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Post-Earning Announcement Drift and Value-Glamour Anomalies in NSE Listed Firms

Pankaj Kumar Gupta, Devendra Kumar Dhusia

Abstract

Purpose of the article: Of the various market anomalies, the Value-Glamour anomaly and Post-Earnings Announcement Drifts (PEAD) have consistently attracted the attention of researchers. Prior studies have established that the reaction of value stocks and glamour stocks to the earnings announcement differs significantly and there is a close relationship between the PEAD and abnormal returns arising due to earning announcement surprises. We have studied the drift patterns of various value and glamour portfolios and tested whether the direction of the earnings announcement abnormal return is opposite to that of earnings surprise in the Indian market.

Methodology: We use the statistics of 100 firms listed on the NSE for a sample period of 2014–2018. We use a set of 1130 observations analysed using the expectations formation approach around earnings and evaluate the post earnings announcement drift. We use the Earnings Response Coefficients to find the association between abnormal stock returns and earnings surprises.

Scientific aim: The aim of this research is to improve the knowledge of market anomalies in developing markets such as India focusing on the impact of earnings announcement on growth and value stocks.

Findings: We find that a negative association of abnormal stock returns with surprise in accounting earnings announcements. The stocks, which are overvalued or undervalued, are properly priced after the earnings announcements. Our results refute the earlier studies evidencing the strong support in favour of market inefficiency in the Indian context, particularly with respect to publicly available earnings information.

Conclusions: The Indian stock market tends to be efficient with respect to earnings announcements and therefore does not produce excessive returns. However, a heterogeneity with respect to earnings announcement may exist among the category of stocks depending upon liquidity position. Superior returns cannot be derived by traders and investors on a consistent basis from value-glamour anomaly.

Keywords: post-earnings announcement drifts, abnormal returns, value and glamour anomaly, earnings response coefficient

JEL Classification: C22, G14, G32

1. Introduction

The notion of market efficiency has been frequently challenged by researchers who believe that anomalies do exist in the financial market and particularly the stock market. The pioneering work of Ball, Brown (1968) first observeed and documented the drifts of the various market anomalies. Of these, we focus on the "value and glamour" anomaly which implies the outperforming the behaviour of glamour stocks vis-a-vis value stock. Preliminary studies exhibit that value and glamour stocks response to earnings announcements in a different style. Also, Kishore *et al.* (2008) shows that "earnings announcement abnormal returns (EARs) are significantly related to post-earnings-announcement drifts". Post stocks returns have gathered substantial attention and have been reported in various studies. Researchers have used a variety of sets to understand this phenomenon. Bernard, Thomas (1989) show that "a long position in stocks with unexpected earnings in the highest deciles, combined with a short position in the stocks in the lowest deciles, yields high abnormal returns".

Substantial studies have been conducted to explain the drift. These are disclosures (Shin, 2005), investor learning (Chordia, Shivakumar, 2006), idiosyncratic stock return volatility (Mendenhall, 2004), information uncertainty (Francis *et al.*, 2007) and liquidity by some researchers. Future earning of the investor is influenced by the *information content in presenting earning* and it can be obtained by the Earning Response Coefficients (ERC). The ERC estimates the relationship between information content in companies' earnings announcements and the equity returns.

A wide range of explanations has been provided in the literature to explain the difference in earnings between growth stocks and value stocks. The famous work of Fama, French (1992) outlines the fundamental risks associated with value strategies. Compensation for risk is reflected by higher average returns obtained of which systematic risk measured by beta is prominent. The risk of the firm's earnings is negatively related to the reaction of the investor to the unexpected portion of the earnings.

Authors such as Doukas *et al.* (2002) refute "the extrapolation hypothesis that posits that the superior performance of value stocks is because investors make systematic errors in predicting future growth in earnings of out--of-favour stocks." Various pieces of research point out that the measurement errors associated with estimation of long-term abnormal returns that imply a notion that glamour stocks yield inferior returns (Kothari *et al.* 1999). Skinner, Sloan (2000) show that "growth stocks perform similarly to other stocks surprises, but that growth stocks display a much larger negative response to negative earnings surprises. After controlling for the unsymmetrical response of growth stocks to negative earnings surprises, there is no longer evidence of a stock return differential between growth stocks and other stocks". In some related studies on value-glamour anomaly, we find that post-earnings-announcement drifts are related to Earning Announcement Returns (EAR) significantly.

It is interesting to investigate how the reaction of value stocks differs from glamour stocks and the significance of EARs to post earnings announcement drifts. If the result is affirmative, then we establish that compared to the value stocks, the drift patterns of glamour stocks should exhibit a significant difference. Jegadeesh, Livnat (2006) raise doubt on the market reaction that ignores information other than the one on the announcement dates and place importance to 'some other information' similar to Kinney *et al.* (2002) who also explain it as" the reason for the low explanatory power of earnings surprises for drifts". In this paper, we analyse the PEAD and Value-Glamour anomaly in the Indian stock markets and attempt to explain the nature of drifts due to earning announcement surprises.

2. Literature review

Over decades, researchers have attempted to study the reaction of stock prices drifting towards the earnings surprises immediate to the earnings announcement popularly referred to as the Post Earnings Announcement Drift (PEAD). Of the various capital market anomalies, the PEAD is well documented in the literature and is a challenge to the notion of efficiency of capital markets.

Various studies have been conducted to explore the cause behind its existence. The deviation of the PEAD is associated with the inefficiency in the information processing capabilities of the market investor (Bartov *et al.,* 2000; Troung, 2010). Consequently, inefficiencies are introduced into the market. Bernard, Thomas (1989) define the PEAD as the "tendency for stocks' Cumulative Abnormal Returns (CAR) to drift upwards, in the case of positive earnings surprise, and downwards, in the case of negative earnings surprise".

In American stock markets, a large amount of research following Ball, Brown (1968) and Foster *et al.* (1984) shows the existence of the PEAD. Johnson, Schwartz (2000) investigate the perseverance of the PEAD and find that "the profit opportunities previously associated with simple trading strategies, designed to exploit the drift phenomenon, have now been substantially abolished indicating a market which gradually becomes more productive". Amihud, Mendelson (1986) have indicated that the investment horizon and liquidity as investor preferences and the bid--ask spread is a step towards realisation of efficiency, rather being an anomaly.

The proof of a wrong specified model resulting in the PEAD may be the real cause rather than the market efficiency (Forner *et al.* 2009). The unexpected returns model does not consider the unexpected returns as reflected by the liquidity risk resulting into the PEAD (Sadka, Sadka, 2004). The studies of Bhushan (1994) and Brav, Heaton (2006) depict the tendency of stronger drifts for the marginal stocks. The major cause of imperfections in the information processing behaviour of investors is due to the degree of confidence in the private information and the extent of the reliability of information (Liang, 2003).

Chordia, Shivakumar (2006) show that when markets are inefficient, the use of a simple long–short trading strategy is not able to generate profit. But, as per Mendenhall (2004) bid-ask spreads on the PAED will be profitable for long-short games. The existence of anomaly is established by Porta *et al.* (1997) for size-adjusted EARs when compared for value vs. glamour stocks. Also, the portfolios with large EARs exhibit large drifts (Brandt *et al.*, 2008).

Combining long and short positions for unexpected earnings may generate abnormal returns (Livnat, Mendenhall, 2006). Hotchkiss, Strickland (2003) show that "when the firm reports earnings below the analysts' expectations, the response is more negative for firms with higher levels of ownership by momentum or aggressive growth investors".

Ganguli's (2010) study of turnaround companies creates an earning surprise because of the poor information processing capability of analysts establishing the case of the PEAD anomaly in Indian stock markets. In a recent study by Angelovska (2017), we also find that in the period of recession, the investors did not react positively to the earnings announcements. We are therefore motivated to examine the existence of the PEAD and value-glamour anomaly in Indian stock markets, especially during a period when the information processing ability of market investors is on the rise.

3. Methodology

For the purpose of the study, we have identified 100 top NSE listed firms that are typically "large caps". Of these, we investigate the

PEAD patterns for 98 companies (Table 7) listed on NSE obtained from CMIE Prowess 8.0 databases, classified as (a) glamour stocks and (b) value stocks for the period 2013–2018 (Table 8) representing the period after the global financial crisis and its stabilisation. Stocks are classified into quintiles and first and last quintile portfolio is selected.

We define value stocks having low P/E and P/B ratios typically perceived to have low growth potential and glamour stock having high P/E and P/B ratios with robust financial and market performance. The Price to Book Ratio (P/B) = Equity Share Price / Book Value per Share and the Price-to-earnings ratio (P/E) = Equity Share Price/Earnings per Share (Table 9) are used as proxies for performance with training and forward effects similar to earlier studies.

$$\textit{Earnings Surprise} = \textit{Actual Returns} - \textit{Expected Returns} / \textit{Absolute (Expected Returns)}. \quad (1)$$

The Earnings Response Coefficient (ERC) has been used to confirm the existence of efficiency using the abnormal returns model. The ERC has been estimated from the difference of actual results around the estimation date and the expectations of returns by the market before announcements.

We use the framework of Gupta and Bhatia (2013), who have used Easton, Zmijewski (1989) for the estimation of the ERC distribution of ERCs for sample firms using the abnormal returns model with the two-day holding period quoted as follows:

$$CPE(-1,0)_{jt} = \lambda_{j0} + \lambda_{j1}\left[\frac{FE_{jt}}{P_{jt-2}}\right] + \lambda_{j2}RVL_{jt} + \mu_{jt}, \quad (2)$$

where:

$CPE(-1,0)_{jt}$ – sum of the market model prediction errors over the interval from the trading day –1 through the earnings announcement day, day 0 for firm j for quarter t;

FE_{jt} – earnings announced in quarter t minus the most recent analyst forecast for quarter t earnings;

P_{jt-2} – price of security j on day t–2 (2 days before day zero);

RVL_{jt} – stock return for firm j from the day after the forecast date through two days before the earnings announcement;

$\lambda_{j0}, \lambda_{j1}, \lambda_{j2}$ – firm-specific regression coefficients;

μ_{jt} – normally distributed disturbance terms.

They first use a generic estimator to find the co-efficient of the regressor and then proceed to find the impact of fixed effects (FE) and random effects (RE) in the cross sections. The Hausman test is used to test the appropriateness of a fixed or random effects model.

We can test whether a fixed or random effects model is appropriate using a where X_{it} and Z_{it} as instruments yields a consistent estimate.

The hypotheses are:

$$H_0 : \alpha_i \perp X_{it}, Z_{it}; H_a : \alpha_i \perp X_{it}, Z_{it}$$

"If H_0 is true, both $\widehat{\beta}_{RE}$ and $\widehat{\beta}_{FE}$ are consistent, but only $\widehat{\beta}_{RE}$ is efficient. If H_a is true, $\widehat{\beta}_{RE}$ is consistent and $\widehat{\beta}_{FE}$ is not", similar to Gupta, Bhatia (2013).

We also examine the event studies that have been conventionally used to investigate the response of the stock market to corporate events like restructuring or reorganisations, CSR initiatives, the issue of securities *etc.* (MacKinlay, 1997; McWilliams, Siegel, 1997). The EAR (Earnings Announcement Abnormal Returns) recorded over a 3-day, 5-day and 10-day window that is centred on the day of the announcement. We have calculated the drift for 30 days and 60 days and linked with the value and glamour anomaly.

The ES and EAR are classified in four groups [++], [+–], [–+], [– –] for both the "Profit-to Book Value Ratio" and "Price-to-earnings Ratio". We use the CAPM to derive the theoretical returns using a quarterly risk-free rate (Table 12). Table 10 and 11 respectively indicate the market performance and quarterly market returns for the NIFTY during the sample period.

4. Results and Discussions

We run a panel regression for estimating the Earning Response Coefficients (ERC) with fixed effects and random effects (Table 1). The Hausman (1978) test specifications have been used prior to the selection of fixed and random effects. On the basis of the Hausman statistic, we reject the fixed effects model and select the random effects specification for our analysis.

We find that the Earning Response Coefficients (ERCs) using the random effects model show the negative association of abnormal stock returns with surprise in accounting earnings announcements.

Value Glamour Anomaly

We find an interesting phenomenon that glamour stocks and value stocks behave on similar patterns contrary to the notion of differences in previous research (Table 2 and 3). Glamour stocks do not give any particular reaction to the earning surprise (ES) to the EAR (Earning Announcement Returns) evident from the similarity in all the three windows (3 day, 5 day & 10 day).

Table 1. Coefficients of panel regression – fixed effects and random effects.

Estimated Variable	Coefficient – Fixed Effects	Coefficient – Random Effects	Random Effects Coefficient across Cross Section and time-series
ERC	0.03041	–0.17999	–0.18546

Source: Authors' own computation, 2019.

Table 2. EAR for glamour stocks.

3 Day EAR		5 Day EAR		10 Day EAR	
[ES, EAR]	COUNT	[ES, EAR]	COUNT	[ES, EAR]	COUNT
[++]	190	[++]	176	[++]	160
[+–]	217	[+–]	231	[+–]	248
[–+]	100	[–+]	103	[–+]	120
[—]	113	[—]	110	[—]	92
Total	620	Total	620	Total	620

Source: Authors' own computation, 2019.

Table 3. EAR for value stocks.

3 Day EAR		5 Day EAR		10 Day EAR	
[ES, EAR]	COUNT	[ES, EAR]	COUNT	[ES, EAR]	COUNT
[++]	162	[++]	156	[++]	131
[+–]	191	[+–]	196	[+–]	222
[–+]	64	[–+]	74	[–+]	77
[—]	93	[—]	83	[—]	81
Total	510	Total	510	Total	510

Source: Authors' own computation, 2019.

[++]: Both the Earning Surprise and Earning Announcement Drift are positive. It implies that the announcement was expected in a way it came and investors also reacted in the positive way.

[+–]: The Earning Surprise is positive and Earning Announcement Drift is negative. It implies that announcement was expected in a way it came. But investors did not react the same way.

[–+]: The Earning Surprise is negative but the Earning Announcement Drift is positive. It implies that announcement was not expected in a way it came but the market reacted in a positive way.

[– –]: Both the Earning Surprise and Earning Announcement Drift are negative. It implies that announcement was not expected in a way it came and even the market did not react positively.

Post Earning Announcement Drift

We have calculated the drift as the cumulative abnormal return for firm from second day to the nth day after the announcement of earnings. Two drifts are computed – 30 days and 60 days (Table 4). We argue that this period is sufficient to examine the impact of the market reaction after the earnings announcement.

The results indicate that the drift pattern is not linked with the value glamour anomaly. We, therefore, cannot significantly conclude for positive and negative drifts for the value stocks and glamour stocks.

Linking Value Glamour Anomaly & PEAD

We link both the anomalies with following indications:

[++]+: It shows the ES and EAR along with the drift is positive. It shows that the market welcomed the announcement in a positive way and the stock might revalue to its real price or might be over-valued. It also shows that the effect of the announcement was there for a longer period of time.

[++]–: It shows the ES and EAR both are positive but the rift is negative. It shows that the market welcomed the announcement in a positive way, but it saturated soon and hence the drift could not be positive.

[+–]+: It shows the ES is positive and the EAR is negative but the drift is positive. It shows that the market welcomed the announcement in a negative way, but the stock performed better leaving aside the announcement effect in a positive way.

[+–]–: It shows the ES is positive and the EAR and drift are negative. It shows that the market welcomed the announcement in a negative way and the stock also performed in the way announcement made for the next 30 or 60 days.

[–+]+: It shows the ES is negative but the EAR and drift are positive. It shows that the market welcomed the announcement in a positive way and the momentum carried on with the announcement.

[–+]–: It shows the ES is negative and the EAR is positive but the drift is negative. It

Table 4. Post earning announcement drift for glamour stocks & value stocks.

Drifts	Glamour stocks	Value stocks
	Drift 30 days	
Positive	238	179
Negative	382	331
	Drift 60dDays	
Positive	274	206
Negative	346	304

Source: Authors' own computation, 2019.

Table 5. Linking the value glamour anomaly with the PEAD for value stocks.

EAR	Drifts	[++]+	[++]–	[+–]+	[+–]–	[–+]+	[–+]–	[––]+	[––]–	Total
EAR 3 Day	Drift 30	65	96	64	126	18	47	31	62	510
	Drift 60	77	85	73	118	20	44	35	58	510
EAR 5 Day	Drift 30	68	89	62	134	20	54	29	54	510
	Drift 60	73	83	77	120	24	50	31	52	510
EAR 10 Day	Drift 30	63	68	67	155	22	54	27	54	510
	Drift 60	63	68	86	135	24	52	31	50	510

Source: Authors' own computation, 2019.

Table 6. Linking the value glamour anomaly with the PEAD for glamours Stocks.

EAR	Drifts	[++]+	[++]–	[+–]+	[+–]–	[–+]+	[–+]–	[––]+	[––]–	Total
EAR 3 Day	Drift 30	96	94	74	143	20	80	48	65	620
	Drift 60	93	97	100	117	28	72	54	59	620
EAR 5 Day	Drift 30	95	81	75	156	20	83	48	62	620
	Drift 60	87	89	105	126	29	74	53	56	620
EAR 10 Day	Drift 30	97	62	73	175	22	97	45	48	620
	Drift 60	83	76	110	138	38	82	44	49	620

Source: Authors' own computation, 2019.

shows that the market welcomed the announcement in a positive way, but the stock performed in a negative way later on.

[––]–: It shows the ES, EAR and drift are negative. It shows that the market welcomed the announcement in a negative way and it remained on the negative side for the next 30 or 60 days.

Table 5 and 6 show the linkage of the value glamour anomaly with the PEAD for value stocks and glamour stocks. The results look homogenous and it is difficult to predict the drift of the value stocks or glamour stocks in the Indian context. Nevertheles, the directions remain similar with the 3-day, 5-day and 10-day EAR. The [+–] – is maximum and [–+] – is minimum for all sets. *It can also be derived that the stocks, which are overvalued or undervalued are properly priced after the earnings announcements.* Zhipeng, Zhao (2011) have shown that post-earnings-announcement drifts significantly associate the value-glamour anomaly and by taking long position in stocks the traders are able to drive significant abnormal returns. In specific sub-periods, some authors have contrarily found that the PEAD leads to significant gains (Harshita *et al.,* 2018). However, we argue that their findings are highly subjected to the period and sample stock selection.

In a *liquidity context*, the PEAD has been studied by authors such as Sadka (2006), who established that abnormal returns resulting from the PEAD anomaly was primarily due to the unexpected variable component of the market wide liquidity. Our sample represents NSE top 100 stocks that are inherently liquid. The non-existence of drifts derived in our case confirms the findings of Chordia *et al.* (2018), who established that the PEAD drifts were mainly linked to the highly illiquid stocks.

The confidence of private information by the traders and investors leads to drifts that create the anomaly (Liang, 2003). Our findings are in contrast to Jaisinghani (2016), who put emphasis on regulators action for handling this market inefficiency. In addition, Fricke *et al.* (2014) have shown that Google SVI disseminates information to the uniformed investors, thus reduces the market inefficiency. The risk associated with value glamour stocks are higher, which probably

explains the abnormal returns enjoyed from investing strategies (Doukas *et al.,* 2001).

From a *traders' perspective*, we raise an important issue – the speed of adjustment. Fink *et al.* (2020) show that fundamental value changes are incorporated in the market prices at a lower speed resulting in trading strategies to be profitable. However, our results show that drifts are not directly observable. The speed of adjustment in case of our sample stocks is sufficient enough for traders to derive any superiors' profits.

5. Conclusion

We can cocnlude that the Indian market tends to be efficient with respect to earnings announcements and therefore does not produce excessive returns. Most of the selected firms listed on the NSE appear to be confirming the notion of immediate adaptation of the stock prices around the new expected quarterly earnings. Research on market efficiency expects the market to absorb the new information spontaneously, which is a phenomenon in developed markets. However, in the Indian context, the results are not homogeneous in all ways.

Our results on the response of stock prices to earnings announcement are different to the findings of researchers around the globe, which may be due to the unique feature of the Indian stock market. It is interesting to mention that the PEAD phenomenon is monitored with an alternative portfolio formation approach. Contrarily, we use a much simpler expectations formation approach around earnings. Overall, we support the efficiency notion of the Indian stock markets with respect to the analysed market anomalies.

Our research is primarily confined to liquid stocks that nullify the possible superior gains from the anomalies motivating traders and investors to form trading strategies. In the further work, the research can be extended to lesser liquid stocks, which can further throw light on market efficiency.

Table 7. List of top NSE sample companies (N=98).

Name of the Company	Sector
ABB India Ltd.	Electric Equipment
ACC Ltd.	Cement & Construction Materials
Adani Ports and Special Economic Zone Ltd.	Port
Ambuja Cements Ltd.	Cement & Construction Materials
Ashok Leyland Ltd.	Automobiles-Trucks/LCV
Asian Paints Ltd.	Paints
Aurobindo Pharma Ltd.	Pharmaceuticals & Drugs
Avenue Supermarts Ltd.	Retailing
Axis Bank Ltd.	Bank – Private
Bajaj Auto Ltd.	Automobile Two & Three Wheelers
Bajaj Finance Ltd.	Finance – NBFC
Bajaj Finserv Ltd.	Finance – Investment
Bank Of Baroda	Bank – Public
Bharat Electronics Ltd.	Engineering – Industrial Equipments
Bharat Heavy Electricals Ltd.	Engineering – Industrial Equipments
Bharat Petroleum Corporation Ltd.	Refineries
Bharti Airtel Ltd.	Telecommunication – Service Provider

Table 7. List of top NSE sample companies (N=98). (Continuation)

Name of the Company	Sector
Bharti Infratel Ltd.	Telecommunication – Service Provider
Bosch Ltd.	Auto Ancillary
Britannia Industries Ltd.	Consumer Food
Cadila Healthcare Ltd.	Pharmaceuticals & Drugs
Cipla Ltd.	Pharmaceuticals & Drugs
Coal India Ltd.	Mining & Minerals
Colgate-Palmolive (India) Ltd.	Household & Personal Products
Container Corporation Of India Ltd.	Logistics
Cummins India Ltd.	Diesel Engines
Dabur India Ltd.	Household & Personal Products
DLF Ltd.	Construction – Real Estate
Dr. Reddys Laboratories Ltd.	Pharmaceuticals & Drugs
Eicher Motors Ltd.	Automobile Two & Three Wheelers
Emami Ltd.	Household & Personal Products
GAIL (India) Ltd.	Industrial Gases & Fuels
Glaxosmithkline Consumer Healthcare Ltd.	Consumer Food
Glaxosmithkline Pharmaceuticals Ltd.	Pharmaceuticals & Drugs
Glenmark Pharmaceuticals Ltd.	Pharmaceuticals & Drugs
Godrej Consumer Products Ltd.	Household & Personal Products
Havells India Ltd.	Electric Equipment
HCL Technologies Ltd.	IT – Software
HDFC Bank Ltd.	Bank – Private
Hero MotoCorp Ltd.	Automobile Two & Three Wheelers
Hindalco Industries Ltd.	Metal – Non Ferrous
Hindustan Petroleum Corporation Ltd.	Refineries
Hindustan Unilever Ltd.	Household & Personal Products
Hindustan Zinc Ltd.	Metal – Non Ferrous
Housing Development Fin. Corporation Ltd.	Finance – Housing
ICICI Bank Ltd.	Bank – Private
Indiabulls Housing Finance Ltd.	Finance – Housing
Indian Oil Corporation Ltd.	Refineries
IndusInd Bank Ltd.	Bank – Private
Infosys Ltd.	IT – Software
Interglobe Aviation Ltd.	Airlines
ITC Ltd.	Cigarettes/Tobacco
JSW Steel Ltd.	Steel & Iron Products
Kotak Mahindra Bank Ltd.	Bank – Private
Larsen & Toubro Ltd.	Engineering – Construction
LIC Housing Finance Ltd.	Finance – Housing
Lupin Ltd.	Pharmaceuticals & Drugs
Mahindra & Mahindra Ltd.	Automobiles – Passenger Cars

Table 7. List of top NSE sample companies (N=98). (Continuation)

Name of the Company	Sector
Marico Ltd.	Solvent Extraction
Maruti Suzuki India Ltd.	Automobiles – Passenger Cars
Motherson Sumi Systems Ltd.	Auto Ancillary
MRF Ltd.	Tyres& Allied
NHPC Ltd.	Power Generation/Distribution
NMDC Ltd.	Mining & Minerals
NTPC Ltd.	Power Generation/Distribution
Oil & Natural Gas Corporation Ltd.	Oil Exploration
Oil India Ltd.	Oil Exploration
Oracle Financial Services Software Ltd.	IT – Software
Petronet LNG Ltd.	Industrial Gases & Fuels
Pidilite Industries Ltd.	Chemicals
Piramal Enterprises Ltd.	Pharmaceuticals & Drugs
Power Finance Corporation Ltd.	Finance Term Lending
Power Grid Corporation Of India Ltd.	Power Generation/Distribution
Procter & Gamble Hygiene & Health Care Ltd.	Household & Personal Products
Punjab National Bank	Bank – Public
Reliance Industries Ltd.	Refineries
Rural Electrification Corporation Ltd.	Finance Term Lending
Shree Cement Ltd.	Cement & Construction Materials
Shriram Transport Finance Company Ltd.	Finance – NBFC
Siemens Ltd.	Electric Equipment
State Bank Of India	Bank – Public
Sun Pharmaceutical Industries Ltd.	Pharmaceuticals & Drugs
Sun TV Network Ltd.	TV Broadcasting & Software Prod.
Tata Consultancy Services Ltd.	IT – Software
Tata Motors Ltd.	Automobiles-Trucks/LCY
Tata Power Company Ltd.	Power Generation/Distribution
Tata Steel Ltd.	Steel & Iron Products
Tech Mahindra Ltd.	IT – Software
Titan Company Ltd.	Diamond & Jewelry
Torrent Pharmaceuticals Ltd.	Pharmaceuticals & Drugs
Ultratech Cement Ltd.	Cement & Construction Materials
United Spirits Ltd.	Breweries & Distilleries
UPL Ltd.	Pesticides & Agrochemicals
Vedanta Ltd.	Metal – Non Ferrous
Wipro Ltd.	IT – Software
Yes Bank Ltd.	Bank – Private
Zee Entertainment Enterprises Ltd.	TV Broadcasting & Software Prod.

Source: Authors' own estimation, 2019.

Table 8. List of classified value stocks and glamour stocks.

List of companies (value stocks)	List of companies (glamour stocks)
Indiabulls Housing Finance Ltd.	Bajaj Finserv Ltd.
Housing Development Finance Corporation Ltd.	United Spirits Ltd.
Adani Ports and Special Economic Zone Ltd.	Avenue Supermarts Ltd.
Petronet LNG Ltd.	Emami Ltd.
Aurobindo Pharma Ltd.	ABB India Ltd.
HCL Technologies Ltd.	Titan Company Ltd.
Bharti Infratel Ltd.	Havells India Ltd.
Glenmark Pharmaceuticals Ltd.	Procter & Gamble Hygiene & Health Care Ltd.
Tech Mahindra Ltd.	Hindustan Unilever Ltd.
Yes Bank Ltd.	Glaxosmithkline Pharmaceuticals Ltd.
Hindustan Zinc Ltd.	Britannia Industries Ltd.
Infosys Ltd.	Godrej Consumer Products Ltd.
Bharat Petroleum Corporation Ltd.	Asian Paints Ltd.
Mahindra & Mahindra Ltd.	Pidilite Industries Ltd.
Wipro Ltd.	Colgate-Palmolive (India) Ltd.
Lupin Ltd.	Marico Ltd.
Shriram Transport Finance Company Ltd.	Dabur India Ltd.
JSW Steel Ltd.	Motherson Sumi Systems Ltd.
Hindustan Petroleum Corporation Ltd.	Ultratech Cement Ltd.
LIC Housing Finance Ltd.	Bosch Ltd.
ICICI Bank Ltd.	Bajaj Finance Ltd.
Reliance Industries Ltd.	Glaxosmithkline Consumer Healthcare Ltd.
Power Grid Corporation Of India Ltd.	Siemens Ltd.
NMDC Ltd.	Sun TV Network Ltd.
GAIL (India) Ltd.	Eicher Motors Ltd.
Vedanta Ltd.	
Indian Oil Corporation Ltd.	
Tata Motors Ltd.	
NTPC Ltd.	
NHPC Ltd.	
Oil & Natural Gas Corporation Ltd.	
Oil India Ltd.	
Rural Electrification Corporation Ltd.	
Power Finance Corporation Ltd.	

Source: Authors' own estimation, 2019.

Table 9. P/E and P/B ratio of companies (at the time of the classification).

Name	P/E	P/B	Name	P/E	P/B
ABB India Ltd.	88.05	10.08	Infosys Ltd.	16.1	3.31
ACC Ltd.	43.46	3.59	Interglobe Aviation Ltd.	27.65	12.24
Adani Ports and SEZ Ltd.	23.49	4.5	ITC Ltd.	30.74	7.07
Ambuja Cements Ltd.	39.77	2.51	JSW Steel Ltd.	22.99	2.89
Ashok Leyland Ltd.	32.8	6.02	Kotak Mahindra Bank Ltd.	35.19	4.21
Asian Paints Ltd.	55.44	13.49	Larsen & Toubro Ltd.	29.43	3.89
Aurobindo Pharma Ltd.	19.6	4.08	LIC Housing Finance Ltd.	14.89	2.59
Avenue Supermarts Ltd.	152.08	18.96	Lupin Ltd.	23.17	3.03
Axis Bank Ltd.	40.15	2.81	Mahindra & Mahindra Ltd.	25.84	3.12
Bajaj Auto Ltd.	24.64	5.25	Marico Ltd.	52.38	14.73
Bajaj Finance Ltd.	45.48	6.55	Maruti Suzuki India Ltd.	37.8	7.66
Bajaj Finserv Ltd.	600.91	27.87	Motherson Sumi Sys Ltd.	50.51	9.21
Bank Of Baroda	41.29	1.07	MRF Ltd.	30.24	3.33
Bharat Electronics Ltd.	25.25	5.54	NHPC Ltd.	10.3	1.22
Bharat Heavy Electricals Ltd.	75.85	1.18	NMDC Ltd.	18.59	2.09
Bharat Petroleum Corp. Ltd.	10.98	3.3	NTPC Ltd.	13.27	1.45
Bharti Airtel Ltd.	141.23	2.81	ONGC	12.97	1.2
Bharti Infratel Ltd.	25.26	3.9	Oil India Ltd.	18.06	0.97
Bosch Ltd.	46.08	6.55	Oracle Fin. Ser. Soft. Ltd.	28.75	8.85
Britannia Industries Ltd.	62.27	19.67	Petronet LNG Ltd.	19.47	4.26
Cadila Healthcare Ltd.	33.66	5.78	Pidilite Industries Ltd.	54.25	12.42
Cipla Ltd.	43.79	3.77	Piramal Enterprises Ltd.	185.8	3.51
Coal India Ltd.	21.86	6.65	Power Finance Corp.Ltd.	17.19	0.8
Colgate-Palmolive (India) Ltd.	53.75	19.79	Power Gr.Corp. of Ind. Ltd.	12.88	2.1
Container Corp. Of India Ltd.	36.19	3.92	P&G Health Care Ltd.	67.9	47.55
Cummins India Ltd.	34.45	6.6	Punjab National Bank	37.98	1.02
Dabur India Ltd.	51.31	12.18	Reliance Industries Ltd.	17.93	2.18
DLF Ltd.	87.61	3.12	Rural Electr. Corp. Ltd.	5.57	0.89
Dr. Reddys Laboratories Ltd.	34.82	3.47	Shree Cement Ltd.	49.62	7.46
Eicher Motors Ltd.	39.8	12.28	Shriram Trans.Fin. Co. Ltd.	26.33	2.94
Emami Ltd.	89.16	16.12	Siemens Ltd.	41.29	6.08
GAIL (India) Ltd.	23.72	2.03	State Bank Of India	67.83	1.33
Glaxosmithkline Cons. Heal.Ltd.	43.92	9.02	Sun Pharm Industries Ltd.	43.58	3.76
Glaxosmithkline Pharm. Ltd.	64.61	11.09	Sun TV Network Ltd.	40.5	9.24
Glenmark Pharmaceuticals Ltd.	14.75	3.56	Tata Consultancy Serv.Ltd.	23.27	7.33
Godrej Consumer Products Ltd.	55.64	13.76	Tata Motors Ltd.	12	1.53
Havells India Ltd.	73.73	11.13	Tata Power Company Ltd.	34.05	1.82
HCL Technologies Ltd.	15.43	3.98	TSE	33.02	1.96
HDFC Bank Ltd.	33.1	5.51	Tata Steel Ltd.	75.95	2.28
Hero MotoCorp Ltd.	21.19	6.4	Tech Mahindra Ltd.	18.72	3.38
Hindalco Industries Ltd.	31.29	1.29	Titan Company Ltd.	77.98	17.57

Table 9. P/E and P/B ratio of companies (at the time of the classification). (Continuation)

Name	P/E	P/B	Name	P/E	P/B
Hindustan Petroleum Corp. Ltd.	7.32	2.79	Torrent Pharm. Ltd.	29.42	5.36
Hindustan Unilever Ltd.	65.89	44.06	Ultratech Cement Ltd.	47.94	4.64
Hindustan Zinc Ltd.	12.94	3.36	United Spirits Ltd.	544.54	30.53
Housing Dev. Fin. Corp Ltd.	26.34	4.76	UPL Ltd.	106.41	5.21
ICICI Bank Ltd.	22.82	2.29	Vedanta Ltd.	18.49	1.99
Indiabulls Housing Finance Ltd.	18.94	4.85	Wipro Ltd.	16.85	3.07
Indian Oil Corporation Ltd.	9.52	1.86	Yes Bank Ltd.	20.85	3.37
IndusInd Bank Ltd.	30.36	4.59	Zee Entertainment Ent. Ltd.	21.28	7.51

Source: Authors' own estimation, 2019.

Table 10. Quarterly market returns (NSE – Nifty).

1	2	3	4
	2014		
–4.34%	+2.72%	+7.66%	+0.10%
	2015		
+5.87%	+11.46%	+5.95%	+2.86%
	2016		
+4.60%	–2.42%	–9.91%	+4.80%
	2017		
–3.19%	+7.67%	+4.34%	–6.07%
	2018		
+11.40%	+3.71%	+2.78%	+7.31%

Source: Authors' own estimation, 2019.

Table 11. Market performance.

NSE 100						
Variables	2013	2014	2015	2016	2017	Average
P/E	18.22	21.09	21.60	22.40	28.32	22.33
P/B	2.86	3.35	3.12	3.13	3.56	3.20
Dividend Yield	1.47	1.24	1.48	1.40	1.06	1.33
Nifty						
Variables	2013	2014	2015	2016	2017	Average
P/E	18.70	21.16	21.49	21.93	26.92	22.04
P/B	2.99	3.49	3.19	3.10	3.55	3.26
Dividend Yield	1.48	1.27	1.46	2.35	1.08	1.53

Source: Authors' own estimation, 2019.

Table 12. Risk free rates (%) for computing the expected earnings using CAPM.

2014			
Q1	Q2	Q3	Q4
7.96	7.45	8.62	8.84
2015			
Q1	Q2	Q3	Q4
9.07	8.42	8.48	8.02
2016			
Q1	Q2	Q3	Q4
7.74	7.77	7.64	7.73
2017			
Q1	Q2	Q3	Q4
7.46	7.42	6.96	6.52
2018			
Q1	Q2	Q3	Q4
6.69	6.51	6.67	7.32

Source: Authors' own Estimation, 2019.

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Prof. Pankaj Kumar Gupta
JMI University
Centre for Management Studies
Jamia Nagar, New Delhi – 110025
India
E-mail: pkgfms@gmail.com

Assoc. prof. Devendra Kumar Dhusia
JMI University
Department of Commerce and Business Studies
New Delhi – 110025
India
E-mail: ddhusia@jmi.ac.in