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Value and Contrarian Investment Strategies: Evidence from Indian Stock Market

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Abstract: Value and contrarian investment strategies are two basic approaches which are widely used by investors worldwide. Both value and contrarian investment strategies are assumed to pick the same stocks even though the approach to picking the stocks is different. Furthermore, both investment strategies are supposed to work in various forms of market efficiency. The present study aims to empirically review and analyze the investment strategies, value and contrarian, by creating a portfolio of returns of listed stocks in India's Bombay Stock Exchange (BSE) over a period from 1990–91 to 2018–19. A Venn diagram is used to explain the selection of stocks under both investment strategies with analysts' forecast recommendations. The findings show that value and contrarian investment strategies essentially select different stocks at any given point in time. Moreover, the study finds that both investment strategies can work in the same form of market efficiency. This study brings new insights to scholars, analysts, and investors for analyzing investment strategies and their portfolio composition.

Keywords: investment strategy; value stocks; contrarian stocks; analysts; market efficiency

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1. Introduction

Fundamental analysis and technical analyses are the two branches of decision-making methods to value shares with developed countries leading in fundamental analysis (Arnold and Moizer 1984; Arnold et al. 1984; Pike et al. 1993; Al-Abdulqader et al. 2007; Wang et al. 2011; Tijjani et al. 2009) and emerging markets depending on technical analysis (Lovell-Greene et al. 1986; Al-Abdulqader et al. 2007; Wang et al. 2011; Tijjani et al. 2009; Almujamed et al. 2013; Ling et al. 2020). One of the bases of equity investment strategies under fundamental analysis is value investing (Pani and Fabozzi 2021), which was first conceived in 1934 by Benjamin Graham and David Dodd, who believed in buying the stocks (used stocks and securities interchangeably) of undervalued firms. Various investors and academicians have come up with their measure of value, such as book value to market value of equity ratio and the company size (Fama and French 1992; Lakonishok et al. 1994), price-to-earnings ratio (Basu 1977; Chan et al. 1991), dividend yield, earnings to price, cash flow-to-price, sales growth, and reversal of the past five-year returns (Fama and French 1996). The firms with a high book-to-market equity ratio, earnings-to-price ratio, or cash flow-to-price ratio are classified as value stocks. The relative distress gives rise to value premiums as these firms frequently have low earnings (Fama and French 1995; Lakonishok et al. 1994). When distressed stocks are undervalued, and the market corrects the pricing errors, high returns are fetched from the value stocks (Haugen 1995). On the other hand, stocks having low book-to-market equity, earnings-to-price, and cash flow-to-price ratios are called growth stocks. Growth stocks are also called glamour stocks due to their high earnings growth rate and are popular among investors as they are perceived to have strong growth potential. Figure 1 shows a value–growth investment strategy where book-to-market equity ratio is used to differentiate between value and growth investment strategies. The book-to-market equity ratio (or market equity-to-book ratio, which is the

inverse of book-to-market equity ratio) has been used since the initial studies in value investment strategies (Stattman 1980; Rosenberg et al. 1998; Fama and French 1992). It is widely accepted as it contains information on future returns that is unclear in other variables (Pontiff and Schall 1998; Gu 2015; Ball et al. 2020). A high book-to-market equity ratio stocks exhibit underperformance in India (Kumar and Sehgal 2004; Hou et al. 2011; Lalwani and Chakraborty 2018) due to poor earnings growth, excessive leverage, and poor accounting quality gauged by low forensic accounting scores (Mehta and Khanna 2015).

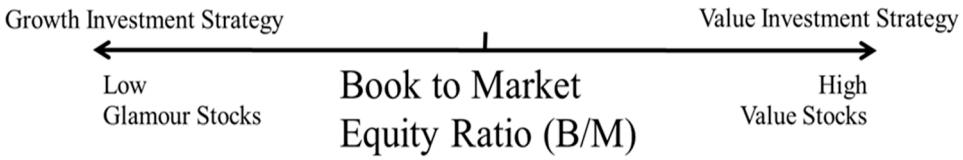

Figure 1. Value–growth investment strategy.

There are some noteworthy risk-based theories which were proposed to explain the value premium such as the three-factor model (Fama and French 1993), the two-beta model (Campbell and Vuolteenaho 2004), the model of consumption-based asset pricing (Lettau and Ludvigson 2001; Yogo 2006), and risk-averse investors (Asness et al. 2015). However, Phalippou (2007) shows that these theories are not empirically satisfactory, and Zaimovic et al. (2021) contend that there is no optimal number of stocks that can constitute a well-diversified portfolio irrespective of period, market, or investor.

In 1977 and 1979, David Dreman (1977, 1979) formally put forth the contrarian investment strategy under technical analysis, which stated that "investor psychology or emotion is the biggest determinant of stock prices" and "Take advantage of the high rate of analyst forecast error by simply investing in out-of-favour stocks", respectively, and a contrarian investor may earn abnormal returns (De Bondt and Thaler 1985). Dreman (1998) suggests that the contrarian investment strategy is based on stock market overreaction arising out of the irrational behaviour of investors. De Bondt and Thaler (1987), Lakonishok et al. (1994), and Haugen (1995) view this overreaction as a tendency of investors to bid lower the prices of so-called weak stocks that have performed poorly in the past, leading to under-pricing. When the overreaction is corrected, the firm's stock prices become closer to their fundamental value, giving high stock returns. Mayo (2011) confirmed analysts' recommendations as one of the main technical indicators that may be useful for investment decisions when adopted as a "contrarian" view. Additionally, past returns, not other fundamental values, are the primary basis for a contrarian investment strategy, which means "to buy past loser stocks and sell past winner stocks" (Mun et al. 1999). However, the study conducted by Jegadeesh and Titman (1993) propounded that "buying past winners and selling past losers realize significant abnormal returns over the 1965 to 1989 period", which implied that strong past performers are expected to give higher returns than weak past performers (Conrad and Kaul 1998). This strategy to go with the stock market's momentum and buy past winner stocks is a momentum investment strategy. Furthermore, it was contended that buying past losers is a riskier strategy (Chan 1988; Ball and Kothari 1989).

Figure 2 depicts the contrarian–momentum investment strategy, where past returns help in identifying loser and winner stocks. Both these investment strategies are considered to be prominent (Abukari and Otchere 2020; Choi 2021). Mohapatra and Misra (2020) said that momentum investing has the ability to pass the test of application in the real world, whereas Sadhwani and Bhayo (2021) believed that the momentum effect, which determines the time series pattern in stock return, is an anomaly of behavioural finance.

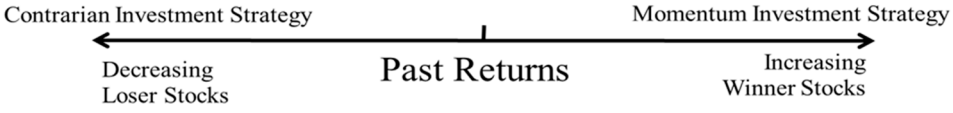

Figure 2. Contrarian–momentum investment strategy.

The existence of contrarian profits is attributed to the overreaction and underreaction of prices to new information (Lo and MacKinlay 1990), the propensity of institutional investors to prefer past winner stocks over past losers, and critical errors made by individual investors (Lakonishok et al. 1994), as emotion drives the price off the fundamental value using noise and fundamental traders with limited arbitrage (Shleifer and Vishny 1997), representativeness and a theory of conservatism bias (Barberis et al. 1998), investor overconfidence, and biased self-attribution (Daniel et al. 1998). Jegadeesh and Titman (1995) observe overreaction in the stock prices due to firm-specific factors and underreaction due to common factors. Optimism on investors' behalf can also be a predictor of a bubble burst (Pan 2020). Baker and Wurgler (2007) assert that the stocks most affected by sentiments are those that are difficult to arbitrage or to value and not by fundamental or rational reasons. Baker and Wurgler (2007), Verma et al. (2008), and Pornpikul and Nettayanun (2021) affirm that rational sentiments have a more significant impact on stock market returns, and irrational factors can explain returns during a financial crisis. Furthermore, Verma and Soydemir (2009) demonstrate a significant downward movement with an increase in irrational optimism. However, an increase in rational sentiment does not change the market price of risk significantly. Asness et al. (2015) perceive the existence of contrarian profits due to those investors who suffer from behavioural biases ignoring past loser stocks for past winner stocks. Itzkowitz et al. (2016) demonstrate the satisficing behaviour of investors and their propensity to the status quo bias influences the stock market. O'Sullivan et al. (2019) reveal that rational sentiment risk influences stock returns. Thampanya et al. (2020) and Nasir et al. (2018, 2021) find that asset returns can be explained by both rational and irrational factors, determined by each country's market development. Li and Li and Li (2021) found that the MCASI (MSCI China A-shares index) returns are affected by both overnight and BW (Baker and Wurgler) sentiments.

Analysts collect, process, and study macro and microeconomic factors that influence the valuation of stocks to rightly estimate firms' intrinsic value relative to their current market prices and try to predict future prices and returns from investment in stocks. Their prediction may depend on the fundamental analysis, previous trends, or any new information that they believe may influence the valuation and movement of stock prices of a firm. The information that these analysts produce should aid in market efficiency. The studies of Elton et al. (1986), Womack (1996), and Barber et al. (2001) revealed that abnormal returns can be earned by following analyst recommendations. Analysts act as information intermediaries and monitors in financial markets (Chen et al. 2015; Bradley et al. 2017; Brauer and Wiersema 2018) and play governance role in firms (Jensen and Meckling 1976; Moyer et al. 1989; Yu 2008), with investors relying on analysts to process the relevant information and provide recommendations accordingly (Eikelmann 2020). Massa and Simonov (2005) recognized that investor stock choice is majorly driven by the availability of information. According to Jegadeesh et al. (2004), analysts generally recommend stocks with high trading volume and high positive momentum of price and earnings. Moreover, if other investment signals reject the stocks, the analysts are not very fast to downgrade these stocks and found the underperformance of these favourably recommended stocks compared to unfavourably recommended stocks. Abarbanell and Bushee (1997) prove that equity analysts are incapable of incorporating fundamental signals into their forecasts, which may be due to limited resource constraints (Harford et al. 2019) and investors can benefit from this underreaction. Sometimes, analysts' intentional and systematic under- and overreaction to new information (Easterwood and Nutt 1999), limited attention (Driskill et al. 2020), ignore value stocks (Ho et al. 2022) or, in other words, give positive recommendations for overvalued stocks and ignore undervalued stocks (Engelberg et al. 2020; Guo et al. 2020). More optimistic forecasts by less experienced analysts (Lim 2001) behave extra optimistically to preserve client relations while issuing growth forecasts and recommendations to affiliated companies (Lin and McNichols 1998; Asquith et al. 2005; Barniv et al. 2009; Arand and Kerl 2015), influenced by institutional investors' interests in firms (Irvine et al. 2007; Mola and Guidolin 2009; Firth et al. 2013; Bradshaw

et al. 2017; Li and Xie 2022). Furthermore, analysts' forecasts may be plagued by a bias due to the economic incentive given by sell-side brokerage firms (Jegadeesh et al. 2004) or to make a short-term profit through increased trading enabled by optimism bias (Jackson 2005; Irvine 2004; Goldstein et al. 2006; Gu et al. 2013) and career prospects (Hong and Kubik 2003). Analysts have been reported to issue more buy (favourable) than sell (unfavourable) recommendations even if there is any alignment of analysts' incentives with the investors (Womack 1996; Morgan and Stocken 2003; Easton and Sommers 2007; Lien et al. 2020; Brycz et al. 2021). Block (1983) suggests that institutional money managers would prefer to herd to momentum investing (Economou et al. 2022) as would analysts (Scharfstein and Stein 1990; Trueman 1994; Grinblatt et al. 1995; Welch 2000; Chen and Jiang 2006; Jegadeesh and Kim 2010; Blasco et al. 2018; Lin 2018) and possibly be wrong than be in a profit-maximizing position with a slight chance of failure but the high potential of humiliation if that failure comes true. This behaviour is found more in inexperienced analysts who herd more and are unwilling to take risks that can negatively affect their careers (Hong et al. 2000). This is evident from the weak performance of stocks that were optimistically promoted by analysts' recommendations (Dechow et al. 2000; Engelberg et al. 2020; Guo et al. 2020). Moulya and Mallikarjunappa (2020) report from the Indian stock market (Nifty 50 stocks) that following analyst recommendations on a daily basis does not earn abnormal returns. Analysts are known to provide relatively precise information to a small group of investors, private or institutional (Cohen et al. 2008; Busse et al. 2012; Brown et al. 2014; Gu et al. 2019), and give relatively imprecise or introduce noise in information to a large group of investors, which is for public consumption (Garcia and Sangiorgi 2011), to profit from private information (Hirshleifer et al. 2022; Green 2006; Irvine et al. 2007) as their careers do not seem to be influenced by their public recommendation performance (Mikhail et al. 1999; Hong and Kubik 2003; Emery and Li 2009). Legal settlements to improve the information in analyst recommendations are not as effective as expected (Kadan et al. 2008). Social media and its relevant value (Chen et al. 2014; Miller and Skinner 2015; Jame et al. 2016; Bartov et al. 2018; Da and Huang 2020) have induced analysts to reduce forecast optimism and improve forecast accuracy due to increased competition among analysts (Hibbert et al. 2022) and crowd wisdom can be exploited for the prediction of stock returns and firm fundamentals (Chen et al. 2014; Jame et al. 2016; Bartov et al. 2018; Tang 2018; Da and Huang 2020; Gu and Kurov 2020; Bartov et al. 2018; Gu and Kurov 2020).

Dreman (1979) advocates for taking advantage of the bias or error by analysts to obtain abnormal returns. The stocks that have been ignored or have received unfavourable ratings by stock analysts may perform better than projected by the analyst. As the irrational investor overreacts to analyst recommendations (Welagedara et al. 2017) and pushes the prices of these unfavourable stocks below their intrinsic value, a window of opportunity opens for the contrarian investor. The stocks that are recommended by analysts are driven to overpricing by this positive news and continue to give abnormal returns until this overreaction is corrected.

The hypothesis developed for an efficient market in which all available information is fully reflected in security prices and trading on the information does not provide any abnormal profits (Fama 1970, 1991). Furthermore, to obtain the prices to reflect all information, all costs of information and trading have to be equal to zero (Grossman and Stiglitz 1980). Jensen (1978) said that "prices have to reflect information to the point where marginal costs remain lower than the marginal benefits or profits of acting on the information". The strong form of market efficiency propounds that any information which is known to any public or private participant is reflected in market prices; therefore, by any means in the strong form, no one can beat the market (Brealey et al. 1999). The semi-strong form of the hypothesis claims that the stock prices reflect all relevant past and publicly available information. One can beat the market by insider trading and not based on fundamental analysis (Bodie et al. 2007). Thus, a value investment strategy would not be more successful in this form of the market, as it is dependent on fundamental analysis, than a contrarian investment strategy that takes into account the past prices of the stocks. Market efficiency is

assumed to be weak if current stock prices are not predictable from past prices (Fama 1991). Consistent with this assumption of weak form, the random walk hypothesis states that the movement in stock prices is random and price changes are independent of one another. Therefore, predicting future price changes accurately based on the technical (trend) analysis where analysts make the chart of past price movements of stocks is rendered useless (Bodie et al. 2007). Thus, a contrarian investment strategy would be unproductive in the weak form of market efficiency. In contrast, a value investment strategy, where a fundamental analysis of firms is conducted, is more successful in giving superior returns in the weak form of the market. Karemera et al. (1999) observed that the random walk hypothesis model is harmonious with the dynamics of returns in the majority of the emerging markets analysed. Going by the efficiency of the market, one of the two strategies will be more effective than the other in various stock markets around the world. However, Ball (1995) argues that the theory of efficient markets is flawed and inadequate in its approach to viewing stock markets.

Unlike other emerging markets, Indian stock markets do not have informational efficiency (Kumar and Jawa 2017) and display the existence of the month of the year effect for March to May, August, September, November, December (Patel 2008; Dash et al. 2011; Minimol and Makesh 2013; Sen 2014), and the day of the week effect for Monday and Wednesday (Minimol and Makesh 2013; Palamalai and Kalaivani 2014). However, there is no influence of calendar effect on momentum performance (Maheshwari and Dhankar 2016) and contradictory evidence to suggest that daily and monthly seasonality are not a feature of the Indian stock market (Sasidharan 2009; Sriram and Devi 2013; Agrawal et al. 2014; Kushwah and Munshi 2018; Sahoo et al. 2021). Depending on the seasonality and volatility, different investment strategies are required.

All the studies thus far have compared the contrarian investment strategy with the momentum investment strategy and value investment strategy with growth investment strategy as the contrarian investment strategy is often confused with a value investment strategy. This may be due to the past loser stocks being considered distressed stocks picked in value investment strategy, as investors try to eliminate these stocks from their portfolios, driving the prices of securities down. Investing in these distressed stocks leads to the belief that contrarian and value investors are the same. With a value investment strategy, an investor buys undervalued stocks. A contrarian investment strategy invests in out-of-favour stocks that have not caught the fancy of investors. Investment in out-of-favour stocks is assumed to be a value investment strategy. Both investment strategies are thought to pick the same stocks even though the approach to stock picking is different. This study contends that both investment strategies are not similar in any way. By their definition, the stocks selected under both investment strategies should also be different at any given time. The present study aims to empirically review, compare, and analyse the investment strategies, value and contrarian, by creating a portfolio of stocks of listed stocks in India's Bombay Stock Exchange (BSE) from the financial years 1990–91 to 2018–19. A Venn diagram is used to explain the selection of stocks under both investment strategies with analysts' forecast recommendations. The findings of this study show that value investment and contrarian investment strategies essentially select different stocks at any given point in time. However, a few common stocks fulfil all the criteria of value investment and contrarian investment strategies. Additionally, this study finds that both these strategies can work in the market efficiencies of similar forms. It is inconsistent with the accepted norm that both investment strategies work best in different forms of market efficiency. The two investment strategies, contrarian and value, give correlated returns in India, suggesting that India is not a weak form of an efficient market.

2. Materials and Methods

Figure 3 below shows contrarian and value stocks form two different sets. The strategy of going against the analysts' recommendations is the basis for the contrarian investment strategy (Dreman 1979). For the purpose of this study on value and contrarian investment strategies, it is assumed that all stocks that are recommended by the analysts will be a subset of value stocks. Analysts may recommend other stocks that are growth or momentum in nature. Still, they are ignored for hypothesis formulation as their measure is just the opposite of value and contrarian stocks, as discussed above. For an elementary understanding of the basics of investment strategy, value and contrarian investment strategies are considered below. It can be assumed from the literature review that the results can be extended for growth and momentum investment strategies. Therefore, the analysts' recommended stocks are taken as a subset of value stocks while intentionally disregarding growth and momentum stocks in this study.

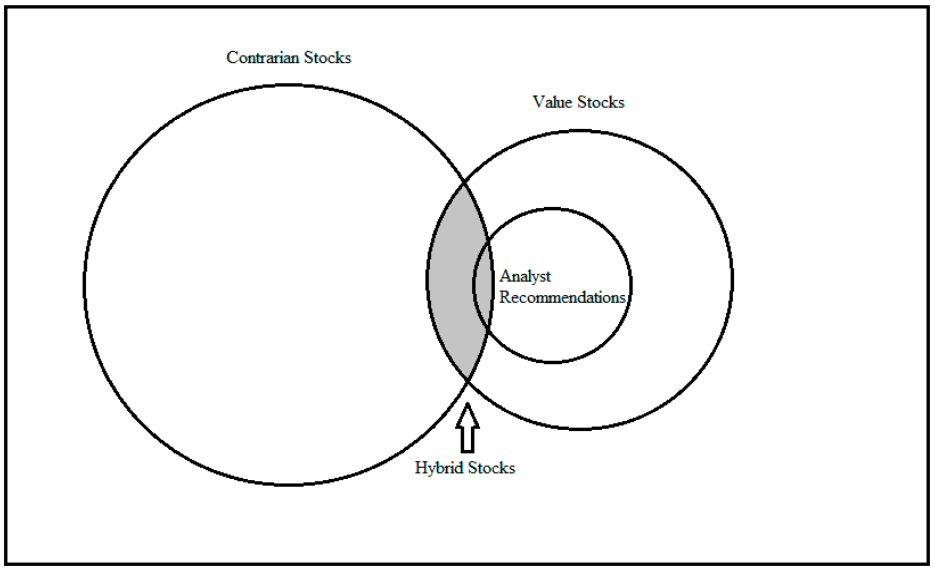

Figure 3. Venn diagram.

Due to bias (Block 1999; Jegadeesh et al. 2004), some analyst recommendations can also ignore undervalued stocks (Engelberg et al. 2020; Guo et al. 2020), value stocks (Ho et al. 2022), or past loser stocks (Economou et al. 2022). By the nature of the contrarian investment strategy, these value stocks can also be called contrarian. These stocks are shown by the intersection of contrarian and value stock sets. These are hybrid stocks with typical features of both value and contrarian stocks. Thus, hybrid stocks can be said to be those stocks that are value stocks but have been ignored or given unfavourable ratings by analysts. These are the same stocks that Dreman (1998) suggested as a second type of contrarian investment strategy based on valuation measures such as price-earnings ratio, price-to-book value ratio, past growth sales, or book-to-market value ratio. These valuation measures are the same as those incorporated by value investors. This combination of strategies will give the investors a smaller set of stocks compared to the original two investment strategies. Additionally, the fundamentals of the value investment strategy suppress the behavioural aspect of the contrarian investment strategy. A hybrid investment strategy is just a value investment strategy with smaller stocks.

Some value stocks are contrarian due to analysts' ignorance or bias, but sometimes, recent changes in recommendations create an exception where investors reject the recommendations. Even after analysts' favorable ratings, the recommendations are not accepted by investors, and the stocks remain out of favor. This market anomaly may be due to investors' loss of faith in analysts' recommendations or the inflow of some new information that the analysts are not privy to. Chances of the latter happening for stocks recommended

by the analysts are meager as any information that has affected a market cannot have passed unnoticed by the analysts—the rejection of analysts' recommendations may be, for the short term, caused by the underreaction of investors. There may also be underreaction for other stocks that have been ignored by the analysts altogether. These may or may not be value stocks. Based on the above discussion, this study proposes that value and contrarian investment strategies select different stocks.

H1. *Value investment and contrarian investment strategies essentially select different stocks.*

Furthermore, contrarian and value investment strategies are similar in picking distressed stocks, so the returns from these investment strategies may correlate. However, these investment strategies are believed to work in different forms of market efficiency. If the returns from these investment strategies correlate in the same market efficiency, it will give an understanding that market efficiency does not affect these investment strategies. This brings forward the second hypothesis that returns from value investment and contrarian investment strategies are correlated irrespective of market efficiency.

H2. *Returns from value investment and contrarian investment strategies are correlated in the same form of market efficiency.*

The data under study comprise the listed stocks of the Bombay Stock Exchange (BSE) from 1990–91 to 2018–19. The data were collected from the Centre for Monitoring Indian Economy (CMIE) PROWESS database which has been used by several published studies in India (Nair and Bhattacharyya 2019; Garg and Gupta 2020; Garg et al. 2021). Dividend information is not included while determining index values of the stock market indices in India; hence, stock returns use the capital gain factor only (Sehgal and Balakrishnan 2002). This convention is consistent with the findings of Felton and Jain (2019), who have reported errors in estimations of historical returns when adjusting historical prices for dividends and stock splits. BSE indicators such as price-to-book value ratio and returns are used to sort the stocks in ascending order for portfolio formation of value and contrarian investment strategies with the help of MS-Excel.

Table 1 shows the total number of companies' stocks whose share price information on BSE was available in the CMIE Prowess database for that year. The strategies under consideration have different approaches to stock selection. The value investment strategy selects stocks with a low price-to-book value ratio, and the contrarian investment strategy selects stocks with low past returns. They are out of favour with investors. At the end of each financial year, on March 31, the securities are ranked in ascending order based on the price-to-book value ratio for the value investment strategy portfolio and the past return of one year for the contrarian investment strategy portfolio. Based on these rankings, ten decile portfolios containing an equal number of stocks are formed. The top decile portfolio based on the price-to-book value ratio ranking in ascending order is the value portfolio (VPy) for that particular year and the top decile portfolio based on past 1-year returns ranking in ascending order is the contrarian portfolio (CPy) where 'y' is the year of portfolio formation. Portfolios for 30 years from 1990 to 2019 are formed. After portfolios are formed for every year, the number of stocks in each portfolio is 10% of the total stocks as they are divided into deciles. On the comparison of stocks of VPy and CPy for a particular year, the number of stocks that are common and uncommon in both portfolios can be computed and have been given for each year in Table 1 below.

Table 1. Stocks in value portfolio (VP_y) and contrarian portfolio (CP_y).

Year of Portfolio Formation	Total No. of Stocks	No. of Stocks in Value Portfolio (VP_y)	No. of Stocks in Contrarian Portfolio (CP_y)	No. of Stocks Common in Both Portfolios	No. of Uncommon Stocks	% of Uncommon Stocks in Both Portfolios
1990	240	24	24	1	23	95.83
1991	470	47	47	6	41	87.23
1992	620	62	62	2	60	96.77
1993	750	75	75	4	71	94.66
1994	1050	105	105	9	96	91.43
1995	1590	159	159	9	150	94.34
1996	2270	227	227	8	219	96.47
1997	2540	254	254	9	245	96.46
1998	2350	235	235	20	215	91.49
1999	2100	210	210	5	205	97.62
2000	2230	223	223	6	217	97.31
2001	2120	212	212	5	207	97.64
2002	1960	196	196	6	190	96.94
2003	1930	193	193	6	187	96.89
2004	1930	193	193	9	184	95.34
2005	2010	201	201	3	198	98.50
2006	2180	218	218	2	216	99.08
2007	2310	231	231	5	226	99.19
2008	2490	249	249	2	247	99.19
2009	2550	255	255	4	251	98.43
2010	2670	267	267	3	264	98.87
2011	2840	284	284	3	281	98.94
2012	2970	297	297	8	289	97.30
2013	3040	304	304	5	299	98.35
2014	3130	313	313	2	311	99.36
2015	3260	326	326	2	324	99.38
2016	3360	336	336	8	328	97.62
2017	3420	342	342	6	336	98.24
2018	3490	349	349	1	348	99.71
2019	3510	351	351	2	349	99.43

Computing the correlation of value investment and contrarian investment strategies, the 1-year return of respective portfolios is considered. The 1-year (t + 1) return of portfolios of value and contrarian strategies is calculated by taking an average of the 1-year returns from the date of portfolio formation (t) of individual stocks in the portfolio. For 1-year returns, portfolios formed from 1990 to 2018 are considered. Table 2 below gives the 1-year return (t + 1) for each year of formation of a portfolio (t) of contrarian and value portfolio investment strategies. Returns for year t + 2 and t + 4 are also considered for robustness check.

Table 2. Return of value portfolio (VP_y) and contrarian portfolio (CP_y).

Year (t) of Portfolio Formation	Year t + 1 Return of Value Portfolio (VP_y)	Year t + 2 Return of Value Portfolio (VP_y)	Year t + 4 Return of Value Portfolio (VP_y)	Year t + 1 Return of Contrarian Portfolio (CP_y)	Year t + 2 Return of Contrarian Portfolio (CP_y)	Year t + 4 Return of Contrarian Portfolio (CP_y)
1990	−0.22	6.61	2.08	13.28	6.72	−1.10
1991	4.94	−1.75	1.49	6.00	−1.34	−0.67
1992	−2.39	0.69	2.57	−3.05	0.20	1.51
1993	−0.02	−0.71	−3.09	1.36	0.16	−2.70
1994	−0.12	0.77	7.42	0.47	0.75	6.43
1995	1.17	−2.89	2.47	1.12	−2.76	3.19
1996	0.17	1.99	−0.39	0.67	4.04	0.59
1997	8.35	4.16	−0.59	6.62	4.05	−0.61
1998	3.59	1.92	−0.64	6.13	2.96	0.77
1999	−0.05	−0.71	−0.47	−1.23	0.19	−0.81
2000	−1.98	−0.27	1.49	−2.02	0.22	0.07
2001	−0.65	0.58	3.18	−0.15	0.21	2.48
2002	−1.05	1.80	1.23	−0.74	0.49	1.48
2003	1.47	4.32	1.16	1.73	3.40	1.14
2004	4.27	1.36	1.32	2.42	1.54	0.67
2005	1.24	0.92	−0.32	0.55	0.37	−0.44
2006	0.69	1.36	0.91	0.39	0.16	0.28
2007	1.43	0.43	−0.05	0.74	0.25	0.04
2008	0.42	0.28	0.78	0.70	0.31	1.48
2009	0.64	0.43	0.06	0.21	−0.09	−0.23
2010	−0.07	0.81	0.32	0.12	0.32	−0.29
2011	1.01	0.07	0.62	0.25	−0.80	−0.44
2012	0.23	0.47	−0.43	−0.35	−0.14	−0.42
2013	0.76	0.57	0.31	0.15	0.25	0.07
2014	0.44	−0.57	−0.57	−0.48	−0.06	0.09
2015	−0.69	0.12	−0.21	−0.63	0.16	−0.56
2016	0.26	−0.84		0.03	−0.68	
2017	−0.59	−0.16		−0.44	−0.13	
2018	−0.25			−0.27		

Table 3 below shows the t-test statistic with the Equality of Variances (Levene's Test). Levene's test (for testing the assumption of homogeneity of variances) is "an inferential statistic that is widely used to assess the equality of variances for a variable calculated for two or more groups" (Levene 1961). T-test statistics test the hypothesis that measures the significance of each 1-year return of contrarian and value portfolios. The variances of the two groups under consideration are equal and are assumed by the t-test. However, unequal variances can affect the rate of Type I error. For this investigation, a 2-tailed t-test is used to obtain the evidence to reject or accept the hypothesis. Descriptive statistics in Table 4 illustrate the essential attributes of the data. Pearson correlation coefficient in Table 5 below measures the statistical relationship between the 1-year returns of contrarian and value investment portfolios in the Bombay Stock Exchange from 1990 to 2018.

Table 3. Independent samples test for contrarian and value portfolio returns for year t + 1.

		Levene's Test for Equality of Variances		t-Test for Equality of Means						
		F	Sig. (2-Tailed)	T	df	Sig. (2-Tailed)	Mean Difference	Standard Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Portfolio Returns	Equal Variances Assumed	1.342	0.252	0.512	56	0.611	0.3657	0.7147	−1.0659	1.7579
	Equal Variances Not Assumed			0.512	49	0.611	0.3657	0.7147	−1.0704	1.8020

Table 4. Descriptive statistics of contrarian and value portfolio returns for year t + 1.

Portfolio Returns	Mean	Standard Deviation	N	Standard Error Mean
Contrarian Portfolio	1.1583	3.1934	29	0.5930
Value Portfolio	0.7925	2.1484	29	0.3989

Table 5. Pearson correlation between portfolio returns of contrarian and value for year t + 1.

Portfolio Return	Contrarian Portfolio	Value Portfolio	N	Sig. (2-Tailed)
Contrarian Portfolio	1.000	0.557 **	29	0.002
Value Portfolio	0.557 **	1.000	29	0.002

** significant at the 1% level (2-tailed).

3. Results

As shown in Table 1, the composition of stocks in VPy and CPy are different from each other, barring very few stocks every year. Nine years out of 30 years, the percentage of uncommon stocks in both value and contrarian portfolios is 99% and above. The number of years the percentage of uncommon stocks was in the range of 95–98% is 17 years out of 30 years, and only for four years did the percentage of uncommon stocks drop below 95%. This means that both investment strategies mainly selected different stocks over 30 years. Therefore, we cannot reject the H1 hypothesis that value investment and contrarian investment strategies essentially select different stocks. The few stocks that are common to both contrarian and value stocks selection are the hybrid stocks.

$$\text{Hybrid Stocks} = \text{Contrarian Stocks} \cap \text{Value Stocks}$$

As can be seen from Table 1, these hybrid stocks are few every year under consideration. Maximum hybrid stocks can be found for 1991, which is 13% of all the stocks under observation. The hybrid stocks form the second type of contrarian investment strategy of Dreman (1998), which is based on valuation measures, in this case, price-to-book value ratio. The findings are interesting because both investment strategies aim to select distressed stocks. Both investment strategies use different indicators but use price for the price-to-book value ratio and calculate returns. Moreover, the common stocks in both strategies are almost negligible.

Table 3 results the homogeneity of variances test with an F-statistic and a p-value of 0.252 ($p > 0.05$), which treats the group variances as equal. However, $p < 0.05$ violates the assumption of homogeneity of variances and treats group variances unequally.

Table 3 reveals that 1-year returns are normally distributed for both groups, and homogeneity of variance has been measured by the Levene's Test for Equality of Variances. Furthermore, an independent t-test has been conducted on the data with a 95% confidence

interval (CI) to compare 1-year returns of contrarian and value investment portfolios. No significant difference in 1-year returns of contrarian and value portfolios is found. The difference between the 1-year returns of the contrarian portfolio (1.1583 ± 3.134) and the 1-year returns of the value portfolio (0.7925 ± 2.1484) (t(56) = 0.512, p = 0.611) is 0.3657 (95% CI, −1.0659 to 1.7579).

A Pearson product–moment correlation coefficient has been computed (Table 5 above) to measure the relationship between the 1-year return of contrarian and value investment portfolios. There is a positive correlation between the two variables (r = 0.557, n = 29, p = 0.002). A scatterplot summarizes the results (Figure 4 below). The scatterplot presents opportunities to earn abnormal profits from seasonality effects. Overall, there is a strong and positive correlation between the 1-year return of contrarian and value investment portfolios. Increases in 1-year returns on the contrarian investment portfolio were correlated with increases in 1-year returns on the value investment portfolio. From these results, hypothesis H2 cannot be rejected, the returns from the value investment strategy and contrarian investment strategy are correlated in the same form of market efficiency, and it can be concluded that both investment strategies can be used in the market efficiencies of similar form. The returns of the contrarian and value investment portfolios are correlated in an emerging market such as India. India is not a weak form of the efficient market (Hamid et al. 2017; Kumar and Jawa 2017; Dias et al. 2020). The two investment strategies, contrarian and value, give correlated returns in India, supporting the features of a semi-strong form of market efficiency in which the stock prices reflect available information. The correlation suggests that the information reflected in stock prices used for the contrarian investment strategy may contain the information from fundamental analysis (price-to-book value ratio) used for value investment strategy and India is not a weak form of an efficient market.

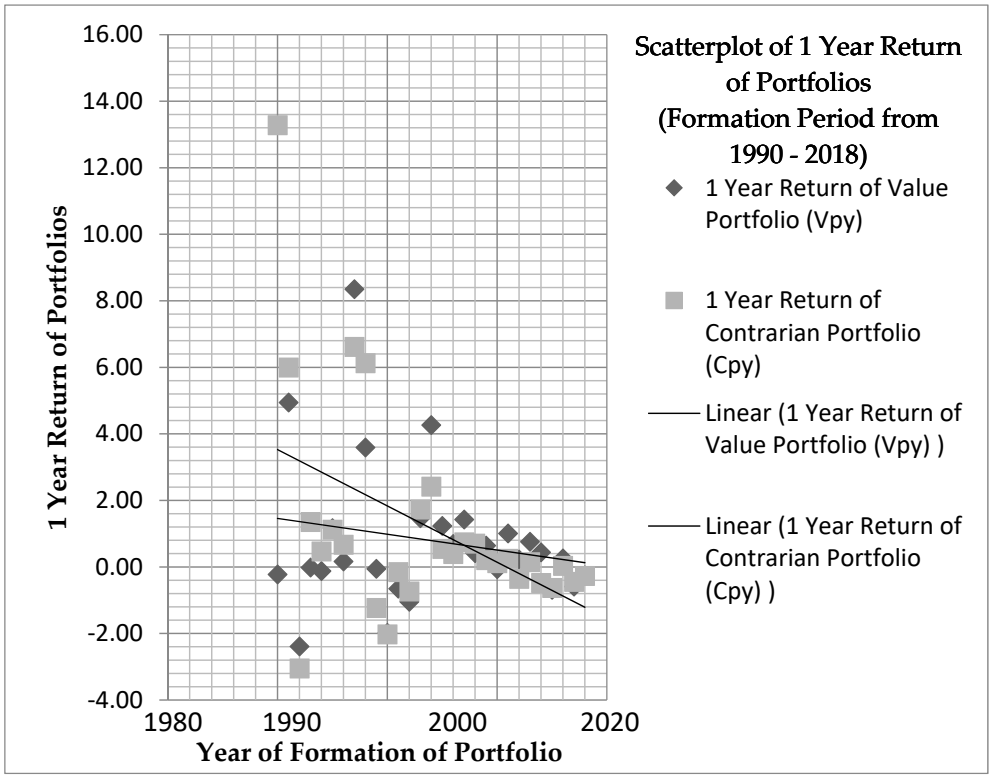

Figure 4. Scatterplot (t + 1).

Robustness checks are conducted for the results. Tables 6 and 7 reveal that 1-year returns are normally distributed for both groups, and no significant difference in returns of contrarian and value portfolios in years t + 2 and t + 4 are found. Additionally, there is a positive correlation between the returns of the two portfolios for t + 2 (r = 0.927, n = 28, p = 0.002) and for t + 1 (r = 0.855, n = 26, p = 0.002). The results are robust.

Table 6. Independent samples test for contrarian and value portfolio returns for year t + 2.

		Levene's Test for Equality of Variances		t-Test for Equality of Means						
		F	Sig. (2-Tailed)	T	df	Sig. (2-Tailed)	Mean Difference	Standard Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Portfolio Returns	Equal Variances Assumed	0.024	0.877	0.069	54	0.945	0.03496	0.50402	−0.97553	1.04546
	Equal Variances Not Assumed			0.069	53.992	0.945	0.03496	0.50402	−0.97554	1.04546

Table 7. Independent samples test for contrarian and value portfolio returns for year t + 4.

		Levene's Test for Equality of Variances		t-Test for Equality of Means						
		F	Sig. (2-Tailed)	T	df	Sig. (2-Tailed)	Mean Difference	Standard Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Portfolio Returns	Equal Variances Assumed	0.099	0.754	0.667	50	0.508	0.33155	0.49738	−0.66746	1.33056
	Equal Variances Not Assumed			0.667	49.530	0.508	0.33155	0.49738	−0.66770	1.33079

Tables 8 and 9 give the descriptive statistics of contrarian and value portfolio returns for year t + 2 and t + 4 respectively. The portfolio return per unit of risk is compared in Table 10 above for contrarian and value portfolios formed in year t. The portfolio risk is measured by the standard deviation of portfolio return over time. The portfolios' return per unit of risk for contrarian and value portfolios over time t + 1, t + 2, and t + 4 are comparable. This is because there is no significant difference in return of contrarian and value portfolios over t + 1, t + 2, and t + 4, and their risk is also equivalent even though the stocks are different in the portfolios of the contrarian and value investment strategies. Furthermore, the results of the study found no evidence of market trend or seasonality in portfolio return for portfolios formed in time t and their returns observed in time t + 1, t + 2, and t + 4.

Table 8. Descriptive statistics of contrarian and value portfolio returns for year t + 2.

Portfolio Returns	Mean	Standard Deviation	N	Standard Error Mean
Contrarian Portfolio	0.7415	1.89756	28	0.35861
Value Portfolio	0.7764	1.87409	28	0.35417

Table 9. Descriptive statistics of contrarian and value portfolio returns for year t + 4.

Portfolio Returns	Mean	Standard Deviation	N	Standard Error Mean
Contrarian Portfolio	0.4619	1.70370	26	0.33412
Value Portfolio	0.7935	1.87867	26	0.36844

Table 10. Portfolio return per unit of risk.

Portfolio Return per Unit of Risk	Year t + 1 Contrarian Portfolio (CP_y)	Year t + 1 Value Portfolio (VP_y)	Year t + 2 Contrarian Portfolio (CP_y)	Year t + 2 Value Portfolio (VP_y)	Year t + 4 Contrarian Portfolio (CP_y)	Year t + 4 Value Portfolio (VP_y)
Mean/Standard Deviation	0.36	0.37	0.39	0.41	0.27	0.42

4. Discussion

Value investment and contrarian investment strategies are thought to select the same stocks even though the selection criteria are different. The selection criteria employed by these investment strategies try to get abnormal returns by identifying various characteristics of stocks. Contrarian investors look for stocks that are ignored by analysts and investors who do not favour such stocks. The reason for analysts and investors to ignore these stocks may be due to their low past returns, bias, or lack of information. The market anomaly where investors reject a stock despite favourable recommendations by the analysts is due to a loss of faith in the analysts or underreaction to the signal. A source of profit for contrarian investment strategies is investors' behaviour, which is irrational, leading to overreaction or underreaction. Value investors look for undervalued stocks with a market value lesser than their intrinsic value. The value investment strategy obtains compensation for extended periods of underperformance by invested stocks which risk-averse investors pay once these undervalued stocks cross their fundamental value in market price. A value investor is poised to obtain a minimum return amounting to the difference between fundamental and under-priced values. Still, the time it will take to achieve it is uncertain. In contrast, a contrarian investor is unsure of the amount of profit, and the period it will take to make that profit, making a contrarian investment strategy riskier than a value investment strategy.

The stocks that are common to value and contrarian investment strategies have given rise to a hybrid investment strategy which is a contrarian investment strategy based on valuation measures of firms. Combining these two investment strategies will tilt the balance more towards value investment as it inhibits the behavioural aspect of a contrarian investment strategy and the expected synergy from a contrarian investment strategy is lost. The empirical results have shown that value and contrarian investors select different stocks at any given time. Some common stocks fulfil all the criteria of contrarian and value investment strategies, but the majority of the stocks chosen by these strategies are different.

Furthermore, value and contrarian investment strategies are assumed to work in different forms of market efficiency. The value investment strategy is successful in the weak form of market efficiency, and the contrarian investment strategy works better in a semi-strong efficient market. However, the results show that both strategies can work in the same form of market efficiency, and their 1-year returns correlate in the same market, conveying that India is not a weak form of the efficient market.

5. Conclusions

This study empirically compares value and contrarian investment strategies and enriches the existing literature on stock market investment strategies. This study is significant for scholars, analysts, and investors as it disentangles value investment and contrarian investment strategies. It clarifies the purpose of these investment strategies and their portfolio composition. By bringing out the difference in the composition of stocks of portfolios for the value investment and contrarian investment strategies and the high correlation in

their returns in the same market efficiency, this study has challenged the convention. This study adds to the literature on the value investment strategy and the contrarian investment strategy by making them more comprehensive through a Venn diagram. It raises questions on the coherence of the market efficiency theory when selecting between value and contrarian investment strategies. As value investment and contrarian investment strategies are known to give abnormal returns over a long investment period, it would be beneficial to observe the results for portfolio returns of more significant than the 1-year holding period taken in this study. It will also be interesting to examine whether the results replicate for stocks listed on other stock exchanges worldwide.

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