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Debt Capacity and Value Investing

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ABSTRACT

Purpose: This test one of the well know methods proposed by Benjamin Graham and David Doss in 1934 -Debt Capacity Value Investing method. This method is used in a simple construct to test if the investor with no formal prior knowledge of financial engineering can benefit from this method.

Design: We test sixty portfolios starting from 2011 to 2015 on a yearly basis. The sample is taken yearly with data from 2006 to 2015. The Holding period under test is from eight years to four years.

Finding: The results show extraordinary results from ordinary methodology. The Value stock portfolio is found to give as much as 27% returns.

Originality/Value: The research in the area of the value investing has broadly used either the Fama-French factor models or the net current assets. However the research or testing of the value investing other methods has been largely ignored. The present paper fills this gap of testing the method by value investing first guru " Benjamin Graham".

Paper Type: Empirical Research Paper.

KEYWORDS: Value Investing | Debt Capacity | BSE India | Sharpe Ratio | Treynor Ratio | M^2

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Introduction

The reaction of some of the most influential names in Finance and economics have shown their surprise to the overtly reactive financial markets as the COVID19 pandemic spread across the world. Among them are Paul Krugman, Malkiel and Shiller. While Paul reminded that the stock market is not an economy, Malkiel and Shiller pointed out that " market irrationality is more apparent"(The stock market and the economy: Insights from the COVID-19 crisis | VOX, CEPR Policy Portal, n.d.). In India, the reaction has been no less or more as compared to the international markets. The lockdown announcement on 23rd March led to a single-day plunge of 13% in Indian financial markets *(Today's top business news: Sensex suffers worst crash in history, rupee hits record low, over 1 billion people told to stay home, and more - The Hindu, n.d.*). For value investors, it was time for availing significant discounts. The market gave an opportunity to buy stocks at the "multi-year lows". Retail investors withdrew close to $3.8 billion from equity mutual funds only to invest more independently. The "Demat" accounts which are digital securities holding accounts increased by 27% from year 2019-20. This is the trend when India witnessed major job losses. The pandemic of COVID19 lead to retrenchments and salary cut for almost 10.9 million jobs lost as the lock down of March 23rd, 2020. The Mutual fund's industry lost the confidence of the retail investor. This is also because of the dismal performance of the Mutual Funds. Returns by Mutual Funds have been range-bound with returns of 15% - 17% CAGR. Although the market return (BSE Sensex) last ten-year CAGR has been 9.8%.

In this episode of COVID19, it is clear how Indian retail investors took to self-decision in investing. The floored P/E multiples have given the impetus to the investors to take the plunge. The retail investor has seen the "Value Investment" opportunity.

Value Investing

Value investing is associated with Benjamin Graham and David Dodd (1934). The famous disciple odf Benjamin Graham and David Dodd, Warren Buffet is one of the wealthiest equity investors. The value stocks are the stocks often related to the high B/P and E/P. Value investing is considered to be the most sustained investment method (Chan & Lakonishok, 2004). Borrowing from Kok et al. (Kok et al., 2017), value investing has the "*most enduring and popular investment styles"*(Battisti et al., 2019) although their ((Kok et al., 2017) study found little evidence of "Value Investing" in US financial markets. Kok et al. seem to take the motivation to build on from the work of Lakonishok, quoting it as "watershed academic study". Their (Kok et al.) work together with the Lakonishok effectively argue that the initial fifty years of the value investment (1934 onwards) focuses on the ratios of earning and book value to the market price with fundamental analysis. However, later the fundamental analysis part seemed to have been lost, retaining only the ratios. The importance of understanding the financial statements has been a prerequisite for investing. This is especially stressed in their book of "Security Analysis". Benjamin Graham provides that a "*necessary and sufficient"* condition is to apply quantitative and qualitative measures to pick value stocks. This critical part somehow was lost.

Although not empirically evident for motivation, the COVID19 pandemic led the retail investor to be more self-driven investors. An understanding of "value investment" opportunity seems well applied. Such investors who went against the tide of "Greed and Fear" certainly benefited. Most of the financial markets had bounced back to breach the 50,000 level as of 3rd February 2021 in India. Although many studies have shown how this pandemic was more forceful in its impact on the financial markets, researchers compare COVID19 to a closer corollary, the Spanish Flu of 1918-20. (Baker et al., 2020) (Zimmer & Burke, 2009). To the astute investors, this was an opportunity. The very fact that such a considerable retail investment took place in 2020 is not astonishing for the very cost-conscious Indian investor. To quote it through an example: Maruti Suzuki (MSIL), the largest (approximate 50%) car manufacturer, saw the share price going down to Rs. 4011 as of 3rd April 2020. Nevertheless, by 11th January 2021, the share price has almost doubled to Rs. 8232.75.

Is the retail investor who looks logical in understanding the Indian financial markets a value investor? These actions of value Investors of India seem to speak louder through their actions than words. It looks pretty plausible to accept that the Indian retail investor is the "Value investor".

However, striking contrast is the availability of such "Value" investing opportunities in the Indian Financial markets. Today, as more than a third of the financial trading is captured by algorithmic trading, the retail investor face heavily armed machine intelligence trading. Starting in 2008, this section of trading by computer science coders is rapidly changing the scenario. Most debatable, like in other countries, is the fairness of information asymmetry. The data availability at a hyper cost that bigger giant companies can pay is the game changer differentiator. The other impediments facing the retail investors are co-location, dark pools[1] because of Algorithmic machine traders.

This paper tries to find if a simple value investing method—methods that rely on some very understandable principles.

Literature Review

The prominent theories in Finance are CAPM and Markowitz. Nevertheless, as they gained popularity, especially the CAPM Beta, researchers started to test these theories. One such active and older method was value investing. These include the preliminary works of Sanjoy Basu (Basu, 1977) and Banz (BANZ, 1981). Both are tied to find and highlight the worth of simple yet powerful investment methods. The foundation for Value investment, even which is popular even today, was laid down by Benjamin Graham and David Dodd in 1934(Morris, 1996). Another work that is now one of the essential centrepieces of finance research is the Fama-French Model ((FAMA & FRENCH, 1995), which is now extended to the five-factor model. The researchers are actively trying to find the market's extreme anomaly using Fama French factor models and the "Value versus Growth" effectiveness.

The interest in value and growth debate can also be judged from the research in some of the leading Finance and economic journals (ABDC A*&A category journals). (Z. Liu & Wang, 2018)(Frazzini et al., 2018)(Asness et al., 2018)(Penman & Reggiani, 2018)(Chen, 2017)(Sarwar et al., 2017). While the more recent works like that of Chen "*Do Cash Flow of Growth Stocks Grow Faster*"(Chen, 2017) show that growth stocks are not superior to value stocks in creating cash flows. (Penman & Reggiani, 2018) Penman & Reggiani caution the investor for adding B/P (book to price) to E/P (Earnings/Price) to avoid the "Value trap". This, they say, is because B/P metrics can reflect the risk in the price. Stressing similarly on the "Fundamental Analysis" Kok et al. (Kok et al., 2017) point out that in the first fifty years of Benjamin Graham and David Dodd's "Margin of Safety" measure was evaluate in conjunction of "Caution while accepting financial statement figures". The fundamental evaluation of the financial statements slowly became obscure while the ratios remained in use. They further argue that many such "Value Stocks" often have inflated financial statements reflecting through the B/P measure.

In this paper, we fill this gap of adding the fundamental factor using and remembering Graham's advice, "*Future earning power should be analysed carefully based on both qualitative and quantitative measures*". The reason for taking the five-year average of Cash flow hence takes care of this first careful, cautious step ahead in-stock selection. The second fundamental is that the present study also takes care to select only such companies increasing Sales, PBDITA and Cash Profit. The Financial Analyst Journal interview with well-known value investor Seth Klarman gives many insights into a successful investing strategy based on Value Stocks. To assert the same, Warren Buffet can be quoted

"If you aren't willing to own a stock for ten years, don't even think about owning it for ten minutes."

For the adequate holding period return, the Value Investor Klarman (Klarman & Zweig, 2010) reaffirmed that at least ten years of the investment holding period is the reward for a patient investor.

The other series of research papers by Eugene Fama and Kenneth R French (E. F. Fama & French, 1996)(Ensz & Pope, 2003)(E. ugene F. Fama & French, 2010)(Knez & Ready, 1997) have shown that how the value stocks could give better returns than the growth stocks.

The interest in value investing has survived for more than a century now. The new insights are through the simple use of conjoint E/P, B/P, or using more statistical methods like Bird and Gerlach (Bird & Gerlach, 2005) Bayesian model averaging approach U.Kok at el (Kok et al., 2017). A similar work by Isiksal et al. (Isiksal et al., 2019) asserts a combination of value and growth stocks.

The Fama French model's popularity conjoint with "Value vs Growth" has also led to country-specific testing of three to five-factor models. Like for China by Liu(J. Liu et al., 2019). Few other country-specific research as an example can be mentioned as a popular subject of research interest. Research by Kearney, Sonubi use Fama French Model for Irish Stock Exchange (Kearney, 1998)(Sonubi & In Finance, n.d.)(Gregory et al., 2011). International data is use to find good value stock returns by Atanasov and Nitschka (Atanasov & Nitschka, n.d.)

For India, a study by Balakrishnan (Balakrishnan, 2016) for the Indian market found the value stock giving good returns. Similarly, Agarwalla et al. (Agarwalla et al., 2013) four-factor model have been used to find the explanatory power of size and Value in India. The smart beta by Liew and Kholi (*About the Authors — Smart Beta in India documentation*, n.d.)has made India's smart beta, much like the Fama French.

The notable point for the research gap here is that comparing the value investing has been based on E/P, B/P, Dividend yield. None of the research uses the linking factor of earning power with debt and arriving at an integrated model. The method is undertaken "DCV" employs not only the "Value Investing" but takes care of fundamentals through the variables used. The testing and formula used are pretty evident for any reader to utilise the method for their benefit.

Value Investing: Basic Problems.

Value investing is defined as buying high B/P, E/P (Book to price, Earnings to price), Dividend Yield, Cash to Price. In this paper, the method used is based on the logic build by Benjamin Graham in his now most famous work, "Security Analysis" (1934). He has suggested that the

accounting numbers need to be looked at with caution. In this set of advice, we can also use the stocks out of favour by the market. These generally trade at deep discounts to the intrinsic value.

Nevertheless, however, we can overlook the fundamentals of financial statements. Conjoint with the "Deep discount stocks" and fundamentals investment lead to substantial returns. However, there are two problems to address.

a. How to define "Intrinsic Value". The methods used in the Investment Industry are DFC (Discounted cash flows, Multiples, CAPM.
b. What is a "Deep discount". Once we have the comparable Intrinsic Value, how much can be an adequate discount?
c. The business capability to sustain itself for more than at least ten years. A decision that cannot be quantified.

In this research, we address the first two problems by asking a fundamental question

Is there a method of value investing that can help the layman investor combat the machine algorithms? The "Value versus Growth" is equally contested by the research and investment experts. This paper tries to determine if such opportunities can be used by the "naïve investor" to help them battle against the market-driven by Computer program codes.

Debt Capacity Value Method

Benjamin Graham (Security Analysis 1934)

"An equity share representing the entire business cannot be less safe and less valuable than a bond having a claim to only a part thereof."

Benjamin Graham's logic is to find that a company's intrinsic value is based on an earning average of at least ten years. Using this Profit Before Depreciation Interest and Tax Amortisation, it can be worked out how much debt the company can take with due comfort in interest payment. This can be worked out as below: -

Assume that the ten-year PBDITA has been calculated as if the company, apply for a loan. To calculate the loan bank's amount, the company banker will find a comfortable and relatively less risky interest payment. The banker will decide on the appropriate interest coverage ratio. The banker would keep a higher interest coverage ratio for a relatively risky business (Interest coverage of two to five). Based on the interest that the company can easily pay, a risk-adjusted interest rate will be offered. Her Benjamin Graham says that the firm's value cannot be less than this debt; it can raise its earning power. This can be shown with an example.

Let us assume that in no tax regime, a company earns a PBDITA of Rs.100 crores if the bankers want an interesting coverage ratio of four (one-fourth of the PBDITA can be used for interest payments). Let us assume that the interest rate is 10%. The one-fourth of Rs.100 crores is Rs.25 crores. As a conservative assessor of risk, the banker wants to give funds that can be paid even when the earning falls to Rs.25 cr. Benjamin Graham here considers this PBDITA, which we have assumed here as Rs.100 to be the average of the last ten years earnings.

The loan this company can raise will be Rs.250 crores (if Rs.25 crores are the interest for 10% interest, then the loan can be worked out to Rs.250 crores, viz,25/0.10 = Rs250). For this example, value investors consider debt-free companies. If the stock of such a company is trading below the market value of Rs.250 cores, the company can force the markets to reassess its value of stocks. Assume that the company has a market capitalisation of Rs100 crores. The number of ordinary equity shares outstanding is 100,000,000. Per-share, Value is Rs. 10. The company can issue free bonds to the shareholders, amounting to a total of Rs250 crores. One bond per share. This would mean per one share of market value Rs.10, the equity owner can sell the new bond available to him for free, for Rs.25. The market price of the share cannot be Rs.10 if it is attached to a free Rs.25 bond. The new investors can purchase the share for Rs.10, get a bond of Rs.25 and sell in the market for Rs.25. The investor gets a share worth Rs.10 and gets Rs.15 net cash inflow (- Rs10 to purchase one share + Rs.25 sale of one bond). Will the price of the share remain Rs.10.

Data and Methodology

For the methodology of debt capacity (as used by practitioners like Professor Sanjay Bakshi (*Debt Capacity Bargain | piratesofalltrades*, n.d.)) we made certain adjustments to the methods used by practitioners, which we explain in our methodology.

The plan of the paper is as follows:

a. After the data source and use, we show the methodology used.
b. The analysis is done based on the growth rates of the portfolio, which are very evident by CAGR table2
c. Industry and finance theory-based performance methods are used to rate the portfolios
d. Additional Method is used as a final assessment for the portfolio success or failure.

The Data: The data is taken from CMIE data base-Prowess. The yearly data is taken from 2006 to 2019. The data for yearly Sales, PBDITA, Current Assets, Current Liability, Long Term Debt, Market Capitalisation, and Cash Profit is taken. Only Bombay Stock Exchange-listed companies are used.

Methodology: Shares listed on the Bombay Stock Exchange for 7913 companies are used on 31st March 2011. The interest assumed as 15%. (assumed for ease of calculation). Instead of Benjamin graham ten years of PBDITA, cash profit is taken with five years of average. (This we do as not to adjust the interest paid by each company and filter out those companies that may have positive PBDITA but negative Cash Profit. The reason is to find easy metrics for ordinary investors instead of PAT and PBDIAT to arrive at Cash. The calculation of Free Cash Flow for Firm and Equity is more complex than easy. Hence, we take metrics that can be easily used and adjusted to evaluate "Intrinsic Value based on debt capacity". The cash profits are from 1st April 2006 to 31st March 2011. The interest coverage ratio is three times. We also use the working capital available (Working Capital = Current Assets – Current Liability)

The equation hence is

Debt Capacity = (Cash Profit/3)/0.15 + (Current assets – current liabilities) – existing debt.

To keep almost all the companies in our sample, we do not take only zero debt companies but drive the debt as per the equation above. As cash profit is taken, the interest is not adjusted either the tax shield used. Instead of increasing the interest coverage ratio to four or five, we use arbitrary interest rate interest (approximately double of trailing GOI ten year bond yield of 6.29% (*India Government Bond 10Y | 1994-2021 Data | 2022-2023 Forecast | Quote | Chart*, n.d.)). This will lead to a double interest deduction from the Cash Profit. We are making the formula of Debt Capacity very conservative.

Companies trading at a discount is calculated as Debt Capacity / Market Capitalisation. This would mean that values above one are "Value stocks" or debt capacity value (DCV)

Next, in an excel sheet, we ensure only such stocks which have increased following matrices. This ensures the qualitative measure to value stocks.

(i) Sales

(ii) PBDITA

(iii) Cash Profit

On the above basis, the companies are sorted from highest to lowest DCV. All the companies with negative DCV are left out of the sample.

These companies are further sorted to have nonnegative PBDIAT and Cash Profit. The first portfolio is built based on deep discounts of more than DCV of 2. Following the first portfolio, other portfolios are built with less than 2 to 1. After that, the portfolio is formed for every 10% decrease in the DCV.

The Portfolios are classified as below

S. No	Portfolio	Portfolio Criterion	Number of Companies	Total Market Capitalisation As on 31st March 2011
1	DCV > 2	A	192	49272.86
2	1 <DCV < 2	B	350	359747.5
3	0.9 <DCV < 1	C	78	86122.59
4	0.8 <DCV < 0.9	D	96	253617.3
5	0.7 <DCV < 0.8	E	102	188851.4
6	0.6 <DCV < 0.7	F	104	300647.5
7	0.5 <DCV < 0.6	G	151	1057237
8	0.4 <DCV < 0.5	H	159	612175.7
9	0.3 <DCV < 0.4	I	195	5669856
10	0.2 <DCV < 0.3	J	246	5400537
11	0.1 <DCV < 0.2	K	265	10899037
12	DCV < 0.1	L	327	23218114

The portfolios are based on a market capitalisation basis.

On the same basis, the portfolios are made from 2011 to 2015. Each year twelve portfolio (*A to L*), making 60 portfolios in all. The holding period return (HPR) for each portfolio is up to 31st March 2019.

Portfolios A and B (With *DCV > 1*) are the Value Portfolios, while the L & K are the Growth Portfolios. Applying Benjamin Graham's conservative approach, each portfolio is based on growing Sales, PBDITA and Cash Profit. Hence, the portfolios depict the holding period difference (DCV_t….. DCV_{t-5}) as each portfolio stays invested up to 2019. The 2011 portfolio (all twelve) stay invested as "passive investment" for eight years. The portfolio made in 2015 remains invested for only four years. This ensures that the portfolios show the returns of "Value versus Growth" portfolios and the "*Holding Period"* returns.

Analysis and Empirical Result

For the twelve portfolios, each year return is calculated based on the combined market capitalisation.

Portfolio Returns $_t$ = ($MCap_t$ – $MCap_{t-1}$) / $MCap_t$

The above returns table is constructed to find the terminal investment in the year 2019 if initially Rs.100 is invested. Table 1 summarises the returns for all the 60 portfolios and the BSE Index also. The Returns are also calculated in a similar way for the entire universe (Industry) of 7913 companies.

More comparative Table 2 also show the BSE Sensex, the primary market index, Government of India 10 year Bond yields (Risk-Free rate)

Table 1: Summarises the returns for all the 60 portfolios and the BSE Index

Age of Portfolio	A	B	C	D	E	F	G	H	I	J	K	L	BSE
2011-19	319	295	146	109	206	302	178	269	150	125	196	209	267
2012-19	541	371	292	326	297	275	139	114	335	266	223	266	266
2013-19	201	377	316	201	351	161	314	309	218	220	229	238	212
2014-19	166	286	177	121	215	131	201	161	114	200	189	203	195
2015-19	84	125	230	109	59	151	209	87	139	134	129	159	150
Total	1312	1454	1161	866	1128	1020	1040	941	956	945	967	1075	1090

Table 2: : Portfolio Returns Compounded Annual Growth Rate

	A	B	C	D	E	F	G	H	I	J	K	L	BSE
2011	16%	14%	5%	1%	9%	15%	7%	13%	5%	3%	9%	10%	13%
2012	27%	21%	17%	18%	17%	16%	5%	2%	19%	15%	12%	15%	15%
2013	12%	25%	21%	12%	23%	8%	21%	21%	14%	14%	15%	16%	13%
2014	11%	23%	12%	4%	17%	6%	15%	10%	3%	15%	14%	15%	14%
2015	-4%	6%	23%	2%	-12%	11%	20%	-3%	9%	8%	7%	12%	11%

The Portfolio Performance

The performance of the portfolios can be seen in table 1. Value portfolios are Portfolio A and B. As the calculation methodology is very conservative, even portfolio C can also be considered as Value Portfolio. Portfolio C has a DCV between 0.9 to 1 as the Cash profit is taken in the calculation based on the average of the last five years. The Value of Fixed Assets has been ignored.

For the comparative assessment of the best portfolios, we have divided the five rows in the colour codes. The orange rows show the invested period of seven and eight years. Keeping the middle row of six years HPR as with no colour, the lower two rows show holding period of five and four years. Tops 20% portfolios of each row are shown in green highlight, while the bottom 20% portfolio are shown in red highlight. These top and bottom 20% portfolios are shown on a row basis. Each row is the year when the portfolio is built. For example, 2012 is the portfolio built by stock selection in year 2012 (31st March 2012), which is held until the end of 2019. Each row shows twelve portfolios with value and growth portfolios for the holding period from eight to four years.

Result Value stocks give the best performance for the more extended holding period, A &B. These are from 2013 to 2011. (2011, the earliest most portfolio). If we look at the total investment in all the five years of portfolio formation, then the best results are given by Portfolio A & B. The returns of A & B are consistently good with 16% and 20% for A. This signifies that HPR of seven and more years gives good result for deep discount portfolios. Portfolio B gives 21%, 25% and 23% for the HPR of seven, six and five years. The growth portfolios returns are 10%, 15%,16% and 15% for HPR of eight, seven,six and five years.

These are all passive investments. Once invested, we do not monitor the portfolios. We do not drop and replace old companies with new companies. This assumption makes it easy to assess the portfolios from a simple layman point of view. The power of long patient waiting for yields results for the Value Investor. For the median period of HPR between four to six years. The returns vary between portfolios E to G. If we look at the disciplined investment in value stocks from 2011 to 2015 and waiting to get terminal value at the end of the financial year 2019, Value portfolios stand clear winners. This can be seen from the total row in which the two value stocks, A&B, give the highest terminal values.

As discussed above, these results are not analysed from more robust measures used in the industry to find the best performing Mutual Funds. Below section deals with such measures.

Portfolio Performance Measurement.

For the more Industry oriented measure of portfolio assessment, the following methods are used. As there are limitations in these methods, we use a more robust method of M^2 later as a conclusion assessment. The Three most used ratios are

Sharpe Ratio = $(r_p - r_f) / \sigma_p$

Treynor Measure = $(r_p - r_f) / \beta_p$

Jenson Ratios = $r_p - [r_f + \beta_p * (r_m - r_f)]$

Sharpe Ratio (Sharpe, 1994) is known because it shows the portfolio's adjusted return per one unit of total risk measured by its standard deviation. It is considered an easy and effective method for investment analysts to rate Mutual Funds. The Sharpe ratio, better known as the "reward to variability ratio" was introduced by William Sharpe (1966). The simplicity of the measure is still used by most research in portfolio measurement. In a recent paper of finding the effectiveness of the "Dogs of Dow" (Visscher & Filbeck, 2003), Visscher and Filbeck (2019) analysed the portfolio with Sharpe ratio as one of the rating tools.

To measure the portfolio's efficiency, the first test used is the Sharpe Ratio (1966). As the ratio measures the return per unit of risk measured by each portfolio's standard deviation, portfolios can be easily compared. We have used excel conditional formatting to give the colour highlight of green for the top 20% portfolio returns and red for the lower 20%.

The result: The first observation Sharpe Ration does show two extremes. The portfolio "L" the growth portfolio, and the Value portfolios "A and B". For longer HPR also the Value and growth stocks outperform other sets of stocks. However, considering the limitations (refer to Vinod et al.[6]) of the Sharpe Ration to show the absolute risk instead of separating the systematic and unsystematic risk, other ratios are used.

The Treynor ratio adds more value by showing each portfolio's risk-adjusted return per unit of systematic risk "Beta" (Sharpe, 1964). We can find the value stocks performing for the HPR of seven and six years in evaluating the portfolios. The growth stocks for the HPR seven, six and four years show the best results.

Jensens's Ratio: This ratio adjusts the portfolio first by risk (deducts risk-free rates like Sharpe and Treynor) and incorporates the Capital Asset Price Model. Hence giving a superior performance evaluation of the portfolios. The Jensen's' Ratio is in complete favour of the Value stocks.

Table-3: Sharpe Ratio

Portfolio	A	B	C	D	E	F	G	H	I	J	K	L
2011	33.65%	21.57%	-11.47%	-21.25%	4.50%	14.88%	-1.28%	16.79%	-14.19%	-24.05%	4.55%	15.19%
2012	60.61%	50.32%	27.60%	28.86%	19.24%	22.54%	-18.04%	-35.54%	58.55%	38.74%	21.19%	76.76%
2013	18.13%	75.13%	36.03%	13.85%	22.63%	2.58%	55.66%	43.43%	39.46%	34.69%	53.60%	69.18%
2014	5.14%	44.68%	7.38%	-13.99%	28.20%	-16.26%	20.47%	6.23%	-32.03%	34.20%	36.08%	46.27%
2015	-91.47%	-4.91%	23.81%	-20.38%	-71.71%	11.62%	41.22%	-44.97%	4.36%	-1.59%	-10.35%	51.10%

Table-4: Treynor Ratio

Portfolio	A	B	C	D	E	F	G	H	I	J	K	L
2011	-10%	-8%	5%	30%	-2%	-3%	0%	-4%	-9%	26%	-5%	-28%
2012	39%	-491%	-83%	24%	91%	-16%	-13%	-10%	17%	-15%	18%	55%
2013	36%	96%	-245%	6%	-6%	1%	19%	-31%	9%	-35%	-82%	51%
2014	-3%	-14%	-2%	46%	17%	-6%	-67%	25%	-10%	-10%	-18%	-53%
2015	-11%	-1%	30%	-6%	-9%	2%	-41%	-6%	1%	-2%	-2%	8%

Table-5: Jensen's Ratio

Portfolio	A	B	C	D	E	F	G	H	I	J	K	L
2011	11.58%	10.57%	0.27%	-5.74%	5.97%	18.44%	-7.93%	11.20%	-4.36%	-4.13%	1.67%	1.97%
2012	15.77%	12.58%	9.05%	7.36%	7.99%	10.48%	-5.28%	-10.81%	6.27%	9.83%	2.42%	5.96%
2013	3.84%	15.93%	13.64%	0.23%	29.84%	-1.42%	9.25%	15.17%	2.46%	7.21%	7.47%	6.87%
2014	5.67%	20.45%	14.84%	-4.26%	5.29%	-5.96%	6.80%	1.06%	-9.37%	9.47%	6.36%	7.20%
2015	-15.27%	-8.80%	13.92%	-7.98%	-26.71%	-1.63%	13.55%	-16.18%	-1.41%	-0.19%	-2.75%	2.94%

[6] *(Advances in Investment Analysis and Portfolio Management - Google Books, n.d.)*

Addition Performance Measure

The problem with the above methods is that they are not easy to interpret. A similar but much better to interpret methods has been proposed (J. R. Graham & Harvey, 1996) Graham and Harvey (1994). This method, called Modigliani squared or M2, is much easier to interpret. It shows the differential return compared to the Market portfolio (primary Index) like the BSE-Sensex in this paper.

M²: The managed portfolio to be measured for efficiency is assumed to invest some portion of the total investment in government bonds (T-Bills) as risk-free investments. The risk-free investment is increased as a proportion in the total investment until the volatility of the managed portfolio is equal to the volatility of the benchmarks index (market portfolio). If the managed funds' returns are higher than the adjusted portfolio with investment in the risk-free asset, the managed portfolio is efficient (J. Graham & Harvey, 1997) (Zvi Bodie, Alex Kane, Alan J Marcus, 2010). The method adjusts the risk-free rate and the benchmark both.

Using the M^2 the portfolios are measured

Limitations

The study opens the scope for further studies, which can answer many other unanswered questions. Further, these directions of the study can make the Indian market more explanatory for more efficient development. The following are the limitations and scope of further studies.

Data: The data used is yearly. Quarterly data can be more granular in the study. The data used is from 2006 to form the first portfolio in the year 2011. More years, at least from 1992, can explain better the question of ideal HPR.

Interest Rate: The interest rate taken is arbitrarily high, 15%. This can be calibrated further with better refinement to find the attached interest rates based on sectors and type of industry. PBDITA and Cash Profit was not adjusted for the actual interest paid.

Negative DCV: The study did not incorporate the companies with negative DCV. These companies are at the right opposite end of the fulcrum. A strategy could have been used to incorporate the same. Simultaneous investment in value stocks and shorting the negative DCV can also be tested.

Table-6: Portfolio

Portfolio	A	B	C	D	E	F	G	H	I	J	K	L
2011	0.02	0.01	-0.05	-0.07	-0.02	0.01	-0.02	0.00	-0.07	-0.08	-0.04	-0.06
2012	0.05	0.03	0.01	0.01	0.01	0.00	-0.07	-0.10	0.03	0.00	-0.02	0.00
2013	-0.01	0.07	0.03	0.00	0.02	-0.04	0.04	0.03	0.00	0.01	0.01	0.03
2014	-0.01	0.04	-0.01	-0.04	0.01	-0.06	0.00	-0.03	-0.09	0.00	-0.01	0.01
2015	-0.15	-0.02	0.02	-0.04	-0.10	0.00	0.04	-0.07	-0.01	-0.08	-0.05	0.02

The M^2 shows the two basics of value investment (i) longer HPR gives a better result. Both the HPR 2012 & 2011. (ii) Value portfolios give a better return as compared to growth portfolios.

Models and Methodology: The statistical test and more modelling approach can give further insights for a more scientific explanation. As the financial data are fat-tailed, more robust methods can be sued. A simple application of Panel

Table:7: Descriptive Statistics

Portfolios	A	B	C	D	E	F	G	H	I	J	K	L	Industry
Mean	17%	18%	8%	5%	13%	21%	13%	16%	7%	5%	10%	10%	11%
Standard Error	8%	11%	10%	12%	12%	16%	14%	11%	7%	8%	6%	4%	6%
Median	9%	2%	16%	-11%	3%	8%	6%	10%	8%	3%	5%	15%	11%
Standard Deviation	23%	30%	27%	33%	33%	46%	41%	31%	20%	21%	18%	11%	16%
Sample Variance	5%	9%	8%	11%	11%	21%	17%	10%	4%	5%	3%	1%	2%
Kurtosis	-70%	-108%	-107%	-170%	-142%	350%	-36%	304%	69%	-96%	14%	-124%	-108%
Skewness	80%	85%	-63%	67%	55%	177%	87%	161%	78%	9%	92%	-68%	20%
Range	63%	78%	72%	78%	88%	136%	111%	97%	60%	64%	53%	30%	45%
Minimum	-8%	-13%	-33%	-25%	-24%	-14%	-26%	-14%	-16%	-27%	-9%	-7%	-9%
Maximum	55%	66%	39%	53%	64%	122%	85%	83%	44%	37%	44%	23%	36%
Sum	1.392965	1.408474	0.659624	0.412374	1.079191	1.67478	1.06226	1.298164	0.534992	0.380811	0.804707	0.811	0.910
Count	8	8	8	8	8	8	8	8	8	8	8	8.000	8.000
Largest(1)	55%	66%	39%	53%	64%	122%	85%	83%	44%	37%	44%	23%	36%
Smallest(1)	-8%	-13%	-33%	-25%	-24%	-14%	-26%	-14%	-16%	-27%	-9%	-7%	-9%
Confidence Level(95.0%)	0.189716	0.252492	0.229337	0.272101	0.276557	0.384174	0.339763	0.258052	0.16364	0.179006	0.153344	0.092015	0.131

data methods can be used like Fixed and Random Effect. As there can be endogeneity, methods like GMM (Gaussian Moment Models) can be used. Using methods like Vector Error Correction Model (ARDL, NARDL VECM), the macro and microeconomic effects can be seen if they differ set by a set of companies partitioned based on the DCV, E/P, B/P.

The primary factor can be the addition of the DCV to the Fama French model. It can be tested if the model becomes more exploratory.

Conclusion

The most assertive can be that the equal amount invested in 2011 leads to significant returns for A and B's two consecutive portfolios. The use age of the M2 further deciphers the risk and index volatility return which is significant for the Value Portfolio. The simplicity of the investment with good returns but does come at the cost of risk and patients. However, both the virtues of enduring risk and perseverance are essential for long term wealth creation, as seen in the returns of A & B, especially for HPR of more than five years.

The objective of the study is to test the simple, doable methodology for the retinal investor. Hence, this study can help ordinary investors earn a higher return than the market portfolio benchmark (BSE sensex, Nifty). We can compare the returns of Vlaue portfolios to Mutual Fund Returns of 10% to 17 % as given by the Karvy's recent report(*KARVY's Market Review Karvy Investment Insight Fund of The Month Story of The Month SIP Performance Category Average Returns Fixed Deposits Schemes Equity Funds Performance Debt Funds Performance Indices Watch, 2021*).

The retail investor needs first to take the average of Cash Profit (given mostly on websites like screener.com, moneycontrol.com). Divide the cash profit by three as interest coverage ratio. Further, divide such one-third of cash profit by an arbitrary 15%: Benjamin and Sanjay Bakshi advocate taking the zero-debt company. However, the existing debt can be replaced (deducted from the amount arrived above) and add Current Assets less working capital. Lastly, ensure that the sales, PBDITA and Cash Profits are increasing for the last five years. This adds the qualitative part, much like Kok, Petroski, and Graham provide. Next is going long on the investment.

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Annexure 15.1

Submission Date	Submission Id	Word Count	Character Count
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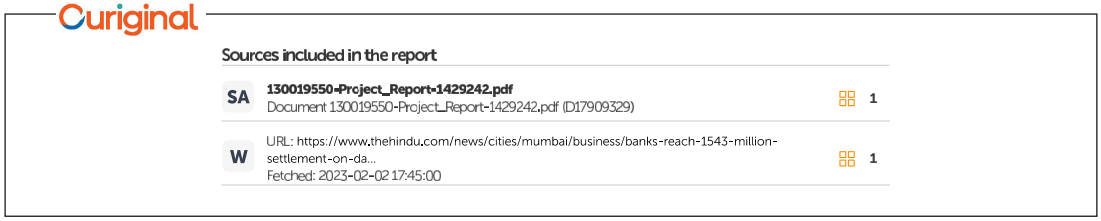

Reviewers Memorandum

Reviewer's Comment 1: The study's goal is to evaluate the straightforward, workable methodology for retail investors. For this on an annual basis, 60 portfolios from 2011 to 2015 are assessed. Every year, a sample is taken using information from 2006 to 2015. Eight to four years make up the holding period under test. In all giving extraordinary results from ordinary methodology. The Value stock portfolio is found to give as much as 27% returns.

Reviewer's Comment 2: It is highlighted that the Fama French factor models and the "Value versus Growth" effectiveness are being used by the researchers in their active hunt for the market's severe anomaly. However the scope of the study is limited as it covers only the companies listed in Bombay Stock Exchange.

Reviewer's Comment 3: The essay looks for straightforward value investment strategies—strategies that are based on very clear ideas. Despite the fact that this subject is a little bit technical, it is presented in a way that makes sense to everyone. The approach is tested in a simple design to see if an investor without formal training in financial engineering may profit from it.

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Conflict of Interest: Author of a Paper had no conflict neither financially nor academically.

Editorial Excerpt

The article has 02% of plagiarism which is the accepted percentage as per the norms and standards of the journal for publication. As per the editorial board's observations and blind reviewers' remarks the paper had some minor revisions which were communicated on a timely basis to the authors (Sanjay, Subodh and Gangwar), and accordingly, all the corrections had been incorporated as and when directed and required to do so. The comments related to this manuscript are noticeably related to the theme "**Debt Capacity and Value Investing**" both subject-wise and research-wise. The Fama-French factor models or net current assets have often been employed in research on value investing. However, there hasn't been much attention paid to the study or testing of alternative value investing strategies. The current research closes this gap by conducting a value investigation of the method's original guru, Benjamin Graham. After comprehensive reviews and the editorial board's remarks, the manuscript has been categorized and decided to publish under the "**Empirical Research Paper**" category.

Acknowledgement

The acknowledgment section is an essential part of all academic research papers. It provides appropriate recognition to all contributors for their hard work and effort taken while writing a paper. The data presented and analyzed in this paper by (Sanjay, Subodh and Gangwar) were collected first handily and wherever it has been taken the proper acknowledgment and endorsement depicts. The authors are highly indebted to others who facilitated accomplishing the research. Last but not least, endorse all reviewers and editors of GJEIS in publishing in the present issue.

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