Determinants of Stock Prices: Empirical Evidence from NSE 100 Companies

Nidhi Malhotra, Assistant Professor(Corresponding Author)
Banarsidas Chandiwala Institute of Professional Studies
Dwarka, New Delhi-110075
malhotra.nidhi6@gmail.com

Kamini Tandon,Assistant Professor
Banarsiads Chandiwala Institute of Professional Studies
Dwarka,New Delhi-110075
kaminitandon@gmail.com

Abstract—A number of studies have been undertaken to identify the factors influencing stock prices in different stock markets. The extant literature available strongly supports the movement of stock price as a consequence of firm specific factors such as dividend, book value, earnings etc. The present study is undertaken with an attempt to determine the factors that influence stock prices in the context of National Stock Exchange (NSE) 100 companies. A sample of 95 companies is selected for the period 2007-12 and using linear regression model the results indicate that firms' book value, earning per share and price-earnings ratio are having a significant positive association with firm's stock price while dividend yield is having a significant inverse association with the market price of the firm's stock.

Keywords-stocks, market price,dividend,book value,price-earnings ratio,earning per share

I. INTRODUCTION

The stock market is all about dynamics and that is why investors and fund managers have been time and again confronted with the problem of accurately predicting the stock prices so as to earn decent returns. Investment in shares offers the benefit of liquidity as well as the opportunity to beat the market and earn high returns. But the task of predicting share prices is far from simple. Share price movement is not independent in nature and both intrinsic as well as extrinsic factors have been established to exercise influence over stock price movements. The pioneering work on determinants of share prices by Collins (1957) for US banks identified dividend, net profit, operating earnings and book value as the factors influencing share prices. Following Collins (1957), there have been various attempts to identify the determinants of share prices for different markets.

This study is an attempt to identify the factors influencing the share prices and examine the relationship of explanatory variables with those of stock prices for National Stock Exchange (NSE) 100 companies during the period 2007-12.

II. REVIEW OF LITERATURE

Table I mentioned above provides a snapshot of the extant literature available in this area. Different studies carried over different time periods across different markets have given varying results. Dividend or its surrogates can be noted as an integral factor bearing an impact on stock prices in eleven out of fifteen studies mentioned above. Apart from dividend, other significant factors that have emerged are book value, retained earnings, price-earnings ratio, financial leverage, size etc.

From the review of literature on share price determinants, it can be observed that most of the studies have used either time-series or cross-section data. There have also been attempts to identify the share price determinants using panel data.

The present study re-visits the existing postulates on determinants of stock prices for NSE 100 companies during the period 2007-12.

III. OBJECTIVES

The present study has been undertaken with an objective to review the existing literature by examining the empirical relationship between stock prices and company specific intrinsic factors such as book value per share, dividend per share, earning per share, price earnings ratio, dividend yield, dividend payout, size in terms of sale and net worth

for NSE 100 companies during the period 2007-08 to 2011-12.

S.No.	Authors/Researchers	Factors Identified	Year	Market
1.	Zahir & Khanna	dividend per share, yield, book value	1981	India
2.	Srivastava	dividend	1984	India
3.	Balkrishan	book value and dividend per share	1984	India
4.	Chawla & Srinivasan	dividend and retained earnings	1987	India
5.	Karathanassis and Philippas	dividend, retained earnings, size	1988	Greece
6.	Midani	earnings per share, financial leverage	1991	Kuwait
7.	Zahir	dividend, earnings and yield	1992	India
8.	Irfan and Nishat	dividend yield, leverage, payout ratio, size	2002	Pakistan
9.	Sen & Ray	dividend payout ratio	2003	India
10.	Mehta & Turan	market capitalization, market price to book value ratio and price-earnings ratio	2005	India
11.	Singhania	book value, dividend, dividend cover, dividend yield, earnings and price-earnings ratio	2006	India
12	AL-Omar and AL-Mutairi	book value per share, earning per share	2008	Kuwait
13.	Khan	dividend	2009	Bangladesh
14.	Somoye et al.	earnings per share, foreign exchange rate, gross domestic product, lending interest rate	2009	Nigeria
15.	Uddin	dividend, earning per share, net asset value per share	2009	Bangladesh

Table I Previous Studies on Determinants of Stock Prices

IV. RESEARCH METHODOLOGY

The study undertaken is analytical in nature using secondary data for the purpose of empirical evaluation of stock price and explanatory variables. Sample population is of NSE 100 companies. Out of these 100 companies, 95 companies have been selected on the basis of the following criterion:

The company should have been in existence during the last five years i.e.2007-2012.

- The company should not have skipped the dividend during the period of study i.e., from 2007 to 2012.
- The companies should have dividend above and equal to 5 crore.
- No financial data required for the calculation should be missing.

Accordingly mentioned in Table II is a summary of the sample companies sector wise.

Table II List of Sample Companies

Name of sector	No. of companies
Banking and financing	30
Auto sector	18
Pharma and Drug sector	15
IT sector	12
Power sector	10
Cement sector	10

Correlation & Linear Regression Model

The study deploys correlation and a linear multiple regression models to measure the effect of the independent variables on the dependent variable. Also to avoid the problem of multi-collinearity, backward elimination procedure of regression has been used.

A linear multiple regression model has been used to measure the combined effects of explanatory variables on the dependent variable. The general form of multiple linear equation is:

$$Y=b0+b1X1+b2X2+b3X3+\ldots\ldots+bnXn \quad (1)$$

Where, Y = dependent variable, X1, X2, X3……..Xn = independent variables, B1, b2, b3……..bn=regression coefficient of independent variables.

The statistical significance of regression coefficients have been worked out and tested with the help of t test. The coefficient of determination is computed to determine the percentage variation in the dependent variables explained by independent variables. Also adjusted R-square ($R^{2)}$ and change statistic values are measured. The 'F' values are also computed to test the significance of R^2 with 'F' distribution at five percent level of significance.

Accordingly, the null hypothesis so framed is as follows:

H_0: There is no significant relationship between MP (market price) and independent variables such as BV (book value), EPS (earning price per share), DPS (dividend per share), DC (dividend cover), DY (dividend yield) and P/E (price earning) ratio

H_1: There is a significant relationship between MP (market price) and independent variables such as BV (book value), EPS (earning price per share), DPS (dividend per share), DC (dividend cover), DY (dividend yield) and P/E (price earning) ratio

V . THEORETICAL BACKGROUND

The following relationship of independent variables with dependent variable is formed:

MP = f (BV, EPS, DPS, DC, DY & P/E ratio)

Where, MP = Market Price of the equity share,
BV = book value,
DPS = Dividend per Share,

EPS = Earning Price Share,
DC = Dividend Cover,
DY = Dividend Yield,
P/E ratio = Price Earnings ratio

Market Price (MP) : It is the average price of the share derived from the financial year high and low has been considered as market price. It is the current price at which an asset or service can be bought or sold.

$$\textbf{MP= (High Price + Low Price)/2} \quad (2)$$

Where, High Price = Highest market price during the financial year, Low Price = Lowest market price during the financial year.

Book Value (BV): It is also known as net asset value per share because it measures the amount of assets, which the corporation has on behalf of each equity share. BV shows the net investment per share made in the business by the shareholder. It is the value at which an asset is carried on a balance sheet.

It can be calculated as follows:

$$\textbf{BV} = \frac{\textbf{(Reserves + Equity Capital –Revaluation Reserves)}}{\textbf{No. of outstanding shares}} \quad (3)$$

No. of outstanding shares is the total number of equity shares held by the company.

Dividend per share(DPS): Dividend is the portion of the profit after tax, which is distributed to the shareholders for their investment bearing risk in the company. It has a significant influence on the market price of the share. DPS shows how much the company has paid out as dividend. It refers to the actual amount of dividend (gross) declared per share. The net profit after taxes belong to shareholders but the income that they really receive is the amount of earnings distributed and paid as cash dividend. DPS is calculated as under:

$$\textbf{DPS} = \frac{\textbf{Dividend}_{t,n}}{\textbf{No. of outstanding shares}} \quad (4)$$

Where, $DPS_{t,n}$ refers to amount of dividend paid by company t in the year n.

Earning Per Share(EPS) : It refers to the ratio of the profit after tax of the company for any financial year after payment of preference dividend .The equity shareholders are the sole claimants to the net earnings of the corporation after making payment of dividend to the preference shareholders. The significance of this ratio flows from the fact that higher the earnings per share the more is the scope for a higher rate of dividend and also of retained earnings, to build up the inner strength of the company.

$$\textbf{EPS} = \frac{\textbf{Net Profit After Tax – Preference Dividend}}{\textbf{No. of outstanding shares}} \quad (5)$$

Dividend Cover(DC): is the ratio of company's earnings (net income) over the dividend paid to shareholders, calculated as earnings per share divided by the dividend per share. It shows the extent to which DPS is protected by the earning of the company. Dividend cover is the reciprocal of dividend payout ratio, which is calculated as DPS/EPS.

$$\textbf{DC} = \frac{\textbf{EPS t,n}}{\textbf{DPS}_{t,n}} \quad (6)$$

Where $EPS_{t,n}$ refers to earning per share for the company t in the year n and $DPS_{t,n}$ refers to dividend per share for the company t in the year n.

Price Earnings Ratio (P/E ratio) : This ratio enables an investor to make appropriate calculation of the time required to cover his investment in a company' s stock.P/E ratio expresses the relationship between the market price of a company's share and its earnings per share. It indicates the extent to which the earnings of each share are covered by its price.It can be calculated as:

$$\textbf{P/E ratio} = \frac{\textbf{MP}_{t,n}}{\textbf{EPS}_{t,n}} \quad (7)$$

Where $MP_{t,n}$ is the market price per share of company t in the year n and $EPS_{t,n}$ is the earning per share of company j in year t.

Dividend Yield (DY) : It is the return earned by an equity shareholder by way of dividends. A financial ratio that shows how much a company pays out in dividends each year relative to its share price. In the absence of any capital gains, the dividend yield is the return on investment for a stock. It is a way to measure how much cash flow you are getting for each dollar invested in an equity position - in other words, how much "bang for your buck" you are getting from dividends. Investors who require a minimum stream of cash flow from their investment portfolio can secure this cash flow by investing in stocks paying relatively high, stable dividend yields. Dividend yield is used to calculate the earning on investment (shares) considering only the returns in the form of total dividends declared by the company during the year. Its reciprocal is the Price/Dividend ratio. It has positive correlation with dependent variable market price. DY is calculated as follows:

$$DY = \frac{DPS_{t,n} * 100}{MP_{t,n}} \quad (8)$$

Where $DPS_{t,n}$ is the dividend per share of company t in the year n and $MP_{t,n}$ is the market price of the share of company j in the year t.

VI. DATA ANALYSIS

Table III Mean & Standard Deviation

MEAN	MP	BV	EPS	DPS	DC	DY	P/E RATIO
2007	670.467	151.0683	56.58223	10.86645	7.644601	11.19234	19.69965
2008	554.7484	176.3696	53.02053	9.74734	5.213446	10.9964	19.42481
2009	553.5442	159.4697	56.55649	10.17766	6.353819	10.0093	17.45527
2010	805.3301	180.0413	74.6967	12.62021	6.373571	10.47716	20.32766
2011	769.3561	194.4082	70.67638	12.36064	5.765652	11.16999	19.75321
2012	924.7918	204.7773	82.74298	11.93085	6.341391	10.68283	17.78922
STDEV.	MP	BV	EPS	DPS	DC	DY	P/E RATIO
2007	1243.897	116.3657	82.63569	10.25414	23.21307	33.38716	23.96813
2008	980.9183	250.0194	73.66741	8.083943	5.033993	23.03272	26.55
2009	964.3396	110.7041	97.38407	9.979012	6.857165	18.51306	34.00693
2010	1484.576	133.3889	156.9029	15.34033	8.916217	17.65607	31.09509
2011	1356.145	156.2453	165.1776	13.73387	8.170194	17.61462	34.22603
2012	1921.253	183.9565	200.749	10.55242	9.687285	15.51833	29.72247

Source: Author's self-calculation

It can be observed from Table III that values of the explained variable i.e. market price as well as the explanatory variables is fluctuating over the period 2007-12.Particularly there is a downturn during 2008-09 which could be owing to global financial crisis leading to overall economic slowdown. The standard deviation of MP from its mean is decreasing during 2008 and 2009 but takes a sharp increase in the following years. Deviation of BV increases sharply in 2008 and then shows a mixed trend during 2009-12 whereas with respect to EPS, the deviation narrows down in 2008 and then gradually increases for the period 2009-12. DPS and DC both depict a similar trend in terms of standard deviation. P/E ratio like DC witnesses a steep fall in deviation in 2008 and then has a fluctuating trend over the remaining time period. DY throughout has a mixed trend.

As it can be noted from Table IV, the EPS has highest positive correlation with market price i.e., .620. Dividend yield is the only explanatory variable having negative correlation with market price i.e., -.85 and all others have positive correlation with dependent variable, MP. BV and DY show negative correlation with each other i.e., -.33. EPS, DY and P/E ratio show the negative correlation with each other. DPS has positive correlation with other independent correlation P/E ratio i.e., -.169. DC has only negative correlation with DY otherwise with other independent variables it has positive correlation. But DY has positive correlation with EPS but negative correlation with other variables such as DPS, EPS, BV and DC. P/E ratio exhibit negative correlation with EPS and DPS otherwise with rest has positive correlation. The correlation analysis depicts the highest correlation of EPS with the MP. Other independent variables BV, EPS, DPS, DC, DY, P/E ratio have positive correlation with MP but DY has negative correlation with MP.

Findings from the regression analysis result for the selected firms as depicted in table V indicates that from the model, the R^2 which is often referred to as

the coefficient of determination of the variables is 0.516. The R-Squared which is also a measure of

Table IV Correlation Statistics

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.719[a]	.516	.511	956.104

a. Predictors: (Constant), P/E ratio, BV, DC, DY, DPS, EPS

Table V

Correlation

		MP	BV	EPS	DPS	DC	DY	P/E ratio
MP	Pearson Correlation	1	.383**	.620**	.243**	.225**	-.085*	.196**
	Sig. (2-tailed)		.000	.000	.000	.000	.045	.000
	N	609	562	562	562	562	562	562
BV	Pearson Correlation	.383**	1	.287**	.270**	.086*	-.033	.001
	Sig. (2-tailed)	.000		.000	.000	.041	.428	.973
	N	562	562	562	562	562	562	562
EPS	Pearson Correlation	.620**	.287**	1	.370**	.413**	-.025	-.131**
	Sig. (2-tailed)	.000	.000		.000	.000	.559	.002
	N	562	562	562	562	562	562	562
DPS	Pearson Correlation	.243**	.270**	.370**	1	.011	.205**	-.169**
	Sig. (2-tailed)	.000	.000	.000		.799	.000	.000
	N	562	562	562	562	562	562	562
DC	Pearson Correlation	.225**	.086*	.413**	.011	1	-.054	.008
	Sig. (2-tailed)	.000	.041	.000	.799		.202	.852
	N	562	562	562	562	562	562	562
DY	Pearson Correlation	-.085*	-.033	-.025	.205**	-.054	1	.109**
	Sig. (2-tailed)	.045	.428	.559	.000	.202		.009
	N	562	562	562	562	562	562	562
P/E ratio	Pearson Correlation	.196**	.001	-.131**	-.169**	.008	.109**	1
	Sig. (2-tailed)	.000	.973	.002	.000	.852	.009	
	N	562	562	562	562	562	562	562

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Source: Author's self-calculation

Table VI

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-170.092	76.259		-2.230	.026
	BV	1.649	.260	.200	6.338	.000
	EPS	6.019	.360	.607	16.701	.000
	DPS	4.240	4.034	.036	1.051	.294
	DC	-5.917	3.785	-.051	-1.563	.119
	DY	-6.607	1.936	-.105	-3.413	.001
	P/E RATIO	13.328	1.386	.293	9.617	.000
a. Dependent Variable: mp						

Source: Author's self calculation

Table VII

ANOVA[b]						
Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	5.414E8	6	9.024E7	98.717	.000[a]
	Residual	5.073E8	555	914135.225		
	Total	1.049E9	561			
a. Predictors: (Constant), p/eratio, bv, dc, dy, dps, eps						
b. Dependent Variable: mp						

Source: Author's self-calculation

the overall fitness of the model indicates that the model is capable of explaining about 51.6% of the variability in the share prices of firms. This means that the model explains about 51.6 % of the systematic variation in the dependent variable. That is, about 48.4% of the variations in movement of stock prices of the sampled firms are accounted for by other factors not captured by the model.This result is complimented by the adjusted R^2 of about 51.1%, which in essence is the proportion of total variance that is explained by the model.

Analyzing further empirical findings listed in table VI depict that there is a significant positive relationship between firms' book value and the market value of share prices of the listed firms in NSE 100. This is evident in the t-statistics value of 0.000 and *p-value*>|t| (95% confidence level) This outcome basically implies that with all other variable held constant, an increase or a change in the book value of the firms, say by one percent will on the average bring about a 1.649% percent increase in the market price of shares. That is an increase in the book value of firms will also lead to a positive improvement in the share prices of listed firms. Noticeably, the results of the present study is in line with the propositions of Zahir & Khanna (1981) Balkrishan (1984), Singhania (2006) and AL-Omar and AL-Mutairi (2008) where the results indicated that book value significantly influenced the market value of share prices. Similarly, further empirical findings enlisted in table VII also show that there is a significant positive relationship between firms' earning per share and the market value of share prices. This is evident in the t-statistics value of 16.701 and the *p-value*>|t|. The results can be explained as that an increase in earning per share will invariably bring about a significant increase in the market prices of equity shares. Importantly this outcome is consistent withe findings provided in Midani (1991), AL-Omar and AL-Mutairi (2008), Somoye et al(2009),Uddin (2009) where it has been observed that earning per share is a major determinant of stock prices. The next significant factor that emerges out of the empirical findings is dividend yield which has an inverse relationship with that of market price. This result basically means that with the influence of other variable held constant, as firms dividend yield

changes; say by one percent, on average, market price of share changes by 6.607 percent in the opposite direction. These results are supported with the findings of Zahir & Khanna (1981), Zahir(1992),Irfan & Nishat (2002).Finally the regression analysis brings out a significant relationship between price earnings ratio and market price. This is evident from the t-statistics value of (9.617 and p-value >|t| at 95% confidence level. These results corroborate with those of Mehta & Turan (2005) and Singhania (2006).The remaining factors namely dividend per share and dividend cover are the insignificant factors as per the analysis not having much of an impact on the market price of stocks.

Referring to table VII, it can be noted from the Fishers ratio (i.e. the F-Statistics which is a proof of the validity of the estimated model) that the p-value that is less than 0.05 (p-value < 0.05); this has invariably clear implications that the explanatory variable are significantly associated with the dependent variable. That is, they strongly determine the behavior of the market movement of stock prices.

VII. CONCLUSION

This study primarily examined the effects of book value, earning per share, dividend per share, dividend yield, dividend cover and price earnings ratio on from the study the share price of firms listed on NSE 100. The findings of the study for the period 2007-12 revealed that firms' book value, earning per share and price-earnings ratio are having a significant positive association with firm's stock price while dividend yield is having a significant inverse association with the market price of the firm's stock. Together these four variables explain 51.6% of the dependent variable. The results indicated above are in close conformity with the findings of the previous studies- Zahir (1992), Singhania (2006), Somoye et al (2009).The remaining variables namely dividend cover and dividend per share are not significantly impacting movement f stock prices listed on NSE 100.The findings of the present study are particularly useful for investors and fund managers as they can watch out for these significant factors while analyzing stock returns and predicting future prices.

As nearly 48.4% of the movement in stock prices remains unexplained thus there is scope for further research in this area as there are factors not included in the study which can precisely explain the remaining unexplained movement of stock prices.

REFERENCES

[1] Al-Omar, H. and Al-Mutairi, A. 2008, The Relationship between the Kuwaiti Banks Share Prices and Their Attributes. Scientific Journal of King Faisal University (Humanities and Management Sciences), 9(1): 325-338.

[2] Balkrishnan(1984), "Determinants of Equity Prices in India", *Management Accountant*, Vol. 19, No. 12 (Dec), p. 728-730

[3] Chawla, D. and Srinivasan, G. 1987., Impact of Dividend and Retention on Share Price – An Econometric Study. Decision, 14(3): 137-140.

[4] J. 1957, How to Study the Behavior of Bank Stocks. The Analysts Journal, 13(2): 109-113.

[5] Irfan, C. M. and Nishat, M. 2002, Key Fundamental Factors and Long-run Price Changes in an Emerging Market - A Case Study of Karachi Stock Exchange (KSE). The Pakistan Development Review, 41(4): 517–533.

[6] Karathanassis, G. and Philippas, N, 1988,Estimation of bank stock price parameters and the variance components model, Applied Economics, 20(4): 497-507.

[7] Khan,S. H. 2009. Determinants of Share Price Movements in Bangladesh: Dividends and Retained Earnings. Retrieved April 29, 2010 from http://btu.se/fou/cuppsats.nsf/all/7a3a58f2c2af8ba1c1257695000a3b1d/$file/Final%20Version.pdf.

[8] Mehta, S. K. and Turan, M. S. 2005. Determinants of Stock Prices in India: An Empirical

Study. The Journal of Indian Management and Strategy, 10(4): 37-43.

[9] Midani, A. 1991. Determinants of Kuwaiti Stock Prices: An Empirical Investigation of Industrial Services, and Food Company Shares. Retrieved April 29, 2010 from h t t p : / / q s p a c e . q u. e d u . q a / b i t s t r e am/ h a n d l e / 1 0 5 7 6 / 6 9 0 8 / 0 4 9 1 0 2 - 0 0 0 8 - fulltext.pdf? sequence=3.

[10]Sen ,S. and Ray, R. 2003, Key Determinants of Stock Prices in India. The ICFAI Journal of Applied Finance, 9(7): 35-40.

[11]Somoye, R. O. C., Akintoye, I. R. and Oseni, J. E. 2009, Determinants of Equity Prices in the Stock Markets. International Research Journal of Finance and Economics, 30: 177-189.

[12]Srivastava, S. C. 1968. Share Prices, Dividends and Earnings. Economic and Political Weekly, 3(48): 89- 95.

[13] Uddin, M. B. 2009. Determinants of market price of stock: A study on bank leasing and insurance companies of Bangladesh. Journal of Modern Accounting and Auditing, 5(7): 1-7.

[14] Zahir, M. A. 1992, Factors Affecting Equity Prices in India. The Chartered Accountant, 40(9): 743-748.

[15] Zahir, M. A. and Khanna, Y. 1982, Determinants of Stock Prices in India. The Chartered Accountant, 30(8): 521-523.