Portfolio Selection and Performance Evaluation Through Benjamin Graham's Value Investing

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Abstract

Purpose: The objective of this study is to validate the value investing concerning filtering valued stock in the Indian stock market (Nifty 50) & United States (Dow Jones) during the period 2014 -20.

Design /Methodologies/Approach: We have selected the data of the National Stock Exchange and Dow Jones to apply the value investing technique for choosing the stocks and building a significant portfolio. Further, we compare the mean returns of B & H passive strategy. The empirical analysis includes the selected portfolio from Jan 2014 to May 2020.

Results & Practical Implication: The mean return of portfolio selected by Value investing outperform as comparative to passive strategy, i.e. Buy & Hold strategy. The successful application of value investing will encourage the practitioners & academicians of financial markets to research & explore further uses & practical impact of the present study.

Keywords: Value Investing, The Margin of Safety, Fundamental Analysis, Nifty Index, Portfolio, Dow Jones.

JEL Classification Codes: F37.

1. Introduction

Benjamin Graham says that "stock is not just a ticker symbol or an electronic blip; it is an ownership interest in an actual business, with an underlying value that does not depend on its share price". The stock market is like a pendulum that always swings between unsustainable optimism & unjustified pessimism.

The negative effect of the crash of 1929 influenced Graham and Dodd (1934) to develop a system or framework to analyze stock market fundamentals. They proposed a "Value investing technique to identify undervalued shares in the financial universe". They said that investors need to invest with a significant gap between the current market price & margin of safety. Furthermore, the companies having low prices relative to earnings, dividends & book assets are considered as value strategy (Lakonishok, Shleifer, & Vishny, 1994). The value analysis identifies a traditional fundamental analysis approach in selecting good stocks for an investment portfolio (Ahmed, 1997). The value strategy identifies winner stocks & loser's stocks in the financial market with the minimum possible risk & outperforms the market as a whole.

In the investment arena, one of the most respectful & critical theories is the "Efficient Market Hypothesis" proposed by Fama (1970). He suggests that an investor cannot "beat the market" in any circumstances because stock market "prices" are always efficient in all conditions. The market is fully expressing all the information concerning the current price, known as efficient markets. He advocates three forms of the market (Cuthbertson & Nitzsche, 2005; Jensen, 1978; Mandelker, Clarke, & Jandik, 2001) i) Weak form of market ii) Semi strong form of market iii) Strong form of market. The EMH states that the current stock price reflects all the available information about the value of firms, & there is no way to earn an excess return by using public information or private information (Mandelker et al., 2001). Hence, evaluating the stocks through value investing techniques developed by Benjamin Graham may light our path in the price discovery & exploit the inefficiency in the market.

Many researchers had to examine the relevance of Value investing but they mainly focus on mature financial markets, like Oppenheimer and Schlarbaum (1981), Lauterbach and Vu (1993), Quah (2008), Xiao and Arnold (2008), Bildersee,

Cheh, and Zutshi (1993), Klerck and Maritz (1997), Oppenheimer (1984, 1986), Vu (1988), Balik and Mehran (2008), Chang (2011), Singh and Kaur (2014), and Vanstone, Finnie, and Tan (2004).

The present study is an attempt to build a portfolio based on the Value investing strategy; we concentrate on Nifty50 & Dow Jones during the sample time frame of 2014-2020. This paper consists of five-part:

- Theoretical concept building
- Literature review& objectives
- Description of research methods
- Empirical Results & Conclusion
- Conclusion & Future Dimensions

1.1 Theoretical Concept Building - Benjamin Graham Stock Selection Criteria

The concept of margin of safety is the core principle of value investing; MOS means the difference between current market price & intrinsic value. Graham (1949) accumulated six decades of extraordinary intellect with profound common sense & vast experience into the following factors that would help investors to filtered value stocks from the financial universe. These are the following factors we need to understand value investing.

- Earning to price yield
- Price Earnings Ratio
- Dividend yield
- Tangible book value
- Net Current Assets Value
- Total debts
- Current ratio
- Earnings growth
- Stability of growth

Value investing utilizing a traditional fundamental approach in selecting stocks for investment portfolios (Ahmed, 1997). The origin of Value investing started dated back 1930, the Columbia Business School professor Benjamin Graham and Dodd (1934) had created significant support for stock market investment. In 1934, both developed value investing by using the sound principles of company fundamentals. For the stock selection, we use this formula developed by Benjamin Graham for this study.

Intrinsic Valuation of Stocks –Benjamin Graham

The original formula shared by Graham in 1962 was

$$V= EPS\,(8.5+2g)$$

Here,

V= Intrinsic Value of stock

EPS= trailing twelve months' earnings per share

8.5= PE of a stock at 0% growth rate

g = Growth rate of the company

Later, it was revised in 1974 revised edition of "The Intelligent Investor" as

$$V=[EPS*(8.5+2g)*4.4]/\,Y$$

We need to update formulas according to the current financial state of a particular country. In our case, we need to update according to the financials of India & the United States.

2. Review of Literature

Palazzo, Savoia, Securato, and Bergmann (2018) confirm the validity of the Value investing technique at the Brazilian stock exchange by getting higher adjusted returns during the sample time frame, i.e. May 2005- April 2015. Over time many individuals develop the investment ideologies to reduce the risk & maximize the profits, those ideologies termed as investment philosophies (Damodaran, 2006).

Rea (1977) advised that the most essential filters were those related to the earnings offered by stocks like PE ratio. There is no documented study by Graham that would have proven that after using these criteria alone would generate a portfolio with significant performance. Conversely, Oppenheimer (1984) states that value investment portfolios obtained above-market performance between 1974-1981. Further, after using the same criteria, Klerck and Martiz (1997) also get returns above average. Also, we can have club Graham's model & other stock selection rules to build a neural network, & able to manage significant returns (Vanstone et al., 2004; Quah, 2008). Nevertheless, Xiao and Arnold (2008) examine the applicability of NCAV to market value strategy on the London stock exchange during the sample time frame 1981-2005 & they had significantly positive returns over five years holding period.

It is a very challenging job to find stocks that fulfill all the criteria suggested by Graham (Artuso & Chaves Neto, 2010). Almeida, Oliveira, Botrel, and Martins (2011) and Testa (2011) also obtained results that give positivity, significance, & validity of the value investing method. There is the number of researchers who had to examine the relevance of Value investing, but they mainly focus on mature financial markets, like Oppenheimer and Schlarbaum (1981), Xiao and Arnold

(2008), Oppenheimer (1984, 1986), Vanstone *et al.* (2004), Vu (1988), Lauterbach and Vu (1993), Bildersee *et al.* (1993), Klerck and Maritz (1997), Quah (2008), Balik & Mehran (2008), Chang (2011), and Singh and Kaur (2014).

This research paper examines the value investing technique in the developed financial markets (United States) & developing financial markets (India). The principal objective of the present studies as follows:

- Develop a portfolio based on the value investing technique by focusing on Nifty & Dow Jones.
- Compare the returns accumulated by Value investing (Fundamental analysis) & Passive investment strategy (B & H strategy).

3. Hypothesis

- (H_{01}) The mean return of value investing is equal to B & H strategy in the Indian stock market (Nifty).
- (H_{02}) The mean return of value investing is equal to B & H strategy in International Stock market (Dow Jones)

4. Description of Research Methods

We select the stocks based on value investing developed by Graham (1949) in the financial universe of Nifty & Dow Jones. The origin of Value investing started dated back to 1930 when the crashes of 1929 prompted the Columbia Business School professor Benjamin Graham & Dodd to create significant support for stock market investment. In 1934, both developed value investing by using sound principles of company fundamentals. For the stock selection, we use this formula developed by Benjamin Graham for this study.

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For the United States

In this formula, the United States' risk-free return was 4.4% & Y represents AAA corporate bond yield. Graham includes Y because of the minimum required rate of return for investing in a stock. As we know, bond rates affect the valuation, lower the yield higher the price. Since all intrinsic value calculations are based upon opportunity cost relative to the risk-free interest, so we need to modify the formula for the Indian market & US market.

For Indian Market

Intrinsic value=[EPS*(8.5+2G) * FD rate]/Y

Here, the fixed deposit rate (risk-free rate) is 8.5 & the Nifty AAA Corporate bond is 8.3.

After selecting the stocks, we compare the value investing strategy with a passive strategy (B & H) in terms of mean returns significance. During the sample period (Jan 2014 to May 2020), we buy all the suggestive stocks at the initial out of sample period. We kept stock throughout the whole period. The passive strategy ignores risk management, timing & other active strategy variables. This strategy we use as a benchmark is in line with prior literature (Dryden, 1970; Fama & Blume, 1966; Vanstone *et al.*, 2004; Thawornwong, Enke, & Dagli, 2003).

5. Empirical Results

Table. 1 The Valued Stock Selected –Nifty (India)

Sr. No.	Company	Nifty 50 Weighted	EPS Ratio	EPS Growth Rate	Adj. Closing Price as on JAN 2014	Intrinsic Value	MOS %	Recommendation
1	Axis Bank	3.35	26.86	15.33	207	866.34	318.52	BUY
2	HDFC Bank	10.56	18.22	26.17	293	891.06	204.12	BUY
3	HDFC Bank	8.07	34.89	18.62	749	1301.67	73.79	BUY
4	KOTAK Bank	4.49	16	9.14	326	543.75	66.80	BUY
5	ICICI Bank	6.95	17.38	14.7	138	363.92	163.71	BUY
6	ITC	4.14	7.45	19	189	282.29	49.36	BUY
7	TCS	5.36	48.85	11.31	931	1273.94	36.84	BUY
8	INFY	6.56	23.29	13.17	294	673.92	129.22	BUY
9	LT	3.2	35.26	10.39	578	869.70	50.47	BUY
10	RIL	10.06	76.55	7.59	384	1558.88	305.96	BUY

Source: Computed

Table. 2 The Valued Stock Selected – Dow Jones (United States)

Sr. No.	Company	Dow Jones Weighted	EPS Ratio	EPS Growth Rate	Adj. Closing Price as on JAN 2014	Intrinsic Value	MOS %	Recommendation
1	Apple Inc.	8.59	12.66	17.64	64.03	443.58	592.77	BUY
2	Microsoft Cor.	4.95	2.69	35	32.88	164.46	400.17	BUY
3	IBM Cor.	3.37	14.94	8.1	135	309.20	129.04	BUY
4	Home Depot	6.71	3.65	21.2	66.35	147.42	122.19	BUY
5	McDonald's	5.03	28.1	3.95	77.57	406.25	423.71	BUY
6	The Goldman Sachs	5.31	15.25	7.1	148	292.69	97.76	BUY
7	Visa Inc. (V)	5.28	1.77	41	51	161	215.69	BUY
8	3M Company	4.23	6.72	10.9	107.3	204.07	90.17	BUY
9	Johnson & Johnson	4.02	4.81	31	74.05	339.86	358.96	BUY
10	UnitedHealth Group	8.24	5.44	6.1	65.45	112.86	72.44	BUY

Source: Computed

After applying the value investing strategy & index weighted, we finalize these ten stocks from Nifty & Dow Jones each (table 1 & 2). All these stocks have current market prices is that they are undervalued as compared to Intrinsic Value. All of the shares have a reasonably outstanding margin of safety. Buy recommendation automate as & when the current price is undervalued. Now, we choose the highest market price during the sample time frame as a closing price, & compare it with the passive investment strategy (B & H). The margin of safety is the difference between market price & intrinsic value, it is crucial in case of any drawdown in the amount of investment.

Table 3. Comparative Analysis of Mean returns of (FA) & (B & H)

Index & Country	NAME	B & H (Passive Investment) ROI	FA-Value Investment ROI
NIFTY(India)	Axis Bank	7.66	44.67
	HDFC Bank	19.36	25.36
	HDFC Bank	12.73	5.75
	ICICI Bank	9.97	45.60
	KOTAK Bank	22.87	16.47
	ITC.	-0.74	12.13
	TCS	9.99	21.94
	INFY	7.37	28.57
	LT	5.56	11.02
	Reliance	22.38	32.85
Dow Jones (United States)	Apple Inc.	25.4	64.15
	Microsoft Cor.	28.75	30.47
	IBM Cor.	-5.24	5.28
	The Home Depot	19.33	43.72
	McDonald's	11.76	28.45
	The Goldman Sachs	3.19	12.47
	Visa Inc.	22.12	39.12
	3M Company	3	21.60
	Johnson & Johnson	7.63	16.61
	United Health Group Inc.	24.81	49.02

Source: Computed

Table 4. Total Portfolio Performances –Nifty & Dow Jones

Index	Total Portfolio(Investment Model)	Mean Return	S.D	Risk Premium	Sharpe Ratio
Nifty	FA (Intrinsic Value)	24.44	13.7	17.94	1.31
	B & H (Passive Strategy)	11.72	7.7	5.22	0.68
Dow Jones	FA (Intrinsic Value)	31.09	18.1	27.09	1.72
	B & H (Passive Strategy)	14.08	11.6	10.08	1.21

Source: Computed

Table 3 has shown the mean returns of the B & H strategy & Value investing strategy. All the stocks of Dow Jones & Nifty outperform the B & H strategy. As per Table no. 4, the overall portfolio performance of Nifty & Dow Jones is outstanding. Mean returns of intrinsic value, Nifty selected stocks are 24.44 and B & H strategy is 11.72, on the other hand, portfolio performance of Nifty & Dow Jones, the mean returns based on the intrinsic value of Dow Jones selected stocks is 31.09 & B & H strategy is 14.08. Both the index based on value investing selected portfolio outperform the B & H strategy. The Sharpe ratio signifies risk premium per unit of risk, here also Nifty & Dow outperforms by getting 1.31 & 1.71 respectively. Higher the Sharpe ratio better the performance & greater the profits for taking additional risk.

5.1 Statistical Analysis

One-Sample Test- Nifty

	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
BH	4.818	9	.001	11.71500	6.2150	17.2150
VI	5.629	9	.000	24.43600	14.6149	34.2571

Source: Computed

The mean return of B & H strategy (11.7) & intrinsic value (24.43) is statistically significant at the .05 sig. level, since p-value is .001 (B & H) & .000 (intrinsic value). (H01) The mean return of value investing is more than as compared to B & H strategy in the Indian stock market (Nifty), the null hypothesis can be rejected concerning the following results.

One-Sample Test- Dow Jones

	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
BH	3.835	9	.004	14.07500	5.7726	22.3774
VI	5.423	9	.000	31.08900	18.1193	44.0587

Source: Computed

The mean return of B & H strategy (14.07) & intrinsic value (31.08) is statistically significant at the .05 sig. level, since p-value is .001 (B & H) & .000 (intrinsic value). (H02) The mean return of value investing is more than B & H strategy in International Stock market (Dow Jones)

6. Conclusion & Future Dimensions

Benjamin Graham's value investing technique provides significant results in both Nifty & Dow Jones. Since (H01), The mean return of value investing is equal to B & H strategy in Indian stock market (Nifty), but our results suggest that the mean returns value investing outperforms the B&H strategy in Indian stock market, also, (H02) The mean return of value investing is equal to B & H strategy in International Stock market (Dow Jones); nevertheless, the mean returns value investing outperforms the B & H strategy in International stock market statistically & practically significant results have been found.

Future research could follow the synchronization of different variables with Graham stock selection technique like behavioral finance, ANN, techno-fundamental analysis, expert system & other macro-economic/microeconomic variables may enhance the results.

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