

THE EFFECT OF MONETARY POLICY PRONOUNCEMENTS ON STOCK PRICES IN NIGERIA

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ABSTRACT

Researchers have severally studied the impact of monetary policy on stock market activities (returns and prices). However, following the practice of communicating current and future direction of monetary policy by most central banks, the attention of scholars has shifted to studying the effect of these communications. This paper adopts a different approach by applying the paired sample t-test to evaluate the effect of the MPC pronouncement on stock market prices in Nigeria. The analysis showed that only the stock prices of banks, insurance, and other financial institutions respond to the MPC communications. The results further indicate that stock prices of most quoted firms inch up immediately after the MPC meetings. These findings are relevant to the policymakers based on the need for more information on the future leanings of policy thrust in Nigeria.

Keywords: Monetary policy pronouncement, Nigerian capital market, Monetary Policy Committee (MPC), stock prices, paired sample t-test

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1. INTRODUCTION

Policy pronouncements by central banks all over the world are a major determinant of financial market activities and asset price movements (Kurov, 2012; Smales & Apergis, 2017). Market participants in the short-term and long-term markets earnestly await the decision of the monetary policy committee of the central bank, as their decision drives the movement of funds from one market to the other. Often, market players in the U.S. financial system monitor the Federal Open Market Committee (FOMC) members closely on or before their meetings to the extent that market predictions arise from news comments of the members. Kurov (2012) presented an instance when a private discussion between the Fed Chair with a CNBC journalist filtered into the business news, this resulted into a 0.8% drop in the S&P 500 index and Treasury bonds jumping to a four-year high.

The decision of market participants to hold or dispose of assets relies heavily on monetary policy (MP) pronouncements and the outcome of the committee meetings. Market analysts sometimes get to the point of modelling and predicting the voting pattern of committee members, which influences the market and the speculative activities that control them. On the other hand, the extent of monetary policy impact on the markets is a major objective for policymakers. Kurov (2012) posit that MP communications have become a potential tool for achieving monetary policy objectives, while Doh and Connolly (2013) present it as an effective tool for influencing activities in the real economy. It is of utmost importance to central banks that the markets predict and understand its activities as it facilitates the major objective of price stability (Smales & Apergis, 2017). Transparent communications enhance “democratic legitimacy,” accountability, and the effectiveness of monetary policy (Rosa, 2013). Thus, central banks concentrate much effort in providing transparent and reliable information on policy decisions and the factors that will influence the future direction of policy actions.

The transmission effect of monetary policy pronouncements affects the markets in different ways depending on the term structure of instruments in the market. In analyzing the reaction of the US fixed income market to FOMC pronouncements, Smales and Apergis (2017) found that the transmission effect was in three stages; before the announcement, at the time of the announcement, and the period following the announcement. They revealed that during the period preceding the announcement, market liquidity and trading volume become relatively low up till the period of the announcement. However, at the time of the announcement, the number of quotes traded volume, and volatility are comparatively high. The findings further indicated that the post-announcement period reflects a quick decline in the bid-ask spread, while the number of quotes and traded volume remain continuously high. Kurov (2012) argue that the extent and direction of the transmission effect of monetary policy pronouncements on the stock market response is asymmetric arising from policy statements that depend on business and economic conditions. Thus, the market responds differently to pronouncements based on the business cycle, whether a boom or recession.

As empirical evidence on the effect of monetary policy on stock prices remains limited (Vithessonthi & Techarongrojwong, 2013), the effect of MP pronouncements comes as an emerging area of interest to researchers and macroeconomists. In Nigeria, most

empirical studies have concentrated on the aggregate effect of monetary policy on the Nigerian stock market (e.g. Abaenewe & Ndugbu, 2012 and Aliyu, 2011), without much work on the sector-specific and market level impact of monetary policy statements before and immediately after the statements. This paper fills the gap in the literature concerning the effect of monetary policy announcements on stock prices in Nigeria. Conducting this study is pertinent in the face of transformative market reforms that have occurred in the past decade in the country.

The markets have become more interconnected and responsive to policy changes such that the communiqué issued by the Monetary Policy Committee (MPC), which is presented to the public through a media briefing by the Governor of the Central Bank of Nigeria (CBN) has become a major input to market analysts. The objective of this paper, therefore, is to understand the effect of the MPC pronouncements on the movement of stock prices quoted in the Nigerian Stock Exchange (NSE) before and after the meetings. Most studies have relied on structural econometric and volatility models to explore the effect of MP on stock prices in Nigeria. However, this study conducted a before and after event analysis to establish whether the stock prices statistically differ a week-before and a week-after the MPC announcements. It further provides information on the reaction of specific sector stock prices to the MPC statements.

The paper has five sections. Following this introductory section is a review of empirical literature on the effect of monetary policy pronouncements on stock market prices. The third and fourth sections present the methodological framework and data analysis procedure, while section five summarizes and concludes the paper.

2. LITERATURE REVIEW

2.1 Monetary Policy-Stock Price Nexus

The capital market remains a vital channel for monetary policy transmission in an economy through the domestic asset prices paradigm. Various scholars have studied the relationship between monetary policy pronouncements and stock market prices for different countries. Most of the studies concentrate on the effect of the monetary policy aggregates on stock market returns and prices (Abaenewe & Ndugbu, 2012; Rifat, 2015). Some of the monetary aggregates considered by scholars in various studies include money supply (Aliyu, 2011), inflation (Abaenewe & Ndugbu, 2012; Rifat, 2015), interest rates (Fischbacher, Hens, & Zeisberger, 2013; Kiley, 2014), credit channel (Haitsma, Unalmis, & de Haan, 2016), and exchange rate (Rosa, 2013). However, recent studies have focused on the impact of monetary policy statements on stock market prices and returns (Bouakez, Essid, & Normandin, 2013; Iglesias & Haughton, 2013; Vithessonthi & Techarongrojwong, 2013). The shift in research focus has become pertinent given the increasing role and the announcement effect of monetary policy communications on the financial markets.

Theoretically, researchers have explored the effect of monetary policy pronouncements on stock market prices from different angles. Smales & Apergis (2017) looked at it from the liquidity position of the market before and after the MP announcements. They argue that before the date of the MP decision, the market suffers from illiquidity which increases the market spread between the bids and ask-price. When there is information

asymmetric in the market, it further exacerbates the situation as traders that get prior information exploit the liquidity position of the market to their advantage. Vithessonthi and Techarongrojwong (2013) perceive the effect of monetary policy pronouncements on stock prices from the perspective of monetary policy stance. They posit that contractionary or expansionary monetary policy decision exerts different influence on the market. Expansionary monetary policy lowers the interest rates which stimulate investments and the net position of firms.

Conversely, a tight monetary policy stance raises the interest rates, which reduces a firm's profitability as investments decline. Thus, the stock prices of firms respond positively to expansionary monetary policy, and negatively to contractionary monetary policy. Hussain (2011) identified the firm's cash flow, future economic path, portfolio adjustments, and investor sentiments as some of the channels through which monetary policy announcements may affect stock market prices. No matter the theoretical prism, it is important to note that equity prices like every other asset price receive impulses from monetary policy announcements irrespective of the direction or surprises contained in such communications.

2.2 Review of Empirical Studies

The main objective of studying the effect of monetary policy announcements on stock market prices is to understand the effectiveness of monetary policy tools and the transmission mechanism (Rosa, 2011). Monetary policy becomes irrelevant in the economic system when the financial markets fail to respond to any of the policy actions. Stock market prices tend to react more closely to the central bank statements on monetary policy stance. Smales and Apergis (2017) argue that it is so because the monetary policy announcements occur when the stock markets are actively in session, which gives investors the ample opportunity to make investment decisions based on the policy direction.

The effect of monetary policy statements about policy stance on the stock markets varies across countries depending on the level of development of the financial markets and their interconnectedness. Rosa (2013) analyzed the real-time response of the U.S. stock market prices to the release of the FOMC minutes. The study used price quotes measured at five-minute intervals of futures prices on the S&P 500 stock index. Rosa found that the "FOMC minutes provide market-relevant information that is incorporated into asset prices" (p.71). However, the study found that the asset price response to monetary policy communications has declined since 2008 following the increased level of transparency in the U.S. Feds communications.

Ricci (2013) investigated the impact of monetary policy announcements on the stock prices of large European banks during the period of financial crisis. The study analyzed the impact of both conventional and unconventional policy actions coupled with the spillover effects from monetary policy announcements of central banks of other currency areas such as the U.S., the U.K., Japan, and Switzerland. Ricci found that investors in bank stocks respond easily to unconventional monetary policies than interest rate decisions, particularly, during crisis periods indicating a high potency of non-conventional monetary policy during such periods. Also, studying the same Euro area, Kurihara (2014) found that monetary policy announcements impact stock prices through future interest rates, unlike

other macroeconomic news shocks. Thus, it is evident that the pronouncement effect of monetary policy stance about interest rates on stock prices is often significant.

In studying the co-movement in long-term interest rates and stock prices in the U.S. considering the effect of monetary policy statements, Kiley (2013) found that a reduction in the interest rates induced by monetary policy announcements resulted into an increase in stock prices. This pattern was evident both pre and post the 2009 financial crisis period. However, Sun and Liu (2016) found that the announcement of a contractionary monetary policy induces price increase in Chinese stocks. Also, Vithessonthi and Techarongrojwong (2013) sharing the experience Thailand as an emerging market found the announcement effect of interest direction on stock prices was asymmetric as the effect on stock prices of firms differ by industry. The potency of monetary policy communications, therefore, depends on the clarity and transparency in sending the right signals to the financial markets on the policy direction of interest rates.

3. METHODOLOGY

As earlier alluded to in previous sections, studies on the announcement effect of monetary policy communications on stock market prices had adopted various methodologies including econometric techniques, event analysis, and other types of models. However, the literature search did not provide any existing research article that adopted a before and after analysis to assess the effect of monetary policy communications on stock market prices. Therefore, this study contributes to the literature by adopting the paired samples statistical t-tests to explore the relationship between the CBN Monetary Policy statements and the stock prices in Nigeria before and after the MPC meetings. The paired sample t-test is suitable for this type of analysis because the stock prices are for the same company and were measured before and after the MPC meetings. The study avoided the use of weekly averages to minimize smoothening the data which will dampen the effect of the MPC policy actions.

The paired samples t-test presents a procedure that utilizes statistical tests to establish whether there is a significant difference between the paired means of a variable. The test evaluates the difference in the paired means by examining the paired values of the data measured for the test variable. Green and Salkind (2014) posit that it is suitable for studies involving repeated measures and matched-subject designs such as the stock prices of quoted companies which are measured daily in the stock market. The test procedure confirms whether the mean difference between a pair of the variable is significantly different from zero or otherwise.

Field (2013) argue that if the samples emanate from the same population, then there is every possibility that the mean values of a pair of the samples will be the same. However, the introduction of any intervention can distort the co-movement of the pairs among the participants (Xu, Fralick, Zheng, Wang, Tu, & Feng, 2017), which means that the mean difference is not a product of chance. Therefore, given the null hypothesis that the mean difference between the pair is equal to zero, the standard error becomes a measure of variability between the paired means (Field, 2013). According to Xu et al. (2017), the estimation of the paired sample t-test derives as follows:

Let $X_i = (X_{0i}, X_{1i})$ be matched pair of outcomes for $i = 1, 2, \dots, n$, then

$$X_{di} = X_{1i} - X_{0i} \quad \text{and} \quad \bar{X}_d = n^{-1} \sum_{i=1}^n X_{di}$$

From the above equation, it implies that the variance of \bar{X}_d can be estimated as:

$$S_d^2 = \frac{1}{n(n-1)} \sum_{i=1}^n (X_{di} - \bar{X}_d)^2$$

Thus, the paired sample t-test will be represented by

$$T = \frac{\bar{X}_d}{\sqrt{\frac{1}{n(n-1)} \sum_{i=1}^n (X_{di} - \bar{X}_d)^2}}$$

Where T represents the Student t-statistic and \bar{X}_d is the mean difference between the two variables.

The application of the paired sample t-test is very prevalent in social science research. In analyzing the efficiency of stock price forecasting by two equity firms in Pakistan, Khan and Salman (2015) utilized the paired samples t-test to evaluate the difference in the price forecasts. The application of the paired sample t-test to detect the before and after effect of monetary policy pronouncements on stock market prices will assume that the prices for the week before and a week after the announcement are independent of each other. The quoted prices in the week before and after the MPC for each company traded on the stock exchange formed the paired sample. Further, the study examines the existence of any differential impact of the MPC statements on the stock prices of firms operating in different sectors in Nigeria, particularly the two major sector groups, financial and non-financial sectors.

4. DATA ANALYSIS AND FINDINGS

The study used the daily stock prices of quoted firms in the Nigerian Stock Exchange compiled from the daily mailings of the FSDH Securities Limited to its registered investors. FSDH Securities Limited is a registered stockbroking firm with the Securities & Exchange Commission (SEC). The firm provides the daily stock prices of quoted companies in the Nigerian Stock Exchange (NSE) to its customers daily. For this research, the data extraction from the FSDH daily mailings captured the closing price of stocks for each quoted company arranged by their sectors.

The period covered in the analysis are the Wednesdays of the weeks before and after the MPC meetings held in 2017. The MPC meetings hold bi-monthly with six regular meetings scheduled in January, March, May, July, September, and November of each year. This study considered all the meetings held in 2017 except for May 2017, which had an incomplete dataset on stock prices for the selected days in the month. Therefore, the data used in the analysis covered the price of quoted stocks in the Nigerian capital market for the weeks before and after the MPC meetings of January, March, July, September, and November of 2017.

The midweek (Wednesday) closing prices of the week before and after the MPC pronouncements formed the pairs for each quoted company. The year 2017 was considered based on the macroeconomic environment, which necessitated calls for the MPC to consider rate cuts to stimulate the economy after a recession. Thus, there were high expectations from the market participants during each MPC meeting, as investors anticipated that the Committee would heed calls for interest rate adjustment.

The data screening and cleaning procedure involved the elimination of missing information such as companies without complete stock price information over the five (5) periods considered in 2017. Also, companies that had incomplete pair of prices for any given period were eliminated to avoid unnecessary influence on the results. Thus, the analysis was conducted with a total sample size ranging between 171 and 175 firms from 12 sectors depending on the month. The sectoral grouping is according to the Nigerian Stock Exchange (NSE) dissemination format for stock market prices in Nigeria. The data analysis was carried out using the IBM SPSS which is ideal for the analyzing micro-level data in the social science field.

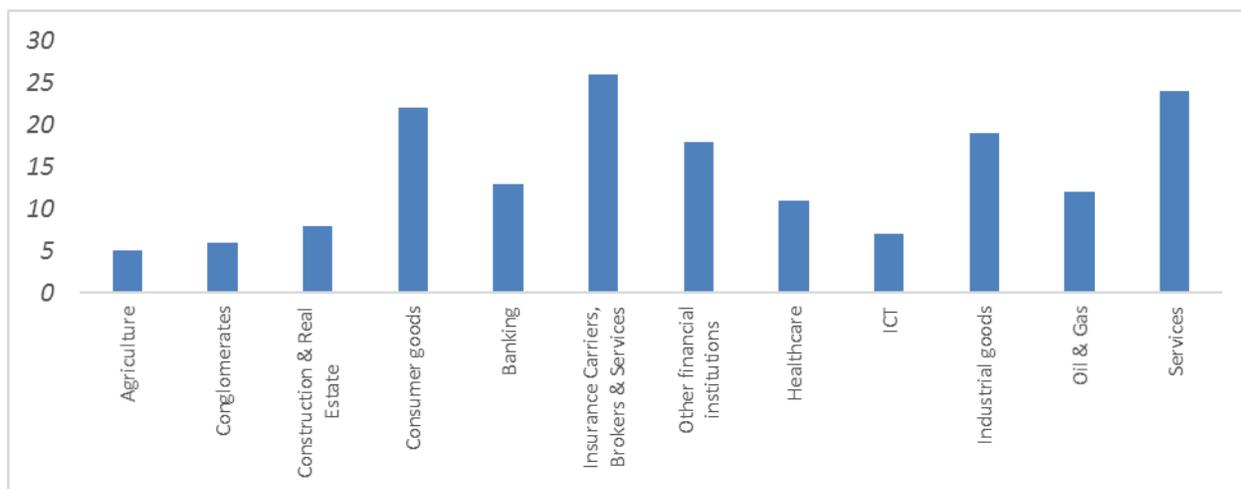


Figure 1: Number of Quoted Companies by Sector

Quoted companies classified as Insurance Carriers, Brokers & Services constituted the largest number (15.2%) of the companies used for the analysis. Also, quoted companies operating in the Nigerian financial sector were more than one-third (33.33%) of the companies analyzed in the study. Appendix 1 presents an elaborate descriptive analysis of the 12 sectors including the paired sample means for each period. The analysis indicates that the stock prices of most of the quoted companies in the NSE experience marginal price increases in the week following the MPC meetings. Given that the sample size for most of the sectors were very small to accommodate rigorous statistical tests, the study regrouped the quoted companies into financial and non-financial sectors, with additional focus on the banking sector. The selection of the banking sector for further analysis was based on the relevance of its response to MPC actions in maintaining a sound and stable financial sector. Activities related to the banking sector and the entire financial sector is a priori expected to respond quicker to MPC pronouncements than other sectors as they warehouse most of the tradable domestic assets. Assets in the capital market is a vital channel for monetary policy transmission into the economy.

Table 4.1
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Jan_BF	21.9987	175	82.52486	6.23829
	Jan_AF	21.7015	175	79.88275	6.03857
Pair 2	Mar_BF	21.5431	177	81.51643	6.12715
	Mar_AF	21.6173	177	82.54118	6.20417
Pair 3	Jul_BF	24.9634	172	94.31325	7.19132
	Jul_AF	26.1200	172	101.12478	7.71069
Pair 4	Sep_BF	26.3356	171	111.59978	8.53425
	Sep_AF	26.3039	171	111.30030	8.51135
Pair 5	Nov_BF	26.8685	171	114.16527	8.73044
	Nov_AF	27.3426	171	118.37234	9.05216

Table 4.1 provides the descriptive features of the paired data for the periods before and after the MPC meetings in January, March, July, September, and November of 2017. The average stock prices in the market before and after the meetings provide the basis for comparing the effect of the MPC pronouncements on activities in the market. For all the periods covered in the analysis, the average stock prices did not follow any pattern, which signifies that the Nigerian stock market responds differently at various time periods in the year to MPC pronouncements. This pattern was further elucidated by the increasing value of the standard error of the mean stock prices as the year progresses.

As expected in paired samples, there is a high correlation between the average stock prices of the week before and after the MPC meetings as depicted in Table 4.2. The near-perfect correlations between the stock prices in the weeks before and after the meetings agree with Field (2013) that when samples come from the same population, in this case, quoted companies, then there is every possibility that the mean values will be the same. However, the objective of this research is to see if any intervention by the MPC can distort the co-movement of the pairs as alluded by Xu, Fralick, Zheng, Wang, Tu, and Feng (2017).

Table 4.2
Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Jan_BF & Jan_AF	175	.999	.000
Pair 2	Mar_BF & Mar_AF	177	1.000	.000
Pair 3	Jul_BF & Jul_AF	172	.997	.000
Pair 4	Sep_BF & Sep_AF	171	1.000	.000
Pair 5	Nov_BF & Nov_AF	171	1.000	.000

The paired samples T-test was carried at a 95% level of confidence to establish whether the differences in the paired mean was based on chance or that the difference is statistically significant. The analysis showed that the mean paired differences were negative in the month of March, July, and November of 2017, but was positive in January and September of the same year. However, test result (p -value > .05) shows that paired stock prices in the market were not affected by the MPC decisions (Table 4.3).

Table 4.3 Paired Samples Test

		Paired Differences					
		Mean	Std. Deviation	Std. Error	t	df	p-value
Pair 1	Jan_BF - Jan_AF				.876	174	.382
Pair 2	Mar_BF - Mar_AF	-.07424	2.21086	.16618	-.447	176	.656
Pair 3	Jul_BF - Jul_AF	-1.15663	9.99914	.76243	-1.517	171	.131
Pair 4	Sep_BF - Sep_AF	.03170	1.09635	.08384	.378	170	.706
Pair 5	Nov_BF - Nov_AF	-.47415	5.17235	.39554	-1.199	170	.232

Statistical analysis requires minimal bias in the data to ensure a robust result. Therefore, the data was further subjected to the bootstrap method to ascertain the level of bias. The outcome indicated a minimal level of bias present in the data (Table 4.4), which reinforces the reliability of the earlier analysis carried out without bootstrapping.

Table 4.4: Descriptive Analysis and Paired Sample T-test with Bootstrapping

Statistics	January 2017	March 2017	July 2017	September 2017	November 2017
Correlations	.999	1.000	.997	1.000	1.000
Mean differences	.308	-.081	-1.176	.032	-.479
P-value	.382	.640	.131	.708	.233
Bootstrap Bias	.001	-.001	.008	.003	.003

The bootstrapped analysis indicated that for the five communications issued by the Committee in 2017, there were no statistically significant effect on prices of stocks. This outcome implies that investors generally were not influenced by the actions of the MPC in their investment decisions. However, the events of the year 2017 which saw the MPC keeping the rates constant at 14.0 percent may have contributed to the attitude of investors in the Nigerian stock market. Also, the economic recession experienced by the country between 2016 and 2017 contributed to the general apathy of investors in taking investment decisions. The result agrees with existing research findings on the response of investors to policy announcements during periods of economic uncertainty and recessions (Hussain, 2011; Kurov, 2012, Ricci, 2013).

The sectoral classification was further grouped into three major categories for further analysis, which include banking, financial sector (including banking), and non-financial firms. The purpose of this analysis was to explore the varying impact of the MPC pronouncements on different sector participants in the market and to understand the transmission mechanism of monetary policy through the capital market.

Table 4.5: P-values of Paired Sample T-test by Sector Groups

	January 2017	March 2017	July 2017	September 2017	November 2017
Banking					
Mean difference	.0892	.144	.633	.254	.154

P-value	.249	.196	.048*	.265	.047*
Financial sector including bank stocks					
Mean difference	-.002	.057	-.239	-.087	-.034
P-value	.951	.042*	.039*	.107	.125
Non-Financial sector					
Mean difference	.438	-.137	-1.612	.091	.694
P-value	.382	.578	.160	.459	.244

The sectoral analysis reflected a different result about the effect of the MPC announcements on stock prices. The test indicated that the prices of banking sector stocks recorded statistically significant increases a week after the MPC pronouncements in the month of July and November 2017. This result implies that MPC decisions influences investors' decisions concerning banking sector stocks. The result was corroborated by the significant price difference in stock prices of firms operating in the entire financial sector. However, these price differentials were mostly negative, which connotes that most of the stock prices belonging to firms in the financial sector dropped a week after the MPC meetings.

Conversely, the analysis shows that the MPC pronouncements throughout the year did not influence investors' decision on the stocks of non-financial companies operating in the country. The result further indicated that the stock prices of non-financial firms recorded negative mean paired price differentials after the MPC announcements in the months of March and July 2017. This outcome reflects the inability of policy thrusts in the country to shift investors' attention to the real economy, as activities concentrate in the financial sector due to the portability of financial investments.

5. CONCLUSION

The effectiveness of monetary policy actions to influence investment decisions is critical for continued growth of an economy. Pronouncements on future policy actions remain a vital instrument to achieve the objective of price stability, economic growth, and low unemployment. When the monetary policy announcements are not producing the desired results of channelling resources to the real economy, it becomes worrisome. The domestic assets price window is one of the transmission channels of monetary policy to influence the economy. However, the effectiveness of the future path of monetary policy can suffer from structural impediments in an emerging economy like Nigeria where investment flow into the real economy suffers from structural rigidities. Irrespective of attempts to spur growth in the real economy through monetary policy actions, this study shows that investors are risk averse to the real sector and concentrate their activities on monetary and financial instruments. Thus, the situation calls for a harmonized effort between fiscal and monetary authorities to minimize structural imbalances within the system with the aim of engendering a stable economy on the growth path. The role of fiscal policy in promoting growth through the provision of needed infrastructure cannot be over emphasized, otherwise interventions by the MPC will continue to elude the real sector to the detriment of the economy and its citizens.

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Appendix 1

Descriptive Statistics by Sector

Sector		Jan_BF	Jan_AF	Mar_BF	Mar_AF	Jul_BF	Jul_AF	Sep_BF	Sep_AF	Nov_BF	Nov_AF
Agriculture	N	5	5	5	5	5	5	5	5	5	5
	Mean	18.71	18.79	20.08	20.08	26.29	30.46	26.02	25.56	27.97	27.76
	Median	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26
	Minimum	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Maximum	44.00	44.20	48.00	48.00	64.50	74.50	66.50	63.21	68.20	67.22
	Range	43.50	43.70	47.50	47.50	64.00	74.00	66.00	62.71	67.70	66.72
	Std. Deviation	23.11	23.23	25.08	25.08	33.48	39.20	33.24	32.51	35.76	35.49
	Variance	534.10	539.72	628.94	629.14	1120.93	1536.85	1104.91	1057.01	1278.98	1259.86
Conglomerates	N	6	6	6	6	6	6	6	6	6	6
	Mean	4.32	4.33	3.93	3.77	4.43	4.45	3.98	4.00	4.66	4.43
	Median	2.15	2.12	2.10	2.08	2.45	2.33	2.20	2.31	2.29	2.32
	Minimum	.66	.66	.63	.63	.55	.55	.51	.51	.50	.50
	Maximum	16.30	16.50	14.25	13.30	16.58	17.21	15.00	15.00	18.99	17.50
	Range	15.64	15.84	13.62	12.67	16.03	16.66	14.49	14.49	18.49	17.00
	Std. Deviation	6.03	6.12	5.25	4.88	6.10	6.38	5.54	5.53	7.13	6.52
	Variance	36.36	37.50	27.58	23.82	37.27	40.68	30.64	30.54	50.78	42.45
Construction & Real Estate	N	8	8	8	8	8	8	8	8	8	8
	Mean	25.60	25.64	26.14	26.37	25.58	25.53	25.13	24.92	24.92	24.72
	Median	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30	8.30
	Minimum	.76	.76	.76	.76	.76	.54	.54	.54	.54	.54
	Maximum	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	Range	99.24	99.24	99.24	99.24	99.24	99.46	99.46	99.46	99.46	99.46
	Std. Deviation	34.20	34.18	34.52	34.66	34.15	34.17	34.06	34.05	34.05	34.05
	Variance										

Sector		Jan_BF	Jan_AF	Mar_BF	Mar_AF	Jul_BF	Jul_AF	Sep_BF	Sep_AF	Nov_BF	Nov_AF
	Variance	1169.72	1168.02	1191.97	1201.49	1165.88	1167.78	1160.35	1159.07	1159.07	1159.12
Consumer goods	N	23	23	23	23	22	22	22	22	22	22
	Mean	53.65	51.24	51.35	51.62	65.12	72.04	82.16	81.73	82.72	86.72
	Median	7.51	8.00	6.65	7.10	10.74	12.17	12.90	13.04	14.00	14.40
	Minimum	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Maximum	755.00	699.99	730.00	750.00	903.50	1026.42	1225.01	1220.02	1250.00	1315.00
	Range	754.50	699.49	729.50	749.50	903.00	1025.92	1224.51	1219.52	1249.50	1314.50
	Std. Deviation	156.94	145.75	151.48	155.47	191.09	216.84	258.54	257.40	263.29	276.83
	Variance	24630.2	21243.93	22945.6	24171.9	36516.0	47019.3	66843.44	66253.0	69320.93	76634.98
		2		5	7	0	6		0		
Banking	N	12	12	13	13	13	13	13	13	13	13
	Mean	5.92	5.83	5.49	5.35	7.97	8.60	8.34	8.59	8.83	8.98
	Median	3.05	2.90	1.40	1.27	1.25	1.30	1.33	1.33	1.56	1.99
	Minimum	.50	.50	.50	.50	.56	.56	.50	.50	.50	.50
	Maximum	23.91	23.45	25.35	25.20	36.90	39.00	38.70	40.00	42.50	42.55
	Range	23.41	22.95	24.85	24.70	36.34	38.44	38.20	39.50	42.00	42.05
	Std. Deviation	7.37	7.26	7.33	7.21	10.97	11.86	11.59	12.05	12.54	12.61
	Variance	54.39	52.72	53.77	52.04	120.24	140.70	134.23	145.20	157.27	159.09
Insurance Carriers, Brokers & Services	N	26	26	26	26	26	26	26	26	26	26
	Mean	.60	.59	.60	.59	.64	.66	.64	.65	.64	.65
	Median	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Minimum	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Maximum	1.60	1.60	1.58	1.60	2.03	2.20	1.90	2.00	2.05	2.15
	Range	1.10	1.10	1.08	1.10	1.53	1.70	1.40	1.50	1.55	1.65
	Std. Deviation	.25	.24	.25	.24	.36	.39	.35	.36	.37	.39
	Variance	.06	.06	.06	.06	.13	.15	.12	.13	.14	.16
	N	18	18	18	18	18	18	18	18	18	18

Sector		Jan_BF	Jan_AF	Mar_BF	Mar_AF	Jul_BF	Jul_AF	Sep_BF	Sep_AF	Nov_BF	Nov_AF
Other financial institutions	Mean	38.82	38.89	38.86	38.79	39.87	40.15	40.18	40.27	40.51	40.50
	Median	2.03	2.03	2.00	1.91	2.01	2.01	2.01	2.01	2.01	2.01
	Minimum	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Maximum	552.20	552.20	552.20	552.20	552.20	552.20	552.20	552.20	552.20	552.20
	Range	551.70	551.70	551.70	551.70	551.70	551.70	551.70	551.70	551.70	551.70
	Std. Deviation	130.33	130.32	130.34	130.36	130.19	130.18	130.20	130.19	130.15	130.14
	Variance	16986.88	16983.93	16988.68	16992.45	16948.26	16945.73	16951.04	16948.64	16938.74	16936.74
	N	11	11	11	11	11	11	11	11	11	11
Healthcare	Mean	2.76	2.69	2.64	2.64	3.53	3.55	3.57	3.56	3.98	3.76
	Median	1.15	1.14	1.00	1.01	2.25	2.25	2.25	2.25	2.25	2.36
	Minimum	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Maximum	15.75	15.00	14.50	14.48	20.00	20.00	21.40	21.00	25.25	22.80
	Range	15.25	14.50	14.00	13.98	19.50	19.50	20.90	20.50	24.75	22.30
	Std. Deviation	4.44	4.22	4.08	4.08	5.59	5.60	6.05	5.93	7.19	6.46
	Variance	19.72	17.84	16.68	16.63	31.23	31.36	36.55	35.16	51.71	41.79
	N	9	9	9	9	7	7	7	7	7	7
ICT	Mean	2.22	2.18	2.17	2.16	2.50	2.50	2.44	2.39	2.39	2.39
	Median	.91	.91	.91	.91	1.14	1.14	1.09	1.09	1.06	1.06
	Minimum	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Maximum	8.11	7.71	7.71	7.71	7.33	7.33	6.97	6.63	6.63	6.63
	Range	7.61	7.21	7.21	7.21	6.83	6.83	6.47	6.13	6.13	6.13
	Std. Deviation	2.67	2.56	2.56	2.56	2.69	2.69	2.59	2.49	2.49	2.49
	Variance	7.13	6.56	6.57	6.56	7.24	7.24	6.70	6.20	6.22	6.22
	N	21	21	21	21	20	20	19	19	19	19
Industrial goods	Mean	16.04	16.25	15.69	16.03	20.76	22.68	21.73	21.66	22.59	23.01
	Median	3.52	3.52	3.52	3.52	2.74	2.82	3.60	3.78	4.15	4.58

Sector		Jan_BF	Jan_AF	Mar_BF	Mar_AF	Jul_BF	Jul_AF	Sep_BF	Sep_AF	Nov_BF	Nov_AF
	Minimum	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Maximum	168.00	168.00	160.50	162.00	208.00	239.99	213.39	210.00	230.00	241.00
	Range	167.50	167.50	160.00	161.50	207.50	239.49	212.89	209.50	229.50	240.50
	Std. Deviation	36.64	36.80	35.12	35.64	47.22	54.26	49.30	48.66	52.83	55.12
	Variance	1342.48	1353.90	1233.48	1270.03	2229.98	2944.23	2430.12	2367.89	2790.82	3037.74
Oil & Gas	N	13	13	13	13	12	12	12	12	12	12
	Mean	82.76	82.74	83.87	84.03	95.05	92.90	81.10	81.38	83.82	82.94
	Median	4.69	4.56	5.02	4.83	18.57	21.65	16.73	16.73	16.73	16.73
	Minimum	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25
	Maximum	370.00	370.11	398.00	396.10	485.00	470.10	450.00	450.00	495.00	495.00
	Range	369.75	369.86	397.75	395.85	484.75	469.85	449.75	449.75	494.75	494.75
	Std. Deviation	130.78	131.74	138.09	138.44	155.89	150.66	138.26	139.26	149.18	149.04
	Variance	17104.68	17356.59	19069.20	19166.92	24302.24	22698.93	19115.19	19393.44	22254.55	22211.51
Services	N	23	24	24	24	24	24	24	24	24	24
	Mean	1.87	1.84	1.84	1.86	2.01	1.99	2.09	2.14	2.14	2.15
	Median	1.00	1.23	1.22	1.25	1.32	1.40	1.40	1.63	1.56	1.54
	Minimum	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Maximum	4.98	4.98	4.98	5.04	6.87	6.87	7.21	7.21	7.21	7.21
	Range	4.48	4.48	4.48	4.54	6.37	6.37	6.71	6.71	6.71	6.71
	Std. Deviation	1.54	1.50	1.51	1.52	1.80	1.75	1.95	1.98	1.91	1.92
	Variance	2.37	2.24	2.28	2.30	3.25	3.06	3.79	3.93	3.66	3.67
Total	N	175	176	177	177	172	172	171	171	171	171
	Mean	22.00	21.59	21.54	21.62	24.96	26.12	26.34	26.30	26.87	27.34
	Median	1.47	1.54	1.50	1.50	1.98	2.10	1.90	2.05	2.02	2.06
	Minimum	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25
	Maximum	755.00	699.99	730.00	750.00	903.50	1026.42	1225.01	1220.02	1250.00	1315.00

Sector	Jan_BF	Jan_AF	Mar_BF	Mar_AF	Jul_BF	Jul_AF	Sep_BF	Sep_AF	Nov_BF	Nov_AF
Range	754.75	699.74	729.75	749.75	903.25	1026.17	1224.76	1219.77	1249.75	1314.75
Std. Deviation	82.52	79.67	81.52	82.54	94.31	101.12	111.60	111.30	114.17	118.37
Variance	6810.35	6347.11	6644.93	6813.05	8894.99	10226.2	12454.51	12387.7	13033.71	14012.01
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