hence, these indicators reflect that Nigeria is attracting investors in the ICT sector. According to the Federal Ministry of Communications, Nigeria accounts for 29% of Internet usage on the African continent. The above analysis shows that the returns are higher than risk.

5. Conclusion

This study is an attempt to sectorally analyze the risk return characteristics of quoted stocks on the Nigeria stock exchange for 21 weeks. The results of the analysis reveals that the size of the quoted stock risk and return are apparently different on sectoral basis as such they change differently but directly with the size of returns. The magnitude of the risk or return depends mostly on the peculiarity and some macro economic variables influencing such sectors where the stocks are listed but not on the size of the firms. Therefore the study conclude that for an investor to take a rational investment decisions, it is sacrosanct for such investor or investors to know the risk return characteristics of stocks quoted on the various sectors of the Nigerian stock exchange.

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