

Risk Premia of Firms of a Globally Integrated market: An Empirical Study from India

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Abstract

In this paper, we have investigated the risk premia of firms (NIFTY 50) in the globally integrated Indian stock market using the conditions laid down by Stulz. The monthly data of the Morgan Stanley Companies Index (MSCI) were used as a proxy for the world portfolio, and firms' returns were used to reach a definite conclusion. The data points range from January 2008 to December 2022. The empirical analysis was divided into two parts, where the risk premium of a firm was analysed across 16 years, while the second analysis was done year-by-year to understand the change in risk premium over the year. The outcome was consistent with the prediction that capital account liberalisation would result in a decrease in the cost of capital, but some exceptions were discovered when the analysis was done for each year separately.

Keywords: Stock Market Integration; Cost of Capital; Risk Premia; Correlation; Volatility

1. Introduction

It is widely assumed that capital account liberalisation would lead to economic development for a poor country lacking in capital, while also allowing foreign investors to earn higher expected returns that have eluded the domestic market. And this interest in earning a higher expected return would not only lower the cost of capital but also have a positive impact on investment and economic output (Stanley Fischer, 1998; Lawrence H. Summers, 2000). This inflow of new capital will pump new life into abandoned projects due to a lack of capital, thus making allocation more efficient, which will lower the risk and lower the cost of capital for domestic firms (Stulz 1999, 2005). Neoclassical international theory suggests that the removal of restrictions on the flow of capital among nations would allow foreign investors to invest in the domestic market and domestic investors to invest in the foreign market, resulting in better risk sharing than in an isolated domestic market (Bekaert and Harvey, 2000; Chari and Henry, 2004; Henry, 2000b). This abstract function of financial market integration improves risk sharing among investors, lowering the cost of capital (Obstfeld, 1994). The correlation between the world portfolio and the domestic market portfolio must be low in order to be a better source of diversification for either investor. If the correlation between two portfolios is higher, diversification would be lower, and so would the risk sharing. The cost of capital is made up of two components: the risk-free return and the risk premium, which, in theory, fall on a country's capital account when it liberalizes. The following partial equilibrium, mean variance arguments based on René M. Stulz (1999) make the central point most succinctly. However, the absolute benefit of financial integration of the domestic market into the world is still not very clear (Bekaert, Harvey, Kiguel, and Wang, 2016).

Though many model had been developed to study the problem at aggregate level (see Stulz 1999; Henry 2000; Bekaert 2000; De Jong and De Roon 2005) and firm level (see Stulz 1999) but empirical studies on micro level are scarce. The prior study mainly focuses at macro level using equity market index as proxy. Thus, this paper tried to fill gap in the literature by investigate at firm level. The sole objective of the study is to validate the presence of necessary condition for reduction in cost of equity after financial market integration as stated by Stulz (1999). Our empirical analysis had been conducted in two parts; in first part we have used full dataset of 16 year to firm risk premia of the firms whereas in second part we have divided data into distinctive 16 year and analysed the risk premia for each year separately.

2. Literature Review

Liberalization of foreign capital leads to reduction in cost of capital, boom in investment and enhancing output capacity of a developing nation, but also raise some unanswered question such does it cause financial crises (Henry, 2000). The evaluation of company's risk is better assessed by global CAPM which doesn't consider company as part of local market but of global portfolio, which reduced cost of capital considerably (Stulz 1995). Integration with world equity markets enhance the quality of legal institution thus cost of equity falls (Stulz, 1999), thus the country with stronger and stricter legal mechanism experience lower cost of capital (Hail & Leuz, 2004). Capital account seem to increase correlation between local portfolio and world portfolio (Bekaert and Harvey 1997) as a result desired diversification can't be achieved by investor thus, the increase in price of stock and decrease in cost of capital is smaller and smaller its get (Bekaert and Harvey 2000). Therefore, necessary condition for reduction of cost of capital is that correlation between local and world portfolio should be less than the ratio of local portfolio variance and world portfolio variance which is adequately explain (see Stulz 1999). It was found that trading activities of foreign investor had not only led to expansion of Indian equity market but considerable increase in volatility was observed (Sripriya an 2014). While (Jong and Roon 2005) used simple CAPM with respect to world portfolio and ratio of home investment and total investment as a proxy of segmentation (financial integration) and found that non-investable stocks were more sensitive to home investment. Similar methodology was applied by Hillier and Loncan 2019 with negative association between financial integration and cost of equity.

3. Stulz Model

The cost of equity consists two component which are risk premium and risk free return. Literally how big or small cost will be depends on risk premium,

$$Risk\ Premium_b = Var * (P/R)$$

Where risk premium of a country is product of Variance (Var) and Price per unit of risk (P/R) and $Risk\ Premium_b$ denote risk premia before liberalization.

After liberalization local market expected return will be replace by world portfolio expected return $E[R_W]$ and R which is global risk-free return which will eventually subtracted from expected return,

$$Risk\ Premium_a = \beta_w * E[R_W] - R$$

Where β_w is define as $\rho \frac{\sigma_w * \sigma_c}{\sigma_c^2}$, therefore risk premium will be lower if correlation between two portfolio is low or volatility of local portfolio return is higher than world portfolio return.

Similar approach will used for calculating risk premium at firm level that is β will be calculated with respect of world portfolio return thus, same will be applied for a firm to have lower cost of capital. A firm can have higher premium with respect of world portfolio at the same time can have lower premium with the respect of local portfolio this could be because of different level of correlation with two portfolios.

4. Data

The return of Nifty 50 stock (except for IndusInd, Nestle, Larson & Turbo, and Titan) and Morgan Stanley Capital International (MSCI) as a proxy of local firm and world portfolio. Dataset were trimmed down according to the requirement due to difference in number of observations. We have used monthly return primarily for three reasons.

- a) Difference in observation while considering daily return.
- b) Dataset consist of half week thus, considering weekly return was not feasible
- c) Annual return might help us in understanding of volatility to minute level.

5. Methodology

We have used autoregressive model using 12th lag value with dummy variable for monthly to estimate standard deviation across the period of 16 year which is similar to Officer (1973), Fama (1976), Merton (1980), and Schwert (1989). The main reason behind using this method it allows to conditional mean of return to vary across the period at the same time it gives different weightage for lagged value for absolute unexpected rate of return.

$$R_t = \alpha D_m + \beta R_{t-12} + \lambda_t$$

Where λ_t is absolute standard error of AR(12), D_m is dummy variable used for month, and R_t is monthly return. Lastly correlation was calculated between world portfolio and firm return using Karl Pearson's coefficient of correlation (r). Then the ratio of Standard Deviation is compared with ' r ' to reach the definite conclusion.

While we used simple standard deviation to estimate volatility in the second case because the size of a time-varying observation is very small, factoring in the mean of the preceding or subsequent years had no effect on the conditional mean of return.

6. Empirical Analysis

The coefficient r between the return of MSCI and stocks of NIFTY 50 was very low almost for all stock except for Infosys, JSW steel, Tata steel, TECH Mahindra, and Wipro which were 0.40, 0.48, 0.45, 0.44, and 0.48 respectively. This coefficient ' r ' cannot be claim as very high but moderate.

We have used AR(12) model estimate volatility (Standard Deviation) of return of MSCI and NIFTY 50 stocks. As per the prediction made by Stulz risk premium would fall upon integration of local market to world market if volatility of local stock is more than world portfolio. Similar to prediction almost all the stock has higher volatility than world portfolio except for Asian paint, Bharati Airtel, Britannia Industries, Cipla, Coal India, Dr.Reddy Laboratories, HDFC, HDFC Bank, HDFC Life Insurance, Hero MotoCorp, Hindustan Unilever, Infosys, ITC, NTPC, Power Grid, Reliance Industries, SBI Life insurance, Sun Pharmaceuticals, Tata steel, TCS, and Tech Mahindra. Thus, out of 46 stock volatility of 21 stock is less than that of world portfolio which can be observe from table 1.

Because the " r " coefficient is so small, we can conclude that the risk premia of Nifty 50 stocks have decreased, and thus the cost of capital has decreased as well.

*With a few exceptions, similar results were obtained when the data was split by year. It has been observed that risk premia for some firms increase during a global crisis or subsequent year, then decreases. Two notable global crises that were covered in our dataset were **the housing bubble of 2008 and the COVID-19 pandemic**. When the dataset was divided into years, certain increases in the " r " coefficient were also observed. Same can be observed in table 2.*

7. Summary and Conclusion

In this article I have investigated the compelling theoretical arguments for financial market liberalization to reduce the cost of capital at micro level which was largely eluded from literature. We majorly tried investigate the presence of necessary and sufficient condition for reduction in cost of capital as financial market gets liberalized as predicted by Stulz (1999). The condition either volatility of local market stock return should be more than that of world portfolio return or correlation should very between two. Thus, sufficient condition is $\rho < \frac{\sigma_c}{\sigma_w}$. When we turned to empirical evidence, however, we saw that the absolute evidence was very limited and all the firm exhibited the marginal criteria. Though the volatility of 21 was lower than that of the world portfolio (MSCI), owing to the lower correlation, it can be concluded that integration had resulted in a reduction in the risk premium. Some firms displayed a higher risk premium between 2008 and 2010, as well as in 2022, indicating that the cost of capital in a globally integrated financial market is also sensitive to global crises. Though the outcome was as predicted, the methodology has many limitations and does not aid in understanding the relationship between stock market integration and the cost of capital. Firstly, the condition that led to the decrease in risk premium is not exclusive to the problem we are studying; a similar condition can be observed in the stock market or for firms that are far from integration into the global market. Secondly, what if the variance of the return of a stock is zero, which is very much possible, as it is very common for stocks to get stuck in the circuit? That means the risk premium for a firm will be undefined. Suppose a stock is stuck in the upper circuit (enormous buyer but no seller), which can be because of high expectations for future cash inflows or manipulation from market players. In the first case, the risk is very low, and if we take the absolute figure rather than rounding up to the nearest circuit breaker, we will get a very low variance, resulting in a very high-risk premium. In the second case, where the risk is extremely high, rounding up the figure results in a risk-free asset. Similarly, when a stock is stuck in a lower circuit with sellers but no buyers, the risk premium calculation can be incorrect. As a result, a proper methodology is required to comprehend the relationship between financial integration and cost of capital with variables that truly represent the problem's element.

References

- Bekaert, G., & Harvey, C. R. (1997). Emerging equity market volatility. *Journal of Financial Economics*, 43(1), 29-77.
- Bekaert, G., & Harvey, C. R. (2000). Foreign speculators and emerging equity markets. *The Journal of Finance*, 55(2), 565-613.
- Bekaert, G., Harvey, C. R., Kiguel, A., & Wang, X. (2016). Globalization and asset returns. *Annual Review of Financial Economics*, 8, 221-288.
- Chari, A., & Henry, P. B. (2004). Risk sharing and asset prices: evidence from a natural experiment. *The Journal of Finance*, 59(3), 1295-1324.
- De Jong, F., & De Roon, F. A. (2005). Time-varying market integration and expected returns in emerging markets. *Journal of Financial Economics*, 78(3), 583-613.
- Fischer, S. (1997). Capital Account Liberalization and the Role of the IMF. *FISCHER*, 117.
- Fama, E. F. (1976). Inflation uncertainty and expected returns on treasury bills. *Journal of Political Economy*, 84(3), 427-448.
- Hail, L., & Leuz, C. (2006). International differences in the cost of equity capital: Do legal institutions and securities regulation matter?. *Journal of Accounting Research*, 44(3), 485-531.
- Henry, P. B. (2000). Do stock market liberalizations cause investment booms?. *Journal of Financial Economics*, 58(1-2), 301-334.
- Hillier, D., & Loncan, T. (2019). Stock market integration, cost of equity capital, and corporate investment: Evidence from Brazil. *European Financial Management*, 25(1), 181-206.
- Merton, R. C. (1980). On estimating the expected return on the market: An exploratory investigation. *Journal of Financial Economics*, 8(4), 323-361.
- Obstfeld, M. (1994). Risk-Taking, Global Diversification, and Growth. *American Economic Review*, 84(5), 1310-2.
- Officer, R. R. (1973). The variability of the market factor of the New York Stock Exchange. *The Journal of Business*, 46(3), 434-453.
- Schwert, G. W. (1989). Why does stock market volatility change over time?. *The Journal of Finance*, 44(5), 1115-1153.
- Summers, L. H. (2000). International financial crises: causes, prevention, and cures. *American Economic Review*, 90(2), 1-16.
- Sripriya, V. (2014). Foreign Institutional Investors' Trading Activity and Volatility in Indian Stock Market. *Indian Journal of Applied Research*, 4(11), 223-225.
- Stulz, R. M. (1995). Globalization of capital markets and the cost of capital: The case of Nestlé. *Journal of Applied Corporate Finance*, 8(3), 30-38.
- Stulz, R. M. (1999). Globalization of equity markets and the cost of capital.
- Stulz, R. M. (2005). Globalization, corporate finance, and the cost of capital. *Journal of Applied Corporate Finance*, 12(3), 8-25.

APPENDIX

Table 1: Standard Deviation of Firm ($\sigma(c)$) and MSCI ($\sigma(w)$); it's Correlation; and Ratio between to Standard Deviation; and percentage of Foreign Investment.

<i>Company</i>	$\sigma(c)$	$\sigma(w)$	<i>R</i>	$\sigma(c)/\sigma(w)$	<i>% Of Foreign investment</i>
Adani Enterprises	0.18	0.087	0.19	4.280618312	15.39
Adani Ports & SEZ	0.121	0.087	0.22	1.934337429	13.76
Apollo Hospitals	0.09	0.087	0.21	1.070154578	47.94
Asian Paints	0.07	0.087	0.27	0.647377461	18.11

Axis Bank	0.11	0.087	0.31	1.598625974	49.45
Bajaj Auto	0.1	0.087	0.12	1.321178491	11.82
Bajaj Finance	0.14	0.087	0.33	2.589509843	19.82
Bajaj Finserv	0.17	0.087	0.28	3.81820584	
Bharti Airtel	0.085	0.087	0.26	0.95455146	21.7
Bharat Petroleum	0.11	0.087	0.1	1.598625974	12.53
Britannia Industries	0.07	0.087	0.3	0.647377461	18.46
Cipla	0.076	0.087	0.3	0.763112697	28.38
Coal India	0.081	0.087	0.17	0.866825208	7.86
Divi's Laboratories	0.09	0.087	0.18	1.070154578	15.15
Dr. Reddy's Laboratories	0.083	0.087	0.28	0.910159863	27.29
Eicher Motors	0.11	0.087	0.15	1.598626	29.85
Grasim Industries	0.095	0.087	0.32	1.192363588	12.58
HCLTech	0.2	0.087	0.15	5.284713965	18.29
HDFC	0.085	0.087	0.32	0.95455146	67.21
HDFC Bank	0.074	0.087	0.32	0.723477342	32.08
HDFC Life	0.074	0.087	0.04	0.723477342	30.14
Hero MotoCorp	0.083	0.087	0.098	0.910159863	27.47
Hindalco Industries	0.13	0.087	0.35	2.23279165	25.66
Hindustan Unilever	0.065	0.087	0.14	0.558197913	14.32
ICICI Bank	0.11	0.087	0.32	1.598625974	45.09
Infosys	0.081	0.087	0.4	0.866825208	36.28
ITC	0.064	0.087	0.2	0.54115471	13.81
JSW Steel	0.14	0.087	0.48	2.589509843	26.04
Kotak Mahindra Bank	0.11	0.087	0.28	1.598625974	39.24
Mahindra & Mahindra	0.098	0.087	0.28	1.268859823	39.16
Maruti Suzuki	0.098	0.087	0.13	1.268859823	21.49
NTPC	0.079	0.087	0.18	0.824547496	15.65
Oil and Natural Gas Corporation	0.093	0.087	0.13	1.142687277	8.43
Power Grid	0.068	0.087	0.1	0.610912934	32.75
Reliance Industries	0.08	0.087	0.31	0.845554234	23.43
State Bank of India	0.113	0.087	0.16	1.687012815	10.7
SBI Life Insurance Company	0.0799	0.087	0.26	0.84344167	25.09
Sun Pharma	0.0817	0.087	0.31	0.88187211	16.87
Tata Motors	0.15	0.087	0.34	2.972651605	13.89
Tata Steel	0.14	0.087	0.45	2.589509843	
Tata Consultancy Services	0.077	0.087	0.35	0.783326727	12.94
Tata Consumer Products	0.09	0.087	0.34	1.070154578	25.74
Tech Mahindra	0.115	0.087	0.44	1.747258555	27.95
UltraTech Cement	0.094	0.087	0.32	1.167393315	14.1
UPL	0.12	0.087	0.23	1.902497027	37.17
Wipro	0.088	0.087	0.48	1.023120624	6.3

Source: Author

Table 2: MSCI (Var(w)) and Standard Deviation of Firm (Var(c)); Ratio between to Standard Deviation; and its Correlation

Compan y	World Portfolio	Adani Enterprises			Adani Ports & SEZ		
		Var(C)	Var(C)/Var(W)	R	Var(C)	Var(C)/Var(W)	r
2008	0.178333621	0.228955587	1.283861036	0.666251282	0.254456274	1.426855309	0.606480926
2009	0.089001887	0.246007974	2.764075939	0.527907391	0.190098306	2.135890742	0.080596371
2010	0.115770621	0.075775015	0.654527153	-0.074096936	0.085362819	0.737344398	0.160552356
2011	0.068346272	0.136104117	1.991390503	0.187193937	0.093442042	1.367185644	-0.00766727
2012	0.091017805	0.19629367	2.15665133	-0.063437093	0.087258491	0.958696938	0.007959414
2013	0.046363181	0.188756248	4.07125317	-0.013397431	0.079192119	1.708082085	0.392842853
2014	0.036556581	0.144794119	3.960822232	-0.283971392	0.07351148	2.010895918	0.453970427
2015	0.070763217	0.209442158	2.959760269	0.407804283	0.077158218	1.09037183	-0.025247685
2016	0.053318653	0.151240552	2.836541132	-0.041084764	0.145197084	2.7231949	0.238289475
2017	0.04365855	0.08423035	1.929297936	0.080192279	0.068942393	1.579126942	-0.267284243
2018	0.070509838	0.260921161	3.700492982	-0.195848177	0.096518118	1.3688603	0.003892608
2019	0.084937859	0.156870293	1.846883056	-0.167074553	0.106093073	1.249066955	-0.306086234
2020	0.072258433	0.21690209	3.001754695	0.121778083	0.129500447	1.792184541	0.361720542
2021	0.086621057	0.190113579	2.194773254	0.049250848	0.10708345	1.23622885	-0.153955914
2022	0.100969048	0.112715562	1.116337771	0.071962323	0.088075147	0.872298475	0.186408564

Apollo Hospitals			Asian Paints			Axis Bank		
Var(C)	Var(C)/Var(W)	r	Var(C)	Var(C)/Var(W)	r	Var(C)	Var(C)/Var(W)	r

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0.080420 019	0.45095264 8	0.736702 195	0.095562 943	0.53586610 4	0.460213 769	0.17654 81	0.989988	0.23697 28
0.131548 23	1.47803866 1	- 0.031804 484	0.099660 791	1.11976043	0.483510 898	0.17862 03	2.0069267	0.57598 97
0.069940 575	0.60413059 9	0.390728 541	0.059677 287	0.51547867 7	0.429278 832	0.06659 29	0.5752144	0.35090 45
0.070384 971	1.02982897 9	- 0.095926 496	0.077470 709	1.13350307	0.372971 906	0.11221 66	1.6418837	0.43956 42
0.067701 079	0.74382236 6	- 0.251083 205	0.069581 541	0.76448273 8	0.161967 121	0.11603 67	1.2748796	0.11924 28
0.091260 577	1.96838472 9	- 0.336110 359	0.101256 397	2.18398296	0.033253 39	0.14982 03	3.2314503	- 0.02801 5
0.058473 846	1.59954361 8	0.484889 149	0.078115 452	2.13683692 3	0.437618 317	0.09658 29	2.6420104	0.33136 89
0.089524 118	1.26512221 4	0.161110 72	0.074876 46	1.05812684 8	0.582625 589	0.06813 83	0.9629062	0.62938 65
0.045656 581	0.85629659 1	0.240610 931	0.071871 421	1.34796017 3	0.653187 748	0.09147 2	1.7155718	0.64496 04
0.074261 193	1.70095417 4	0.090769 884	0.040542 275	0.92862165 6	0.196876 003	0.03405 8	0.7800997	0.32940 78
0.114509 214	1.62401754 2	- 0.084624 035	0.069242 814	0.98203054	0.161655 005	0.08054 25	1.1422871	0.49896 96
0.120299 87	1.41632801 9	0.200534 471	0.078624 435	0.92567008 8	- 0.555255 25	0.11093 85	1.3061142	0.43837 54
0.171421 643	2.37234099 5	0.426829 652	0.084892 463	1.17484506 5	0.090694 794	0.18731 91	2.5923492	0.51369 02
0.140995 242	1.62772479 8	0.190994 803	0.081405 147	0.93978472 9	- 0.032715 81	0.06610 84	0.7631906	- 0.01962 7
0.077323 2	0.76581092	0.494053 683	0.091083 727	0.90209553 1	0.337439 472	0.09463 96	0.9373128	0.43467 65

<i>Bharti Airtel</i>			<i>Bharat Petroleum</i>			<i>Britannia Industries</i>		
<i>Var(C)</i>	<i>Var(C)/Va r(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Va r(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Va r(W)</i>	<i>r</i>
0.096166 116	0.5392483 76	0.419758 759	0.261702 379	1.4674876 06	0.096027 73	0.078482 907	0.4400903 55	0.613898 012
0.123162 539	1.3838194 14	0.403204 292	0.093505 435	1.0506005 89	- 0.141231 957	0.088382 46	0.9930402 98	0.470037 351
0.100814 545	0.8708128 52	0.523416 82	0.099033 563	0.8554291 45	- 0.466535 096	0.053381 64	0.4610983 26	- 0.074762 645

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0.075338 085	1.1022998 45	0.427445 024	0.070633 454	1.0334646 18	0.101733 582	0.081149 902	1.1873347 18	0.419139 331
0.102799 57	1.1294446 18	- 0.004176 06	0.079621 875	0.8747944 92	0.256960 252	0.078787 013	0.8656219 88	0.341457 709
0.103534 801	2.2331254 78	- 0.004200 39	0.114757 742	2.4751912 89	0.124958 013	0.098373 511	2.1218024 44	0.028007 868
0.069077 366	1.8896013 95	- 0.106848 13	0.107805 997	2.9490175 1	0.392310 424	0.067902 126	1.8574528 72	0.263042 08
0.074681 576	1.0553728 24	0.659333 987	0.066339 407	0.9374843 24	0.652074 929	0.075261 421	1.0635669 83	0.300283 773
0.074001 705	1.3879140 03	0.234144 775	0.082112 319	1.5400298 78	0.196394 447	0.076476 443	1.4343281 2	0.483794 383
0.093300 569	2.1370514 9	- 0.123998 12	0.094824 194	2.1719501 36	- 0.089833 897	0.036096 715	0.8267960 23	0.250887 617
0.075294 761	1.0678617 85	0.063560 456	0.118049 369	1.6742255 07	0.367066 745	0.070525 238	1.0002184 05	0.350553 814
0.071560 068	0.8424990 79	0.034259 945	0.096243 296	1.1331024 45	- 0.368203 626	0.067485 568	0.7945287 12	- 0.276901 145
0.104578 33	1.4472820 11	0.676588 422	0.115753 718	1.6019406 11	0.626337 602	0.079221 894	1.0963688 37	0.569532 968
0.068985 221	0.7964024 43	- 0.002728 59	0.082666 96	0.9543517 81	0.016827 562	0.068858 191	0.7949359 37	- 0.001566 282
0.059255 414	0.5868671 14	- 0.014973 56	0.070201 021	0.6952726 89	0.359937 03	0.074416 85	0.7370263 6	0.573505 159

<i>Cipla</i>			<i>Coal India</i>			<i>Divi's Laboratories</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
0.106259 386	0.59584606 2	0.480995 209				0.132395 217	0.74240188 8	0.584256 905
0.066307 1	0.74500779 9	0.521615 324				0.163702 058	1.83930997	- 0.115603 658
0.061092 876	0.52770621 2	0.586359 645				0.067822 844	0.58583813 1	0.089175 987
0.071896 61	1.05194632 4	0.503534 956	0.07355 37	0.41245001 7	0.46120 02	0.071499 074	1.04612983 6	0.266426 892
0.069297 968	0.76136715 8	0.241593 899	0.05022 77	0.56434431 1	0.39631 92	0.069388 526	0.76236211 6	- 0.628353 443
0.061363 545	1.32354043 8	- 0.068390 2	0.07938 59	0.68571747	0.13914 2	0.076437 4	1.64866599 5	0.093370 95
0.085587 608	2.34123666 5	0.085931 381	0.11532 18	1.68731661 9	0.28233 1	0.076081 2	2.08119025 8	0.069546 134

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0.081446 426	1.15097121 2	0.741630 634	0.08274 86	0.90914791 9	0.25354 24	0.066549 74	0.94045667 9	- 0.371914 045
0.070571 379	1.32357767 9	0.125650 162	0.04047 12	0.87291736 5	0.22697 27	0.122199 494	2.29187137 3	0.310305 696
0.045822 524	1.04956586 9	- 0.187727 17	0.06677 7	1.82667385 7	0.14203 24	0.114878 314	2.63129018 4	0.190981 99
0.091891 93	1.30324977 2	- 0.120509 42	0.07321 97	1.03471393 9	0.33247 18	0.080978 822	1.14847550 7	- 0.465298 476
0.080874 972	0.95216635 6	0.554033 943	0.07764 91	1.45632161 5	0.15092 86	0.079229 55	0.93279429 4	0.293254 619
0.129907 989	1.79782460 9	0.288387 899	0.09239 09	2.11621654 4	0.57278 36	0.085212 536	1.17927461 8	0.623677 438
0.056792 403	0.65564199 5	- 0.075888 72	0.12632 9	1.79165094 1	- 0.06913 7	0.077332 441	0.89276722 9	0.863597 082
0.057350 11	0.56799693 9	0.407308 656	0.07997 76	0.94160171 1	0.38364 59	0.079184 188	0.78424219 2	- 0.026448 084

<i>Dr. Reddy's Laboratories</i>			<i>Eicher Motors</i>			<i>Grasim Industries</i>		
<i>Var(C)</i>	<i>Var(C)/Var (W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var (W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var (W)</i>	<i>r</i>
0.132610 512	0.74360915	0.77845 617	0.138518 474	0.7767378 54	0.399073 927	0.173924 032	0.9752733 71	0.515513 78
0.123517 552	1.38780823 7	0.38270 623	0.159487 079	1.7919516 54	- 0.083269 591	0.113078 159	1.2705141 75	0.251153 473
0.071559 233	0.61811219 5	- 0.11095 967	0.114104 426	0.9856077 95	- 0.027160 309	0.112120 311	0.9684694 65	0.437445 416
0.055421 666	0.81089523 5	0.31592 138	0.119743 684	1.7520148 6	0.267073 675	0.058913 207	0.8619812 76	- 0.096329 118
0.042386 76	0.46569745 2	- 0.18751 771	0.087346 144	0.9596599 71	0.358876 935	0.073223 572	0.8044972 26	0.152793 178
0.052055 806	1.12278330 5	- 0.01153 993	0.116835 756	2.5200116 41	0.261668 592	0.078237 579	1.6874937 75	- 0.124738 408
0.085625 265	2.34226678 5	0.16101 755	0.080328 949	2.1973868 19	0.547133 609	0.090048 183	2.4632550 61	0.703243 964
0.101052 041	1.42803062 6	0.08910 633	0.083357 066	1.1779716 89	0.055445 471	0.061200 244	0.8648595 5	0.735177 543
0.057935 996	1.08659901	- 0.48886 767	0.080405 755	1.5080230 06	0.326431 452	0.074016 919	1.3881993 33	0.361563 485

Bishal Routh

0.084870 243	1.94395469 3	- 0.50901 705	0.053041 937	1.2149266 83	- 0.000764 912	0.059619 856	1.3655940 52	0.152372 572
0.084715 832	1.20147534 4	0.01722 515	0.073128 078	1.0371329 81	0.240983 682	0.064785 261	0.9188116 52	0.626983 666
0.075054 787	0.88364350 1	0.27260 877	0.095074 655	1.1193436 69	- 0.053502 519	0.092882 416	1.0935337 62	0.253810 12
0.108360 424	1.49962321 9	0.25853 124	0.132769 647	1.8374277 07	0.443819 71	0.125301 89	1.7340798 19	0.253525 045
0.073948 053	0.85369604	0.20317 218	0.075909 597	0.8763411 48	- 0.618290 27	0.081034 801	0.9355092 59	- 0.346864 997
0.056695 365	0.56151232 4	0.28989 331	0.068090 539	0.6743704 19	0.059159 654	0.087152 77	0.8631632 3	0.285427 844

<i>HCLTech</i>			<i>HDFC</i>			<i>HDFC Bank</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>R</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
0.1559 03	0.874221721	0.38801 3	0.12581 21	0.70548716 8	0.203346 5	0.1252977 61	0.70260313 4	0.2311736 12
0.1462 69	1.643436794	0.61574 1	0.11876	1.33435319 1	0.550592 6	0.1072145 52	1.20463234 7	0.1845400 67
0.0688 75	0.594922974	0.47135 9	0.07115 38	0.61461008 7	0.384956 2	0.0757290 08	0.65412975 5	0.6502293 75
0.7409 51	10.84113244	0.07884 1	0.06548 22	0.95809487 3	0.616788 6	0.0714756 59	1.04578723 8	0.5981588 97
0.0609 47	0.669621568	- 0.00657 9	0.04785 77	0.52580576 6	0.250909 6	0.0629413 26	0.69152761 9	0.2161987 63
0.0803 98	1.734089298	0.13657 4	0.06970 22	1.50339652 1	- 0.239823	0.0645687 79	1.39267361 7	- 0.2399076 6
0.0709 25	1.940149655	0.20229 2	0	0	#DIV/0!	0.0506088 19	1.38439694 3	0.5493034 5
0.0918 04	1.297343168	0.20926 9	0.15719 78	2.22146135 8	- 0.040645 1	0.0544771 47	0.76985119 3	0.5786405 39
0.0415 56	0.77939038	0.01484 4	0.07011 76	1.31506613 2	0.561197 9	0.0506235	0.94945196 8	0.6161952 17
0.0407 25	0.932799185	- 0.00283	0.04534 67	1.03866658 2	- 0.054464	0.0320499 99	0.73410589 7	0.4880582 56
0.0708 31	1.004555625	0.21259 9	0.07059 12	1.00115434 5	0.251511 2	0.0588592 38	0.83476632	0.4547949 03
0.0894 03	1.052568774	0.56138 7	0.07841 52	0.92320614 4	0.205166 1	0.0739095 1	0.87015979 5	- 0.1088993 5
0.1341 64	1.856727162	0.4015	0.12929 35	1.78932028 8	0.594243 2	0.1277080 4	1.76737904 1	0.4416946 57
0.0831 46	0.959887386	- 0.23667 2	0.06204 19	0.71624453 7	0.249881 6	0.0589300 6	0.68032026	- 0.0425772 5

0.0752 42	0.745198334	0.62614 8	0.06228 21	0.61684330 6	0.877613	0.0444500 75	0.44023466 5	0.7647635 9
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<i>HDFC Life</i>			<i>Hero MotoCorp</i>			<i>Hindalco Industries</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
			0.080420 019	0.45095264 8	- 0.149638 12	0.185015 134	1.03746636 9	0.53410 013
			0.131548 23	1.47803866 1	0.159990 843	0.205042 295	2.30379716 7	0.12022 821
			0.069940 575	0.60413059 9	0.005869 82	0.107703 021	0.93031392 7	0.85483 735
			0.070384 971	1.02982897 9	0.548892 26	0.060796 325	0.88953389 4	0.36072 573
			0.067701 079	0.74382236 6	0.180718 365	0.117254 147	1.28825505 6	0.07337 343
			0.091260 577	1.96838472 9	0.260656 669	0.092096 944	1.98642418	0.26915 57
			0.058473 846	1.59954361 8	0.449424 06	0.137857 393	3.77106909	0.14082 005
			0.089524 118	1.26512221 4	0.357179 879	0.126322 822	1.78514809 2	0.40225 448
			0.045656 581	0.85629659 1	0.517964 252	0.135082 523	2.53349466 6	0.45900 021
			0.074261 193	1.70095417 4	- 0.335700 39	0.093539 862	2.14253248 7	- 0.33827 94
0.08552 436	0.47957507 9	0.03864 318	0.114509 214	1.62401754 2	0.177030 406	0.068509 678	0.97163289 5	0.09481 979
0.06774 614	0.76117642 6	0.48443 567	0.120299 87	1.41632801 9	- 0.516489 02	0.144769 927	1.70442166 7	- 0.02445 5
0.09524 634	0.82271602 1	- 0.23723 84	0.171421 643	2.37234099 5	0.464701 91	0.206340 294	2.85558772 2	0.59976 444
0.04016 366	0.58764962 4	- 0.07761 53	0.140995 242	1.62772479 8	- 0.461419 02	0.166326 452	1.92016188 7	0.21553 739
0.07340 865	0.80653060 9	- 0.22216 17	0.077323 2	0.76581092	0.132651 545	0.131807 658	1.30542636 9	0.47221 426

<i>Hindustan Unilever</i>			<i>ICICI Bank</i>			<i>Infosys</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
0.0824046 43	0.462081364	0.0453357 56	0.163783 37	0.918409952	0.487191 4	0.126	0.706550984	0.485 1
0.0759365 26	0.853201299	0.2627199 39	0.221881 49	2.492997579	0.414324 06	0.071 4	0.802315505	0.545 2

Bishal Routh

0.0742879 81	0.641682497	0.0287099 49	0.063968 17	0.552542302	0.650669 87	0.057 9	0.500407119	0.372 3
0.0710641 82	1.039766762	0.6072056 38	0.099598 77	1.457267116	0.289654 89	0.092 1	1.347339225	0.289 7
0.0481348 63	0.528851061	0.1246028 9	0.116579 46	1.280842366	0.106665 42	0.068 4	0.751939363	0.435
0.0876656 23	1.89084573	- 0.1140206 25	0.119627 87	2.580234279	- 0.006745 7	0.109 6	2.364818175	0.268 8
0.0572969 47	1.567349733	0.3509778 23	0.086799 64	2.37439176	0.192072 27	0.079 9	2.185066964	0.300 4
0.0791276 33	1.118202876	0.4845964 99	0.039818 12	0.562695226	0.443411 44	0.062 5	0.883766155	0.221 9
0.0365570 85	0.685634062	0.4794213 59	0.107952 34	2.024663631	0.366974 85	0.059 5	1.116655705	- 0.084
0.0434835 51	0.995991633	- 0.2744120 81	0.060678 1	1.389833083	- 0.058571	0.070 7	1.620241374	0.231
0.0581843 12	0.825194242	0.1359976 98	0.097331 2	1.380391791	- 0.149647 1	0.047 6	0.675699668	0.591 9
0.0638850 8	0.752139042	- 0.1341364 53	0.092957 34	1.094415836	0.100778 87	0.080 9	0.951967485	0.049 2
0.0556999 44	0.770843502	0.2179322 88	0.157665 48	2.181966505	0.524827 97	0.112 8	1.56040614	0.526 6
0.0830768 41	0.959083664	0.0320073 94	0.074541 04	0.860541765	0.295915 87	0.050 3	0.580755852	0.177 7
0.0742422 36	0.73529698	0.3899622 53	0.067867 44	0.672160828	0.522080 77	0.083	0.822292326	0.800 8

<i>ITC</i>			<i>JSW Steel</i>			<i>Kotak Mahindra Bank</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>R</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
0.0850 71	0.47703327 3	0.4585 82	0.26327 13	1.47628531	0.80648 35	0.2005901 91	1.12480299 2	0.3492918 15
0.0948 06	1.06521701 5	0.2955 81	0.22914 15	2.57456898 1	0.40947 26	0.2537135 86	2.85065400 9	0.2318104 06
0.0577 32	0.49867142 5	0.1258 58	0.09626 02	0.83147379 3	0.73680 16	0.0559948 46	0.48367060 4	- 0.0529315 76
0.0501 12	0.73320578	0.5427 05	0.09918 89	1.45126969 5	0.79909 54	0.0893480 72	1.30728523 4	0.6067020 94
0.0546 07	0.59996139 8	0.1052 56	0.13122 27	1.44172508 5	0.23336 36	0.0825308 6	0.90675511 5	0.5114522 98
0.0603 16	1.30094742 3	0.2532 69	0.14394 18	3.10465761 7	0.29091 36	0.0672391 47	1.45027036 2	0.2562514 59
0.0437 82	1.19766360 4	- 0.1641 5	0.09448 91	2.58473458 5	0.11397 81	0.0633384 73	1.73261478	0.1040002 93

0.0609 78	0.86171358 9	- 0.0607 8	0.07022 02	0.99232572 9	- 0.49467 3	0.0346025 5	0.48899062 5	0.6432705 01
0.0577 95	1.08396232 8	0.4688 77	0.06227 21	1.16792290 6	0.67810 44	0.0571938 99	1.07268087 5	0.3329337 4
0.0669 06	1.53249051 1	- 0.2494 2	0.07856 8	1.79960105 3	- 0.18901 5	0.0417499 1	0.95628256 1	- 0.0684590 41
0.0621 83	0.88191214 2	0.3120 99	0.09125 57	1.29422606 6	0.51152 9	0.0773134 91	1.09649224 8	0.3257916 34
0.0664 41	0.78222782 2	0.0488 44	0.13139 47	1.54695051 3	0.27667 76	0.0809721 44	0.95331040 2	- 0.5006293 24
0.0958 14	1.32599125 8	0.6534 54	0.16639 44	2.30276849 8	0.38888 02	0.1261451 15	1.74574939 2	0.4211803 73
0.0587 83	0.67862388	- 0.4721 5	0.16964 8	1.95850763 6	0.49659 7	0.0734917 23	0.84842791 5	0.1491701 02
0.0551 2	0.54590694 7	0.3541 47	0.10470 78	1.03702898 5	0.25007 89	0.0566565 05	0.56112745 7	0.4490946 01

<i>Mahindra & Mahindra</i>			<i>Maruti Suzuki</i>			<i>NTPC</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
0.146030 133	0.81885923 6	0.542173 041	0.094529 367	0.53007036 1	0.241608 149	0.1163 08	0.65219443 9	0.263175 8
0.120101 648	1.34942811	0.385822 323	0.132483 41	1.48854607 7	- 0.079061 267	0.0696 5	0.78256965 3	0.063425 128
0.057454 492	0.49627868 9	0.291989 679	0.100129 202	0.86489302 2	- 0.036376 997	0.0631 18	0.54520152 9	0.469666 065
0.099944 609	1.46232714 8	- 0.092699 593	0.065518 974	0.95863274 1	0.185464 058	0.0795 33	1.16368084 4	0.245902 767
0.061561 179	0.67636414 1	0.306367 492	0.116765 73	1.28288888 2	0.104668 818	0.0615 81	0.67657740 5	0.196659 423
0.064699 376	1.39549044 6	- 0.173280 116	0.132568 077	2.85933954 5	0.007985 355	0.0675 85	1.45773229 5	0.323676 261
0.085351 136	2.33476801 2	0.147328 448	0.091780 73	2.51064863	0.345318 598	0.1292 38	3.53527700 2	0.371250 732
0.076170 889	1.07641925 6	0.166985 208	0.052425 542	0.74085866 4	0.164816 023	0.0706 94	0.99901857 6	0.275330 954
0.054427 56	1.02079772 5	0.280354 055	0.109027 741	2.04483299 4	0.351339 043	0.0725 5	1.36068934 1	0.102767 215
0.049383 602	1.13113244 4	0.156085 463	0.046881 607	1.07382419 7	- 0.355809 25	0.0369 15	0.84553241 6	- 0.289196 641
0.078153 964	1.10841219 7	0.450743 515	0.087455 407	1.24032914 1	0.314073 491	0.0599 99	0.85092436 1	0.078791 241

Bishal Routh

0.111084 417	1.30783161 4	- 0.182344 345	0.087567 256	1.03095671 1	- 0.183669 714	0.0839 09	0.98788621 8	0.231857 849
0.188345 126	2.60654871 3	0.567363 807	0.134857 437	1.86632108 7	0.391096 386	0.1000 91	1.38517420 1	0.382185 371
0.057434 561	0.66305541 6	- 0.204723 203	0.059495 419	0.68684707	- 0.159335 289	0.1019 81	1.17732246 2	0.000890 076
0.078252 75	0.77501721	- 0.015809 375	0.070622 661	0.69944861 7	- 0.081142 962	0.0773 56	0.76613356 4	- 0.085985 331

<i>Oil and Natural Gas Corporation</i>			<i>Power Grid</i>			<i>Reliance Industries</i>		
<i>Var(C)</i>	<i>Var(C)/Var (W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var (W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var (W)</i>	<i>r</i>
0.142316 553	0.79803545 9	0.215293 734	0.14172 465	0.7947164	0.153993 049	0.118835 739	0.6663675 54	0.489656 768
0.113835 228	1.27902038 5	0.006595 276	0.09253 092	1.0396511 72	- 0.342529 226	0.121398 131	1.3639950 23	0.081604 047
0.070781 672	0.61139580 7	- 0.379867 6	0.04523 291	0.3907114 42	- 0.088269 72	0.077118 378	0.6661308 12	0.453832 731
0.055262 036	0.80855961 9	0.129113 701	0.04469 264	0.6539147 98	0.375500 413	0.077288 54	1.1308376 86	0.497785 946
0.060192 71	0.66132895 7	0.256838 015	0.04654 177	0.5113479 71	0.480201 084	0.070632 422	0.7760286 29	0.215130 117
0.108841 188	2.34757808 3	0.234057 46	0.04707 213	1.0152911 67	- 0.399464 702	0.059607 236	1.2856588 86	- 0.301848 135
0.088214 069	2.41308313 8	0.502014 706	0.07374 226	2.0172088 6	0.497524 491	0.080338 697	2.1976534 8	0.116962 307
0.069582 886	0.98331998 6	0.349085 309	0.05097 747	0.7203951 03	0.395088 491	0.073776 845	1.0425874 9	0.381525 347
0.074098 706	1.38973327	- 0.112765 038	0.06413 749	1.2029090 84	0.228403 188	0.054878 514	1.0292554 5	0.184136 445
0.076781 597	1.75868407 5	- 0.334939 951	0.05378 523	1.2319517 85	- 0.226947 479	0.089846 446	2.0579347 33	0.271933 755
0.072877 214	1.03357512 2	0.365494 135	0.06534 658	0.9267725 75	- 0.027423 602	0.096505 242	1.3686776 84	0.390991 562
0.104433 945	1.22953352 4	0.125400 858	0.05773 325	0.6797116 62	- 0.196636 343	0.064397 651	0.7581737 06	0.399122 718
0.151365 802	2.09478389 8	0.590502 683	0.07198 282	0.9961857 65	0.491291 605	0.138445 518	1.9159773 13	0.338506 475
0.099133 78	1.14445359 3	0.138004 363	0.05952 481	0.6871863 53	- 0.109503 648	0.072507 194	0.8370619 9	0.044742 132

0.086696 684	0.85864614 4	- 0.303654 215	0.05659 006	0.5604693 6	0.120207 397	0.066183 715	0.6554851 89	0.095553 102
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<i>SBI Life Insurance Company</i>			<i>State Bank of India</i>			<i>Sun Pharma</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
			0.163734 397	0.91813532 2	0.069366 914	0.09797 885	0.54941321 6	0.50891 252
			0.167994 431	1.88753785 6	0.167860 89	0.08433 189	0.94752919 7	0.30720 85
			0.082397 01	0.71172642 3	0.247196 515	0.07709 39	0.66591933 8	0.42921 727
			0.073096 993	1.06950958 5	0.020378 482	0.05836 319	0.85393383 6	0.64914 011
			0.116092 774	1.27549520 3	0.261145 948	0.04698 426	0.51620955 7	0.25786 11
			0.086410 306	1.86377000 5	0.114965 567	0.08304 421	1.79116713 8	- 0.14837 59
			0.121328 876	3.31893390 5	0.316693 655	0.07682 205	2.10145612 5	- 0.01193 579
			0.052700 519	0.74474453 4	0.303313 303	0.10420 975	1.47265423 2	0.11966 131
			0.107605 789	2.01816405 9	0.424856 781	0.05507 621	1.03296323 3	0.12498 184
0.085074 835	1.94864087 4	- 0.332247 399	0.092009 129	2.10747101 1	0.095982 446	0.09353 33	2.14238209 7	- 0.00257 813
0.061393 765	0.87071204 3	- 0.204406 453	0.086296 424	1.22389196 5	- 0.019026 873	0.10376 136	1.47158692 9	0.24529 705
0.117144 288	1.37917636 4	0.660418 647	0.109625 951	1.29066063 2	0.139720 162	0.07569 799	0.89121618 3	0.35929 294
0.043846 731	0.60680434 9	0.417571 11	0.164096 042	2.27096042 7	0.564759 568	0.12378 104	1.71303249 6	0.70578 349
0.083415 966	0.96299870 3	0.585045 938	0.130033 377	1.50117513 7	- 0.019857 225	0.05968 012	0.68897938	0.36530 083
0.082989 047	0.82192561 7	0.593254 709	0.074901 362	0.74182498 2	0.261171 832	0.06325 103	0.62643982 9	0.53135 587

<i>Tata Motors</i>			<i>Tata Steel</i>			<i>Tata Consultancy Services</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
0.176002 03	0.98692566 1	0.542538 01	0.2475 52	1.38814153 8	0.7309 55	0.1203247 9	0.67471736	0.4973851 41
0.185964 44	2.08944380 9	0.378810 37	0.2295 53	2.57918690 4	0.0871 34	0.1022210 77	1.14852707 7	0.5646314 24

Bishal Routh

0.094983 51	0.82044574 7	0.338527 8	0.1207 93	1.04338604 4	0.7619 85	0.0564722 3	0.48779413 2	0.7456678 02
0.135032 1	1.97570547 9	0.351596 45	0.0991 83	1.45117824 1	0.4871 7	0.0456887 55	0.66848934 8	0.3894109 58
0.151526 59	1.66480159 4	0.397113 58	0.1287 45	1.41450440 8	0.1491 72	0.0464983 98	0.51087144 7	0.0640961 87
0.079746 66	1.72004297	0.364925 96	0.1520 16	3.27880864 4	0.2719 51	0.0905055 79	1.95210028 9	- 0.0274482 27
0.086589 66	2.36864755 7	0.213135 57	0.1145 8	3.13433019 7	0.3399 31	0.0575026 71	1.57297727 9	0.2773266 26
0.131751 35	1.86186205	0.648364 77	0.1117 03	1.57855178 4	0.0850 73	0.0406310 14	0.57418269	- 0.3919235 26
0.122171 65	2.29134918 3	0.569189 96	0.0956 66	1.79422715 7	0.3979 27	0.0612585 93	1.14891486 3	0.3469457 91
0.084971 58	1.94627575 2	- 0.556668 63	0.0687 57	1.57489049	- 0.1320 21	0.0652456 82	1.49445371 1	0.2336836 63
0.077792 79	1.10328986 8	0.237042 13	0.0535 42	0.75935118 3	0.1296 51	0.0957174 11	1.35750433 3	0.4254419 5
0.198085 68	2.33212475	0.343662 73	0.1066 07	1.25511316 4	0.2908 89	0.0634446 18	0.74695334 3	0.4544684 34
0.244895 07	3.38915561 9	0.478720 68	0.1800 71	2.49204224 7	0.5798 38	0.0649453 56	0.89879275 2	0.1774088 91
0.188735 59	2.17886502 9	- 0.293812 86	0.1375 66	1.58813174 5	0.6639 81	0.0838557 8	0.96807615 9	- 0.3540305 24
0.082125 91	0.81337711 4	0.415046 84	0.1179 76	1.16843949 6	0.4092 22	0.0469963 38	0.46545291 3	0.6107001 59

<i>Tata Consumer Products</i>			<i>Tech Mahindra</i>			<i>UltraTech Cement</i>		
<i>Var(C)</i>	<i>Var(C)/Va r(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Va r(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Va r(W)</i>	<i>r</i>
0.116333 514	0.6523364 1	0.684059 333	0.217891 467	1.2218193 39	0.595888 716	0.217891 467	1.2218193 39	0.453544 414
0.080750 876	0.9072939 79	0.773413 56	0.186794 984	2.0987755 47	0.500614 526	0.186794 984	2.0987755 47	- 0.191471 337
0.058854 173	0.5083688 1	- 0.247238 709	0.110632 475	0.9556178 76	0.365318 907	0.110632 475	0.9556178 76	0.371710 695
0.098611 43	1.4428208 98	0.141792 979	0.072232 172	1.0568560 65	0.409044 965	0.072232 172	1.0568560 65	- 0.018526 134
0.091469 354	1.0049611 08	0.092286 028	0.102539 308	1.1265851 53	0.190670 368	0.102539 308	1.1265851 53	0.247983 042
0.115757 204	2.4967485 35	- 0.066250 928	0.078020 531	1.6828123 05	0.051477 202	0.078020 531	1.6828123 05	- 0.009707 75
0.077363 537	2.1162683 9	0.489161 271	0.048471 955	1.3259433 48	0.719806 983	0.048471 955	1.3259433 48	0.495185 096

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0.070056 249	0.9900093 9	0.621839 358	0.081825 809	1.1563325 14	0.286959 665	0.081825 809	1.1563325 14	0.605630 902
0.101439 066	1.9025061 72	0.295579 563	0.093620 687	1.7558711 9	0.198633 369	0.093620 687	1.7558711 9	0.466728 827
0.078080 514	1.7884358 12	0.397806 674	0.071761 854	1.6437067 72	0.325170 141	0.071761 854	1.6437067 72	- 0.135172 329
0.066987 762	0.9500484 41	- 0.180985 227	0.079054 766	1.1211877 48	0.484069 346	0.079054 766	1.1211877 48	0.407113 634
0.081646 67	0.9612518 05	- 0.046310 586	0.075155 787	0.8848326 01	0.365624 402	0.075155 787	0.8848326 01	0.014735 598
0.121261 187	1.6781596 53	0.534472 214	0.118222 38	1.6361049 54	0.413561 752	0.118222 38	1.6361049 54	0.383935 893
0.071220 483	0.8222075 07	0.656157 012	0.078222 906	0.9030472 35	0.134666 295	0.078222 906	0.9030472 35	0.101068 92
0.069609 598	0.6894152 2	0.355826 869	0.085827 702	0.8500397 25	0.746095 341	0.085827 702	0.8500397 25	0.661511 052

<i>UPL</i>			<i>Wipro</i>		
<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>	<i>Var(C)</i>	<i>Var(C)/Var(W)</i>	<i>r</i>
0.1917	1.074953316	0.396008	0.120842713	0.677621597	0.73608
0.168822	1.896831921	0.256399	0.130857955	1.470282932	0.754475
0.073571	0.635489351	-0.17386	0.074700474	0.645245511	0.646271
0.094695	1.38552254	0.606848	0.074091146	1.084055412	0.513303
0.109088	1.198535015	0.433547	0.074677296	0.820469099	0.555254
0.108607	2.342522302	0.141234	0.116845069	2.520212518	0.011334
0.139745	3.822694841	-0.24902	0.053215701	1.455707819	0.536854
0.081289	1.148751334	0.265858	0.064169737	0.906823349	0.188241
0.107545	2.01703199	0.474469	0.047228253	0.885773565	-0.09449
0.06554	1.50118667	-0.28218	0.058981314	1.350968219	0.067975
0.068976	0.97823945	0.130078	0.048335995	0.685521286	-0.28942
0.059091	0.695699155	0.001722	0.081923192	0.964507377	0.541802
0.160034	2.214743598	0.419489	0.109692852	1.51806298	0.104909
0.129095	1.490338878	-0.4758	0.06496321	0.749970185	0.214333
0.120356	1.192005487	0.468685	0.078322317	0.775706205	0.670796