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Is The Intelligent Investor Really Intelligent?

- An Ex-Ante Empirical Performance Analysis of The Value Investing Philosophy

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ABSTRACT

This study performs an ex-ante empirical analysis of a value investment strategy based on the teachings of Benjamin Graham, widely acclaimed as the originator of the value investing philosophy. Specifically, we investigate whether two comparable mechanical screening approaches of selecting U.S. listed stocks and subsequently form equity portfolios has added any value to the individual investor over the time period of 1974-2010. The results show that one of the approaches has yielded statistically significant abnormal returns over the market during the time period, gross, as well as net, of costs. Additionally, the performance of the portfolios are benchmarked against large samples of mutual funds with similar investment objective, where it can be concluded that the individual investor would be better off following the outlined mechanical strategy than investing in the average mutual fund.

Keywords: Value Investing, Fundamental Analysis, Benjamin Graham, Ex-Ante Test, Individual Investor

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I. Introduction

1. Background

The concept of efficient markets has gained plenty of attention in academia over the last decades; in an efficient capital market, no investment strategy should earn sustainable abnormal returns above the market. This implies that when trading in the market, on average net of transaction costs, the dollar return of an active strategy must be less than the dollar return of a passive strategy, what Sharpe (1991) labeled the “arithmetic of active management”. That is however not equivalent to saying that the benefit of active management is non-existent on the individual investor level, providing economic reason for investment professionals to continuously look for, and exploit, strategies to “beat the market”, which has led the field of investing to span a variety of approaches, each one with distinctive characteristics. This paper present and explain such a strategy.

The value-growth factor of Fama and French (1992) was one of the most remarkable inconsistencies to market efficiency and confirmed the notion of the value investing philosophy. This school of thought, developed by Professors Benjamin Graham, widely acclaimed as the father of fundamental analysis, and David Dodd at Columbia Business School and outlined in their book “Security Analysis” (1934), and later clarified in the book “The Intelligent Investor” by Graham (1973), have long opposed the efficient market hypothesis. The value investing philosophy relies on a selective approach of stock picking; analyzing company fundamentals to identify underpriced corporate stocks. Value investors place great effort in analyzing financial statements of companies in order to extract “hidden” financial and business values that others may have neglected or overlooked. This contradicts the efficient market hypothesis in the sense that all available relevant information should already be reflected in the security prices, ruling out the possibility of observing any under- or overpriced securities.

Although the value-growth factor has been recognized by academia, research just recently begun to investigate this effect in-depth by fundamental analysis models. The methodology in this study, of sorting out stocks that pass specific value investing criteria provides a possibility for the average citizen with no or little financial education to increase the sophistication of her investment activities. Financial decisions, however, revolve around numerous other complex parameters, impeding optimal decision-making for non-sophisticated investors. For example, the average citizen is facing the choice of allocating her wealth to the stock market through direct investments in stocks, or outsource the investment decisions to a third party business, such as the mutual fund industry. Another consideration is the timing of the investments, which has significant implications for the dollar return. The business cycle is another parameter that affects the investment decisions; rational investors desire a smooth consumption stream, implying that savings and investments should be cyclical in order to smooth consumption. Lastly, the degree of market efficiency also determines the possibility of discover mispriced securities. Due to the complexity of the considerations faced by the individual investor, this study seeks to provide a comprehensive evaluation of the value investing philosophy in the framework of the parameters affecting decision-making of both sophisticated and non-sophisticated investors.

The aim of this study is to perform empirical ex-ante tests of the proposition of value investing. Graham (1973) presented quantitative financial criteria for companies to fulfill in order to be of investment grade. Using a mechanical screening approach, this study discriminate companies, to construct portfolios of stocks passing specific outlined criteria, and analyze ex-ante performance in relation to established asset pricing models, which also implies that the study indirectly examines the efficient market hypothesis. In addition, the portfolios will be analyzed and compared to fictive mutual funds in the value segment to examine by which approach the individual investor would benefit the most. Should the investor allocate her wealth to the mutual funds run by financial experts or can she as well follow a simple rule-based screening approach to detect stocks that are deemed worth to invest in and create her own portfolio? This paper thus updates and expands the paper of Oppenheimer and Schlarbaum (1981), their tests however, were done considering only a proxy for the market portfolio and a zero-beta portfolio. This study expand their analysis by investigating the performance over time and business cycles, comparing the performance of the mechanical value investing approach versus that of mutual funds employing value investing, and provide an in-depth analysis of the economics of the portfolio returns.

2. Previous Research

1. Value Investment Research

The only close resemblance to this paper is Oppenheimer and Schlarbaum (1981), but also Piotroski (2001) conduct a similar investigation. Oppenheimer and Schlarbaum (1981) found that portfolios created with screening criteria indeed produced superior excess risk-adjusted returns (2-2.5% net of costs per year) between December 1955 and December 1975. They concluded that they found strong contradictory evidence against semi-strong market efficiency. Piotroski (2001) used an accounting-based fundamental analysis approach to separate financially strong and weak stocks in a value portfolio to shift the distribution of returns and increased the mean return by 7.5% on an annual basis. This is a similar approach to this paper, where multiple accounting-based criteria are used to identify financially strong "value stocks" in the equity market.

This paper is an extended test of the commonly known value factor of Fama and French (1992), therefore it is interesting to investigate previous literature along this line. Prior research have tested the value-growth factor and found that value stocks (low price in relation to some accounting figure) outperform growth stocks (high price in relation to some accounting figure), measuring performance with commonly known ratios such as price-earning, price-book or cash flow-price, see for example Basu (1977), Dreman (1977), Rosenberg, Reid and Lanstein (1985), Jaffe, Keim and Westerfield (1989), Chan, Hamao and Lakonishok (1991), and Fama and French (1992).

Fama and French argued that, based on rational pricing, value stocks are prone to a financial distress factor outside the market risk factor. A high book-to-market factor signals lower profitability and earnings, which puts pressure on market prices for these firms making them relatively depressed, whereas low book-to-market factor signifies high return on invested capital (Fama and French, 1995). This argument is supported by the relatively low return on equity for value firms (Fama and French, 1995 and Penman, 1991) and the overall stronger relation between high book-to-market and financial leverage (Chen and Zhang, 1998).

A second interpretation of the value-growth return disparity is security mispricing that causes a return differential between value and growth stocks. Value stocks tend to reflect a pessimistic consensus among market agents, who in turn often neglect the stocks that they believe to have poor prior performance, which they infer to the future. This leads to a formation of views that are too pessimistic of future expected performance (Lakonishok, Shleifer, and Vishny, 1994).

Despite that the evidence suggests higher return for this strategy, analysts in the industry do not tend to recommend the strategy in buy/sell recommendations (Stickel, 2007). Piotroski (2001) suggested that when looking at individual stocks, the typical firm may underperform the market and analysts calculate that for the strategy to work, it needs to be aggregated in purchasing a large portfolio of high book-to-market firms, requiring high capital outlays. In addition, as noted by Koch (1999) and Miller and Piotroski (2000), certain value firms have more difficulty in communicating business forecasts to capital market investors due to the risk of distress, therefore creating a bias in comparison with growth stocks. Explanations have been put forth where the credibility of value firm management is not as high as for managers in glamour firms. Particularly, analysts have shown less interest in stocks that can be labeled obscure and have more difficulty in signaling its true value. This is because of poor past performance, low trading volume, or small size (Hayes, 1998 and McNichols and O'Brien, 1997).

When considering the merit of investigating the particular philosophy of value investing and whether the strategy gives risk-adjusted excess returns, it may at first glance appear that it should be explained by the above stated value-growth factor in particular. However, as Piotroski (2001) demonstrated, the success of the value factor relies mainly on a few "stars" whereas on the downside, many other companies in the value segment perform poorly. Only 44% of the stocks in his sample yielded positive market-adjusted returns following portfolio inclusion, therefore discrimination ex-ante between strong and weak stocks in the value segment of firms may enhance portfolio performance.

Bartov and Kim (2004) also used a modified book-to-market factor to find mispriced securities in the market. Their proposition was that the superior return of the book-to-market strategy that represent mispricing should be improved by excluding "fairly" valued stocks that have extreme book-to-market values. Essentially, their tests, and the tests performed in this study boils down to making the value-growth factor *sharper*. In order to distinguish whether value outperform growth due to risk or mispricing, they showed with a joint test of stocks on book-to-market and accounting accruals that this new portfolio generated substantially higher returns with no indication of increased risk compared to the original book-to-market portfolio alone.

2. Fundamental Analysis Research

Fundamental analysis investing and value investing are not equalities, rather it is easier to think of value investing as a particular field of fundamental analysis investing. Stock prices should reflect companies’ ability to produce future earnings and for an investor to take advantage of this, two premises should be fulfilled; first, financial statements should inform about future performance and, second, the market should underreact, at least in the short-run, to changes in this information such that the firm is undervalued. (Graham and Dodd, 1934)

One approach that has been studied in this area is to examine stocks whose returns are lagged functions of fundamental values. Thereby, undervaluation and overvaluation is estimated from analysts’ earnings forecasts together with an accounting based model. This strategy proved successful in creating positive returns in the medium and long run (Frankel and Lee, 1998). La Porta (1996) and Dechow and Sloan (1997) established in a similar fashion that the success of a contrarian investment strategy partly lies in systematic forecasting errors by market participants about long-term earnings growth.

In addition, communicatory explanations have been put forth where firm communication to investors essentially reflect a form of signaling from the firm to the market, where the firm (or agents of the firm) tries to display its financial performance and forecast in a concise manner to investors. In this aspect, the abnormal return is not derived from a market equilibrium standpoint where market risk and return characteristics are analyzed. Instead, abnormal returns come from the behavioral side where analysts are unable to fully process the information contained in the signals. In a broad sense, it is possible to forecast future earnings by aggregating many information signals based on firms’ financial statements (Ou and Penman, 1989a and Holthausen and Larcker, 1992). These models have shown to be rather complex and Lev and Thiagarajan (1993) proposed a method of using 12 financial signals that are correlated with contemporaneous returns after controlling for current earning innovations, size and macroeconomic conditions. Abarbanell and Bushee (1997) used the same financial signals to successfully predict future earnings changes and analysts’ revisions.

Abarbanell and Bushee (1998) used fundamental operating multiples to detect companies producing abnormal returns. They found that their operating measures earn 12-month cumulative abnormal returns of 13.2% and that they can produce signals about future returns which are consistent with a focus on fundamental analysis. Interestingly, the abnormal returns found in the study indicates that they are related to 12-month ahead earning changes, are not persistent further into two years ahead, are concentrated around upcoming quarterly earnings announcements and are unaffected by the Fama and French (1992) factors. Ou and Penman (1989a) found that using accounting ratios related to leverage, activity and profitability could predict the sign of future changes in earnings per share and could produce significant abnormal returns. One criticism of their approach was put forth by Abarbanell and Bushee (1998), who argued that too many criteria were used and with lack of economic arguments for their usage.

3. Fund Management Research

An important task in the studies of the fund management industry is to distinguish whether funds produce abnormal returns by luck or skill. As French (2008) pointed out, active fund management is a zero-sum game, which means that on the aggregate, positive alphas in some funds are at the expense of other actively managed funds, so on average both actively and passively managed alphas are zero. Sharpe (1966) showed early on that fund fees constitute a large part in differences in cross-section returns of mutual funds.

Carhart (1997) showed that momentum effects are temporary and he further indicated that performance depends on the way funds are ranked. The difference in fund performance is largely attributed to variations in costs, the higher fund costs the lower is the net reward to the investor. A number of studies showed that there is persistence in one to three years and attribute the findings to the “hot hands phenomenon”, that investors bet too heavily on past winners (Hendricks, Patel and Zeckhauser, 1993, Goetzmann and Ibbotson, 1994, Brown and Goetzmann, 1995, and Wermers, 1996). Other studies showed that persistence on the other hand exist in the longer term of five to ten years which would indicate a certain amount of skill or informational advantages (Grinblatt and Titman, 1992, Elton, Gruber, Das, and Hlavka, 1993, and Elton, Gruber, Das, and Blake, 1996). A number of studies noted that on average net of costs, alphas are negative (Jensen, 1968, Elton et al., 1993, and Carhart, 1997).

Gil-Bazo and Ruiz-Verdu (2006) investigated the relation between fee structure and before-fee performance of mutual funds and found a negative relation, which suggests that funds with higher fees have worse gross returns in the cross-section and low-fees funds perform better. In a perfect market, there should be a one-on-one positive relation so that net of fees, all funds perform equally well. Gruber (1996) unravel another finding namely that investors purchase actively managed funds, despite that they on average have worse risk-adjusted net returns than index funds.

3. Purpose

1. Motivation

As both investment professionals and academics try to understand the financial markets, one important area is to find out what the drivers of return are. Although, the value-growth channel has been extensively researched, a key aspect in this segment is that the research has just started delving more deeply into the fundamentals to find what the underlying drivers are, and it appears that discriminating between stocks in the value context is worthwhile. The objective of this paper is to examine one such approach to determine its potential for a hypothetical individual investor and the study also aims to provide a deeper understanding in this context, thereby substantiating the growing body of literature in this area.

What differentiates this study, is the specific approach of applying Graham's (1973) own advocated criteria, to measure portfolio performance, which has not been done prior to this paper, except for in Oppenheimer and Schlarbaum (1981), whom however modified the Graham (1973) criteria. Another important differentiation of this paper is that, whereas common practice is to provide an ex-post investigation of a research question, this paper on the contrary gives an *ex-ante* position to the research question. This is important as individual investors had the possibility of using the documented knowledge in their investment decisions during this time period. In the broader context, this is an indirect test of market efficiency, in particular the semi-strong efficiency hypothesis. The paper examines whether all relevant and publicly available information are priced into securities in a rapid and unbiased fashion.

To complete the above postulation; we investigate performance over time, during business cycles and in comparison to mutual funds with similar investment philosophy. This gives a broader analysis of the performance of this investment strategy. In addition, the study will also delve into the question whether or not this kind of value investing approach add value to the investor or just load additional risk. Therefore the questions asked in this study are:

Would the investment strategy yield abnormal returns over the market?

What are the main drivers of the portfolios' return?

Has the investment strategy provided intact returns over time and over business cycles?

Should the individual investor invest her wealth in mutual funds employing value investing or could she earn an equivalent return by following Graham's (1973) investment approach?

2. Hypotheses

I. H_0: The Graham and Oppenheimer portfolios do not earn statistically significant abnormal returns in relation to the market.

   H_A: The Graham and Oppenheimer portfolios do earn statistically significant abnormal returns in relation to the market.

II. H_0: There is no persistence in Graham and Oppenheimer portfolio abnormal returns over time in relation to the market.

   H_A: There is persistence in Graham and Oppenheimer portfolio abnormal returns over time in relation to the market.

III. H_0: The Graham and Oppenheimer portfolios do not earn statistically significant abnormal returns in relation to the market during recessionary periods.

   H_A: The Graham and Oppenheimer portfolios do earn statistically significant abnormal returns in relation to the market during recessionary periods.

IV. H_0: There is no difference between Graham and Oppenheimer portfolios and mutual funds abnormal returns in relation to the market.

   H_A: There is difference between Graham and Oppenheimer portfolios and mutual funds abnormal returns in relation to the market.

3. Delimitations

Firstly, this study takes on a mechanical screening approach, considering only companies passing certain criteria, which are based on valuation multiples, accounting data et cetera. As a consequence, there may be high-rewarding companies outside the sample analyzed in this study, based on some similar criteria than those used here. Secondly, "soft" factors, for example corporate strategy, business management tenets or company culture, are only considered to the extent that companies engaged in raw material extraction and financial services are per default excluded from the investment universe, following an intrinsic part of the Graham (1973) philosophy (discussed below). Furthermore, only the stock market and portfolios conformed on common stocks are of interest in this study, which is a delimitation with respect to Graham and Dodd's (1934) and Graham's (1973) teachings of value investing, as they also proposed investments in bonds. This is however mitigated by the fact that Graham (1973) noted that common stocks offer two advantages to the investor; stocks offer a greater degree of protection against inflation and also yield higher average return over time.

4. Disposition

The thesis is structured as follows; the next chapter introduce concepts and theories relevant for the areas intended to investigate; reviewing value investing in particular, and briefly discussing the efficient market hypothesis and behavioral finance. Chapter three describes the collection and treatment of data along with an account for the method used in the study as well as econometric and statistical tests performed. Chapter four displays the empirical results and undertakes an economic analysis as well as a discussion of the empirical findings in relation to other studies. Chapter five briefly summarizes the study and outlines the main conclusions in correspondence to the research questions postulated above, and in addition, a presentation of possible future research areas within this field is outlined.

II. Theoretical Framework

1. Value Investing

Value investing usually starts with three fundamental assumptions; firstly, the market is primarily driven by people and thus determined (to some extent) by psychological biases, meaning that the market has impetuous and irregular movements. Although market prices of companies are volatile, there are firm-specific fundamental values that are stable over time, and can be assessed with reasonable accuracy. Therefore, the argument goes that the intrinsic value need *not* equal the market price of a company at any given time as volatility of prices are larger than that of fundamental values. Lastly, it is only reasonable to purchase securities whose prices lie considerably lower than the intrinsic value, in order to have large upside potential which provides a "margin of safety" for miscalculations of the intrinsic value. (Graham and Dodd, 1934)

With the basis of these assumptions, the strategy of the value investor is to analyze information of specific companies such as financial statements, in order to find mispriced securities. A mispriced security is a claim on the firm whose price is detached from its fundamental value. The security can be overpriced or underpriced in relation to its fundamental value. Since numerous analysts screen the market for investment opportunities, mispriced securities are most easily and readily found in obscure companies, e.g. firms that are small cap, spin-offs, have lately been in financial distress, exhibit low growth, and in general are less covered by analysts. (Greenwald, Kahn, Sonkin, and Biema, 2004)

Graham (1973) favored a strategy for *defensive* investors, whereby finding mispriced securities that over time could rebound, in combination with relatively low riskiness. Defensive investors are "individuals without the time expertise or the temperament for aggressive investment". This defensive investor should in general have a passive approach, why certain investment criteria would be suitable. In addition the concerns of this kind of an investor would be "safety of principal" and "freedom from bother", where the former refers to protection of wealth and latter to freedom from being forced to spend excessive amounts of time on portfolio management. (Graham, 1973)

Value investing place great importance on the analysis of fundamental information and financial statements in determining the intrinsic value of companies. This necessitates reliance on past and present information to accurately and fully reflect the value of the investment. Conventional theory of valuation states that value is derived from the discounted expected future earnings or cash distributions of an investment, not past information. Although the value investing philosophy acknowledge this to be the theoretically correct approach, the difficulty of assessing future values leads to estimation errors, making the valuation in practice unreliable. Greenwald et al. (2004) provide an argument as to why past and present information is used instead of discounting future information when discriminating between companies that are included in the value portfolio. They argue that when analyzing companies, there are informational differences to take into account. Reliable information typically reflects past and present data realizations since it is *fully accurate*, whereas future anticipated statistics need information that is necessarily of worse quality, as it contain estimation errors. Therefore, when analyzing companies, one forms a more accurate picture when analyzing current and past information as opposed to discounting subjective beliefs of future performance. Note that solid past performance does not translate to solid future performance, however companies with a strong track record may be an indication of a well-managed company, doing the right things to maintain competitiveness in the future.

Bearing in mind that the conventional present value formula is not used, company intrinsic value has three sources; net asset value (NAV), earnings power value and growth value. The net asset value is the sum of all assets (tangibles and intangibles) of the firm minus all liabilities that currently exist, with proper adjustments. Depending on the position of the firm in the business life cycle and the type of assets held, asset values are adjusted using different principles, i.e. reproduction cost versus liquidation value. In a perfect market, the NAV to market value relation would be a signal to agents; if the company's market value exceeds NAV, competitors would enter by purchasing similar assets at reproduction cost and take advantage of the market surplus. As this tendency increase supply-side agents, whereas market demand remain constant, prices will fall or sales of the individual company decrease, leading to lower profits and decreasing market values. The process will continue until the market values have been driven down to the NAVs. (Graham and Dodd, 1934 and Greenwald et al., 2004)

The earnings power value (EPV) is properly adjusted current earnings discounted at weighted average cost of capital (WACC) with zero growth (see Equation 1). This figure gives a more reliable estimate than future earnings and is a more relevant figure than historic earnings. The assumptions required for using EPV in valuation are that; current earnings resemble sustainable levels of distributable cash flows and these levels remain constant into the future.

The figure requires solely current information and is conservative in estimate due to the non-growth factor. The relation between EPV and NAV is based on the relation between return on invested capital (ROIC) and WACC, indicating the competitive environment of company's markets and providing a signal of the firm's strategy and management abilities. If EPV is less than asset value, the management is not using the assets of the firm in a manner to produce the normative level of earnings, i.e. ROIC is less than WACC or the market in aggregate is operating at excess capacity, which means it is larger than sustainable. Should the figures equal, it is a sign of a competitive market with no competitive advantages. (Graham and Dodd, 1934 and Greenwald et al., 2004)

$$EPV_t = \frac{Earnings\ (adjusted)_t}{WACC_t} \tag{1}$$

The no-growth principle is applied here as growth (G) by itself is meaningless in a competitive market with a level playing field, and no barriers to entry; any returns derived from potential growth is just consumed by the cost of acquiring the assets required to reach that potential. When EPV exceeds NAV (labeled franchise), the company has a competitive advantage in the market which is synonymous to barriers to entry (i.e. intellectual property, economies of scale, large fixed-asset investments) and as a consequence can earn rent that newcomers cannot and the sustainability of the rent depends on the continuance of the barriers to entry. This competitive advantage is what allows the investor to incorporate calculations of growth in earnings, as this growth is *value-generating* to the business, i.e. because of competitive advantages, the firm growth earns ROIC above required WACC. Note that since growth is an inherently uncertain measure, the value investing philosophy place low weight on this last element. In summation, the intrinsic value is the sum of net asset value, plus the actual discrepancy between EPV and NAV (i.e. size of franchise), plus the growth of franchise (see Equation 2). (Graham and Dodd, 1934 and Greenwald et al., 2004)

$$Intrinsic\ Value_t = NAV_t + (EPV - NAV)_t + \frac{(ROIC_t - G)}{(WACC_t - G)}(EPV - NAV)_t \tag{2}$$

Graham (1973) advocate that the investment portfolio should *not* be excessively diversified. Firstly, with fewer securities included, it is easier to keep track on each individual security and its risk (Graham, 1973), secondly Evans and Archer (1968) concluded by empirical tests that diversification benefits are a "rapidly decreasing asymptotic function" meaning that portfolio overall risk only decreases marginally beyond a certain number of stocks which they identified as being “10 or so securities”. Thirdly, the benefit of the general methodology to selecting “large, prominent and conservative” companies to the portfolio, add reliance to a defensive investor that no equivocal stocks are included, of which a large-sized portfolio suffer a greater risk. However, caution should be exercised as it can also be argued the other way around, that the danger of limited diversification benefits from selecting stocks that have been sorted on the same foundational basis may exceed the reliance benefit factor (Goetzmann and Kumar, 2005). Lastly, as value investors oppose the efficient market hypothesis, excessive diversification is undesirable as it becomes too correlated with the market, meaning that the benefit of the value investing purpose of finding mispriced securities goes lost (Greenwald et al., 2004).

The value investment definition of risk neither correspond to the conventional description of risk. According to value investing philosophy, investment risk involve performance of a security over time that is below the expected rate of return or where dividend stream does not meet expectation. Therefore risk is not necessarily related to a price decline per se, should the decline be cyclical or temporary or the investor not being liquidity-constrained so as she is not forced to sell below “par”. Therefore, the concept of risk encompass only the probability of realizing loss of capital through sale or deterioration of company position, a dividend payment stream below expectation or a price paid for the security in excess of intrinsic value. Mere price fluctuations over time normally do not constitute a risk in the value investing sense. (Graham, 1973)

The investor should instead look at the opportunities price fluctuations present. Graham (1973) argues that the defensive investor should focus her effort on identifying stocks traded at bargain prices (not justified by its value) as a result of less confidence in the market and not just purchasing stocks whose course is deemed to move upwards, a practice not drawn from fundamental values and analysis.

The purpose of the passive screening criteria is to provide a simple fundament to identify undervalued, low-risk stocks. In the screening approach, relative values are used and therefore it tend to ignore inherent risks with an investment such as cash distributions, liquidity and scale of investment. Consequently, a particularly important concept in value investing is the term “margin of safety”, which refers to the distance between the current (lower) price and the identified (higher) intrinsic value. The larger the margin of safety, the more attractive the investment. The concept is important in value investing, as it is difficult to accurately identify the true intrinsic value, thus the margin of safety acts as a buffer against miscalculations in the assessment of intrinsic value. It is argued that any mispricing will correct over time as the market recognize the mispricing and adjusts the price to reflect the value, therefore a price below the intrinsic value is expected to generate superior long-term returns. Depending on level of market efficiency, the time before the market recognizes the company's true value varies, wherefore the value investor in general should pay attention to the development of her investments to detect when the market price and true value has reached convergence. (Graham and Dodd, 1934)

The search for investment-grade stocks are guided by two premises; the search for quality and quantity in past performance, current business position, as well as financial strength. The criteria are therefore focused towards finding companies with limited riskiness in terms of company leverage, solvency, and size (criteria one through three for Industrials, and one and two for Public Utilities (Table 1 and Table 2)) (criteria one and two for Oppenheimer (Table 3 and Table 4)) but at the same time, firms should have proven satisfactory returns in terms of earnings and dividend payments (criteria four through six for Industrials, and three through five for Public Utilities (Table 1 and Table 2)) (criteria three for Oppenheimer (Table 3 and Table 4)). In addition, the companies passing the risk and return criteria should be bought only if the market valuation is lower than the company's intrinsic value, where the price/earnings-ratio (P/E-ratio) and price/book value-ratio (P/BV-ratio) are applied as proxies. These requirements will eliminate companies that are (i) small, (ii) in weak financial condition, (iii) have volatile earnings in their recent history (for Graham), and (iv) have not paid continuous dividends during the last ten years. Satisfying these broad elements, the investor can be relatively confident that the investment would survive downturns while providing an adequate return over the longer term. (Graham and Dodd, 1934, Graham, 1973, and Oppenheimer and Schlarbaum, 1981)

1. The Graham Portfolio

Table 1 – The Graham (1973) criteria for Industrial companies to be of investment grade. Criteria 1 is adjusted for GDP-development over the sample period. See Graham (1973), chapter 14.

No.	**Description of criteria**	**Equation**
1	Not less than $1000 million ($100 million in 1973) of annual sales	$Annual\ Sales_t \geq \$1\ 000\ Millions$
2	Current ratio greater than 2	$\frac{Current\ Assets_t}{Current\ Liabilities_t} > 2$
3	Long-term debt should not exceed net current assets	$Long - Term\ Debt_t \leq Net\ Working\ Capital_t$
4	No earnings deficit in each of the past ten years	$EPS_{t-10,t} > 0$
5	Uninterrupted dividend payments for the past 10 years (p 115)	$Dividend\ Payments_{t-10,t} > 0$
6	A minimum increase of at least one third in per share earnings in the past ten years using three-year averages in the beginning and end	$\frac{\left[\frac{(\sum_{i=t}^{t-3} EPS_t)}{3}\right]}{\left[\frac{(\sum_{i=t-9}^{t-12} EPS_t)}{3}\right]} - 1 \geq 1/3$
7	The product of the multiplier times the ratio of price to book value should not exceed 22.5 (condensed criteria for P/E and P/BV)	$(P_t/EPS_t) \times (P_t/BV_t) \leq 22.5$

Table 2 - The Graham (1973) criteria for Public Utility companies to be of investment grade. Criteria 1 is adjusted for GDP-development over the sample period. See Graham (1973), chapter 14.

No.	**Description of criteria**	**Equation**
1	Not less than $500 million ($50 million in 1973) of total assets	$Total\ Assets_t \geq \$500\ Millions$
2	Long-term debt should not exceed twice the stock equity (at book value)	$Long - Term\ Debt_t \leq 2 \times BV_t$
3	No earnings deficit in each of the past ten years	$EPS_{t-10,t} > 0$
4	Uninterrupted dividend payments for the past 10 years	$Dividend\ Payments_{t-10,t} > 0$
5	A minimum increase of at least one third in per share earnings in the past ten years using three-year averages in the beginning and end	$\frac{\left[\frac{(\sum_{i=t}^{t-3} EPS_i)}{3}\right]}{\left[\frac{(\sum_{i=t-9}^{t-11} EPS_i)}{3}\right]} - 1 \geq 1/3$
6	The product of the multiplier times the ratio of price to book value should not exceed 22.5 (condensed criteria for P/E and P/BV)	$(P_t/EPS_t) \times (P_t/BV_t) \leq 22.5$

The Graham (1973) approach is to discriminate companies passing seven criteria if being an industrial company and six criteria for public utility companies, to be worthy of inclusion in the investment portfolio. The criteria for Industrials outlined by Graham (1973) are given in Table 1. For Public Utilities, Graham (1973) advocates a slightly different set of criteria (Table 2), omitting the current ratio requirement and proposes a different leverage measure that puts the companies' long-term debt in relation to its stock equity. In addition, the size measure for Public Utilities is based on total assets rather than sales. Graham (1973) motivates separate set of criteria for Industrials and Public Utilities by the fact that financing needs of a Public Utility typically differ in that they continuously finance their growth by sales of bonds and shares, which reduces the need for positive working capital thus omitting the second criteria. Although not being explicit about the exact reason for proposing total assets as the prevalent size measure for Public Utilities, a reasonable explanation would be that total assets is the most comparable measure since every Public Utility, holding a fixed set of property, plant and equipment, can generate different amount of sales due to local regulation and subsidies creating incomparability if using sales as the size measure.

2. The Oppenheimer And Schlarbaum Portfolio

Another approach to identify value companies is outlined in Oppenheimer and Schlarbaum (1981), where they proxy a portfolio based on the advice of Graham (1973) by applying a slightly different set of criteria (Table 3 for Industrials and Table 4 for Public Utilities). In this approach we replicate their methodology, in order to determine if these two approaches are equivalent. The approach resembles a simplified version of the Graham (1973) approach, omitting the working capital requirement as well the earnings requirements of Graham (1973) for both Industrials and Public Utilities. The leverage and valuation multiples measures are also more relaxed in comparison. Focus is however maintained at identifying the relatively large companies that are conservatively financed, continuously pay dividends, and trade below their intrinsic value, proxied by the P/E-ratio.

Table 3 - The Oppenheimer and Schlarbaum (1981) criteria for Industrial companies to be of investment grade. Criteria 2 is adjusted for GDP-development over the sample period.

No.	**Description of criteria**	**Equation**
1	Not less than $500 million in annual sales and be in upper 1/3 of its industry in size	$Annual\ Sales_t \geq \$500\ Millions$
2	Equity (at book value) at least 50% of total assets	$Equity_t \geq 50\% \times Total\ Assets_t$
3	Uninterrupted dividend payments for the past 10 years	$Dividend\ Payments_{t-10,t} > 0$
4	Price not to exceed 25 times average earnings of past seven years	$Price_t \leq 25 \times \frac{(\sum_{i=t}^{t-6} EPS_i)}{7}$
5	Price not to exceed 20 times earnings of latest twelve-month period	$Price_t \leq 20 \times EPS_t$

Table 4 - The Oppenheimer and Schlarbaum (1981) criteria for Public Utility companies to be of investment grade. Criteria 2 is adjusted for GDP-development over the sample period.

No.	**Description of criteria**	**Equation**
1	$500 million in total assets and be in upper 1/4 of its industry in size	$Total\ Assets_t \geq \$500\ Millions$
2	Equity (at book value) at least 30% of total assets	$Equity_t \geq 30\% \times Total\ Assets_t$
3	Uninterrupted dividend payments for the past 10 years	$Dividend\ Payments_{t-10,t} > 0$
4	Price not to exceed 25 times average earnings of past seven years	$Price_t \leq 25 \times \frac{(\sum_{i=t}^{t-6} EPS_i)}{7}$
5	Price not to exceed 20 times earnings of latest twelve-month period	$Price_t \leq 20 \times EPS_t$

2. Market Efficiency

The concept of market efficiency is derived from the connectivity of the financial markets and the real economy. The role of the financial market is to apportion resources and ownership to agents in the real economy; in an idealized world, market prices should provide correct signals to facilitate firms' production decisions and investors' choices on investment activities. An efficient market is commonly defined as "a market in which prices always fully reflect available information". (Fama, 1970)

When determining market efficiency, an asset pricing model is needed, in order to conclude whether prices indeed can be predicted in the data, and an information set needs to be specified to conclude the level of market efficiency. This means that the expected return, in equilibrium given the information set used, would be determined by the theory used to describe the return process, for example CAPM. Therefore, in an efficient market, the only way one can increase returns is to increase risk, otherwise higher returns without higher risk is considered an anomaly. (Fama, 1970)

In perfect capital markets, where transactions and information acquiring are costless, and the market is conformed by rational agents, the market is efficient. In reality, these assumptions are not met, however, they do not need to be met in a strict sense for the market to be efficient. If traders take into account all available information, transaction costs do not necessarily mean inefficient markets as prices may still fully reflect all available information. Stiglitz and Grossman (1980) argue that a prerequisite for large transaction costs is the ability for some arbitrageurs to earn profits, rent. Similarly, all investors need not have access to all information at all times, if a sufficient number of investors have the relevant information, the market may still be efficient. Lastly, disagreements between agents need not necessarily mean market inefficiency as long as there are no investors who can consistently make better assessments given the available information. Theory stress that it is the market that should be efficient, while single agents can be irrational since, by the law of large numbers, irrational traders will have residual effects based on overoptimistic and pessimistic irrationality that on average net out. (Fama, 1970)

3. Behavioral Finance

Behavioral finance departs from the traditional view of rational agents by proposing that some investors are not fully rational. In essence, behavioral finance analyzes the consequence of relaxing the above mentioned principles of traditional financial theory in two strands of literature; *limits to arbitrage* and *psychology*. (Barberis and Thaler, 2003)

Limits to arbitrage is derived from the assumption that there are investors who are not fully rational (such as noise investors), and that they can push prices from their fundamental values. The theory that behavioral economists have produced in this field argues that the dislocations, and thereby the investment opportunities created, are indeed risky to pursue based on three tenets, therefore not presenting arbitrage possibilities. The first tenet entails fundamental risk, that in the short run, more news can create momentum to the price movement and increase the gap further between the price and the intrinsic value. Secondly, more irrational investors can further displace the price away from the intrinsic value, once it has been dislocated, even if there exists perfect substitutes in the market (noise trading). (Barberis and Thaler, 2003 and De Long, Shleifer, Summers, and Waldmann, 1990) Thirdly, in non-perfect capital markets, implementation costs (search costs, commissions, fees, bid-ask spreads, price impacts, cost of resources to exploit an arbitrage opportunity, short-sale constraints, and legal constraints) do exist, making an investment opportunity less attractive to exploit. (Barberis and Thaler, 2003)

The literature in psychology rests on experimental evidence that asserts that a set of investor-specific heuristic biases systematically change peoples' beliefs and preferences; in effect causing irrationality. The psychology theory has spawned a number of various biases that have sub-conscious effects on investor actions, with some notable examples being (Barberis and Thaler, 2003):

- *Overconfidence* - the tendency of people to have a higher belief in themselves than warranted, therefore assigning too narrow confidence intervals to their estimates. Typically leads to excessive investor trading
- *Optimism* - peoples' unrealistic views of their capabilities and systematic underestimation of time taken to complete tasks
- *Ambiguity aversion* - referring to the preference of taking known risks over unknown risks and has to do with peoples' assessment of their own competence, this leads to a

preference for the familiar, which, for example, in the financial markets can manifest itself as an investor home bias

- *Herd behavior* - represent how individuals can move together in a group without a planned direction, in financial markets it translates to the tendency of investors to follow others as the fear of castigation when wrong, exceeds the joy of being unconventionally right
- *Representativeness* - an irrationality that skews probability as agents include subjective beliefs in decision-making, for example leading to a bias when failing to take into account the size of the sample when drawing conclusions about the population
- *Conservatism* - the opposite of representativeness, where agents include too little subjective beliefs in decision-making, leading to more reliance on the data, rather than the model
- *Belief perseverance* - the fact that once an agent has made a decision, they stick to it too strongly and for too long, looking for evidence to support it and disregard evidence in opposition to the preconception
- *Anchoring* - biases agents' estimation abilities as an initial arbitrarily set belief is too firmly anchored, disabling them from making proper subsequent adjustments

For a more detailed discussion, see Camerer (1995), Rabin (1998), Kahneman, Slovic and Tversky (1982), Kahneman and Tversky (2000), and Gilovich, Griffin and Kahneman (2002).

III. Methodology

1. Data

The equity accounting data is retrieved from the COMPUSTAT and CRSP databases at Wharton Research Data Services (WRDS), which covers accounting (1973-2008) and returns (1974-2010) data for both active and inactive publicly traded companies over the sample period, and spans the New York Stock Exchange (NYSE), American Stock Exchange (Amex) and National Association of Securities Dealers Automated Quotations (NASDAQ). We exclude securities such as ADRs, REITs and other units of beneficial interest since they typically have no ordinary common equity and thereby lie outside the investment universe of a value investor. The monthly equity returns data, which covers the sample period of July 1974-June 2010, is downloaded from WRDS's CRSP database and is measured by the holding period return, which takes into account stock price appreciation and reinvested dividends. Mutual fund monthly data is downloaded from the CRSP database covering the time period July 2000-June 2010. Data of market return, explanatory factors return (value-growth (HML), size (SMB), momentum (Mom), short-term- (ST rev) and long-term reversal (LT rev) factors), and risk-free returns are obtained from Kenneth French's website[1], and covers the sample period July 1974-June 2010. Lastly, the macroeconomic factors are attained from the FRED database at Federal Reserve Bank of St. Louis and cover the time period July 1979-June 2010.

1. Stock Selection

Following Graham (1973), the stocks in the data set are sorted in four categories; Industrials, Public Utilities, Financials, and Others. *Industrials* are companies whose primary business activity is manufacturing, retailing or distribution, or to provide other services than those considered a public utility (see forth). *Public Utilities* comprise of companies whose primary line of business is to provide electricity, natural gas, water, sewage or telephone services. Companies regarded as *Financials* are banks or other financial institutions (e.g. insurance companies and investment companies), and *Others* is compounded by companies engaged in extraction of raw materials (such as oil, mineral and gas exploration). The companies in the sample were distinguished using the Standard Industrial Classification Code. Financials and Others are by default excluded from Graham's (1973) investment universe, although not being clear on the reason, probable explanations are that; Financials are excluded because they are different from the typical manufacturing company in the assessment of risk and returns, it is for instance hard to consider a bank without leverage. The Others category is likely excluded because the correlation between profitability and exogenous factors such as raw material market prices for such companies is an undesirable risk-factor, making the predictability of the future financial performance lower, thus ruling out an investment.

An inherent problem in making a crude division of the companies is that the same set of criteria is applied disregarded of the type of company within a category. To illustrate, there are a multitude of different types of companies within the Industrials segment, but each one will be assessed using the identical criteria. However, in order to follow and, as close as possible, test the philosophy of value investing it is necessary to follow this methodology of division as it comply with the Graham (1973) advice, and it also gives consistency to stock selection.

Graham (1973) further points out that the level requirement of each normalized value in the criteria is dependent on the specific type of company and thus should, in a real-life application, not be judged too mechanically. However, to empirically test the strategy, the approach must be mechanical (as is also argued by Oppenheimer and Schlarbaum (1981)), wherefore this study is performed based on the exact levels that Graham (1973) proposed. The only requirement adjusted-for, is that of size in annual sales and assets, where for Industrials, the absolute number threshold of $100 million in sales, and for Public Utilities, $50 million in total assets, in 1973, as proposed by Graham (1973), are adjusted using changes in GDP as proxy, with the motivation that it is a comprehensive measurement of growth in the aggregate economy.

For statistics on the data sample and passed companies, see Table 20 in appendix.

2. Mutual Funds

The funds examined in this study are all open-ended funds, priced at NAV (net asset value). The funds are categorized into four different value segments to allow for comparison with the stock investment portfolios; value small-cap (SCVE), value mid-cap (MCVE), value large-cap (LCVE) and value multi-cap (MLVE). The classifications are set by the Lipper classification code in CRSP, and the definitions of the different fund types is found in Table

[1] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

22 in appendix. The reason for only considering these classifications and not a broader set of mutual funds, is the need for correspondence in investment objective of the portfolios and mutual funds.

Each category contains a large number of mutual funds, wherefore we construct one "fictive" fund, i.e. the average fund performance for each category, to be conservative in estimate. All funds with available summary statistics in June of year t, were available for inclusion in the respective fictive fund from July year t to June year t+1. For statistics on number of funds, see Table 21 in appendix.

3. Regression Factors

The market excess return is the value-weighted return on all NYSE, Amex and NASDAQ stocks minus the one-month T-bill rate. The HML, SMB, Mom, ST rev and LT rev factors were all constructed using six value-weight portfolios based on specific criteria. HML and SMB are formed based on size and book-to-market (bottom 30%, middle 40%, top 30%, for each category). The momentum factor is formed on size (small and big) and prior returns (t-2 – t-12), the short-term reversal is designed using size (small and big) and prior returns (t – t-1), and long-term reversal is formed using size (small and big) and prior returns (t-13 – t-60), where all intertemporal factors have breakpoints at 30th and 70th percentile (for detailed information see Kenneth French's web page[2]).

The macroeconomic data for the APT-model (Ross, 1976) comprise data for inflation, 3-month Treasury Bill, 10-year Government Bond, industrial production, Baa corporate yield, an aggregate measure of consumption, oil price and an index of inflation expectations. The specific nomenclature for these variables can be found in Table 18 in appendix. These variables were combined following the economic theory in Chen, Roll and Ross (1986) to form regression factors, as seen in Table 19 in appendix.

In this study, an analysis of portfolio performance in recessionary stages of the business cycle will be conducted. Business cycle dates (covering recessions and expansions) were gathered from the National Bureau of Economic Research, NBER[3], and is displayed in Table 23 in appendix. From January 1973 to June 1974, the dates of business cycles were outside the scope specified for the analysis of portfolios, hence for the first row the number of months in contraction is nine, denoting July 1974 onwards. It is recognized that the dates determining

[2] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

business cycles may not have a direct link to the overall stock market performance in the short run, however for consistency in estimates, the movements in the real economy will gauge for economic performance instead of the more arbitrary notion of bull and bear markets with the argument that it is the investment returns' covariance to marginal utility of consumption that matters in this respect (Lucas, 1978).

2. Portfolio Construction

Graham (1973) outlines complete investment strategies for both equity and bond investors based on a selective approach. In this paper, the scope is narrowed to comprise Graham's (1973) advice for stock selection. The stock selection is branched in two directions for a more complete representation of the value investing philosophy; one more narrow replicating the approach of Oppenheimer and Schlarbaum (1981), and the other a more direct replication of the strategy suggested in Graham (1973). The two portfolios are labeled Oppenheimer ("O") and Graham ("G") respectively. The reason for testing two different approaches is to be as fair as possible when assessing the individual investors possibilities of a mechanical screening approach, hence testing two approaches is more comprehensive.

The portfolios are constructed assuming that the investor determines in June in year *t*, which stocks pass the relevant criteria, based on accounting data up to December in year *t*-1 following the convention of Fama and French (1993). The accounting data up to December can for various firms be released at different times the following calendar year in the form of financial statements, and the month June is chosen so as to encompass this issue. Having determined which stocks to include in the Graham and Oppenheimer portfolios respectively for each year in the sample period, we form three portfolios, by the use of the screening criteria outlined above. For each of the Graham and Oppenheimer strategies, stocks were selected at random from the set of "passed" companies, where a random sample of 20 stocks are included in each portfolio, following the methodology by Oppenheimer and Schlarbaum (1981) who also compared three portfolios á 20 stocks. Graham (1973) also states that the number of securities to include in a portfolio should be "10 to 30". The stocks are subsequently held until the next annual review, where the procedure is repeated and a new random selection of 20 stocks is conducted. Portfolio rebalancing is conducted annually, as Graham (1973) advocates annual review of each security in the value investor's portfolio. See Figure 2 in appendix for a schematic overview of the portfolio construction process.

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[3] http://www.nber.org/cycles/cyclesmain.html

To make as complete case as possible from an investor point of view, portfolio formation is done using equal weights (ew), value weights (vw) (based on market capitalization at the date of formation), and optimal weights according to the mean-variance framework of Markowitz (1952). Mean-variance weights are computed in June of year t based on the optimization module of monthly returns and corresponding covariances of each stock and the risk-free rate (1 month T-bill rate) from t to t-5, where a 5 year horizon is chosen following the recommendation from De Miguel, Garlappi, and Uppal (2009), who in their tests stated that "The insights from the results for the case of M = 60 [months back in time] are not very different from those for the case of M = 120 [months]". The mean-variance optimizer is subject to constraints, to limit the occurrence of extreme loading on individual securities. Thus, no individual security is allowed to have a higher loading than +/- 500%, and the sum of individual security loadings must equal 1, implying no cash holdings nor net leverage. Stocks that are de-listed during the holding period (e.g. due to corporate merger or buyout) are assumed to be sold at the last quoted market price and the proceeds to be reinvested proportionally to the contemporaneous weights in the remainder of the holdings.

3. Portfolio Performance Measurement

The total portfolio value for an i security-portfolio is given by:

$$HPR_{i,t}^{gross} = \sum_{i=1}^{20} w_{i,t} \left[\frac{Div_{i,t} + (P_{i,t+1} - P_{i,t})}{P_{i,t}} \right] \tag{3}$$

For $t = 0, \dots, T$

where:

$HPR_{i,t}^{gross}$ = the return gross of costs of the portfolio at the end of month t

$\text{Div}_{i,t}$= dividend proceeds of security i at time t

$P_{i,t}$= the dollar amount invested in the beginning of month t in security i

$P_{i,t+1}$= the dollar amount at the end of month t for security i.

The fund performance measurement of SCVE, MCVE, LCVE and MLVE is calculated by the change in net asset value per share:

$$R_{j,t}^{net} = \frac{NAV_{j,t+1} - NAV_{j,t}}{NAV_{j,t}} \tag{4}$$

where:

$R_{j,t}$ = the net return of fund j at the end of the period t

$NAV_{j,t}$ = the net asset value per share in fund j in month t

and:

$$NAV_{j,t} = {(MVA_{j,t} - LIAB_{j,t})} \big/ {NSO_{j,t}} \tag{5}$$

where:

$MVA_{j,t}$ = the market value of assets in fund j at time t

$LIAB_{j,t}$ = the dollar amount of liabilities in fund j at time t

$NSO_{j,t}$ = the number of shares outstanding in fund j at time t

In the performance analysis of the respective portfolios and funds, the focus is on monthly returns in relation to the CAPM-market factor (Sharpe, 1964, Lintner, 1965a,b, and Mossin,

1966) and the SMB- and HML-factors of Fama and French (1992), Mom (Jegadeesh and Titman, 1993), ST rev (Jegadeesh, 1990) and LT rev (DeBondt and Thaler, 1985), and also toward macroeconomic factors in Chen, Roll, and Ross (1986).

The returns of the value investing portfolios will be examined in various asset-pricing models to see whether any approach yields superior returns and load on risk and are beneficial to the investor. The motivation for the use of three different models is that one cannot observe a true asset-pricing model and the approach of the study is to provide results that are relevant for a hypothetical value investor, in the sense that an economic explanation of the performance is more accurately described using multiple models. Such an investor could easily as an alternative hold a passive market portfolio of stocks or employ any of the mechanical strategies resembling the SMB, HML, Mom, ST rev and LT rev factors. Note that though value investors usually think of risk in terms of probability of permanent capital loss, this study will also measure risk in terms of volatility for objectivity reasons.

CAPM (Sharpe, 1964, Lintner, 1965a,b, and Mossin, 1966):

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_{Mkt} Mkt + \varepsilon_{p,t} \tag{6}$$

Fama and French (1992) 3-factor model (henceforth labeled “FF3”):

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_{Mkt} Mkt + \beta_{SMB} SMB + \beta_{HML} HML + \varepsilon_{p,t} \tag{7}$$

6-factor model of Fama and French (1992), Jegadeesh and Titman (1993), Jegadeesh (1990), and DeBondt and Thaler (1985) (henceforth labeled as “FF6”, or “intertemporal factors”):

$$\begin{aligned} R_{p,t} - R_{f,t} = \alpha_p + \beta_{Mkt} Mkt + \beta_{SMB} SMB + \beta_{HML} HML \\ + \beta_{MOM} MOM + \beta_{SREV} SREV + \beta_{LREV} LREV + \varepsilon_{p,t} \end{aligned} \tag{8}$$

Macroeconomic model (Chen, Roll, and Ross, 1986) (henceforth labeled “APT”):

$$\begin{aligned} R_{p,t} = a + \beta_{gm} GM + \beta_{am} AM + \beta_{rp} RP \\ + \beta_y Y + \beta_c C + \beta_{op} OP + \beta_{ei} EI + \beta_{\Delta ei} delta\_EI + \beta_{ui} UI + \varepsilon_{p,t} \end{aligned} \tag{9}$$

See Table 17 in appendix for definitions of the factors in equations (6)-(9).

4. Trading Costs

Portfolio returns are by default reflected as gross returns, whereas mutual funds report net returns, therefore transaction costs and a "maintenance" cost need to be subtracted from portfolio returns in order to compare them to fund returns, where the maintenance cost can be thought of the investor's opportunity cost of maintaining the research and analysis of stock market opportunities.

Transaction costs usually comprise brokerage fee, bid-ask spread and market impact costs. The brokerage fee is the charge for the brokers' order-processing of the clients trading and bid-ask spread, which is the compensation for acting as market maker to provide execution of trades, cost of holding inventory, and the risk of trading with a better informed counterpart. Lastly, the market impact refers to the effect that a trade may have on the price; if the trade volume exceeds the market makers volume of shares that she is willing to trade at the prevailing market price, the trade may move the bid or ask price as it is being executed, not allowing the trader to benefit from one quoted price. During the last decades, commission charges to brokers have declined as the increasing trading have created a more competitive arena for trading services. In addition, technological innovation in the finance industry have contributed to lower overall costs (Keim and Madhavan, 1998).

In this study, the transaction costs follow an estimation from Barber and Odean (2000), as it was the first comprehensive study of household transaction costs, where their estimate of bid-ask spread includes market impact cost. They analyzed 66.465 households trading through a large discount broker between January 1991 and December 1996, and found that average round-trip transaction cost (i.e. including one purchase and one sale) is 4%. This estimation is based on trades in excess of $1,000 and decreases (increases) with larger (smaller) trades. This cost figure is adjusted to our sample, as tests showed an average of 80% in portfolio turnover, therefore transaction costs are quantified as 3.2%. A caveat to note is that transaction costs are time-varying, however the above stated estimate, based on Barber and Odean's (2000) results, is a fixed approximation of the trading cost that would face a hypothetical individual investor over the time period in this study. Therefore, costs prior to the data set used in Barber and Odean (2000), may be marginally upwardly biased whereas costs after the study may be downwardly biased.

The maintenance cost is calculated as the cost per hour spent on maintaining the portfolio divided by household net investable amount held in stocks. The cost per hour is the opportunity cost of foregoing wage income, and according to the U.S. Census (2009), the median annual income was $26.530 in 2009, assuming 2,000 working hours per year, the hourly wage approximates to $13.3. The net investable amount in stocks is proxied by the median value of household assets in stocks and mutual fund shares which according to the U.S. Census (2004) was $19.200 in 2004. The maintenance cost is therefore 0.69%, assuming that the investor spends 10 hours in June each year to run a screening device and adjust her holdings in the portfolio. The median annual income and the net investable amount evidently varies over time, and, in this study, are collected from two different points in time. These proxies however, provide basis for a reasonable estimation of the maintenance cost of a portfolio. Note that it is *not* assumed that the investor is investing the stated net investable wealth, it is only used in the calculation of maintenance cost.

$$HPR_{i,t}^{gross} - (transaction\ costs + maintenance\ cost) = HPR_{i,t}^{net} \qquad (10)$$

where:

$HPR_{i,t}^{gross}$ = the gross holding period return of portfolio i at time t

$HPR_{i,t}^{net}$ = the holding period return of portfolio i at time t net of transaction and maintenance costs

With the above discussion in mind, to arrive at portfolio net returns, annualized alphas should be subtracted by 3.89% (3.2% + 0.69%). Any front and rear load fees of mutual funds are in these calculations disregarded, following the convention in Carhart (1997).

For all empirical tests of market efficiency, two concerns should be dealt with caution, firstly, Roll (1977) makes an important argument; that it is impossible to create a true market portfolio as it should contain all risky securities in the market, not only stocks. In a correctly specified market portfolio, all investable assets should be included after weight; such as stocks, bonds, derivatives, commodities, real estate, fine wine and art, et cetera. Therefore, the market portfolio used in the study should be considered a *proxy* of the true market portfolio, however, Mayers and Rice (1979) contend that information events will, on average, have positive and negative residuals in relation to the index used, which makes the appropriate index "one that is efficient relative to the "market" ex-ante beliefs", and shows in subsequent analyses that results with this type of portfolio yield meaningful results. Secondly, Fama (1970) emphasizes that a test for market efficiency is necessarily a joint test of model validity, and argues that tests of efficiency are always contaminated by "bad-model problem".

5. Robustness Tests

The ordinarily least squared (OLS) linear regression necessitates the fulfillment of several assumptions in order for the results to be statistically reliable. OLS firstly requires stationary processes, wherefore the augmented Dickey-Fuller test (Dickey and Fuller, 1979) is used to test for existence of unit roots, where the null hypothesis is that the process contain unit root. Table 24 in appendix show rejection of the null hypothesis, i.e. the processes are stationary. Durbin-Watson tests (Durbin and Watson, 1950, 1951) show that there is no significant residual autocorrelation (Table 27 in appendix), as the d-statistics lies close to 2, whereas numbers below 1 or above 3, usually are considered to be signs of autocorrelation. In addition, multicollinearity is tested by using the Variance Inflation Factor in the STATA statistical package, between the regression factors in the FF3-, FF6-, and APT-models. From Table 28 in appendix, it is clear that there is no significant multicollinearity, meaning that no explanatory factor is a linear combination of other factors, as the critical tolerance factor (1/VIF) of 0.1 is much less than the VIF combination in any case. Tests of linearity is done through graphical interpretation of Figure 3 to Figure 6 in appendix, it is visible that the assumption of linearity is not violated for equal- and value-weighted portfolios as there are no obvious non-linear trends to the regression factors. However, caution should be drawn for the out-of-sample mean-variance optimization weighting as some are shown to be clearly unstable. The OLS regression further requires no heteroscedasticity in the residuals. This is tested with the Breusch-Pagan test (Breusch and Pagan, 1979), where the null hypothesis is homoscedastic residuals. In Table 25 in appendix, the majority of the cases reject the null hypothesis on a 95% confidence level, why it cannot be certain that the residuals have constant variances over time. Moreover, the assumption that the sample is derived from a normal distribution is rejected for some portfolios by the Shapiro-Wilk test (Shapiro and Wilk, 1965). In Table 26 in appendix, it is noted that the p-value (Prob>z), rejects the null hypothesis (of a normal distribution) for all portfolios but 4 with a 95% confidence level, however graphical analysis shows that the non-normality is not severe.

The violations of the assumptions of OLS are controlled for using robust regressions. The Newey-West method (Newey and West, 1987) procedure is applied, using robust standard errors in the calculation, which limits the problems of the violations and hence yield more reliable results of coefficients and test statistics. Additionally, the central limit theorem stipulates that, as the data has more than 30 observations and is stationary, the distribution is approximately normal, implying that t-statistics approximates the true values.

IV. Empirical Results and Analysis

1. Descriptive Statistics

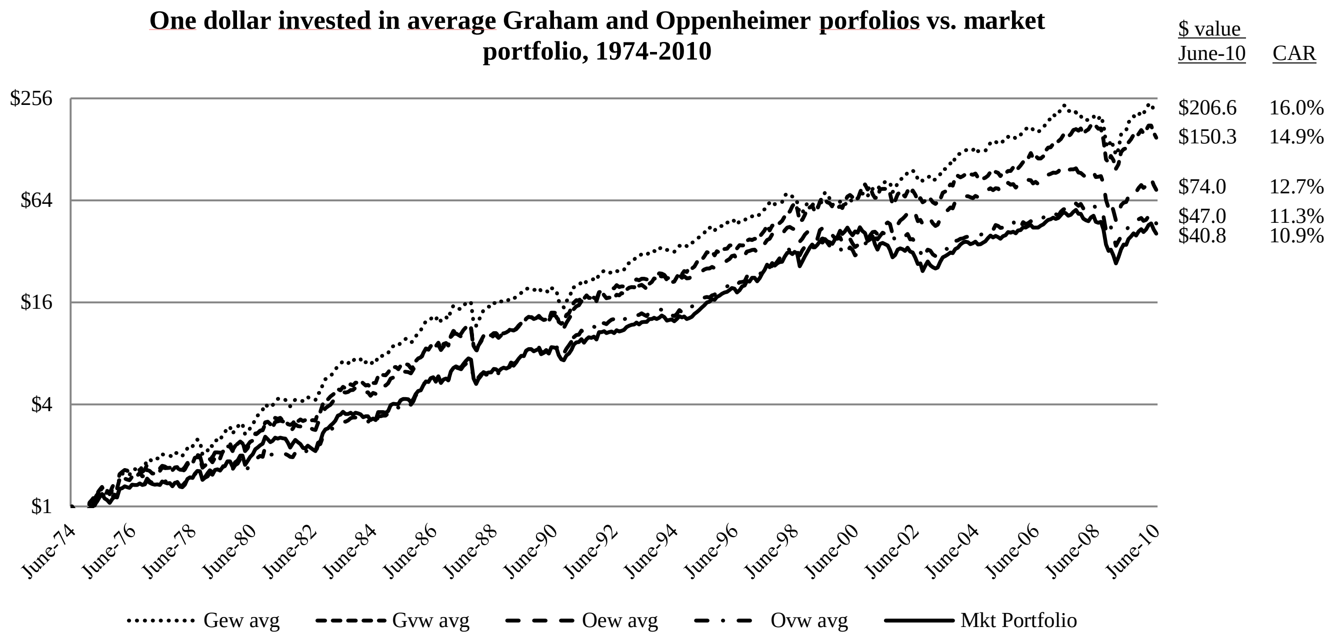

Figure 1 - The graph depicts the performance (gross of costs) of a one dollar investment in fictive portfolios mirroring the equally weighted averages of each of the three value and equally-weighted (mean-variance is excluded due to insensible results) Graham (G1, G2 and G3) and Oppenheimer (O1, O2 and O3) portfolios respectively versus a value-weighted market index, from July 1974 to June 2010. "CAR" represents compounded annual average return.

Figure 1 shows that the average portfolio performances over time has exceeded that of the market for each strategy, with compounded annual returns in the range of 11.3% for the value-weighted Oppenheimer portfolios to 16.0% for the equally-weighted Graham portfolios, while the value-weighted market portfolio returned 10.9% over the time period. In the graph above, the average of each portfolio is displayed, individual tests also show that each portfolio beat the market on its own (except O3vw), therefore the tendency of the graph does not reflect one "star" portfolio that compensates other portfolios performing worse, on the contrary it shows that value investing portfolios in general outperform the market. The dispersion in compounded returns indicates that performance is conditional on the sophistication of applied discrimination criteria, Graham being the more sophisticated approach and the finding is also corroborated in the regression analyses, which is paradoxical, as both approaches share the same fundament, however this signifies that there may be significant marginal benefit of identifying additional and "correct" value-enhancing criteria beyond the ones established.

Table 5 – Descriptive statistics for each of the three equally-weighted, value-weighted, and mean-variance Graham portfolios (1974-2010).

	Mkt	G1ew	G2ew	G3ew	G1vw	G2vw	G3vw	G1mv	G2mv	G3mv
Portfolio excess return										
Average (monthly) (%)	0.518	0.827	0.869	0.999	0.781	0.787	0.949	-7.302	72.917	6.744
Average (annual) (%)	6.211	9.928	10.426	11.983	9.367	9.445	11.391	-87.621	875.005	80.933
Median (%)	0.940	1.050	0.914	1.438	0.820	0.732	1.244	0.410	0.778	0.777
Standard deviation (%)	4.709	4.978	4.982	5.014	5.032	5.220	5.542	119.414	1535.785	110.271
Kurtosis	2.199	4.138	4.111	4.837	1.874	2.181	3.678	70.328	423.692	96.340
Skewness	-0.610	-0.642	-0.240	-0.433	-0.379	-0.279	-0.130	-4.619	20.495	1.784
Min (%)	-23.140	-25.041	-24.221	-24.528	-21.458	-21.203	-26.357	-1483.464	-893.784	-1286.438
Max (%)	16.050	20.474	25.613	24.488	18.587	21.721	27.498	838.570	31766.224	1268.302
Sharpe ratio	0.110	0.166	0.174	0.199	0.155	0.151	0.171	-0.061	0.047	0.061
Portfolio return										
Compounded (total) (%)	3983	14424	17337	29933	11694	11550	21559	17141399	-114	89
Compounded (annual) (%)	10.9	14.8	15.4	17.2	14.2	14.1	16.1	39.8	-	1.8

Table 6 - Descriptive statistics for each of the three equally-weighted, value-weighted, and mean-variance Oppenheimer portfolios (1974-2010).

	Mkt	O1ew	O2ew	O3ew	O1vw	O2vw	O3vw	O1mv	O2mv	O3mv
Portfolio excess return										
Average (monthly) (%)	0.518	0.624	0.702	0.664	0.554	0.589	0.510	23.446	2.291	11.445
Average (annual) (%)	6.211	7.491	8.422	7.964	6.646	7.069	6.114	281.347	27.496	137.341
Median (%)	0.940	0.995	1.019	0.920	0.665	0.664	0.685	0.974	0.718	0.437
Standard deviation (%)	4.709	5.105	4.853	4.790	4.970	4.775	4.633	427.257	166.303	327.220
Kurtosis	2.199	2.779	2.382	3.810	1.124	2.065	1.137	393.676	120.524	197.962
Skewness	-0.610	-0.505	-0.469	-0.461	-0.199	-0.331	-0.212	19.318	7.789	11.503
Min (%)	-23.140	-25.811	-22.344	-26.219	-20.685	-20.550	-18.132	-1303.215	-975.459	-1976.834
Max (%)	16.050	17.450	19.375	19.969	18.572	16.826	16.787	8680.012	2435.694	5514.415
Sharpe ratio	0.110	0.122	0.145	0.139	0.111	0.123	0.110	0.055	0.014	0.035
Portfolio return										
Compounded (total) (%)	3983	5830	8644	7414	4439	5387	3926	643	7302300	-100
Compounded (annual) (%)	10.9	12.0	13.2	12.7	11.2	11.8	10.8	5.7	36.5	-

Another general tendency that can be inferred is that equally-weighted portfolios outperform value-weighted portfolios. Putting more relative weight on smaller stocks yield higher return and loading on the SMB factor, which could be in line with the argued distress factor in the literature. However, this distress factor is mitigated by the "insurance" made through requirements on low leverage and stable earnings and dividends history. Another explanation in this context that would more closely fit the value investing perspective is that it for smaller stocks is easier to identify hidden values as there is less analyst coverage, more legal obstacles for institutional investors in this arena or communicatory difficulties between firm agents and financial markets, in that case corroborating the argument in the theoretical section.

In Table 5 and Table 6, the Sharpe ratios for the Graham portfolios (ew and vw) are significantly higher than the likes of the Oppenheimer portfolios and the market during the period 1974-2010. This is due to higher mean return whereas only marginally higher or equal standard deviation for the Graham portfolios. The over performance of Graham portfolios are also in general confirmed by the regression results (see section 2.1.a). This can be an indication that agents put emphasis on past earnings that is omitted as requirement from the Oppenheimer criteria, i.e. there could be a lagged post earnings announcement drift in the stocks, which would argue against market efficiency, and could be caused by investor under reaction. If the investors for example have incomplete information or limited rationality, information is not transmitted efficiently causing under reaction among investors, which leads to a *subsequent* lagged price appreciation. The argument rests on the assumption that individual investors have significant influence on stocks for these types of companies, therefore, if they have a “bias” in incorporating news, the mass of their “sluggish” interpretation could lead to the earnings momentum effect, which would correlate with Bernard and Thomas (1989) findings. This argument in explanation would also fit neatly in Hong and Steins (1999) behavioral model that tries to explain momentum and reversal trends, where two groups of investors that have access to different information sets and bounded rationality, interact, which leads to *slow* information sharing (i.e. a lag effect). A further plausible explanation for the Graham over performance is to be found in the P/E and P/BV criteria, where the Oppenheimer requirements are more relaxed, which could indicate that the Oppenheimer stocks have a lower “margin of safety”, i.e. they do not represent a mispricing to the same degree as the Graham stocks. In combination with the postulation that Graham stocks represent companies with strong earnings history, the “bargain effect” would be even stronger. Another argument that cannot be refuted is that the performance difference is a statistical anomaly. The finding that the majority of the portfolios have higher Sharpe ratio than the market correlates with the value investing notion of increased reward per unit of risk.

Both Graham and Oppenheimer portfolios’ skewness (excluding G1ew and mv) are closer to zero than the market skewness, indicating lower probability of the portfolios to exhibit extreme negative returns in relation their means. Scott and Horvath (1980) emphasized the importance of higher moments (skewness and kurtosis) as the mean and variance are not sufficient to indicate the distribution of returns in case of asymmetry. Although the portfolios have less diversification benefits in form of reduced idiosyncratic risk in relation to the market, the stocks included in the portfolios have gone through “intense” scrutiny in order to be included, ensuring a "stable" investment. These stable investments could have the counter-effect to reduced diversification in that the stable companies indeed show less probability of extreme negative return values, hence they could indeed be considered more appropriate for the defensive investor in this regard. One reasonable explanation to why these stocks exhibit such a trait could be herd behavior in the professional investment community where there can be institutional pressure which limits the set of investable assets, where "obscure stocks" are disregarded in favor of more well-known and prominent companies, due to reputational (Scharfstein and Stein, 1990) or preference (Falkenstein, 1996) biases. Therefore, with lack of analyst coverage, bad news concerning the company may translate in a less-than "normal" price depreciation (i.e. what would occur for the average stock). This could be criticized with the argument that rational agents (even though they could be in minority) would push prices back to undo any irrational dislocations, however real-world arbitrage opportunities are both risky and costly, limiting this possibility.

From Table 5 and Table 6, it is clear that the results obtained from the mean-variance portfolios are insensible in terms of distribution in returns. The Markowitz-optimized portfolios generally show insignificant and insensible results since they are formed and tested out-of-sample and the portfolio weights are more extreme than "ordinary". This is also recognized in the academic community and is caused by the inaccuracy of estimated expected return series and the non-constant variance-covariance matrix over time. Therefore, the marginal benefit of converting weights, for example, from equally to "optimal weights" using optimization models, is overweighed by the cost of the models' estimation errors. This finding agrees with the finding by De Miguel et al. (2009). Mean-variance portfolios will therefore not be analyzed further in this paper (see Table 29 and Table 30 in appendix for regression output) (for extensive discussion see Hodges and Brealey, 1978, Michaud, 1989, Best and Grauer, 1991, and Litterman, 2003).

2. Regression Analysis

1. Asset Pricing Models

a) Entire Sample Period

On a risk-adjusted basis, the Graham portfolios produce significant CAPM- alphas with 99% statistical confidence, when considering the equally-weighted portfolios (Table 7). For value-weighted Graham portfolios (Table 8), the alphas in CAPM are slightly lower and in general remain significant on the 95% confidence level. The FF3-model exhibit strong explanatory power, the SMB-factor shows significance in equally-weighted portfolios and no significance in value-weighted portfolios, which is a result of lower weighting on small firms for the value-weighted portfolios. Therefore, the size criteria in the screening can be questioned if the investors objective solely would entail increasing returns, but it should be reminded that it is included on the basis of finding “large and prominent” companies, which are less risky.

*Table 7 - Time-series regression output of excess return on each of the three equally-weighted Graham portfolios respectively versus the CAPM, FF3 and FF6-factors. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-2010	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew
		CAPM			FF3			FF6	
Mkt	0.870***	0.894***	0.886***	0.902***	0.922***	0.914***	0.892***	0.912***	0.895***
	(0.045)	(0.038)	(0.044)	(0.032)	(0.029)	(0.032)	(0.031)	(0.030)	(0.031)
SMB				0.366***	0.329***	0.366***	0.412***	0.369***	0.403***
				(0.052)	(0.052)	(0.056)	(0.049)	(0.053)	(0.051)
HML				0.416***	0.372***	0.400***	0.469***	0.396***	0.416***
				(0.053)	(0.057)	(0.058)	(0.061)	(0.056)	(0.058)
Mom							0.010	-0.042	-0.054
							(0.040)	(0.055)	(0.045)
ST rev							0.062	0.009	0.043
							(0.048)	(0.060)	(0.052)
LT Rev							-0.137**	-0.098	-0.096
							(0.062)	(0.062)	(0.061)
Alpha	0.046***	0.049***	0.065***	0.010	0.017	0.03**	0.007	0.022	0.035**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs	432	432	432	430	430	430	430	430	430
Adj R2	0.677	0.714	0.692	0.768	0.787	0.778	0.772	0.789	0.782

*Table 8 - Time-series regression output of excess return on each of the three value-weighted Graham portfolios respectively versus the CAPM, FF3 and FF6-factors. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-2010	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw
		CAPM			FF3			FF6	
Mkt	0.830***	0.885***	0.927***	0.891***	0.898***	0.953***	0.878***	0.897***	0.974***
	(0.038)	(0.038)	(0.047)	(0.035)	(0.038)	(0.047)	(0.034)	(0.042)	(0.047)
SMB				-0.020	0.106	0.141*	0.016	0.119	0.173**
				(0.070)	(0.079)	(0.085)	(0.067)	(0.085)	(0.087)
HML				0.252***	0.129*	0.214***	0.307***	0.130	0.246***
				(0.071)	(0.070)	(0.080)	(0.076)	(0.091)	(0.091)
Mom							0.042	-0.030	-0.010
							(0.042)	(0.061)	(0.075)
ST rev							0.114*	-0.026	-0.119
							(0.060)	(0.071)	(0.082)
LT Rev							-0.128*	-0.022	-0.059
							(0.075)	(0.094)	(0.107)
Alpha	0.042**	0.040**	0.056***	0.024	0.028	0.037*	0.017	0.031	0.043**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Obs	432	432	432	430	430	430	430	430	430
Adj R2	0.603	0.637	0.619	0.623	0.643	0.633	0.63	0.641	0.636

Turning to the findings of the Oppenheimer portfolios (Table 9 and Table 10), the alphas are in general both lower and without statistical significance. The market-, SMB- and HML-factors have significant explanatory power for all portfolios, however the SMB-coefficient is negative for the value-weighted portfolios, indicating that large companies explain most of the return.

*Table 9 - Time-series regression output of excess return on each of the three equally-weighted Oppenheimer portfolios respectively versus the CAPM, FF3 and FF6-factors. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-2010	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew
		CAPM			FF3			FF6	
Mkt	0.921***	0.888***	0.858***	0.979***	0.940***	0.922***	0.966***	0.926***	0.918***
	(0.038)	(0.033)	(0.042)	(0.030)	(0.026)	(0.028)	(0.031)	(0.028)	(0.031)
SMB				0.151**	0.193***	0.206***	0.184***	0.225***	0.234***
				(0.063)	(0.051)	(0.049)	(0.059)	(0.048)	(0.051)
HML				0.377***	0.383***	0.449***	0.410***	0.396***	0.474***
				(0.064)	(0.050)	(0.053)	(0.068)	(0.055)	(0.055)
Mom							-0.003	-0.050	-0.012
							(0.040)	(0.032)	(0.035)
ST rev							0.064	0.022	0.010
							(0.058)	(0.050)	(0.048)
LT Rev							-0.101	-0.079	-0.074
							(0.066)	(0.054)	(0.055)
Alpha	0.018	0.029*	0.026	-0.01	0.001	-0.006	-0.011	0.006	-0.005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs	432	432	432	430	430	430	430	430	430
Adj R2	0.721	0.741	0.711	0.769	0.8	0.792	0.771	0.802	0.791

*Table 10 - Time-series regression output of excess return on each of the three value-weighted Oppenheimer portfolios respectively versus the CAPM, FF3 and FF6-factors. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-2010	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw
		CAPM			FF3			FF6	
Mkt	0.790***	0.790***	0.727***	0.867***	0.888***	0.837***	0.891***	0.912***	0.866***
	(0.042)	(0.041)	(0.043)	(0.037)	(0.035)	(0.035)	(0.038)	(0.037)	(0.036)
SMB				-0.207***	-0.177***	-0.242***	-0.231***	-0.097*	-0.249***
				(0.054)	(0.053)	(0.060)	(0.065)	(0.050)	(0.063)
HML				0.193**	0.305***	0.314***	0.201**	0.396***	0.332***
				(0.084)	(0.061)	(0.068)	(0.093)	(0.062)	(0.069)
Mom							0.079	0.009	0.056
							(0.056)	(0.034)	(0.042)
ST rev							-0.041	-0.115**	-0.093
							(0.073)	(0.054)	(0.060)
LT Rev							0.057	-0.192***	0.026
							(0.087)	(0.071)	(0.075)
Alpha	0.018	0.022	0.016	0.01	0.006	0.002	0.002	0.011	-0.000
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Obs	431	432	432	429	430	430	429	430	430
Adj R2	0.559	0.606	0.545	0.591	0.66	0.62	0.596	0.672	0.627

The HML-factor is, as expected, highly significant across all portfolios, since much of the focus in Graham and Dood's (1934) and Graham's (1973) investment approach is aimed at identifying value companies, where the investor receive a high proportion of book value in relation to the market price. This seem to contradict the distress factor hypothesis by Fama and French (1992, 1993) as stocks were discriminated ex-ante on the basis of leverage and earnings, and it can be ascertain that, at least for Graham portfolios, that the included stocks have not been in distress in terms of earnings. In addition, should the distress risk be an explanation of HML, a relatively poor stock market performance in recent history ought to be observed, i.e. a significance of the long- and/or short-term reversal factors should be seen, a pattern not detected. Piotroski (2001) conducted a similar investigation with other criteria and found that the stocks within the HML category can be discriminated to gain superior performance therefore also came to disagree with the distress explanation.

The argument put forth in this study state that the neglect of value stocks may not exclusively be poor prior performance but instead institutional requirements biased toward glamour stocks. There may be direct barriers in the stock market for e.g. fund managers who cannot hold stocks that do not fulfill specific criteria. There can also be indirect barriers such as herd behavior and the fear of "moving outside the consensus" due to reputational concerns (Scharfstein and Stein, 1990) or that preferences, instead of risk, forms the basis of institutional decision-making, i.e. that fund managers have a bias towards stocks with high liquidity and transparency and aversion to low-priced stocks (due to transaction costs) (Falkenstein, 1996). This would in general hold down the stock prices of value-directed companies without signifying distress.

Graham portfolios have on average net-of-cost alphas of 1,44% and 0,71% for equally- and value-weighted portfolios respectively, whereas Oppenheimer portfolios show -1,46% to -2,02% net of costs for equally- and value-weighted portfolios respectively in this study. The study made by Oppenheimer and Schlarbaum (1981) showed net alphas of 2-2,5%, therefore this study show; firstly, that net alphas for this strategy have *decreased in general*, and secondly, that it is now *only Graham-criteria* (which was not investigated in their paper) that yield risk-adjusted net benefits. The reason for lower alphas between the two studies can most likely be explained by an increase in the degree of market efficiency, making it harder to identify bargain opportunities. This notion is confirmed in Table 20 in appendix that show that the proportion of stocks passing the Graham (1973) and Oppenheimer and Schlarbaum (1981) criteria has steadily declined since 1974. It is also noted that the difference could be due to a discrepancy in the calculation of transaction and management costs. The CAPM-alphas are however in general explained by the SMB- and HML-factors, which both are statistically significant with 99% confidence.

When adding intertemporal factors (Mom, ST rev and LT rev), overall explanatory power remain constant, and in addition the factors themselves exhibit low significance in explaining portfolio returns; implying that momentum and reversal factors have weak explanatory power in the value-context of this study. Reasonable explanations for momentum and reversal are that investors systematically infer past information with some bias such as over- or under reaction in effect causing price movements to reverse or continue with momentum (Barberis and Thaler, 2003). If the intertemporal factors indeed are the effects of behavioral biases, and they do not have any significant relation to our value portfolios, this indicates that the biases are not superimposed on the value investing portfolios. Therefore, the portfolios are not exposed to these particular behavioral biases that affect investors' decision-making, hence in this venue, the portfolios would be more robust to psychological traits than to other common stocks exhibiting this attribute, therefore the value stocks selected by the criteria can be said to be more "safe". It could also be an indication that the stocks in the portfolios are not subject to distress with subsequent rebound, but merely constitute sound companies at bargain prices, which would also imply that in the value universe, the disparity between low- and highly ranked stocks is significant.

b) Sub Sample Periods

From Table 11 and Table 12, CAPM-alphas for the equally-weighted Graham portfolios is time-varying with significance on the 95% level and in the range of 5-8% per annum in the beginning of the sample period, whereas becoming insignificant during the 80's and 90's only to increase in the 00's to the range of 11-13% per annum at the 99% level. Graham value-weighted and Oppenheimer equally-weighted CAPM-alphas generally exhibit statistical significance in the 00's, not showing any notable significance in earlier periods. Oppenheimer value-weighted CAPM-alphas show no significance in sub periods, in line with the result for the overall sample period.

The tendency of low CAPM-alphas in the 90's and high in the 00's, is likely explained by the technology stock market bubble, where tech stocks enjoyed high price appreciation in the 90's and subsequent deflation in the 00's. Tech stocks rarely qualified for the value investors' portfolios due to lack of "bargain" opportunities and weak fundamental performance, causing the value portfolios to “miss out” on the bubble in the 90’s, which is confirmed by relatively low market beta, but on the other hand outperformed the market in the 00’s. This shed light on a fundamental premise of the value investing strategy; that it provides partial protection against irrational exuberance (caused by over-optimism), through a strong focus on fundamental value. In addition, the portfolios’ performance, with lack of alphas in the 70’s and 80’s, have a strong negative relation to oil prices at that time, which is seen in Table 13, and the uncertainty and volatility it caused in terms of indirect higher manufacturing and distribution costs, we might conclude that value investment alphas change over time. The time-varying effect therefore seem to stem from changes in degree of market efficiency but also from *macroeconomic and market fundamentals*, although it is precarious to draw too strong conclusions from these results.

*Table 11 - Condensed time-series regression output of excess return on each of the three equally-weighted, value-weighted, and mean-variance Graham portfolios respectively, versus the CAPM-factor, in specified sub time-periods.*** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format. For full data output see Table 31 to Table 42 and Table 55 to Table 57 in appendix.*

	G1ew	G2ew	G3ew	G1vw	G2vw	G3vw	G1mv	G2mv	G3mv
1974-1980									
Mkt	0.975***	0.967***	1.044***	0.906***	0.828***	1.030***	1.339	-0.000	-3.256
Alpha	0.054	0.068**	0.084**	0.026	0.024	0.059*	-4.309	-1.066	4.786
1980-1990									
Mkt	0.874***	0.908***	0.849***	0.840***	0.918***	0.845***	0.970	0.877	-0.570
Alpha	0.038	0.040*	0.07***	0.028	0.030	0.058*	-0.955	0.419	1.004
1990-2000									
Mkt	0.736***	0.854***	0.807***	0.754***	0.916***	0.828***	-0.576	1.324	-2.574
Alpha	-0.007	-0.017	-0.014	-0.004	0.017	0.038	0.161	-0.802	-0.666
2000-2010									
Mkt	0.902***	0.882***	0.890***	0.842***	0.888***	1.004***	0.464	87.980	0.478*
Alpha	0.112***	0.113***	0.134***	0.116***	0.077*	0.086**	0.174	33.398	0.193

*Table 12 - Condensed time-series regression output of excess return on each of the three equally-weighted, value-weighted, and mean-variance Oppenheimer portfolios respectively, versus the CAPM-factor, in specified sub time-periods.*** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format. For full data output see Table 43 to Table 57 in appendix.*

	O1ew	O2ew	O3ew	O1vw	O2vw	O3vw	O1mv	O2mv	O3mv
1974-1980									
Mkt	1.070***	1.028***	0.969***	0.972***	0.895***	0.759***	3.520	2.707	44.831
Alpha	0.028	0.034	0.040	-0.018	-0.002	-0.01	0.924	4.583	7.181
1980-1990									
Mkt	1.034***	0.923***	0.926***	0.914***	0.870***	0.808***	-0.016	3.047**	3.071***
Alpha	0.018	0.03	0.040**	0.008	0.035	0.024	10.13	-1.285	-0.176
1990-2000									
Mkt	0.715***	0.693***	0.700***	0.641***	0.596***	0.584***	0.816	-1.746	-0.368
Alpha	-0.037	-0.02	-0.034	0.01	0.02	0.007	-1.181	-0.816	-0.138
2000-2010									
Mkt	0.867***	0.903***	0.840***	0.653***	0.772***	0.730***	0.941	0.516	0.354
Alpha	0.076**	0.090***	0.074**	0.055	0.037	0.042	0.4	0.221	-0.997

2. Macroeconomic Model

a) Entire Sample Period

When examining the value investing portfolios to common macroeconomic factors (Table 13), it is clear that only a few had significant effect; the major findings are that annual growth in industrial production and risk premium have a statistically significant negative relation, whereas growth in aggregate consumption expenditure show significant positive coefficients. The risk premium effect is probably related to aversion. Since in times of higher turbulence and uncertainty, investor aversion to risk increases and as common stocks are risky assets, it is natural that investors shy away from stock investments (a flight-to-quality effect). This would also impact the portfolios if regular investors, holding a random combination of stocks where value stocks happen to be included, would switch to "safer" instruments despite the acknowledgement of these stocks' relative safety. Therefore, the conclusion would be that the value stocks in themselves may still be less risky than average stocks, this does however not safeguard them from overall risk aversion.

The industrial production effect is complex due to possible dual causality, however a plausible description could be that as general economic production rally upwards, investors seek the companies best equipped (or believed to be best equipped) of capturing (short-term) profitable opportunities which would be reflected in a change in stock prices. This search process may negatively impact value stocks as it gravitates attention to glamour stocks, due to liquidity and transparency, in effect causing a negative price adjustment of value stocks to increased industrial production. This argument would fit the notion that value stocks may have hidden values that take longer time to extract and that value companies have a harder time to communicate or signal their values to the financial market (see for example Koch, 1999). Note that this would be true even if the value investors would continue to hold their value stocks, as this effect could be set in motion by regular investors randomly holding the same stocks and has a higher probability to shift attention and holdings (then it would be a prediction that glamour stocks have a positive relation to real production). If there is a negative relation between industrial production and stocks across the board, another explanation could be that a low industrial output today reflect higher contemporaneous stock returns because rational expectations reflect increased anticipated output in the future, an argument similar to Lee (1992).

An explanation of the growth in aggregate consumption expenditure relationship also suffers from dual causality. The "wealth" effect, i.e. that higher investable wealth (through stock price appreciation) yield higher consumption possibilities through a loosened budget constraint is well established in theory. In this case however, we are interested in the reverse causality, i.e. how consumption may correlate with stock returns. In consumption-based theory, assets should be priced according to covariance to marginal utility of consumption (Lucas, 1978). One explanation could be that as rational agents want smooth consumption paths, they will attempt to adjust their consumption/wealth ratio to the time-varying expected return of their stock holdings. In order to protect themselves from future consumption volatility, an investor would increase her consumption share of wealth today if the expected excess return of her stock holdings were to increase and vice versa. This rational explanation is given in Lettau and Ludvigson (2001).

Unanticipated inflation exhibit significant negative relation with at least 90% confidence for 7 of 12 portfolios (excluding Gmv and Omv portfolios), adding partially to the model's explanatory power, and is in line with the idea that only unexpected inflation should affect investors (Ball and Brown, 1968) whereas expected inflation would only have a "random" link to stock prices, assuming rational agents. The finding, though, goes against the common idea that a positive correlation should occur between inflation and returns due to the "hedging" characteristic of common stocks as claims on real assets (which on the other hand does not fit empirical evidence, see Geske and Roll, 1983). However, when the economy suffers from inflation in excess of expectations, investor uncertainty increases, and the investment community may shift attention to assets that have higher probability of rallying during times of uncertainty (increasing net wealth and compensating the perturbing cost of inflation), i.e. shift to reliably recognized investment hedges, such as commodities. Another argument was put forth on the general inverted relation of unanticipated inflation and stock returns by Lintner (1975) who stated that higher unanticipated inflation increase the pressure for external financing since firms require a higher fraction of non-internally generated funds in order to hold the working capital-to-sales ratio constant. This in turn dilutes return on equity as real cost of capital increases, limiting the possibilities to invest in projects with positive real net present value.

The adjusted R^2 is relatively low as there is a significant discrepancy in the volatility levels of the investment returns and the economic factors.

*Table 13 - Time-series regression output of return on each of the three equally weighted, value-weighted, and mean-variance portfolios of Oppenheimer and Graham respectively versus the APT-factors between July 1979 and June 2010. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, constants in decimal format.*

1979-2010	**G1ew**	**G2ew**	**G3ew**	**G1vw**	**G2vw**	**G3vw**	**G1mv**	**G2mv**	**G3mv**	**O1ew**	**O2ew**	**O3ew**	**O1vw**	**O2vw**	**O3vw**	**O1mv**	**O2mv**	**O3mv**
gm	-0.195	-0.081	-0.087	-0.180	-0.437	-0.163	-2.685	-100.904	-2.120	-0.013	-0.052	-0.069	-0.469	-0.431	-0.601*	-20.130	13.958**	-10.479
	(0.427)	(0.406)	(0.401)	(0.397)	(0.427)	(0.461)	(6.485)	(120.342)	(4.027)	(0.399)	(0.357)	(0.366)	(0.383)	(0.380)	(0.335)	(17.633)	(7.088)	(8.587)
am	-0.308***	-0.294***	-0.337***	-0.253***	-0.231**	-0.247**	-0.631	-42.094	-1.401*	-0.376***	-0.375***	-0.306***	-0.289***	-0.258***	-0.193**	20.816	-2.469	2.939
	(0.101)	(0.096)	(0.099)	(0.096)	(0.109)	(0.107)	(1.425)	(39.082)	(0.812)	(0.097)	(0.099)	(0.096)	(0.085)	(0.086)	(0.088)	(20.652)	(1.936)	(2.411)
rp	-2.032***	-1.844***	-1.948***	-1.832***	-1.801**	-1.859**	-2.316	-53.222	-5.561	-2.213***	-2.215***	-2.039***	-2.339***	-1.944***	-1.803***	32.890	-6.404	1.881
	(0.755)	(0.667)	(0.734)	(0.692)	(0.715)	(0.792)	(6.556)	(54.494)	(5.434)	(0.695)	(0.664)	(0.684)	(0.594)	(0.633)	(0.603)	(32.331)	(7.807)	(9.551)
y	0.338*	0.179	0.353*	0.059	-0.218	-0.012	-0.004	-15.538	1.484	0.143	0.173	0.321*	-0.095	0.015	0.037	9.593	7.258*	-4.800
	(0.200)	(0.199)	(0.187)	(0.202)	(0.241)	(0.231)	(2.268)	(25.049)	(2.441)	(0.182)	(0.171)	(0.181)	(0.195)	(0.184)	(0.186)	(13.287)	(3.914)	(3.762)
c	1.778**	1.886***	1.912***	1.837**	2.127***	1.930**	-5.617	96.188	-0.520	1.864**	1.919***	1.947***	2.109***	2.492***	2.236***	39.992	1.204	1.034
	(0.727)	(0.658)	(0.683)	(0.718)	(0.771)	(0.778)	(4.959)	(123.652)	(2.537)	(0.742)	(0.675)	(0.661)	(0.549)	(0.548)	(0.423)	(37.217)	(6.680)	(8.350)
op	-0.019	-0.046	-0.045	-0.045	-0.071	-0.011	0.127	3.009	-0.677	-0.045	-0.039	-0.057	-0.084***	-0.042	-0.081***	-2.035	-1.039*	-1.105**
	(0.041)	(0.043)	(0.041)	(0.038)	(0.043)	(0.045)	(0.241)	(5.186)	(0.607)	(0.038)	(0.039)	(0.036)	(0.030)	(0.036)	(0.030)	(2.167)	(0.577)	(0.527)
ei	0.018	0.059	0.165	0.195	-0.179	0.017	-1.028	-103.481	2.653	-0.163	-0.074	-0.027	-0.117	-0.088	-0.172	51.359	4.953	3.593
	(0.247)	(0.244)	(0.238)	(0.230)	(0.267)	(0.258)	(2.707)	(109.561)	(2.222)	(0.256)	(0.242)	(0.233)	(0.224)	(0.236)	(0.215)	(46.913)	(3.675)	(3.288)
delta_ei	0.898	1.047	0.336	1.300*	1.341	0.963	-7.841	99.725	-5.083	1.027	0.716	0.610	1.138	0.867	1.337**	51.404	7.124	-6.113
	(0.688)	(0.650)	(0.673)	(0.720)	(0.839)	(0.790)	(7.512)	(87.384)	(8.803)	(0.740)	(0.688)	(0.677)	(0.711)	(0.653)	(0.575)	(45.640)	(10.295)	(8.205)
ui	-0.442*	-0.445*	-0.572**	-0.517**	-0.390	-0.489*	1.794	82.232	-1.600	-0.333	-0.333	-0.345	-0.444**	-0.316	-0.405**	-52.667	0.905	-3.092
	(0.242)	(0.260)	(0.246)	(0.213)	(0.246)	(0.278)	(2.858)	(82.878)	(1.895)	(0.242)	(0.231)	(0.229)	(0.214)	(0.215)	(0.205)	(50.572)	(4.102)	(3.001)
Const.	0.048**	0.045**	0.042**	0.042**	0.057***	0.050**	0.119	6.410	0.051	0.061***	0.058***	0.048***	0.064***	0.050***	0.049***	-2.959	-0.177	-0.144
	(0.020)	(0.018)	(0.020)	(0.019)	(0.020)	(0.021)	(0.236)	(6.354)	(0.074)	(0.019)	(0.018)	(0.018)	(0.016)	(0.017)	(0.016)	(2.828)	(0.278)	(0.309)
Adj. R2	0.092	0.085	0.111	0.082	0.074	0.063	-0.015	-0.012	-0.011	0.096	0.109	0.104	0.11	0.113	0.104	0.008	0.021	0.000

b) Sub Sample Period

As displayed in Table 55 through Table 57 in appendix, the APT factors in various sub samples display time-varying characteristics. In the beginning of the entire sample period, consumption expenditure and oil prices are significantly positive and negative respectively. During the 90’s, only oil prices continue to display significance whereas in the 00’s risk premium is negatively significant and change in expected inflation is positively significant. First of all, oil prices probably have the same effect as in the entire sample period, where most likely, oil impact companies across the board directly or indirectly, especially during times of uncertainty, since manufacturing and distribution costs increase while it can be hard to pass the increased costs to the customer. Therefore, choosing “value stocks” that pass strong criteria and discard obvious raw-material-based companies, does not in itself provide a hedge against oil price fluctuations, which should be noted.

The finding that there is a positive relation between change in expected inflation and portfolio returns in the 00’s argue against the common economic explanation put forth by Fama (1981), who draw the link that an increase in productivity strengthen stock prices through stronger fundamentals, but also put downward pressure on inflation due to weaker money demand, causing a negative relation between both entities. This paper make the opposite finding, and a plausible explanation would be that as expected inflation increases, the individuals real holdings of assets decrease through the increased opportunity cost of real balances. The increased inflation also lowers the real rate of interest and combined with less net worth of the individual, making her averse of holding nominal assets such as regular bonds since they yield lower real rate of return in comparison to stocks. Therefore, if aggregate holdings in cash and bonds decrease and nominal investable amount remain constant, the excess investable cash gravitates to stocks, where the companies due to lower real rate of interest also may find additional profitable investment opportunities (as the discounted return on invested capital increase in relation to weighted average cost of capital) inducing a higher demand for investments as well. This empirical finding suits the model put forth by Stulz (1986).

3. Mutual funds

In Table 14, the mutual funds in all segments generally exhibit significantly *negative* alphas for all asset pricing models, confirming findings by Jensen (1968), Elton et al. (1993), and Carhart (1997). To the extent that alphas are positive, no statistical significance can be deduced.

*Table 14 - Time-series regression output of excess return on each of the fictive portfolios of mutual funds in the value segment separated in multi (MLVE), small (SCVE), mid (MCVE), and large cap (LCVE) segments respectively versus the CAPM, FF3 and FF6-factors. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

2000-2010	MLVE			SCVE			MCVE			LCVE		
	CAPM	**FF3**	**FF6**	**CAPM**	**FF3**	**FF6**	**CAPM**	**FF3**	**FF6**	**CAPM**	**FF3**	**FF6**
Mkt	0.920***	0.934***	0.912***	0.995***	0.892***	0.889***	0.987***	0.949***	0.945***	0.887***	0.929***	0.913***
	(0.041)	(0.021)	(0.023)	(0.063)	(0.020)	(0.021)	(0.049)	(0.030)	(0.032)	(0.034)	(0.019)	(0.017)
SMB		0.009	0.007		0.652***	0.667***		0.283***	0.317***		-0.149***	-0.172***
		(0.037)	(0.035)		(0.028)	(0.032)		(0.036)	(0.035)		(0.030)	(0.030)
HML		0.291***	0.302***		0.478***	0.499***		0.327***	0.372***		0.224***	0.200***
		(0.039)	(0.047)		(0.036)	(0.036)		(0.047)	(0.049)		(0.029)	(0.037)
Mom			-0.030			0.001			0.004			-0.031
			(0.020)			(0.016)			(0.018)			(0.020)
ST rev			0.015			0.003			0.005			-0.001
			(0.028)			(0.024)			(0.029)			(0.023)
LT rev			-0.013			-0.048			-0.106**			0.064**
			(0.045)			(0.037)			(0.052)			(0.032)
Alpha	-0.014	-0.034***	-0.041***	0.037	-0.040***	-0.041***	0.018	-0.025**	-0.028**	-0.038***	-0.050***	-0.049***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs	120	120	120	120	120	120	120	120	120	120	120	120
Adj R2	0.922	0.965	0.966	0.780	0.975	0.974	0.898	0.962	0.963	0.940	0.977	0.978

Comparing the performance of mutual funds in the table above, with the Graham and Oppenheimer portfolios (Table 34, Table 38, Table 46, and Table 50 in appendix) it is clear that, on average, the portfolios' CAPM-alphas, net of costs, outperform the mutual funds. The average Gew and Gvw CAPM-alphas are 8.1% and 5.4% respectively, and Oew and Ovw are 4.1% and 0.6% respectively, whereas only two fictive mutual funds had (insignificant) positive alpha. In addition, the decade 2000-2010 show that approximately half of the Graham and Oppenheimer portfolios have significant positive alphas, net of costs, also in relation to FF3 and FF6, whereas the mutual funds show negative statistical significance in all cases. This indicates that the individual investor, in the value context, can set up value investment vehicles which are based on simple screening criteria and outperform the aggregate mutual funds industry with similar investment objective. In a similar vein, this shows that the average performance of mutual funds do not yield benefits to the investor even in the value context, confirming the "arithmetic of active management" and that money managers attract funds that they should not in a market with completely rational agents, a puzzle stated before by for example Gruber (1996).

There can be numerous explanations to the above finding; firstly, agency issues in the mutual fund industry may not promote fund managers to always act in the best interest of the mutual fund investors. Additionally, plausible explanations in the value context would be that a "pure" contrarian investment strategy requires independent decision-making that is uninfluenced by other participants, in effect "not following the herd". This independence may be easier to retain for an individual investor using a mechanical screening approach in a slavish manner which is unaffected by the behavioral biases of the investor, as opposed to a money manager that is more interrelated to other market participants and institutional requirements. A consequence of this would be that the value investors' focus on stocks with less analyst coverage is a suitable arena for identifying valuation anomalies. Inconsistencies in time preferences between fund investors and fund managers can, furthermore, in effect lead to fund managers chasing for short-term gains at the expense of long-term performance, thereby skewing the holdings in the fund portfolio toward less value stocks that may appreciate on a longer term. In a larger context, a mechanical screening approach, if followed appropriately, can significantly reduce a number of behavioral biases, leading to a better overall performance as investors ex-ante expectation errors do not obscure the decision-making process.

All funds show market betas close to one with statistical certainty and in addition with coefficients of determination also close to one. Therefore, they also exhibit a closer relation to the market than the portfolios, which is expected, but which would increase the investment aversion of a value investor, making them less appropriate for the defensive investor relative to a mechanical portfolio. The small- and mid-cap value funds resemble our equally-weighted portfolios in terms of factor loading, which is an effect of their direct size criteria after which to invest and the portfolios have indirect size focus in terms of weighting, i.e. the relatively smaller stocks have stronger influence on overall performance. Therefore, both investment vehicles load heavier on smaller stocks, thereby loading on the SMB factor. The multi- and large cap funds exhibit a weaker resemblance with the value-weighted portfolios. Moreover, the intertemporal factor coefficients in general indicate a low explanatory power, however, the long-term reversal factor show statistical significance for mutual funds primarily investing in mid- and large cap stocks.

4. Recessions and Expansions

Market betas, for all portfolios (excluding mv), tend to increase during recessionary periods, while in general staying below one during expansions (Table 15). In relation to the market, the Graham portfolios generally exhibit significant alpha in both expansions and recessions, with stronger relative performance in recessions. This indicates that even though the covariance with the market is increased during downturns, the portfolio still outperform the market consistently, which mitigates the above argument. On the contrary, Oppenheimer portfolios do not all together display any significant alpha in neither recessions nor expansions. Therefore, along these lines, the performance of Graham over Oppenheimer again justifies the investor to choose the more sophisticated allocation process.

*Table 15 – Condensed time-series regression output of excess return on each of the three equally-weighted, value-weighted, and mean-variance Graham and Oppenheimer portfolios respectively, versus the CAPM-factor, in specified recessionary and expansionary time-periods.*** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format. For full data output see Table 58 to Table 69 in appendix.*

	G1ew	**G2ew**	**G3ew**	**G1vw**	**G2vw**	**G3vw**	**G1mv**	**G2mv**	**G3mv**
Recessions									
Mkt	1.002***	0.967***	1.042***	0.952***	0.936***	1.043***	4.080	84.483	-3.879
Alpha	0.085*	0.065	0.149***	0.115**	0.086*	0.123**	1.008	63.726	3.718
Expansions									
Mkt	0.807***	0.859***	0.815***	0.775***	0.864***	0.875***	-1.033	0.687	0.374
Alpha	0.044**	0.049***	0.058***	0.0348*	0.0336	0.0492**	-1.086	-0.239	0.227
	O1ew	**O2ew**	**O3ew**	**O1vw**	**O2vw**	**O3vw**	**O1mv**	**O2mv**	**O3mv**
Recessions									
Mkt	1.064***	1.021***	0.946***	0.802***	0.883***	0.729***	1.290	2.174**	26.773
Alpha	0.073*	0.082**	0.05	0.0372	0.0012	0.034	0.073*	0.001	0.034
Expansions									
Mkt	0.854***	0.825***	0.816***	0.785***	0.741***	0.728***	1.101	0.588	3.284*
Alpha	0.014	0.026	0.026	0.014	0.030*	0.013	0.014	0.030*	0.013

In terms of absolute returns in recessions, which is of concern to many investors since the marginal utility of consumption is relatively high, Graham and Oppenheimer portfolios outperform the market on average during recessionary periods (Table 16). The tendency is relatively persistent, there are however economic downturns where portfolios show weaker performance than the market. For graphical examination, see Figure 7 to Figure 12 in appendix, where it is displayed that the portfolios in most recessions outperform the market on an absolute return basis.

Table 16 - The table depicts the geometric monthly average return (gross of costs) of a one dollar investment in fictive portfolios mirroring equally weighted averages of each of the three value and equally-weighted (mean-variance is excluded due to insensible results) Graham and Oppenheimer portfolios respectively, during the specified recession periods. The left most column shows the recessions, with the starting month of the recession as determinant. Returns are in decimal format.

Year-Month	Gew avg	Gvw avg	Oew avg	Ovw avg	Mkt
Rec 1974-07	0.014	0.016	0.012	0.001	0.002
Rec 1980-02	0.010	0.018	0.009	0.001	0.015
Rec 1981-08	0.017	0.017	0.013	0.018	0.008
Rec 1990-08	0.008	0.022	0.018	0.019	0.010
Rec 2001-04	0.011	0.004	0.016	0.003	0.000
Rec 2008-01	-0.012	-0.014	-0.022	-0.020	-0.023
Average	0.008	0.011	0.008	0.004	0.002

This suggests that the portfolios indeed show certain resilience in downturns, making them appropriate investment vehicles for defensive investors who want “safety of principal”. The reason for this is ambiguous without further research, but one explanation could be the fact that the investment approach indeed identify and select stocks of high quality minimizing the risk of holding distress factor related stocks, therefore in this sense there is merit to the strategy. If true, this may have reduced the idiosyncratic risk part of the portfolio relatively more compared to a portfolio of same size conformed entirely by random stocks. The basic fact that the stocks pass strong financial requirements may ensure that idiosyncratic risk is reduced more in relation to stocks that have no financial requirements, which means that on a portfolio level, overall risk decreases faster with size, though the strength of this argument is uncertain. The table also confirm the notion made in the methodological section that an economic downturn is not equivalent to a bear market, as returns are not exclusively negative.

It has been continuously argued that the over performance of the value investing portfolios are not solely a compensation for higher risk, as implied by Fama and French (1992), Chen and Zhang (1998), and Petkova and Zhang (2003). Instead, the findings in this study suggests that value investing portfolios; over perform in recessionary periods, exhibit low market betas, and low return skewness, implying attractive risk features, which promotes a behavioral explanation of the performance disparity. Lakonishok, Shleifer and Vishny (1994) presented evidence, confirming the notion that value stocks yield higher returns because they exploit suboptimal behavior of market participants. Ou and Penman (1989b) also conducted a fundamental analysis study, where they concluded that risk-adjusted returns could be increased by scrutinizing stocks, corroborating the conclusion in this study. The findings are an indication of the merit of selecting stocks using a mechanical screening device, though there is probably room for adjusting the criteria to find even more higher-rewarding stocks.

V. Conclusion and Further Research

1. Concluding Remarks

The objective of this study was to perform an empirical ex-ante analysis of a mechanical application of the investment strategy outlined by Graham (1973) and Oppenheimer and Schlarbaum (1981). The main contribution of this paper is to articulate that an easily managed investment strategy for individual investors yield a high risk-adjusted return with respect to the market, outperform the average mutual fund in the value segment, and constitute a cost-efficient way to load on the HML-factor. The following conclusions can be drawn:

- Over the sample period of 1974 to 2010, the Graham portfolios in general earned statistically significant positive abnormal return (gross and net of costs) over the market. While the Oppenheimer portfolios also displayed positive abnormal return (gross of costs), and negative abnormal return (net of costs), no statistical significance could be inferred, leading to partial rejection of the first hypothesis (i.e. reject for Graham but not for Oppenheimer strategy).

- The abnormal returns are, for both strategies, time-varying and affected by economic and market fundamentals as well as degree of market efficiency, which means that the strategies do not show persistency over all tested time periods. Therefore, the second hypothesis cannot be rejected.

- The Graham approach do provide “safety” in economic downturns in terms of statistically significant CAPM-alphas and in general higher absolute returns in relation to the market, over the actual recessionary periods, making it an appropriate strategy for the defensive investor. The third hypothesis is consequently partly rejected.

- The strategies in general outperform a large set of mutual funds with similar investment objectives in terms of risk-adjusted returns, which imply rejection of the fourth hypothesis.

All in all, the Graham approach qualify as a noteworthy method of discriminating stocks. Although, this approach has been shown to produce alphas and beat the average mutual fund with the same investment objective, the screening criteria might be adjustable so as to capture additional high-rewarding companies from a larger set of companies, thereby following the literature in fundamental analysis.

Other findings of notable interest constitute; equally-weighted portfolios outperforming value-weighted portfolios and also that out-of-sample mean-variance weights yield highly unstable results. Both portfolio strategies show a higher return per unit of risk compared to the market. The links to the real economy has been shown to mainly include risk premium, industrial production and consumption, whereas financial factors such as momentum and reversals has shown to be of little significance.

Likely explanations for the over performance of the mechanical investment strategy are that the individual investor avoid a number of behavioral and institutional biases (discussed in section IV) through simplified investment decision-making. Additionally, this particular approach seem to recognize prosperous companies' stocks at bargain prices, which ultimately also is the objective.

2. Future Research Suggestions

Suggested future research in this area are; *firstly* to perform an in-depth analysis of the relative significance of the various criteria used in discriminating stocks. Although not touched upon in this study, a vital understanding in the internal drivers of returns for the value investing approach is necessary in order for individual investors to benefit the most of this strategy. The results show that this approach have merit in performance, however, there may be redundant or omitted criteria as there was a discrepancy between the two investment strategies, therefore an analysis investigating this topic from a value investing point of view should be informative of this point. *Secondly*, studies of value investing on an interregional level would be desirable to determine the replicability in other countries for corroboration of results. Any investing philosophy worthy of investor attention should be able to show that their theoretical underpinnings are validated in empirical data, and in order for the investor to be confident of the achievement a broad-based examination is of course desirable to get increased precision of the strategy. *Lastly*, an interesting research question would be whether alternating the holding period of stocks would yield increasing benefit to the investor, wherefore a study on the strategy's merit considering various holding periods could be enlightening.

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VII. Appendix

Definitions of CAPM, FF3, and FF6-factors

Table 17 - Definitions of factors in regression models.

$R_{f,t}$= The risk-free rate of return at time t proxied by one-month T-bill rate
α_p= The abnormal return of the portfolio to the asset-pricing model
β_i= Factor sensitivity of the portfolio to factor i
Mkt = The market rate of excess return over the risk-free rate at time t proxied by one-month T-bill rate. The market rate is proxied by the value-weighted return on all stocks listed on NYSE, AMEX and NASDAQ time t.
SMB= (Small Minus Big) The average return on the three small value-weighted portfolios minus the average return on the three big value-weighted portfolios; 1/3 (Small Value + Small Neutral + Small Growth) - 1/3 (Big Value + Big Neutral + Big Growth)
HML= (High Minus Low) is the average return on the two value portfolios minus the average return on the two growth portfolios; 1/2 (Small Value + Big Value) - 1/2 (Small Growth + Big Growth)
MOM = the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios, t-12 to t-2; 1/2 (Small High + Big High) - 1/2(Small Low + Big Low)
$SREV$= the average return on the two low prior return portfolios minus the average return on the two high prior return portfolios, t-1; 1/2 (Small Low + Big Low) - 1/2(Small High + Big High)
$LREV$= the average return on the two low prior return portfolios minus the average return on the two high prior return portfolios, t-60 to t-13; 1/2 (Small Low + Big Low) - 1/2(Small High + Big High)
GM= The monthly growth in industrial production
AM= The annual growth in industrial production
RP= The credit risk premium
Y= The term structure or yield curve
C= Consumption expenditure growth
OP= Oil price change
EI= Inflation expectations
$delta\_EI$= Change in inflation expectations
UI= Unexpected inflation (measured as realized inflation minus expected inflation
$\varepsilon_{p,t}$= Error term of the portfolio at time t

Definition of APT-factors

Table 18 - The table shows all macroeconomic variable used in this study from St Louis Federal Reserve, it also includes the symbols used for the equations of economic factors and definitions made by St Louis Federal Reserve.

Variable.	**Symbol**	**Definition**
Inflation	I	Consumer Price Index for All Urban Consumers: All Items
Treasury bill rate	TB	3-Month Treasury Bill: Secondary Market Rate
Long-term government bond	LGB	10-Year Treasury Constant Maturity Rate
Industrial production	IP	Industrial Production Index
High-yield bond	Baa	Moody's Seasoned Baa Corporate Bond Yield
Consumption	C	Personal Consumption Expenditures
Oil price	OP	Spot Oil Price: West Texas Intermediate
Inflation expectation	E[I(t)]	University of Michigan's Inflation expectation index

Table 19 - The table shows the economic factors, abbreviations and the method of calculation used in this study.

Factors	**Symbol**	**Equation**
Monthly growth industrial production	MP(t)	$\log(\frac{IP(t)}{IP(t-1)})$
Annual growth industrial production	YP(t)	$\log(\frac{\mathrm{IP(t)}}{\mathrm{IP(t-12)}})$
Risk premium	RP(t)	$Baa(t) - \mathrm{LGB}(t)$
Term structure/Yield curve	Y(t)	$\mathrm{LGB(t) - TB(t-1)}$
Consumption growth	C (t)	$\frac{\mathrm{C(t) - C(t-1)}}{\mathrm{C(t-1)}}$
Oil price change	OP(t)	$\log(\frac{OP(t)}{OP(t-1)})$
Expected inflation	E[I(t)]	$\mathrm{E[\big(I(t+12)\big\vert I(t)\big)]}$
Change in expected inflation	ΔEI(t)	$E(I(t+12)\vert I(t)) - E(I(t+11)\vert t-1)$
Unexpected inflation	UI(t)	$I(t) - E(I(t)\vert t-12)$

Data Sample Statistics

Table 20 – Statistics on number of stocks in the value investor's universe for each year, and number of stocks passing the Graham and Oppenheimer criteria respectively along with the percentage share of total stocks for each year.

Year	No. of listed U.S. companies (NYSE, NASDAQ and Amex)	No. of Industrials	No. of Public Utilities	Sum of Industrials and Public Utilities	No. of Graham Companies	% of Total	No. of Oppenheimer Companies	% of Total
1973	4044	2281	110	2391	170	7.1%	192	8.0%
1974	4408	2359	119	2478	226	9.1%	215	8.7%
1975	4411	2342	123	2465	238	9.7%	205	8.3%
1976	4371	2319	124	2443	253	10.4%	248	10.2%
1977	4322	2272	133	2405	264	11.0%	272	11.3%
1978	4373	2248	134	2382	262	11.0%	246	10.3%
1979	4454	2225	132	2357	262	11.1%	229	9.7%
1980	4586	2230	137	2367	238	10.1%	206	8.7%
1981	4877	2295	141	2436	260	10.7%	244	10.0%
1982	5167	2397	146	2543	226	8.9%	210	8.3%
1983	5685	2616	150	2766	236	8.5%	236	8.5%
1984	5930	2692	158	2850	259	9.1%	246	8.6%
1985	6074	2746	165	2911	166	5.7%	190	6.5%
1986	6613	2900	164	3064	125	4.1%	164	5.4%
1987	7097	3053	167	3220	131	4.1%	174	5.4%
1988	7087	3070	164	3234	97	3.0%	176	5.4%
1989	7005	3055	166	3221	81	2.5%	133	4.1%
1990	7075	3177	164	3341	72	2.2%	131	3.9%
1991	7263	3385	165	3550	31	0.9%	91	2.6%
1992	7674	3753	171	3924	27	0.7%	82	2.1%
1993	8564	4194	175	4369	24	0.5%	91	2.1%
1994	8987	4460	185	4645	42	0.9%	125	2.7%
1995	9118	4586	183	4769	35	0.7%	100	2.1%
1996	9678	4908	197	5105	37	0.7%	96	1.9%
1997	9696	4974	197	5171	35	0.7%	75	1.5%
1998	9361	4902	188	5090	32	0.6%	71	1.4%
1999	9287	4871	184	5055	48	0.9%	70	1.4%
2000	9073	4809	167	4976	45	0.9%	74	1.5%
2001	8366	4633	163	4796	37	0.8%	43	0.9%
2002	7948	4600	161	4761	37	0.8%	64	1.3%
2003	7669	4581	161	4742	23	0.5%	45	0.9%
2004	7637	4609	168	4777	34	0.7%	49	1.0%
2005	7590	4613	168	4781	22	0.5%	77	1.6%
2006	7489	4595	162	4757	32	0.7%	70	1.5%
2007	7329	4613	159	4772	47	1.0%	66	1.4%
2008	6967	4521	163	4684	78	1.7%	87	1.9%
2009	6606	4400	159	4559	56	1.2%	65	1.4%
Average	6862			3734	116		139	

Table 21 – Statistics on number of mutual funds in respective segments for each year along with average numbers.

	MLVE	SCVE	MCVE	LCVE	Average
2000	491	329	176	383	345
2001	539	299	186	335	340
2002	512	272	231	419	359
2003	502	232	221	426	345
2004	492	249	257	445	361
2005	466	234	249	438	347
2006	486	254	279	481	375
2007	477	321	358	557	428
2008	524	401	474	764	541
2009	450	376	314	668	452
2010	433	297	231	621	396
Average	488	297	271	503	**390**

Methodological Flow Chart of Portfolio Construction

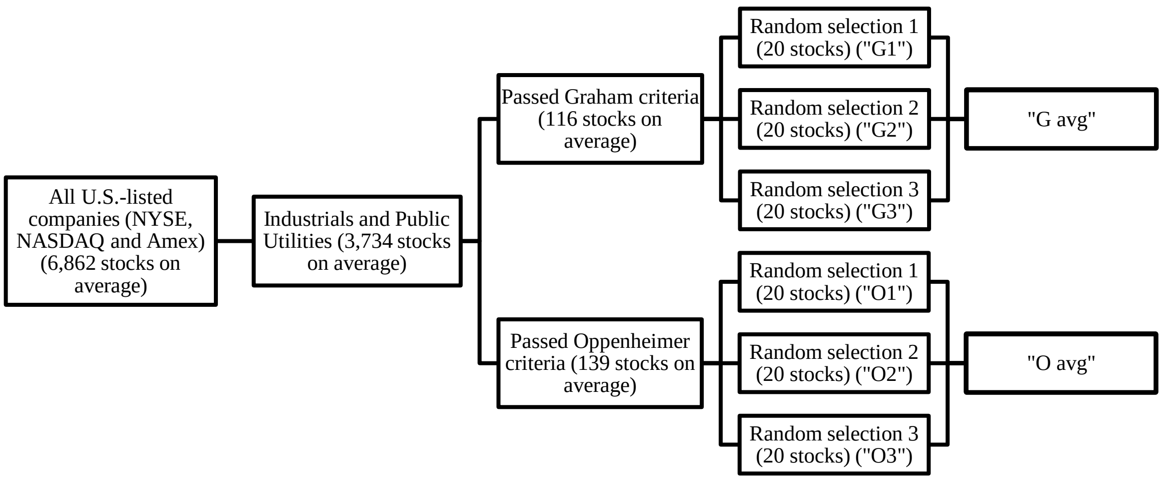

Figure 2 - Flow chart of yearly portfolio construction process. Firstly, all Industrial and Public Utility stocks are sorted out. Secondly, from the yearly average of 3,734 stocks in the Industrials and Public Utility sectors, Graham and Oppenheimer criteria are applied to sort out stocks passing the respective set (on average 116 stocks for Graham criteria and 139 for Oppenheimer). From the remaining two sets of stocks, three random selection procedures are conducted respectively to form three portfolios for each approach.

Fund Type and Size Definitions

Table 22 - The table describes the Lipper classification code of mutual funds used in this study from CRSP database.

Code	Objective Class Name	Description
LCVE	Large-Cap Value Funds	Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) greater than 300% of the dollar-weighted median market capitalization of the middle 1,000 securities of the S&P SuperComposite 1500 Index. Large-cap value funds typically have a below-average price-to-earnings ratio, price-to-book ratio, and three-year sales-per-share growth value, compared to the S&P 500 Index.
MCVE	Mid-Cap Value Funds	Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) less than 300% of the dollar-weighted median market capitalization of the middle 1,000 securities of the S&P SuperComposite 1500 Index. Mid-cap value funds typically have a below-average price-to-earnings ratio, price-to-book ratio, and three-year sales-per-share growth value, compared to the S&P MidCap 400 Index.
MLVE	Multi-Cap Value Funds	Funds that, by portfolio practice, invest in a variety of market capitalization ranges without concentrating 75% of their equity assets in any one market capitalization range over an extended period of time. Multi-cap funds typically have between 25% to 75% of their assets invested in companies with market capitalizations (on a three-year weighted basis) above 300% of the dollar-weighted median market capitalization of the middle 1,000 securities of the S&P SuperComposite 1500 Index. Multi-cap value funds typically have a below-average price-to-earnings ratio, price-to-book ratio, and three-year sales-per-share growth value, compared to the S&P SuperComposite 1500 Index.
SCVE	Small-Cap Value Funds	Funds that, by portfolio practice, invest at least 75% of their equity assets in companies with market capitalizations (on a three-year weighted basis) less than 250% of the dollar-weighted median of the smallest 500 of the middle 1,000 securities of S&P SuperComposite 1500 Index. Small-cap value funds typically have a below-average price-to-earnings ratio, price-to-book ratio, and three-year sales-per-share growth value, compared to the S&P SmallCap 600 Index.

Definitions of Recession and Expansion Time-Periods

Table 23 - The table show the business cycle dates as defined by NBER, the column peak denotes the month and year at which the business cycle was at its highest point. Trough displays the month and year where the economy was at its lowest level in the business cycle. The column recession measures the total amount of months the economy spent going from peak to trough, in the first row the figure 16 denotes the span from January 1973 to March 1975, however this study starts at July 1974 wherefore the number 9 is used signifying the span from July 1974 to March 1975. The column expansion denotes the number of months the economy spent from the previous trough to the current peak, i.e. the number 58 measures the span between March 1975 to January 1980.

Peak	**Trough**	**Recession Peak to trough**	**Expansion Previous trough to this peak**
January 1973	March 1975	16 (9)	
January 1980	July 1980	6	58
July 1981	November 1982	16	12
July 1990	March 1991	8	92
March 2001	November 2001	8	120
December 2007	June 2009	18	73
July 2009	June 2010		12
Sum		**65**	**367**

Results From Robustness Tests

Table 24 - The Dickey Fuller tests were done for all portfolios on the time line 197407-201006. The portfolios are denoted below the heading Variable. The portfolios are labeled according to the syntax: portfolio investment strategy , portfolio number, weighting. For example g1ew means Graham1 equally-weighted, which is the first (out of three) portfolios whose holdings are weighted equally using the Graham criteria. O3mv means Oppenheimer3 mean-variance, which is the third (out of three) portfolios whose holdings are weighted according to the mean-variance postulation with Oppenheimer criteria. The test statistic is the Dickey-Fuller test statistic and 1%CV is the critical value for 99% confidence level. The null hypothesis is the presence of unit root in the series and the alternative hypothesis signifies a stationary process.

Dickey Fuller test									
Variable	**G1ew**	**G1vw**	**G1mv**	**G2ew**	**G2vw**	**G2mv**	**G3ew**	**G3vw**	**G3mv**
Test statistic	-18.131	-20.371	-19.43	-18.347	-18.307	-20.833	-18.181	-20.291	-20.399
1% CV	-3.446	-3.446	-3.446	-3.446	-3.446	-3.446	-3.446	-3.446	-3.446
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Variable	**O1ew**	**O1vw**	**O1mv**	**O2ew**	**O2vw**	**O2mv**	**O3ew**	**O3vw**	**O3mv**
Test statistic	-18.319	-20.787	-18.319	-18.361	-19.427	-19.427	-18.521	-21.023	-21.023
1% CV	-3.446	-3.446	-3.446	-3.446	-3.446	-3.446	-3.446	-3.446	-3.446
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 25 - The Breusch-Pagan tests were performed on all portfolios between 197407-201006. The portfolios are labeled according to the syntax: portfolio investment strategy , portfolio number, weighting. For example g1ew means Graham1 equally-weighted, which is the first (out of three) portfolios whose holdings are weighted equally using the Graham criteria. O3mv means Oppenheimer3 mean-variance, which is the third (out of three) portfolios whose holdings are weighted according to the mean-variance postulation with Oppenheimer criteria. The chi-square column shows the test statistics and p-value is compared to the critical value of 0,05.

Breusch-Pagan test									
Variable	**G1ew**	**G1vw**	**G1mv**	**G2ew**	**G2vw**	**G2mv**	**G3ew**	**G3vw**	**G3mv**
Chi square	13.870	4.790	0.000	11.670	1.160	0.050	10.30	5.20	0.160
p-value	0.000	0.029	0.991	0.001	0.282	0.815	0.001	0.023	0.688
Variable	**O1ew**	**O1vw**	**O1mv**	**O2ew**	**O2vw**	**O2mv**	**O3ew**	**O3vw**	**O3mv**
Chi square	7.310	6.100	7.310	8.830	5.690	5.690	7.140	4.240	4.240
p-value	0.007	0.014	0.007	0.003	0.017	0.017	0.008	0.040	0.040

Table 26 – The Shapiro-Wilk tests were performed on all portfolios between 197407-201006. The portfolios are labeled according to the syntax: residual, portfolio investment strategy , portfolio number, weighting, regression. For example rg1ewmkt means the residuals of Graham1 equally-weighted portfolio regression on market excess return, which is the residuals of the first (out of three) portfolios whose holdings are weighted equally compiled using the Graham criteria when regressed on the excess return of the market portfolio. Ro3mvapt means residuals of Oppenheimer3 mean-variance portfolio regression on the macroeconomic model, which is the residuals of the third (out of three) portfolios whose holdings are weighted according to the mean-variance postulation with Oppenheimer criteria and regressed on the macroeconomic model. Therefore, mkt signifies CAPM, ff3 the Fama-French 3 factor model, FF6 means FF3+momentum+short-term reversal+long-term reversal and APT means the macroeconomic model (gm, am, rp, y, c, op, ei, delta_ei, ui).

Shapiro-Wilk test											
Variable regression	**Obs**	**W**	**V**	**z**	**Prob>z**	**Variable regression**	**Obs**	**W**	**V**	**z**	**Prob>z**
rG1ewmkt	432	0.986	4.147	3.396	0.000	rG1ewff6	430	0.995	1.359	0.732	0.232
rG1vwmkt	432	0.986	4.171	3.41	0.000	rG1vwff6	430	0.994	1.632	1.17	0.121
rG1mvmkt	432	0.401	176.646	12.355	0.000	rG1mvff6	430	0.436	165.758	12.201	0.000
rG2ewmkt	432	0.952	14.018	6.305	0.000	rG2ewff6	430	0.974	7.764	4.893	0.000
rG2vwmkt	432	0.95	14.674	6.414	0.000	rG2vwff6	430	0.955	13.119	6.145	0.000
rG2mvmkt	432	0.063	276.295	13.424	0.000	rG2mvff6	430	0.113	260.49	13.28	0.000
rG3ewmkt	432	0.977	6.724	4.55	0.000	rG3ewff6	430	0.992	2.391	2.081	0.019
rG3vwmkt	432	0.963	10.918	5.708	0.000	rG3vwff6	430	0.978	6.606	4.507	0.000
rG3mvmkt	432	0.274	214.241	12.816	0.000	rG3mvff6	430	0.279	211.723	12.785	0.000
rO1ewmkt	432	0.941	17.34	6.813	0.000	rO1ewff6	430	0.976	7.092	4.677	0.000
rO1vwmkt	431	0.957	12.764	6.08	0.000	rO1vwff6	429	0.973	7.962	4.952	0.000
rO1mvmkt	432	0.941	17.34	6.813	0.000	rO1mvff6	430	0.976	7.092	4.677	0.000
rO2ewmkt	432	0.966	10.1	5.522	0.000	rO2ewff6	430	0.986	3.975	3.295	0.000
rO2vwmkt	432	0.942	17.135	6.784	0.000	rO2vwff6	430	0.957	12.595	6.048	0.000
rO2mvmkt	432	0.942	17.135	6.784	0.000	rO2mvff6	430	0.957	12.595	6.048	0.000
rO3ewmkt	432	0.946	15.786	6.589	0.000	rO3ewff6	430	0.979	6.099	4.317	0.000
rO3vwmkt	432	0.962	11.189	5.767	0.000	rO3vwff6	430	0.983	5.047	3.865	0.000
rO3mvmkt	432	0.962	11.189	5.767	0.000	rO3mvff6	430	0.983	5.047	3.865	0.000
rG1ewff3	430	0.992	2.31	1.999	0.023	rG1ewapt	372	0.966	8.646	5.115	0.000
rG1vwff3	430	0.993	2.005	1.66	0.048	rG1vwapt	372	0.984	4.178	3.391	0.000
rG1mvff3	430	0.436	165.688	12.2	0.000	rG1mvapt	372	0.564	112.425	11.199	0.000
rG2ewff3	430	0.971	8.556	5.125	0.000	rG2ewapt	372	0.961	10.033	5.468	0.000
rG2vwff3	430	0.958	12.377	6.006	0.000	rG2vwapt	372	0.973	6.947	4.597	0.000
rG2mvff3	430	0.072	272.587	13.389	0.000	rG2mvapt	372	0.085	236.035	12.957	0.000
rG3ewff3	430	0.991	2.654	2.331	0.010	rG3ewapt	372	0.959	10.523	5.581	0.000
rG3vwff3	430	0.971	8.459	5.098	0.000	rG3vwapt	372	0.973	7.003	4.616	0.000
rG3mvff3	430	0.281	211.181	12.779	0.000	rG3mvapt	372	0.218	201.713	12.585	0.000
rO1ewff3	430	0.977	6.675	4.532	0.000	rO1ewapt	372	0.971	7.558	4.796	0.000
rO1vwff3	429	0.971	8.377	5.074	0.000	rO1vwapt	371	0.995	1.406	0.809	0.209
rO1mvff3	430	0.977	6.675	4.532	0.000	rO1mvapt	372	0.971	7.558	4.796	0.000
rO2ewff3	430	0.984	4.732	3.711	0.000	rO2ewapt	372	0.978	5.571	4.073	0.000
rO2vwff3	430	0.958	12.213	5.974	0.000	rO2vwapt	372	0.991	2.346	2.022	0.022
rO2mvff3	430	0.958	12.213	5.974	0.000	rO2mvapt	372	0.991	2.346	2.022	0.022
rO3ewff3	430	0.98	5.733	4.169	0.000	rO3ewapt	372	0.97	7.705	4.842	0.000
rO3vwff3	430	0.983	4.937	3.812	0.000	rO3vwapt	372	0.994	1.439	0.863	0.194
rO3mvff3	430	0.983	4.937	3.812	0.000	rO3mvapt	372	0.994	1.439	0.863	0.194

Table 27 - The Durbin-Watson tests were performed on all portfolios between 197407-201006. The portfolios are labeled according to the syntax: portfolio investment strategy , portfolio number, weighting, regression. For example rg1ewmkt means the Graham1 equally-weighted portfolio regression on market excess return, which is the first (out of three) portfolios whose holdings are weighted equally compiled using the Graham criteria when regressed on the excess return of the market portfolio. Ro3mvapt means Oppenheimer3 mean-variance portfolio regression on the macroeconomic model, which is the third (out of three) portfolios whose holdings are weighted according to the mean-variance postulation with Oppenheimer criteria and regressed on the macroeconomic model. Therefore, mkt signifies CAPM, ff3 the Fama-French 3 factor model, FF6 means FF3+momentum+short-term reversal+long-term reversal and APT means the macroeconomic model (gm, am, rp, y, c, op, ei, delta_ei, ui).

Durbin-Watson test									
Variable regression	G1ewmkt	G1vwmkt	G1mvmkt	G2ewmkt	G2vwmkt	G2mvmkt	G3ewmkt	G3vwmkt	G3mvmkt
d-statistic	1.876	2.007	1.870	1.876	1.794	1.998	1.949	2.133	1.957
Variable regression	G1ewff3	G1vwff3	G1mvff3	G2ewff3	G2vwff3	G2mvff3	G3ewff3	G3vwff3	G3mvff3
d-statistic	2.005	2.015	1.898	1.946	1.768	1.984	1.978	2.106	1.946
Variable regression	G1ewff6	G1vwff6	G1mvff6	G2ewff6	G2vwff6	G2mvff6	G3ewff6	G3vwff6	G3mvff6
d-statistic	2.018	2.020	1.898	1.995	1.777	1.945	1.999	2.108	1.937
Variable regression	G1ewapt	G1vwapt	G1mvapt	G2ewapt	G2vwapt	G2mvapt	G3ewapt	G3vwapt	G3mvapt
d-statistic	1.805	2.020	2.095	1.802	1.790	2.034	1.832	2.026	2.229
Variable regression	O1ewmkt	O1vwmkt	O1mvmkt	O2ewmkt	O2vwmkt	O2mvmkt	O3ewmkt	O3vwmkt	O3mvmkt
d-statistic	1.942	2.035	1.942	1.941	1.999	1.999	1.820	2.041	2.041
Variable regression	O1ewff3	O1vwff3	O1mvff3	O2ewff3	O2vwff3	O2mvff3	O3ewff3	O3vwff3	O3mvff3
d-statistic	1.944	2.058	1.944	2.016	1.976	1.976	1.801	2.042	2.042
Variable regression	O1ewff6	O1vwff6	O1mvff6	O2ewff6	O2vwff6	O2mvff6	O3ewff6	O3vwff6	O3mvff6
d-statistic	1.940	2.049	1.940	2.055	1.980	1.980	1.836	1.982	1.982
Variable regression	O1ewapt	O1vwapt	O1mvapt	O2ewapt	O2vwapt	O2mvapt	O3ewapt	O3vwapt	O3mvapt
d-statistic	1.854	2.127	1.854	1.829	1.981	1.981	1.791	2.071	2.071

Table 28 - The Variance inflation factor was tested for all multiple regression independent factors between 197407-201006. The variables are grouped according to model, where on the left-hand side FF3 is on top and FF6 is below and the macroeconomic model (APT) is on the righ-hand side. The VIF signifies the factor determining level of multicollinearity whereas 1/VIF is the tolerance factor. In the bottom right-hand corner is the critical value of the variance inflation factor stated.

Variance inflation factor					
Variable	VIF	1/VIF	Variable	VIF	1/VIF
mkt	1,160	0,860	am	2,540	0,394
hml	1,160	0,864	rp	2,360	0,424
smb	1,100	0,911	ei	2,360	0,424
Mean VIF	1,140		ui	2,240	0,447
			gm	1,460	0,684
Variable	VIF	1/VIF	y	1,320	0,755
hml	1,580	0,634	c	1,130	0,886
lrev	1,500	0,665	op	1,120	0,890
smb	1,420	0,705	delta_ei	1,100	0,907
mkt	1,260	0,792	Mean VIF	1,740	
srev	1,160	0,859			
mom	1,160	0,865			
Mean VIF	1,350		CV VIF	10	0,1

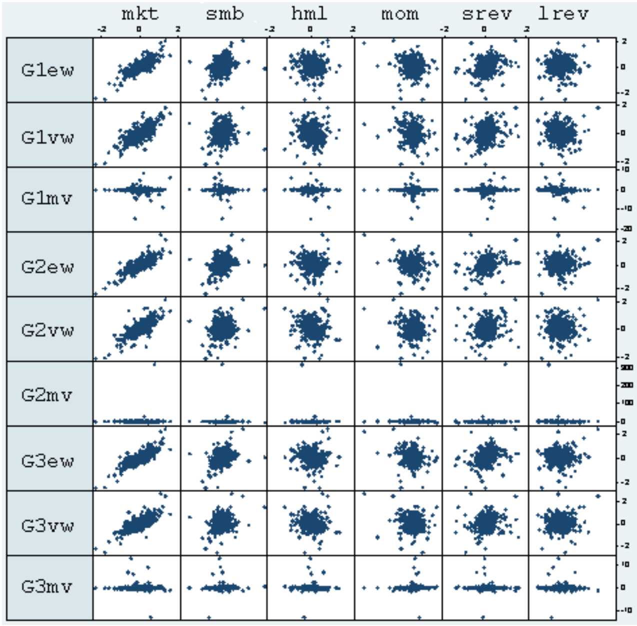

Figure 3 - The figure depicts scatter plots of all Graham-portfolios (on the vertical axis)in excess returns to all zero-cost financial regression factors (on the horizontal axis). The portfolios are labeled according to the syntax: portfolio investment strategy , portfolio number, weighting. For example G1ew means the Graham1 equally-weighted portfolio, which is the first (out of three) portfolios whose holdings are weighted equally compiled using the Graham criteria The individual scatter plots have an interval of -2 to 2, signifying no extreme outliers, except in the case for mean-variance portfolios.

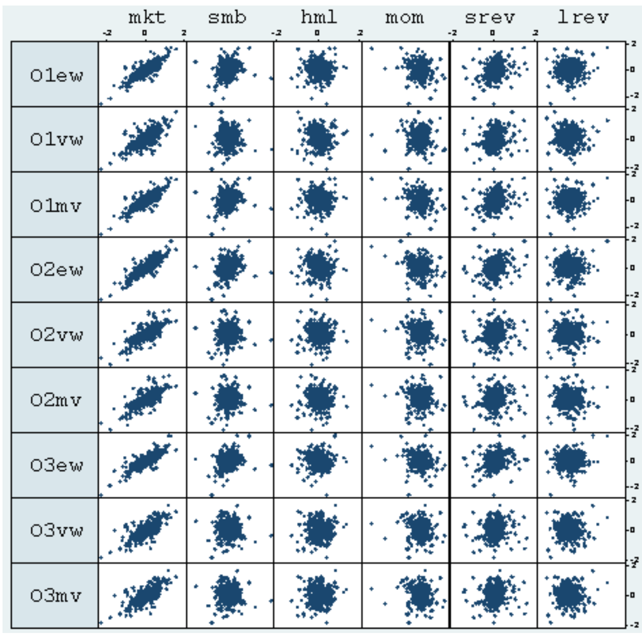

Figure 4 - The figure depicts scatter plots of all Oppenheimer-portfolios (on the vertical axis)in excess returns to all zero-cost financial regression factors (on the horizontal axis). The portfolios are labeled according to the syntax: portfolio investment strategy , portfolio number, weighting. For example O1ew means the Oppenheimer1 equally-weighted portfolio, which is the first (out of three) portfolios whose holdings are weighted equally compiled using the Oppenheimer criteria The individual scatter plots have an interval of -2 to 2, signifying no extreme outliers.

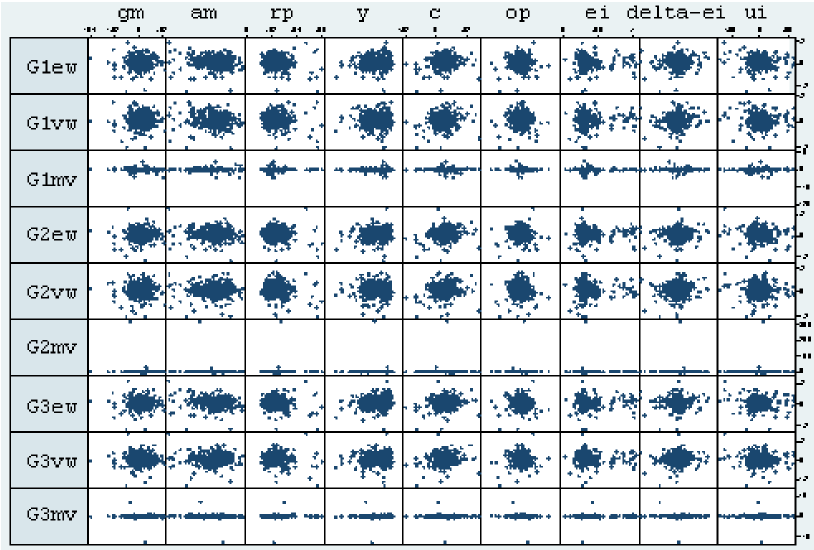

Figure 5 - The figure depicts scatter plots of all Graham-portfolios (on the vertical axis)in returns to all economic regression factors (on the horizontal axis). The portfolios are labeled according to the syntax: portfolio investment strategy , portfolio number, weighting. For example G1ew means the Graham1 equally-weighted portfolio, which is the first (out of three) portfolios whose holdings are weighted equally compiled using the Graham criteria The individual scatter plots have an interval of -2 to 2, signifying no extreme outliers in the case for mean-variance portfolios.

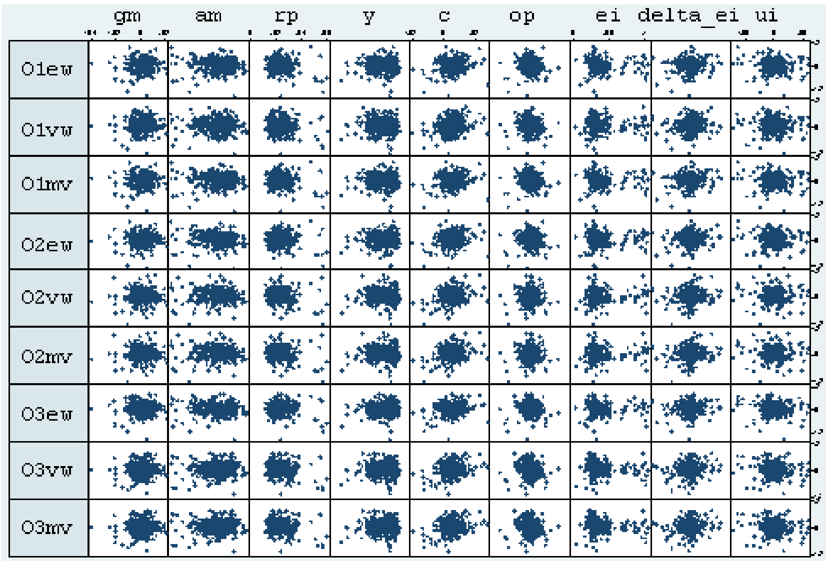

Figure 6 - The figure depicts scatter plots of all Oppenheimer-portfolios (on the vertical axis)in returns to all economic regression factors (on the horizontal axis). The portfolios are labeled according to the syntax: portfolio investment strategy , portfolio number, weighting. For example O1ew means the Oppenheimer1 equally-weighted portfolio, which is the first (out of three) portfolios whose holdings are weighted equally compiled using the Oppenheimer criteria The individual scatter plots have an interval of -2 to 2, signifying no extreme outliers.

Regression Output, Mean-Variance

*Table 29 - Time-series regression output of excess return on each of the three mean-variance Graham portfolios respectively versus the CAPM, FF3 and FF6-factors. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-2010	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv
		CAPM			FF3			FF6	
Mkt	0.565	25.258	-1.242	-0.044	21.538	-1.489	-0.278	7.111	-1.197
	(1.666)	(24.899)	(1.353)	(1.880)	(20.674)	(1.469)	(1.950)	(7.997)	(1.560)
SMB				-3.242*	-16.015	2.128	-1.944	-2.816	3.014
				(1.747)	(15.345)	(3.064)	(1.717)	(9.422)	(3.191)
HML				-5.244*	-28.976	0.489	-3.924	-25.795	1.742
				(3.159)	(30.376)	(1.854)	(2.823)	(30.579)	(1.587)
Mom							-0.112	-23.939	0.702
							(1.109)	(23.548)	(0.839)
ST rev							1.126	50.307	-0.762
							(1.415)	(50.058)	(0.849)
LT Rev							-3.667	-40.306	-2.359
							(2.313)	(32.791)	(1.844)
Alpha	-0.911	7.181	0.887	-0.517	9.368	0.805	-0.53	10.184	0.77
	(0.057)	(0.611)	(0.055)	(0.058)	(0.796)	(0.066)	(0.058)	(0.854)	(0.061)
Obs	432	432	432	430	430	430	430	430	430
Adj R2	-0.002	0.004	0	0.014	0.003	-0.001	0.012	0.019	-0.004

*Table 30 - Time-series regression output of excess return on each of the three mean-variance Oppenheimer portfolios respectively versus the CAPM, FF3 and FF6-factors. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-2010	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv
		CAPM			FF3			FF6	
Mkt	1.228	1.189	10.497	1.450	0.512	10.237	0.675	0.534	8.764
	(0.752)	(0.947)	(8.948)	(0.885)	(0.907)	(7.978)	(0.758)	(0.977)	(6.658)
SMB				0.336	-0.429	-13.330	0.221	0.892	-14.991
				(1.302)	(2.352)	(10.522)	(1.521)	(2.918)	(11.544)
HML				1.307	-3.430*	-11.320	1.017	-2.255	-12.853
				(2.188)	(1.913)	(11.638)	(2.074)	(2.631)	(12.404)
Mom							-0.280	-0.563	0.812
							(1.061)	(1.310)	(1.549)
ST rev							3.718	-0.662	8.422
							(3.543)	(1.257)	(8.124)
LT Rev							-0.394	-3.263	2.527
							(1.845)	(2.346)	(4.016)
Alpha	2.737	0.202	0.721	2.662	0.416	1.727	2.551	0.517	1.307
	(0.205)	(0.080)	(0.122)	(0.195)	(0.074)	(0.183)	(0.182)	(0.069)	(0.155)
Obs	432	432	432	430	430	430	430	430	430
Adj R2	-0.002	-0.001	0.021	-0.007	-0.002	0.038	-0.013	-0.007	0.038

Full Regression Output, Sub Periods

*Table 31 - Time-series regression output of excess return on equally-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-1980	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew
		CAPM			FF3			FF6	
Mkt	0.975***	0.967***	1.044***	0.977***	0.875***	0.977***	0.963***	0.866***	0.960***
	(0.104)	(0.087)	(0.125)	(0.054)	(0.047)	(0.050)	(0.065)	(0.047)	(0.052)
SMB				0.218*	0.485***	0.465***	0.162	0.472***	0.461***
				(0.127)	(0.088)	(0.127)	(0.104)	(0.096)	(0.122)
HML				0.542***	0.281***	0.477***	0.574***	0.275**	0.448***
				(0.094)	(0.089)	(0.083)	(0.146)	(0.111)	(0.101)
Mom.							0.136	0.014	-0.035
							(0.104)	(0.066)	(0.084)
ST rev.							0.159*	0.064	0.083
							(0.087)	(0.071)	(0.073)
LT Rev.							0.003	0.014	0.029
							(0.167)	(0.102)	(0.106)
Alpha	0.054	0.068**	0.084**	-0.006	0.002	0.006	-0.04	-0.008	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)
Obs.	72	72	72	72	72	72	72	72	72
Adj. R2	0.805	0.822	0.787	0.898	0.919	0.904	0.899	0.916	0.903

*Table 32 - Time-series regression output of excess return on equally-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1980-1990	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew
		CAPM			FF3			FF6	
Mkt	0.874***	0.908***	0.849***	0.846***	0.924***	0.836***	0.840***	0.947***	0.860***
	(0.056)	(0.049)	(0.059)	(0.038)	(0.040)	(0.051)	(0.037)	(0.041)	(0.055)
SMB				0.465***	0.330***	0.448***	0.459***	0.383***	0.504***
				(0.072)	(0.072)	(0.081)	(0.079)	(0.079)	(0.088)
HML				0.013	0.112	0.054	0.019	0.177**	0.115
				(0.073)	(0.071)	(0.082)	(0.093)	(0.083)	(0.096)
Mom.							0.026	0.009	-0.016
							(0.072)	(0.061)	(0.074)
ST Rev.							0.043	-0.110	-0.109
							(0.092)	(0.091)	(0.081)
LT Rev.							-0.004	-0.071	-0.087
							(0.087)	(0.087)	(0.088)
Alpha	0.038	0.04*	0.07***	0.038*	0.032	0.066***	0.034	0.032	0.068***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	0.798	0.842	0.784	0.846	0.864	0.829	0.843	0.866	0.829

*Table 33 - Time-series regression output of excess return on equally-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1990-2000	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew
		CAPM			FF3			FF6	
Mkt	0.736***	0.854***	0.807***	0.890***	0.981***	0.966***	0.820***	0.919***	0.917***
	(0.075)	(0.072)	(0.075)	(0.066)	(0.067)	(0.062)	(0.062)	(0.064)	(0.057)
SMB				0.349***	0.275***	0.305***	0.394***	0.288***	0.336***
				(0.070)	(0.081)	(0.065)	(0.075)	(0.080)	(0.072)
HML				0.552***	0.450***	0.544***	0.401***	0.247**	0.337***
				(0.104)	(0.121)	(0.116)	(0.109)	(0.099)	(0.104)
Mom.							-0.217***	-0.271***	-0.318***
							(0.058)	(0.058)	(0.060)
ST Rev.							0.122**	0.078	0.012
							(0.056)	(0.057)	(0.060)
LT Rev.							-0.054	0.026	-0.014
							(0.110)	(0.105)	(0.108)
Alpha	-0.007	-0.017	-0.014	-0.024	-0.031	-0.032	0.016	0.011	0.018
	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	0.488	0.564	0.555	0.603	0.626	0.654	0.649	0.671	0.718

*Table 34 - Time-series regression output of excess return on equally-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

2000-2010	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew	G1ew	G2ew	G3ew
		CAPM			FF3			FF6	
Mkt	0.902***	0.882***	0.890***	0.838***	0.821***	0.829***	0.865***	0.789***	0.799***
	(0.105)	(0.086)	(0.094)	(0.078)	(0.053)	(0.072)	(0.076)	(0.059)	(0.071)
SMB				0.473***	0.441***	0.425***	0.554***	0.476***	0.433***
				(0.094)	(0.088)	(0.089)	(0.100)	(0.107)	(0.102)
HML				0.493***	0.453***	0.383***	0.591***	0.503***	0.431***
				(0.083)	(0.085)	(0.080)	(0.091)	(0.093)	(0.097)
Mom.							0.072	-0.043	-0.017
							(0.061)	(0.087)	(0.075)
ST Rev.							0.025	-0.004	0.073
							(0.069)	(0.085)	(0.074)
LT Rev.							-0.246*	-0.108	-0.091
							(0.130)	(0.113)	(0.113)
Alpha	0.112***	0.113***	0.134***	0.038	0.048*	0.074**	0.036	0.046*	0.070**
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Obs.	120	120	120	118	118	118	118	118	118
Adj. R2	0.642	0.666	0.675	0.772	0.786	0.769	0.781	0.785	0.768

*Table 35 - Time-series regression output of excess return on value-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-1980	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw
		CAPM			FF3			FF6	
Mkt	0.906***	0.828***	1.030***	0.952***	0.861***	1.026***	0.909***	0.782***	0.977***
	(0.070)	(0.085)	(0.116)	(0.072)	(0.083)	(0.087)	(0.072)	(0.051)	(0.080)
SMB				-0.089	-0.038	0.174	-0.169	-0.113	0.144
				(0.101)	(0.116)	(0.160)	(0.103)	(0.106)	(0.164)
HML				0.232*	0.236	0.385**	0.177	0.031	0.289*
				(0.118)	(0.170)	(0.156)	(0.152)	(0.124)	(0.161)
Mom.							0.107	-0.045	-0.056
							(0.139)	(0.091)	(0.096)
ST rev.							0.248*	0.301***	0.223**
							(0.132)	(0.077)	(0.100)
LT Rev.							0.136	0.325**	0.128
							(0.183)	(0.129)	(0.165)
Alpha	0.026	0.024	0.059*	0.019	0.011	0.014	-0.024	-0.025	-0.01
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Obs.	72	72	72	72	72	72	72	72	72
Adj. R2	0.802	0.777	0.778	0.807	0.785	0.818	0.815	0.851	0.831

*Table 36 - Time-series regression output of excess return on value-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1980-1990	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw
		CAPM			FF3			FF6	
Mkt	0.840***	0.918***	0.845***	0.822***	0.960***	0.864***	0.824***	0.951***	0.873***
	(0.056)	(0.046)	(0.055)	(0.067)	(0.075)	(0.071)	(0.071)	(0.070)	(0.067)
SMB				-0.056	-0.178*	-0.113	-0.088	-0.180	-0.151
				(0.120)	(0.100)	(0.116)	(0.136)	(0.122)	(0.118)
HML				-0.062	0.084	0.033	-0.141	0.101	-0.063
				(0.098)	(0.139)	(0.142)	(0.113)	(0.165)	(0.163)
Mom.							-0.055	0.031	-0.023
							(0.088)	(0.076)	(0.117)
ST rev.							-0.073	0.068	-0.161
							(0.125)	(0.140)	(0.112)
LT Rev.							0.123	-0.029	0.211
							(0.116)	(0.128)	(0.145)
Alpha	0.028	0.03	0.058*	0.032	0.023	0.054*	0.046	0.017	0.071*
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	0.689	0.748	0.664	0.685	0.753	0.661	0.681	0.748	0.667

*Table 37 - Time-series regression output of excess return on value-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1990-2000	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw
		CAPM			**FF3**			**FF6**	
Mkt	0.754***	0.916***	0.828***	0.900***	0.964***	0.860***	0.809***	0.965***	0.879***
	(0.078)	(0.096)	(0.079)	(0.079)	(0.088)	(0.084)	(0.079)	(0.082)	(0.089)
SMB				-0.069	0.264**	0.148	0.060	0.334**	0.202
				(0.115)	(0.127)	(0.133)	(0.121)	(0.144)	(0.144)
HML				0.331**	0.248	0.151	0.278	0.144	0.179
				(0.166)	(0.156)	(0.164)	(0.169)	(0.149)	(0.168)
Mom.							-0.144	-0.269***	-0.051
							(0.087)	(0.087)	(0.104)
ST rev.							0.204**	-0.138	-0.095
							(0.087)	(0.114)	(0.134)
LT Rev.							-0.258	-0.131	-0.127
							(0.159)	(0.151)	(0.188)
Alpha	-0.004	0.017	0.038	-0.019	0.012	0.035	0.023	0.059	0.049
	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	0.387	0.515	0.472	0.438	0.541	0.475	0.481	0.568	0.467

*Table 38 - Time-series regression output of excess return on value-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

2000-2010	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw	G1vw	G2vw	G3vw
		CAPM			**FF3**			**FF6**	
Mkt	0.842***	0.888***	1.004***	0.830***	0.875***	0.998***	0.910***	0.935***	1.078***
	(0.089)	(0.080)	(0.107)	(0.072)	(0.068)	(0.103)	(0.068)	(0.105)	(0.112)
SMB				0.176	0.131	0.111	0.281**	0.244	0.322*
				(0.121)	(0.167)	(0.187)	(0.132)	(0.161)	(0.184)
HML				0.318***	0.156	0.196	0.434***	0.240	0.347*
				(0.118)	(0.121)	(0.137)	(0.107)	(0.179)	(0.193)
Mom.							0.170***	0.089	0.098
							(0.052)	(0.095)	(0.129)
ST rev.							0.045	-0.084	-0.208
							(0.084)	(0.117)	(0.128)
LT Rev.							-0.311**	-0.244	-0.429*
							(0.133)	(0.231)	(0.219)
Alpha	0.116***	0.077*	0.086**	0.072**	0.05	0.055	0.07**	0.053	0.06
	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Obs.	120	120	120	118	118	118	118	118	118
Adj. R2	0.6	0.579	0.593	0.639	0.583	0.598	0.678	0.593	0.641

*Table 39 - Time-series regression output of excess return on mean-variance Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-1980	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv
		CAPM			**FF3**			**FF6**	
Mkt	1.339	-0.000	-3.256	-0.976	-1.918	-0.172	-1.439	-1.141	1.451
	(7.546)	(1.471)	(4.898)	(8.839)	(2.241)	(5.201)	(7.075)	(2.260)	(5.789)
SMB				-2.235	5.309	-12.437	-0.524	5.065	-13.330*
				(9.991)	(4.799)	(9.440)	(14.651)	(5.054)	(7.826)
HML				-28.092	-5.909	0.039	-19.782	-1.886	7.791
				(17.653)	(4.294)	(4.153)	(13.510)	(5.949)	(6.437)
Mom.							-1.418	3.986	9.028
							(12.742)	(2.673)	(6.743)
ST rev.							14.770	0.160	-0.491
							(9.809)	(4.461)	(7.224)
LT Rev.							-16.614	-5.205	-9.294
							(14.944)	(5.255)	(8.455)
Alpha	-4.309	-1.066	4.786	-2.122	-1.166	5.988	-4.058	-1.583	5.168
	(0.307)	(0.131)	(0.269)	(0.331)	(0.144)	(0.324)	(0.376)	(0.120)	(0.329)
Obs.	72	72	72	72	72	72	72	72	72
Adj. R2	-0.014	-0.014	-0.007	0.05	-0.02	-0.008	0.04	-0.024	-0.007

*Table 40 - Time-series regression output of excess return on mean-variance Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1980-1990	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv
		CAPM			**FF3**			**FF6**	
Mkt	0.970	0.877	-0.570	0.238	0.298	0.637	0.602	0.463	0.793
	(0.911)	(0.735)	(1.727)	(0.973)	(1.070)	(0.592)	(1.449)	(1.108)	(0.897)
SMB				-0.623	0.522	2.695	0.542	0.973	2.811
				(2.778)	(1.502)	(2.266)	(2.818)	(1.690)	(2.161)
HML				-2.205	-1.539	3.965	-0.474	-0.593	4.783
				(2.737)	(1.742)	(3.990)	(2.635)	(2.050)	(3.626)
Mom.							0.533	1.839	4.461
							(2.911)	(1.361)	(3.015)
ST rev.							-1.168	-1.261	-2.847
							(3.713)	(1.781)	(2.748)
LT Rev.							-2.303	0.206	3.105
							(1.987)	(1.403)	(3.654)
Alpha	-0.955	0.419	1.004	-0.791	0.535	0.713	-0.895	0.382	0.43
	(0.072)	(0.034)	(0.068)	(0.069)	(0.033)	(0.044)	(0.074)	(0.032)	(0.038)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	-0.005	0.002	-0.007	-0.018	-0.005	-0.001	-0.038	0.006	0.063

*Table 41 - Time-series regression output of excess return on mean-variance Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1990-2000	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv
		CAPM			FF3			FF6	
Mkt	-0.576	1.324	-2.574	-0.483	3.050**	-1.281	-0.953	1.028	-2.082
	(1.822)	(0.977)	(3.535)	(1.963)	(1.465)	(2.144)	(2.031)	(1.301)	(3.053)
SMB				0.465	-8.822**	8.904	2.718**	-7.921**	9.898
				(1.033)	(4.071)	(7.971)	(1.370)	(3.241)	(8.632)
HML				0.457	0.086	7.510	2.213	-4.202	6.142
				(2.214)	(3.690)	(7.694)	(3.002)	(3.437)	(6.171)
Mom.							0.460	-5.639***	-2.558
							(2.330)	(2.040)	(2.546)
ST rev.							1.233	3.888	1.248
							(1.508)	(3.623)	(2.551)
LT Rev.							-5.268**	-0.732	-1.762
							(2.513)	(3.220)	(2.654)
Alpha	0.161	-0.802	-0.666	0.151	-0.997	-0.803	0.426	0.007	-0.271
	(0.065)	(0.059)	(0.069)	(0.062)	(0.062)	(0.081)	(0.055)	(0.042)	(0.051)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	-0.007	-0.004	-0.001	-0.024	0.214	0.047	-0.024	0.314	0.031

*Table 42 - Time-series regression output of excess return on mean-variance Graham portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

2000-2010	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv	G1mv	G2mv	G3mv
		CAPM			FF3			FF6	
Mkt	0.464	87.980	0.478*	0.600**	93.883	0.424*	1.010***	55.808	0.665**
	(0.347)	(87.630)	(0.247)	(0.292)	(94.177)	(0.231)	(0.320)	(62.723)	(0.277)
SMB				-1.075	-62.087	0.219	-0.614	-59.726	0.398
				(0.887)	(75.673)	(0.863)	(0.873)	(83.297)	(0.969)
HML				-1.337**	-112.485	-0.347	-1.028*	-48.538	-0.231
				(0.605)	(113.777)	(0.337)	(0.539)	(68.275)	(0.364)
Mom.							0.643**	-10.974	0.402
							(0.250)	(25.052)	(0.264)
ST rev.							-0.294	126.341	-0.053
							(0.335)	(124.172)	(0.218)
LT Rev.							-0.978*	-117.213	-0.399
							(0.560)	(107.350)	(0.512)
Alpha	0.174	33.398	0.193	0.347	47.111	0.193	0.358*	40.987	0.198
	(0.016)	(2.742)	(0.015)	(0.018)	(3.916)	(0.013)	(0.018)	(3.416)	(0.013)
Obs.	120	120	120	118	118	118	118	118	118
Adj. R2	0.008	0.014	0.012	0.074	0.017	0.003	0.106	0.028	-0.001

*Table 43 - Time-series regression output of excess return on equally-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-1980	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew
		CAPM			FF3			FF6	
Mkt	1.070***	1.028***	0.969***	1.075***	1.023***	1.024***	1.054***	1.001***	0.994***
	(0.036)	(0.050)	(0.107)	(0.055)	(0.065)	(0.054)	(0.053)	(0.067)	(0.054)
SMB				0.069	0.122	0.036	0.068	0.100	-0.057
				(0.106)	(0.132)	(0.087)	(0.132)	(0.145)	(0.092)
HML				0.224*	0.247**	0.630***	0.199*	0.200	0.559***
				(0.114)	(0.119)	(0.097)	(0.117)	(0.128)	(0.122)
Mom.							-0.048	-0.005	0.155*
							(0.102)	(0.125)	(0.081)
ST rev.							0.118	0.098	0.143
							(0.080)	(0.159)	(0.094)
LT Rev.							0.012	0.077	0.196*
							(0.151)	(0.115)	(0.100)
Alpha	0.028	0.034	0.040	0.006	0.005	-0.008	-0.006	-0.008	-0.042
	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.004)	(0.003)
Obs.	72	72	72	72	72	72	72	72	72
Adj. R2	0.844	0.894	0.818	0.853	0.914	0.907	0.852	0.914	0.911

*Table 44 - Time-series regression output of excess return on equally-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1980-1990	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew
		CAPM			FF3			FF6	
Mkt	1.034***	0.923***	0.926***	1.031***	0.932***	0.986***	1.027***	0.937***	0.986***
	(0.031)	(0.030)	(0.051)	(0.033)	(0.031)	(0.051)	(0.035)	(0.037)	(0.054)
SMB				0.140**	0.174***	0.180**	0.127*	0.178**	0.197**
				(0.066)	(0.066)	(0.082)	(0.071)	(0.081)	(0.083)
HML				0.020	0.059	0.205***	0.018	0.060	0.248***
				(0.065)	(0.077)	(0.076)	(0.076)	(0.088)	(0.082)
Mom.							0.081	0.012	0.056
							(0.062)	(0.076)	(0.064)
ST rev.							-0.017	-0.041	0.016
							(0.064)	(0.100)	(0.081)
LT Rev.							0.075	0.022	-0.039
							(0.068)	(0.086)	(0.076)
Alpha	0.018	0.03	0.040**	0.017	0.026	0.025	0.011	0.026	0.017
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	0.903	0.861	0.851	0.905	0.866	0.862	0.907	0.863	0.86

*Table 45 - Time-series regression output of excess return on equally-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1990-2000	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew
		CAPM			FF3			FF6	
Mkt	0.715***	0.693***	0.700***	0.883***	0.889***	0.887***	0.823***	0.877***	0.865***
	(0.058)	(0.078)	(0.077)	(0.061)	(0.071)	(0.081)	(0.065)	(0.073)	(0.091)
SMB				0.116	0.192**	0.210*	0.241***	0.239***	0.271**
				(0.098)	(0.079)	(0.110)	(0.085)	(0.084)	(0.112)
HML				0.475***	0.582***	0.569***	0.375***	0.471***	0.434***
				(0.135)	(0.112)	(0.160)	(0.105)	(0.096)	(0.128)
Mom.							-0.258***	-0.233***	-0.278***
							(0.071)	(0.056)	(0.080)
ST rev.							0.053	-0.077	-0.067
							(0.073)	(0.072)	(0.085)
LT Rev.							-0.244**	-0.077	-0.100
							(0.123)	(0.107)	(0.151)
Alpha	-0.037	-0.02	-0.034	-0.055*	-0.042	-0.054*	0.000	-0.002	-0.006
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	0.507	0.492	0.469	0.593	0.621	0.582	0.669	0.658	0.635

*Table 46 - Time-series regression output of excess return on equally-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

2000-2010	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew	O1ew	O2ew	O3ew
		CAPM			FF3			FF6	
Mkt	0.867***	0.903***	0.840***	0.815***	0.840***	0.789***	0.804***	0.801***	0.792***
	(0.101)	(0.072)	(0.081)	(0.063)	(0.048)	(0.047)	(0.066)	(0.054)	(0.053)
SMB				0.413***	0.440***	0.379***	0.445***	0.477***	0.422***
				(0.116)	(0.086)	(0.083)	(0.120)	(0.085)	(0.092)
HML				0.544***	0.435***	0.471***	0.611***	0.521***	0.527***
				(0.093)	(0.067)	(0.080)	(0.110)	(0.078)	(0.096)
Mom.							0.016	-0.024	0.020
							(0.050)	(0.035)	(0.037)
ST rev.							0.066	0.072	0.013
							(0.064)	(0.054)	(0.053)
LT Rev.							-0.146	-0.176**	-0.134
							(0.121)	(0.089)	(0.082)
Alpha	0.076**	0.090***	0.074**	0.006	0.028	0.014	0.002	0.023	0.013
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Obs.	120	120	120	118	118	118	118	118	118
Adj. R2	0.633	0.719	0.699	0.782	0.838	0.835	0.782	0.843	0.834

*Table 47 - Time-series regression output of excess return on value-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-1980	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw
		CAPM			FF3			FF6	
Mkt	0.972***	0.895***	0.759***	0.967***	0.898***	0.816***	0.960***	0.959***	0.775***
	(0.062)	(0.075)	(0.079)	(0.053)	(0.089)	(0.100)	(0.061)	(0.092)	(0.079)
SMB				-0.058	-0.010	-0.164	-0.045	0.095	-0.337**
				(0.083)	(0.127)	(0.132)	(0.102)	(0.118)	(0.161)
HML				-0.183	0.002	0.163	-0.185	0.167	0.155
				(0.130)	(0.122)	(0.169)	(0.146)	(0.123)	(0.162)
Mom.							-0.048	-0.086	0.376**
							(0.125)	(0.140)	(0.149)
ST rev.							0.048	-0.236	0.330**
							(0.114)	(0.167)	(0.126)
LT Rev.							-0.023	-0.324**	0.184
							(0.157)	(0.157)	(0.202)
Alpha	-0.018	-0.002	-0.01	0.000	-0.001	-0.006	-0.001	0.037	-0.085*
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
Obs.	72	72	72	72	72	72	72	72	72
Adj. R2	0.834	0.77	0.698	0.839	0.764	0.698	0.834	0.784	0.732

*Table 48 - Time-series regression output of excess return on value-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1980-1990	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw
		CAPM			FF3			FF6	
Mkt	0.914***	0.870***	0.808***	0.900***	0.895***	0.877***	0.924***	0.916***	0.897***
	(0.050)	(0.065)	(0.046)	(0.059)	(0.051)	(0.043)	(0.058)	(0.063)	(0.048)
SMB				-0.231**	-0.301***	-0.353***	-0.255*	-0.260***	-0.287***
				(0.111)	(0.093)	(0.080)	(0.134)	(0.093)	(0.083)
HML				-0.087	0.009	0.126	-0.187	0.061	0.229**
				(0.115)	(0.110)	(0.084)	(0.121)	(0.116)	(0.088)
Mom.							-0.040	0.052	0.042
							(0.084)	(0.074)	(0.064)
ST rev.							-0.273**	-0.135	-0.060
							(0.116)	(0.112)	(0.096)
LT Rev.							0.244*	-0.006	-0.132
							(0.145)	(0.137)	(0.091)
Alpha	0.008	0.035	0.024	0.014	0.034	0.014	0.036	0.031	0.007
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	0.723	0.755	0.758	0.728	0.772	0.798	0.748	0.775	0.8

*Table 49 - Time-series regression output of excess return on value-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1990-2000	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw
		CAPM			FF3			FF6	
Mkt	0.641***	0.596***	0.584***	0.746***	0.786***	0.758***	0.727***	0.774***	0.780***
	(0.072)	(0.088)	(0.106)	(0.082)	(0.086)	(0.123)	(0.092)	(0.083)	(0.124)
SMB				-0.234**	-0.056	-0.136	-0.141	-0.029	-0.243
				(0.116)	(0.093)	(0.122)	(0.113)	(0.099)	(0.153)
HML				0.151	0.448***	0.370**	0.066	0.304**	0.184
				(0.193)	(0.148)	(0.184)	(0.181)	(0.132)	(0.202)
Mom.							-0.243**	-0.260***	-0.193**
							(0.107)	(0.068)	(0.083)
ST rev.							-0.068	-0.084	-0.134
							(0.120)	(0.082)	(0.092)
LT Rev.							-0.182	-0.025	0.274
							(0.155)	(0.151)	(0.243)
Alpha	0.01	0.02	0.007	-0.001	-0.000	-0.012	0.046	0.04	-0.001
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	0.315	0.362	0.278	0.386	0.496	0.385	0.415	0.538	0.411

*Table 50 - Time-series regression output of excess return on value-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

2000-2010	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw	O1vw	O2vw	O3vw
		CAPM			FF3			FF6	
Mkt	0.654***	0.772***	0.730***	0.714***	0.854***	0.829***	0.831***	0.876***	0.925***
	(0.097)	(0.085)	(0.092)	(0.075)	(0.061)	(0.056)	(0.085)	(0.067)	(0.067)
SMB				-0.170	-0.276**	-0.369**	-0.176	-0.142	-0.334**
				(0.133)	(0.120)	(0.155)	(0.145)	(0.116)	(0.153)
HML				0.469***	0.467***	0.456***	0.411**	0.605***	0.417***
				(0.131)	(0.094)	(0.121)	(0.174)	(0.085)	(0.131)
Mom.							0.171***	0.049	0.111**
							(0.052)	(0.049)	(0.044)
ST rev.							-0.030	-0.046	-0.127
							(0.095)	(0.068)	(0.095)
LT Rev.							0.079	-0.347***	0.030
							(0.183)	(0.107)	(0.139)
Alpha	0.055	0.037	0.042	0.02	0.007	0.02	0.026	0.006	0.028
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Obs.	119	120	120	117	118	118	117	118	118
Adj. R2	0.428	0.536	0.505	0.536	0.645	0.634	0.565	0.664	0.652

*Table 51 - Time-series regression output of excess return on mean-variance Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1974-1980	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv
		CAPM			FF3			FF6	
Mkt	3.520	2.707	44.831	4.447*	4.974	64.648*	4.805*	6.119	55.963**
	(2.472)	(3.332)	(37.244)	(2.375)	(5.610)	(33.692)	(2.518)	(5.871)	(27.117)
SMB				-3.683	-9.566	-97.623**	-1.366	-8.471	-109.480**
				(4.164)	(14.985)	(47.812)	(5.245)	(12.439)	(51.560)
HML				0.152	-0.997	-42.679	4.601	-1.653	-21.825
				(3.917)	(6.851)	(51.150)	(8.292)	(9.744)	(39.163)
Mom.							-3.347	-1.103	25.296
							(3.294)	(11.563)	(25.386)
ST rev.							3.190	-9.481	95.348
							(5.349)	(12.855)	(58.546)
LT Rev.							-9.901	1.242	-30.850
							(11.482)	(12.428)	(28.423)
Alpha	0.924	4.583	7.181	1.271	5.581	19.643	1.117	6.98	4.16
	(0.143)	(0.428)	(0.742)	(0.124)	(0.384)	(1.164)	(0.131)	(0.494)	(0.769)
Obs.	72	72	72	72	72	72	72	72	72
Adj. R2	0.007	-0.013	0.085	-0.017	-0.037	0.251	-0.037	-0.08	0.312

*Table 52 - Time-series regression output of excess return on mean-variance Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1980-1990	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv
		CAPM			FF3			FF6	
Mkt	-0.016	3.047**	3.071***	4.052	-1.056	2.295***	-0.695	-0.361	2.568***
	(2.124)	(1.338)	(0.649)	(4.600)	(1.270)	(0.736)	(2.484)	(1.557)	(0.826)
SMB				11.988	-0.965	-0.911	4.468	1.207	0.124
				(12.110)	(2.748)	(1.051)	(6.434)	(3.165)	(1.002)
HML				13.947	-11.849***	-2.384*	9.423	-9.318**	-0.857
				(12.734)	(3.863)	(1.347)	(9.394)	(4.042)	(1.429)
Mom.							8.149	-2.392	-0.045
							(6.853)	(2.837)	(1.170)
ST rev.							26.769	-1.141	-0.361
							(24.318)	(3.300)	(1.601)
LT Rev.							5.500	-6.123**	-2.679*
							(6.984)	(3.026)	(1.378)
Alpha	10.13	-1.285	-0.176	9.11	-0.401	-0.000	7.498	-0.322	-0.082
	(0.722)	(0.101)	(0.045)	(0.653)	(0.097)	(0.045)	(0.564)	(0.094)	(0.042)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	-0.008	0.012	0.108	-0.024	0.067	0.108	-0.045	0.062	0.104

*Table 53 - Time-series regression output of excess return on mean-variance Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

1990-2000	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv
		CAPM			FF3			FF6	
Mkt	0.816	-1.746	-0.368	-0.627	-1.650	-0.921	-0.257	-1.674	-1.582
	(0.792)	(2.473)	(1.147)	(1.099)	(2.664)	(1.816)	(1.126)	(2.932)	(2.406)
SMB				-2.817	0.920	-1.844	-1.951*	2.823	-1.724
				(1.728)	(1.840)	(1.672)	(1.172)	(2.351)	(2.893)
HML				-4.964	0.680	-2.270	-6.719	0.716	-3.239
				(4.291)	(3.882)	(3.397)	(6.255)	(3.062)	(4.783)
Mom.							-4.596	-2.515	-0.886
							(5.169)	(2.830)	(2.652)
ST rev.							-3.485	-1.495	1.742
							(4.236)	(1.883)	(1.716)
LT Rev.							-1.563	-4.180	0.047
							(2.678)	(3.624)	(4.859)
Alpha	-1.181	-0.816	-0.138	-1.024	-0.827	-0.078	-0.284	-0.21	0.094
	(0.121)	(0.062)	(0.102)	(0.108)	(0.063)	(0.098)	(0.052)	(0.034)	(0.089)
Obs.	120	120	120	120	120	120	120	120	120
Adj. R2	-0.008	-0.003	-0.008	-0.015	-0.019	-0.022	-0.021	-0.028	-0.046

*Table 54 - Time-series regression output of excess return on mean-variance Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

2000-2010	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv	O1mv	O2mv	O3mv
		CAPM			FF3			FF6	
Mkt	0.941	0.516	0.354	0.944	0.165	-0.845	1.335	0.101	-0.108
	(0.616)	(0.756)	(2.881)	(0.738)	(0.658)	(3.011)	(1.190)	(0.947)	(2.720)
SMB				-0.172	1.149	6.803	-0.599	1.075	6.599
				(0.995)	(1.734)	(6.789)	(1.138)	(1.667)	(6.125)
HML				-0.499	-2.517	2.207	-1.068	-2.499	0.129
				(0.781)	(1.742)	(5.423)	(1.007)	(2.424)	(4.532)
Mom.							0.600	-0.032	-0.480
							(0.736)	(0.641)	(1.153)
ST rev.							0.226	0.228	-4.150
							(0.723)	(1.515)	(2.924)
LT Rev.							1.212	0.020	4.039
							(1.054)	(2.505)	(5.488)
Alpha	0.4	0.221	-0.997	0.46	0.366	-1.591	0.478	0.358	-1.404
	(0.022)	(0.033)	(0.125)	(0.028)	(0.032)	(0.192)	(0.030)	(0.029)	(0.182)
Obs.	120	120	120	118	118	118	118	118	118
Adj. R2	0.024	-0.004	-0.008	0.012	0.042	-0.005	0.018	0.017	-0.014

*Table 55 - Time-series regression output of return on each of the three equally weighted, value-weighted, and mean-variance portfolios of Oppenheimer and Graham respectively versus the APT-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, constants in decimal format.*

1980-1990	G1ew	G2ew	G3ew	G1vw	G2vw	G3vw	G1mv	G2mv	G3mv	O1ew	O2ew	O3ew	O1vw	O2vw	O3vw	O1mv	O2mv	O3mv
gm	-0.263	0.056	-0.098	-0.145	0.054	0.364	-26.375*	8.897	-6.326	-0.226	-0.230	-0.090	-0.246	-0.089	-0.226	-3.975	32.197*	5.522
	(0.558)	(0.548)	(0.497)	(0.502)	(0.547)	(0.488)	(14.580)	(6.610)	(9.162)	(0.597)	(0.536)	(0.516)	(0.587)	(0.512)	(0.489)	(51.483)	(18.701)	(6.737)
am	-0.197	-0.190	-0.207	-0.170	-0.228	-0.162	0.578	-1.692*	-0.116	-0.305*	-0.249	-0.160	-0.415***	-0.260*	-0.136	39.639	-1.535	0.344
	(0.173)	(0.174)	(0.160)	(0.156)	(0.193)	(0.163)	(2.948)	(1.004)	(0.971)	(0.176)	(0.168)	(0.171)	(0.154)	(0.146)	(0.141)	(36.401)	(3.708)	(1.643)
rp	0.046	-0.289	-0.371	-0.521	-0.736	-0.088	27.434	15.785	25.728	-1.149	-0.587	-0.790	-2.336	-0.623	-0.875	-207.349	-11.126	-7.258
	(1.780)	(1.793)	(1.687)	(1.535)	(1.879)	(1.646)	(20.374)	(11.063)	(19.956)	(1.793)	(1.628)	(1.782)	(1.534)	(1.373)	(1.353)	(224.071)	(32.367)	(10.343)
y	0.468	0.052	0.315	0.325	-0.210	-0.072	2.941	1.881	-6.250	0.132	0.007	0.256	0.078	0.025	0.133	10.334	10.996*	0.130
	(0.339)	(0.296)	(0.325)	(0.345)	(0.329)	(0.322)	(4.352)	(2.520)	(6.157)	(0.334)	(0.315)	(0.333)	(0.328)	(0.323)	(0.342)	(27.096)	(6.059)	(3.194)
c	2.185***	2.231***	2.119***	2.407***	2.382***	1.779**	-1.145	-5.522	-5.921	2.639***	2.376***	2.224***	2.917***	2.590***	2.044***	78.442	1.572	9.610*
	(0.638)	(0.577)	(0.522)	(0.702)	(0.661)	(0.683)	(6.001)	(3.834)	(6.320)	(0.644)	(0.635)	(0.578)	(0.572)	(0.685)	(0.593)	(79.880)	(11.200)	(5.398)
op	-0.034	-0.098**	-0.093**	-0.035	-0.109**	-0.091	0.279	-0.079	-0.757	-0.100**	-0.091**	-0.107***	-0.137***	-0.103***	-0.092**	-5.172	-2.181	-0.584
	(0.035)	(0.043)	(0.038)	(0.043)	(0.042)	(0.057)	(0.522)	(0.198)	(0.842)	(0.041)	(0.038)	(0.038)	(0.041)	(0.038)	(0.041)	(4.654)	(1.488)	(0.697)
ei	0.126	0.012	0.197	0.394	-0.227	-0.176	-1.175	1.410	-4.326	-0.188	-0.224	0.037	-0.235	-0.377	-0.098	105.002	11.728*	-0.271
	(0.357)	(0.343)	(0.330)	(0.337)	(0.371)	(0.308)	(5.824)	(3.149)	(3.617)	(0.383)	(0.338)	(0.340)	(0.345)	(0.319)	(0.303)	(94.579)	(6.382)	(3.395)
delta_ei	-0.136	-0.072	-0.694	-0.369	-0.415	-0.655	-5.848	15.323*	-12.607	-0.025	-0.104	-0.278	0.388	0.216	0.604	53.642	6.569	-6.709
	(0.620)	(0.498)	(0.636)	(0.696)	(0.671)	(0.755)	(12.554)	(8.708)	(13.661)	(0.667)	(0.607)	(0.596)	(0.832)	(0.794)	(0.693)	(68.713)	(17.300)	(8.325)
ui	-0.159	-0.335	-0.549	-0.650	-0.205	-0.411	12.270	6.279	2.833	-0.497	-0.453	-0.638	-0.561	-0.295	-0.602	-234.864	-10.329	-0.907
	(0.631)	(0.622)	(0.595)	(0.542)	(0.639)	(0.568)	(10.891)	(4.287)	(4.486)	(0.640)	(0.550)	(0.602)	(0.546)	(0.477)	(0.449)	(217.165)	(13.359)	(3.255)
Const.	-0.009	0.010	0.004	-0.006	0.033	0.019	-0.665	-0.354*	-0.155	0.036	0.028	0.017	0.064*	0.033	0.026	0.425	-0.538	0.094
	(0.035)	(0.036)	(0.032)	(0.032)	(0.039)	(0.034)	(0.482)	(0.182)	(0.204)	(0.037)	(0.034)	(0.036)	(0.034)	(0.032)	(0.030)	(2.095)	(0.805)	(0.310)
Obs.	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Adj. R2	0.092	0.085	0.111	0.082	0.074	0.063	-0.015	-0.012	-0.011	0.096	0.109	0.104	0.11	0.113	0.104	0.008	0.021	0.000

*Table 56 - Time-series regression output of return on each of the three equally weighted, value-weighted, and mean-variance portfolios of Oppenheimer and Graham respectively versus the APT-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, constants in decimal format.*

1990-2000	G1ew	G2ew	G3ew	G1vw	G2vw	G3vw	G1mv	G2mv	G3mv	O1ew	O2ew	O3ew	O1vw	O2vw	O3vw	O1mv	O2mv	O3mv
gm	-0.394	-0.257	-0.038	-0.543	-1.263	-0.606	22.292	5.706	-0.025	0.117	0.108	-0.415	-0.998	-0.336	-1.060	-26.785*	7.394	-2.292
	(0.855)	(0.905)	(0.911)	(0.962)	(1.085)	(0.912)	(14.561)	(6.654)	(8.704)	(0.787)	(0.701)	(0.845)	(1.016)	(0.856)	(0.807)	(14.593)	(12.220)	(17.670)
am	-0.210	-0.231*	-0.225	-0.214	-0.051	0.002	-0.086	-3.606	-3.898	-0.305**	-0.370**	-0.433***	-0.248	-0.287*	-0.242	-3.306	-1.687	-0.244
	(0.130)	(0.138)	(0.157)	(0.184)	(0.152)	(0.160)	(2.001)	(3.129)	(3.778)	(0.139)	(0.162)	(0.158)	(0.166)	(0.151)	(0.156)	(3.197)	(2.555)	(5.974)
rp	-0.843	-0.414	-0.368	-1.879	-0.218	-0.452	1.435	-10.472	-30.846	-0.741	-0.951	-1.652	-3.159**	-0.396	-0.776	-57.213	-56.144	-30.315
	(1.430)	(1.533)	(1.412)	(1.527)	(1.530)	(1.392)	(19.388)	(22.219)	(37.831)	(1.315)	(1.319)	(1.422)	(1.383)	(1.393)	(1.659)	(45.262)	(42.682)	(50.993)
y	0.252	0.044	0.297	-0.257	-0.326	-0.326	-4.480	-0.693	2.362	-0.072	0.035	-0.004	-0.514	-0.344	-0.393	-12.324	4.781	-13.722
	(0.334)	(0.362)	(0.367)	(0.395)	(0.404)	(0.392)	(8.115)	(6.359)	(3.426)	(0.322)	(0.292)	(0.325)	(0.352)	(0.300)	(0.373)	(12.860)	(7.395)	(15.307)
c	0.230	0.125	0.708	0.193	1.864*	1.877	-15.565	0.310	7.926	-0.471	-0.435	-0.143	-0.396	-0.703	-0.387	-31.317*	16.519	-44.043
	(0.734)	(0.948)	(0.827)	(1.350)	(0.993)	(1.233)	(18.502)	(31.518)	(12.516)	(1.034)	(1.003)	(1.044)	(1.418)	(0.915)	(1.111)	(18.737)	(27.669)	(43.510)
op	-0.170***	-0.174***	-0.187***	-0.230***	-0.248***	-0.213***	0.087	0.290	-2.054	-0.161***	-0.140***	-0.160***	-0.152***	-0.119**	-0.129***	0.150	-1.480	-0.632
	(0.056)	(0.062)	(0.057)	(0.054)	(0.070)	(0.061)	(0.389)	(0.774)	(1.931)	(0.045)	(0.052)	(0.043)	(0.050)	(0.049)	(0.046)	(0.577)	(1.162)	(0.691)
ei	-1.877	-1.408	-0.955	0.332	-0.998	-0.202	11.385	52.848**	36.540	0.226	-0.414	-0.867	1.124	0.116	0.137	-58.212	16.419	-1.849
	(1.666)	(1.680)	(1.728)	(1.847)	(1.711)	(1.909)	(20.770)	(22.355)	(25.337)	(1.540)	(1.737)	(1.637)	(1.637)	(1.789)	(1.602)	(44.018)	(18.790)	(46.128)
delta_ei	1.530	2.604	1.142	3.120*	2.520	3.956*	-44.132	-18.784	31.936	2.078	0.438	1.022	2.589	-0.536	-0.027	117.503	-4.602	20.309
	(1.745)	(1.717)	(1.708)	(1.870)	(1.949)	(2.068)	(47.099)	(48.726)	(26.374)	(1.610)	(1.720)	(1.664)	(1.776)	(1.736)	(1.915)	(109.076)	(33.335)	(42.144)
ui	0.427	0.019	-0.193	-0.296	0.068	0.543	1.075	-31.543*	-19.531	-0.500	-0.655	-0.324	-1.148	-0.709	-0.764	11.972	12.963	-6.559
	(0.510)	(0.542)	(0.526)	(0.882)	(0.707)	(0.692)	(9.237)	(17.741)	(16.117)	(0.583)	(0.623)	(0.698)	(0.703)	(0.643)	(0.752)	(9.527)	(12.229)	(16.479)
Const.	0.087	0.070	0.047	0.051	0.052	0.030	-0.269	-1.342	-0.541	0.030	0.054	0.084	0.059	0.037	0.042	3.314	0.369	1.074
	(0.062)	(0.063)	(0.067)	(0.072)	(0.069)	(0.073)	(0.844)	(0.818)	(0.502)	(0.061)	(0.067)	(0.066)	(0.068)	(0.071)	(0.064)	(2.396)	(0.851)	(2.757)
Obs.	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Adj. R2	0.092	0.085	0.111	0.082	0.074	0.063	-0.015	-0.012	-0.011	0.096	0.109	0.104	0.11	0.113	0.104	0.008	0.021	0.000

*Table 57 - Time-series regression output of return on each of the three equally weighted, value-weighted, and mean-variance portfolios of Oppenheimer and Graham respectively versus the APT-factors, in specified sub time-period. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, constants in decimal format.*

2000-2010	G1ew	G2ew	G3ew	G1vw	G2vw	G3vw	G1mv	G2mv	G3mv	O1ew	O2ew	O3ew	O1vw	O2vw	O3vw	O1mv	O2mv	O3mv
gm	-0.678	-0.768	-0.595	-0.444	-0.555	-0.722	1.418	-211.774	1.518	-0.279	-0.235	-0.084	-0.510	-1.026	-0.683	3.411	1.460	-33.448
	(0.897)	(0.745)	(0.778)	(0.788)	(0.785)	(0.840)	(3.104)	(291.209)	(2.931)	(0.764)	(0.685)	(0.680)	(0.610)	(0.727)	(0.629)	(4.315)	(3.569)	(20.499)
am	-0.336*	-0.335**	-0.439**	-0.233	-0.310*	-0.332*	-0.350	-134.407	-0.015	-0.386**	-0.465**	-0.332**	-0.178	-0.178	-0.229	0.417	-1.685	6.324
	(0.171)	(0.139)	(0.173)	(0.160)	(0.163)	(0.197)	(0.871)	(133.107)	(0.517)	(0.153)	(0.180)	(0.146)	(0.155)	(0.161)	(0.165)	(0.860)	(1.716)	(6.866)
rp	-3.083***	-2.988***	-3.180***	-2.320**	-2.659***	-3.041***	-3.221	-300.752	-1.347	-3.157***	-3.249***	-2.730***	-2.075**	-2.077**	-2.055**	6.138	-10.653	8.460
	(0.979)	(0.845)	(0.902)	(0.915)	(0.939)	(1.015)	(2.940)	(294.078)	(2.227)	(0.854)	(0.857)	(0.837)	(0.882)	(0.868)	(0.852)	(7.080)	(7.762)	(19.221)
y	0.197	0.355	0.440	-0.096	0.034	0.202	0.288	13.823	0.789	0.190	0.364	0.319	-0.125	0.008	0.046	-2.915	3.500	-6.484
	(0.381)	(0.389)	(0.361)	(0.327)	(0.461)	(0.443)	(1.452)	(66.168)	(1.316)	(0.357)	(0.365)	(0.350)	(0.368)	(0.364)	(0.327)	(3.589)	(3.746)	(8.789)
c	0.147	0.304	0.283	0.907	0.797	0.492	-0.945	352.447	-0.520	0.083	0.680	0.888	1.525	2.573***	3.202***	11.459	-11.100	12.869
	(1.325)	(1.139)	(1.233)	(1.441)	(1.464)	(1.341)	(2.812)	(456.003)	(3.120)	(1.393)	(1.230)	(1.264)	(1.036)	(0.874)	(0.806)	(7.356)	(12.067)	(16.285)
op	0.078	0.063	0.080	0.033	0.036	0.135	-0.077	4.697	0.047	0.058	0.057	0.028	-0.015	0.046	-0.063	-0.117	-0.003	-2.012*
	(0.085)	(0.087)	(0.076)	(0.082)	(0.077)	(0.083)	(0.248)	(13.411)	(0.199)	(0.078)	(0.071)	(0.074)	(0.064)	(0.063)	(0.058)	(0.192)	(0.339)	(1.083)
ei	-1.370**	-0.812	-0.867	-0.984	-0.662	-0.529	-1.546	-70.881	-1.559	-1.618**	-1.165	-1.124*	-0.039	-0.324	-0.050	-2.018	-10.739	7.424
	(0.662)	(0.663)	(0.648)	(0.746)	(0.765)	(0.865)	(2.614)	(163.773)	(1.766)	(0.697)	(0.739)	(0.674)	(0.675)	(0.666)	(0.766)	(2.138)	(10.429)	(10.812)
delta_ei	4.406***	3.989***	3.101**	5.026***	5.501***	4.075***	0.663	78.444	2.578	4.365***	3.694***	3.890***	3.056**	3.399***	3.904***	6.411	0.111	-4.426
	(1.358)	(1.225)	(1.244)	(1.369)	(1.365)	(1.295)	(4.746)	(234.338)	(4.225)	(1.438)	(1.378)	(1.278)	(1.533)	(1.151)	(1.081)	(4.507)	(9.928)	(25.803)
ui	-0.410	-0.406	-0.419	-0.400	-0.297	-0.595	0.532	222.483	0.235	-0.174	-0.048	-0.151	-0.356	-0.373	-0.300	0.071	1.141	-9.229
	(0.345)	(0.364)	(0.356)	(0.290)	(0.331)	(0.395)	(1.775)	(224.944)	(1.582)	(0.345)	(0.354)	(0.306)	(0.303)	(0.317)	(0.314)	(1.340)	(2.949)	(8.920)
Const.	0.127***	0.104***	0.111***	0.099***	0.093***	0.096**	0.149	12.383	0.088	0.135***	0.120***	0.104***	0.058**	0.058*	0.048	-0.054	0.601	-0.474
	(0.030)	(0.025)	(0.029)	(0.035)	(0.035)	(0.041)	(0.125)	(12.474)	(0.091)	(0.029)	(0.031)	(0.027)	(0.029)	(0.030)	(0.035)	(0.143)	(0.512)	(0.678)
Obs.	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Adj. R2	0.092	0.085	0.111	0.082	0.074	0.063	-0.015	-0.012	-0.011	0.096	0.109	0.104	0.11	0.113	0.104	0.008	0.021	0.000

Full Regression Output, Recessions and Expansions

*Table 58 - Time-series regression output of excess return on equally-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in recessionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Recessions		G1ew			G2ew			G3ew	
Mkt	1.002***	0.901***	0.882***	0.967***	0.891***	0.832***	1.042***	0.928***	0.919***
	(0.086)	(0.069)	(0.073)	(0.077)	(0.049)	(0.055)	(0.089)	(0.061)	(0.068)
SMB		0.595***	0.636***		0.559***	0.588***		0.695***	0.637***
		(0.100)	(0.105)		(0.087)	(0.123)		(0.107)	(0.120)
HML		0.223***	0.261**		0.403***	0.380***		0.295***	0.154
		(0.082)	(0.123)		(0.094)	(0.095)		(0.096)	(0.119)
Mom			-0.040			-0.161***			-0.108**
			(0.052)			(0.058)			(0.046)
ST rev			-0.041			-0.126*			-0.120*
			(0.079)			(0.064)			(0.069)
LT rev			-0.094			-0.077			0.160
			(0.142)			(0.125)			(0.117)
Alpha	0.085*	0.041	0.049	0.065	0.020	0.035	0.149***	0.097**	0.097**
	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
Obs	65	65	65	65	65	65	65	65	65
Adj R2	0.807	0.87	0.866	0.807	0.899	0.915	0.809	0.895	0.901

*Table 59 - Time-series regression output of excess return on value-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in recessionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Recessions		G1vw			G2vw			G3vw	
Mkt	0.952***	0.936***	0.940***	0.936***	0.889***	0.763***	1.043***	0.986***	0.928***
	(0.068)	(0.072)	(0.078)	(0.074)	(0.057)	(0.056)	(0.108)	(0.102)	(0.116)
SMB		0.107	0.046		0.292*	0.167		0.377*	0.387*
		(0.155)	(0.167)		(0.153)	(0.132)		(0.196)	(0.217)
HML		0.057	0.058		0.129	0.054		0.216	0.159
		(0.129)	(0.144)		(0.099)	(0.118)		(0.170)	(0.181)
Mom			0.078			-0.163***			-0.177*
			(0.063)			(0.055)			(0.103)
ST rev			0.176**			0.210***			-0.140
			(0.087)			(0.070)			(0.133)
LT rev			0.066			0.044			-0.030
			(0.169)			(0.163)			(0.262)
Alpha	0.115**	0.108**	0.089	0.086*	0.060	0.042	0.123**	0.101*	0.113*
	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Obs	65	65	65	65	65	65	65	65	65
Adj R2	0.782	0.778	0.781	0.802	0.815	0.849	0.723	0.743	0.748

*Table 60 - Time-series regression output of excess return on mean-variance Graham portfolios versus the CAPM, FF3, and FF6-factors, in recessionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Recessions	G1mv			G2mv			G3mv		
Mkt	4.080	4.979*	5.694*	84.483	90.441	2.423	-3.879	-2.245	-1.983
	(2.951)	(2.888)	(3.218)	(85.368)	(94.606)	(54.346)	(2.841)	(2.355)	(2.826)
SMB		-8.074	-8.942		-91.415	-105.069		-6.674	-1.509
		(5.221)	(6.719)		(106.583)	(139.260)		(6.273)	(4.961)
HML		-8.074*	-8.685		-137.633	-72.385		3.079	9.122
		(4.070)	(5.440)		(141.870)	(105.618)		(4.215)	(5.582)
Mom			1.559			-66.779			1.384
			(1.319)			(73.153)			(1.651)
ST rev			1.204			173.185			-2.504
			(1.926)			(171.106)			(2.870)
LT rev			2.161			-137.641			-9.686
			(3.947)			(147.995)			(7.465)
Alpha	1.008	1.661	1.441	63.726	71.58	63.578	3.718	4.159	4.95
	(0.113)	(0.125)	(0.102)	(5.242)	(5.960)	(5.230)	(0.264)	(0.287)	(0.311)
Obs	65	65	65	65	65	65	65	65	65
Adj R2	0.095	0.286	0.267	0.007	-0.001	0.008	0.004	-0.016	-0.044

*Table 61 - Time-series regression output of excess return on equally-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in recessionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Recessions	O1ew			O2ew			O3ew		
Mkt	1.064***	1.038***	1.022***	1.021***	0.973***	0.972***	0.946***	0.886***	0.868***
	(0.044)	(0.043)	(0.057)	(0.044)	(0.044)	(0.062)	(0.070)	(0.037)	(0.046)
SMB		0.261*	0.231*		0.342***	0.323***		0.457***	0.522***
		(0.148)	(0.137)		(0.083)	(0.121)		(0.094)	(0.095)
HML		0.297***	0.281***		0.235***	0.208**		0.352***	0.466***
		(0.081)	(0.095)		(0.066)	(0.092)		(0.065)	(0.096)
Mom			-0.013			-0.012			0.024
			(0.053)			(0.045)			(0.046)
ST rev			0.051			-0.004			0.047
			(0.063)			(0.059)			(0.056)
LT rev			0.025			0.038			-0.176
			(0.122)			(0.105)			(0.110)
Alpha	0.073*	0.052	0.046	0.082**	0.055*	0.054	0.05	0.014	0.02
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Obs	65	65	65	65	65	65	65	65	65
Adj R2	0.855	0.881	0.876	0.888	0.919	0.915	0.84	0.911	0.911

*Table 62 - Time-series regression output of excess return on value-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in recessionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Recessions		O1vw			O2vw			O3vw	
Mkt	0.802***	0.876***	0.975***	0.883***	0.968***	1.073***	0.729***	0.854***	0.929***
	(0.070)	(0.080)	(0.075)	(0.065)	(0.066)	(0.088)	(0.064)	(0.055)	(0.084)
SMB		-0.295**	-0.402***		-0.278	-0.233		-0.448**	-0.357*
		(0.128)	(0.140)		(0.175)	(0.178)		(0.200)	(0.179)
HML		0.156	0.043		0.315**	0.294**		0.381***	0.480***
		(0.129)	(0.146)		(0.131)	(0.124)		(0.134)	(0.131)
Mom			0.170***			0.111**			0.141**
			(0.055)			(0.052)			(0.056)
ST rev			0.073			-0.174**			-0.060
			(0.090)			(0.085)			(0.096)
LT rev			0.308*			0.090			-0.085
			(0.156)			(0.168)			(0.122)
Alpha	0.0372	0.0564	0.0336	0.0012	0.018	0.029	0.034	0.061	0.072
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Obs	65	65	65	65	65	65	65	65	65
Adj R2	0.718	0.732	0.756	0.705	0.73	0.74	0.654	0.729	0.74

*Table 63 - Time-series regression output of excess return on mean-variance Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in recessionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Recessions		O1mv			O2mv			O3mv	
Mkt	1.290	1.415	2.001*	2.174**	1.026	-0.870	26.773	36.780	41.124
	(1.067)	(1.029)	(1.135)	(0.904)	(0.845)	(1.489)	(27.138)	(28.671)	(31.184)
SMB		-1.183	-0.127		2.263	3.755*		-74.142	-95.118
		(1.605)	(2.395)		(2.347)	(2.106)		(51.309)	(65.218)
HML		-1.256	0.759		-7.553**	-3.981		-54.952	-75.831
		(1.791)	(2.476)		(3.035)	(2.679)		(37.485)	(51.296)
Mom			2.095			-1.033			8.016
			(1.267)			(1.290)			(13.673)
ST rev			1.036			3.023*			17.322
			(1.157)			(1.559)			(19.287)
LT rev			-2.002			-6.478**			42.517
			(2.712)			(2.784)			(36.565)
Alpha	1.752	1.848	1.884	-0.828	-0.912	-0.816	11.544	17.34	13.416
	(0.095)	(0.098)	(0.096)	(0.116)	(0.113)	(0.111)	(0.970)	(1.163)	(0.928)
Obs	65	65	65	65	65	65	65	65	65
Adj R2	0.855	0.881	0.876	0.705	0.73	0.74	0.654	0.729	0.74

*Table 64 - Time-series regression output of excess return on equally-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in expansionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Expansions	G1ew			G2ew			G3ew		
Mkt	0.807***	0.886***	0.881***	0.859***	0.915***	0.913***	0.815***	0.883***	0.880***
	(0.050)	(0.034)	(0.034)	(0.044)	(0.034)	(0.036)	(0.048)	(0.034)	(0.038)
SMB		0.336***	0.370***		0.284***	0.324***		0.305***	0.358***
		(0.051)	(0.047)		(0.054)	(0.050)		(0.053)	(0.049)
HML		0.450***	0.504***		0.343***	0.388***		0.396***	0.449***
		(0.057)	(0.061)		(0.063)	(0.060)		(0.058)	(0.056)
Mom			0.057			0.021			0.013
			(0.040)			(0.051)			(0.047)
ST rev			0.088*			0.067			0.087
			(0.049)			(0.059)			(0.057)
LT rev			-0.133**			-0.127*			-0.160***
			(0.063)			(0.069)			(0.061)
Alpha	0.044**	0.004	-0.006	0.049***	0.018	0.012	0.058***	0.022	0.016
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs	367	367	367	367	367	367	367	367	367
Adj R2	0.61	0.718	0.724	0.666	0.731	0.734	0.635	0.722	0.729

*Table 65 - Time-series regression output of excess return on value-weighted Graham portfolios versus the CAPM, FF3, and FF6-factors, in expansionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Expansions	G1vw			G2vw			G3vw		
Mkt	0.775***	0.865***	0.867***	0.864***	0.886***	0.910***	0.875***	0.914***	0.938***
	(0.044)	(0.038)	(0.040)	(0.045)	(0.045)	(0.044)	(0.042)	(0.041)	(0.039)
SMB		-0.037	0.012		0.066	0.094		0.088	0.103
		(0.071)	(0.070)		(0.089)	(0.092)		(0.090)	(0.081)
HML		0.291***	0.363***		0.110	0.166		0.181**	0.251***
		(0.079)	(0.081)		(0.080)	(0.101)		(0.078)	(0.092)
Mom			0.063			0.044			0.111*
			(0.050)			(0.078)			(0.066)
ST rev			0.067			-0.112			-0.107
			(0.068)			(0.081)			(0.079)
LT rev			-0.174**			-0.090			-0.089
			(0.083)			(0.104)			(0.096)
Alpha	0.0348*	0.0132	0.0024	0.0336	0.024	0.0216	0.0492**	0.0336	0.024
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Obs	367	367	367	367	367	367	367	367	367
Adj R2	0.523	0.556	0.562	0.569	0.571	0.577	0.568	0.577	0.59

*Table 66 - Time-series regression output of excess return on mean-variance Graham portfolios versus the CAPM, FF3, and FF6-factors, in expansionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Expansions	G1mv			G2mv			G3mv		
Mkt	-1.033	-2.045	-1.890	0.687	1.555	2.376	0.374	0.204	0.267
	(1.981)	(2.773)	(2.603)	(1.262)	(1.917)	(2.152)	(1.207)	(1.207)	(1.298)
SMB		-2.611	-1.311		-1.286	2.720		3.611	4.436
		(1.919)	(1.560)		(4.148)	(4.696)		(3.385)	(3.701)
HML		-4.866	-3.459		2.320	5.948		1.312	1.980
		(4.203)	(3.528)		(3.303)	(4.356)		(1.927)	(1.771)
Mom			0.223			-1.495			-0.382
			(1.152)			(1.830)			(1.143)
ST rev			0.535			-1.301			0.414
			(1.604)			(3.402)			(0.795)
LT rev			-3.788			-10.266**			-2.143*
			(2.821)			(4.440)			(1.279)
Alpha	-1.086	-0.665	-0.746	-0.239	-0.395	-0.310	0.227	0.061	0.065
	(0.066)	(0.070)	(0.070)	(0.080)	(0.067)	(0.078)	(0.034)	(0.049)	(0.042)
Obs	367	367	367	367	367	367	367	367	367
Adj R2	-0.002	0.006	0.001	-0.002	-0.005	0.004	-0.002	0.008	0.003

*Table 67 - Time-series regression output of excess return on equally-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in expansionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Expansions	O1ew			O2ew			O3ew		
Mkt	0.854***	0.944***	0.944***	0.825***	0.917***	0.921***	0.816***	0.924***	0.930***
	(0.050)	(0.040)	(0.042)	(0.041)	(0.031)	(0.035)	(0.053)	(0.040)	(0.042)
SMB		0.128**	0.164***		0.171***	0.213***		0.167***	0.190***
		(0.064)	(0.062)		(0.052)	(0.052)		(0.053)	(0.056)
HML		0.380***	0.427***		0.408***	0.432***		0.462***	0.479***
		(0.074)	(0.076)		(0.059)	(0.063)		(0.064)	(0.065)
Mom			0.031			-0.046			-0.018
			(0.050)			(0.043)			(0.043)
ST rev			0.053			0.008			-0.021
			(0.076)			(0.068)			(0.061)
LT rev			-0.122			-0.094			-0.052
			(0.079)			(0.063)			(0.068)
Alpha	0.014	-0.017	-0.023	0.026	-0.008	-0.005	0.026	-0.012	-0.01
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Obs	367	367	367	367	367	367	367	367	367
Adj R2	0.654	0.708	0.71	0.669	0.74	0.742	0.647	0.735	0.734

*Table 68 - Time-series regression output of excess return on value-weighted Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in expansionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Expansions		O1vw			O2vw			O3vw	
Mkt	0.785***	0.877***	0.895***	0.741***	0.851***	0.883***	0.728***	0.853***	0.867***
	(0.053)	(0.042)	(0.046)	(0.047)	(0.040)	(0.042)	(0.055)	(0.046)	(0.049)
SMB		-0.188***	-0.190**		-0.166***	-0.071		-0.210***	-0.224***
		(0.060)	(0.074)		(0.054)	(0.053)		(0.061)	(0.069)
HML		0.217**	0.244**		0.293***	0.394***		0.320***	0.321***
		(0.100)	(0.104)		(0.072)	(0.071)		(0.081)	(0.082)
Mom			0.051			-0.010			0.020
			(0.078)			(0.042)			(0.057)
ST rev			-0.109			-0.105			-0.103
			(0.093)			(0.066)			(0.073)
LT rev			-0.009			-0.247***			0.039
			(0.112)			(0.079)			(0.103)
Alpha	0.014	0.001	-0.001	0.030*	0.011	0.012	0.013	-0.008	-0.006
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Obs	367	367	367	367	367	367	367	367	367
Adj R2	0.499	0.537	0.541	0.552	0.615	0.631	0.5	0.579	0.582

*Table 69 - Time-series regression output of excess return on mean-variance Oppenheimer portfolios versus the CAPM, FF3, and FF6-factors, in expansionary time-periods. Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1, alphas are annualized and in decimal format.*

Expansions		O1mv			O2mv			O3mv	
Mkt	1.101	1.603	0.779	0.588	-0.123	0.330	3.284*	4.569*	4.139*
	(0.902)	(1.176)	(1.022)	(1.399)	(1.289)	(1.241)	(1.919)	(2.607)	(2.384)
SMB		0.883	0.701		-0.623	0.168		-0.811	-2.043
		(1.772)	(1.930)		(2.857)	(3.321)		(3.391)	(3.894)
HML		2.197	0.957		-2.782	-1.946		4.009	2.541
		(2.829)	(2.216)		(2.424)	(3.062)		(3.933)	(3.213)
Mom			-1.700			-0.340			-0.218
			(1.551)			(1.668)			(1.066)
ST rev			4.750			-2.209			1.375
			(5.145)			(1.535)			(2.394)
LT rev			0.922			-1.815			3.410
			(2.769)			(2.571)			(4.072)
Alpha	2.928	2.736	2.772	0.444	0.672	0.756	-0.444	-0.744	-0.72
	(0.241)	(0.223)	(0.214)	(0.093)	(0.085)	(0.079)	(0.097)	(0.101)	(0.092)
Obs	367	367	367	367	367	367	367	367	367
Adj R2	0.654	0.708	0.710	0.552	0.615	0.631	0.500	0.579	0.582

Performance Graphs, Recessions

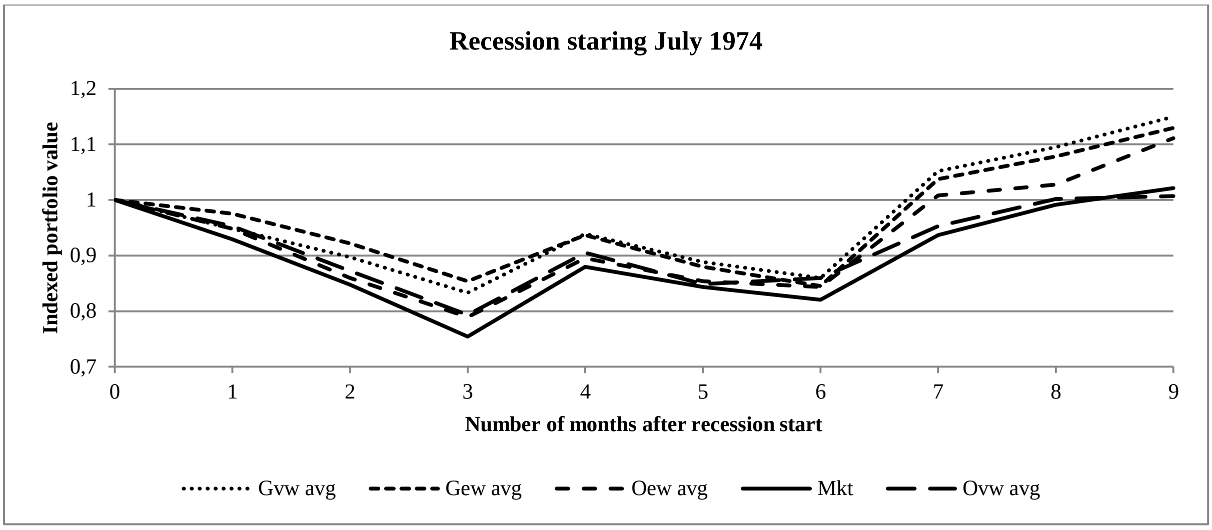

Figure 7 - The graph depicts the performance (gross of costs) of a one dollar investment in a fictive portfolio mirroring an equally weighted average of each of the three value and equally-weighted (mean-variance is excluded due to insensible results) Graham and Oppenheimer portfolios respectively versus a value-weighted market index, during the specified recessionary time-period.

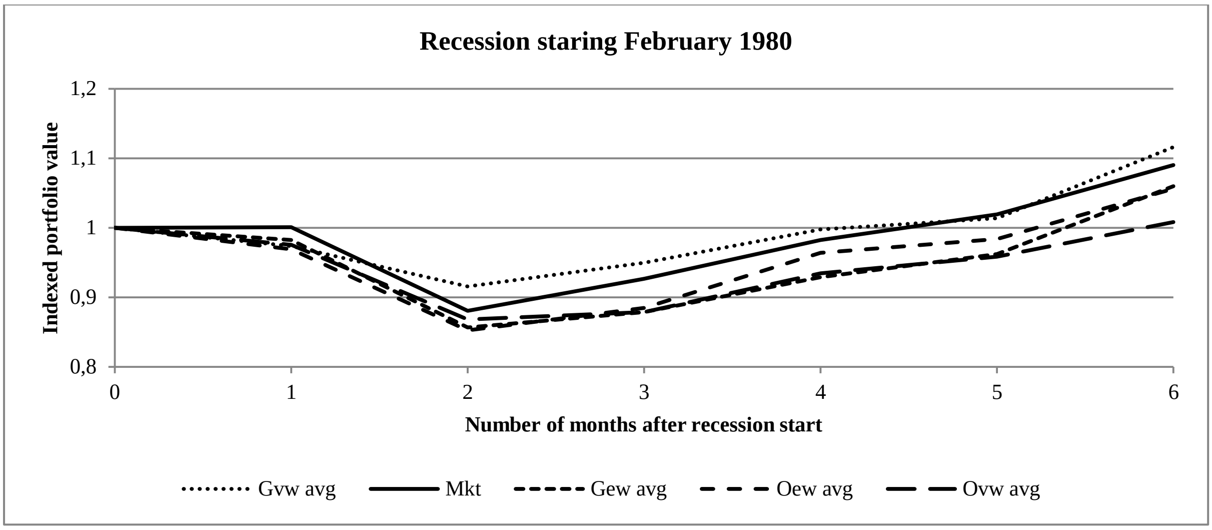

Figure 8 - The graph depicts the performance (gross of costs) of a one dollar investment in a fictive portfolio mirroring an equally weighted average of each of the three value and equally-weighted (mean-variance is excluded due to insensible results) Graham and Oppenheimer portfolios respectively versus a value-weighted market index, during the specified recessionary time-period.

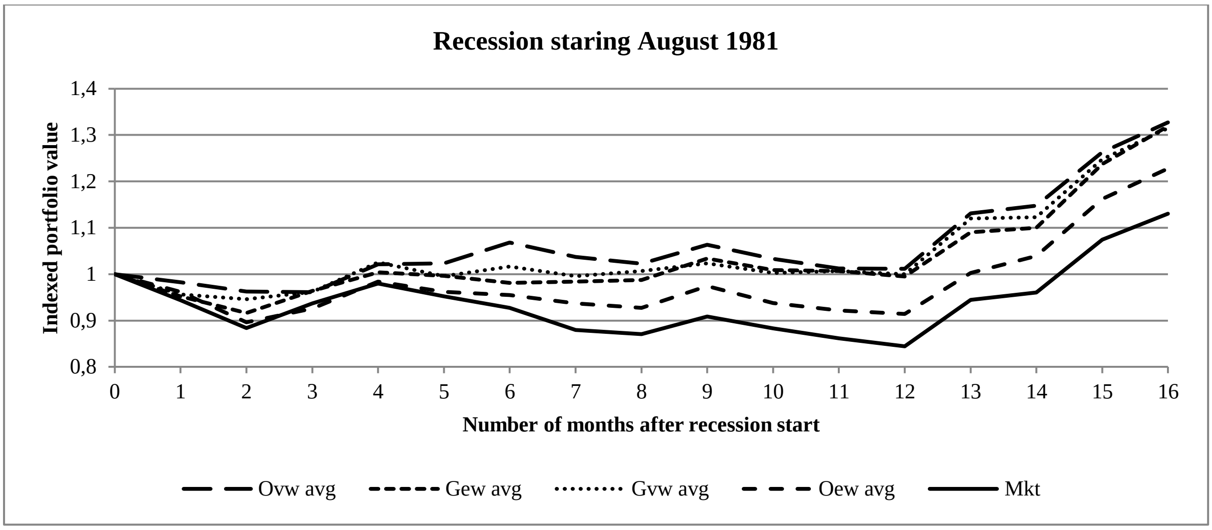

Figure 9 - The graph depicts the performance (gross of costs) of a one dollar investment in a fictive portfolio mirroring an equally weighted average of each of the three value and equally-weighted (mean-variance is excluded due to insensible results) Graham and Oppenheimer portfolios respectively versus a value-weighted market index, during the specified recessionary time-period.

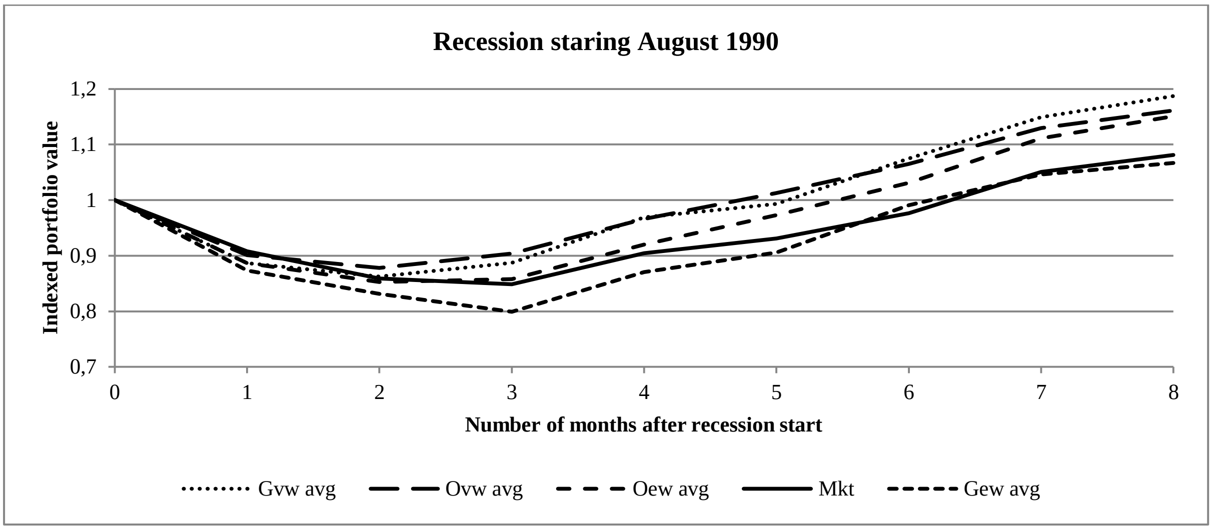

Figure 10 - The graph depicts the performance (gross of costs) of a one dollar investment in a fictive portfolio mirroring an equally weighted average of each of the three value and equally-weighted (mean-variance is excluded due to insensible results) Graham and Oppenheimer portfolios respectively versus a value-weighted market index, during the specified recessionary time-period.

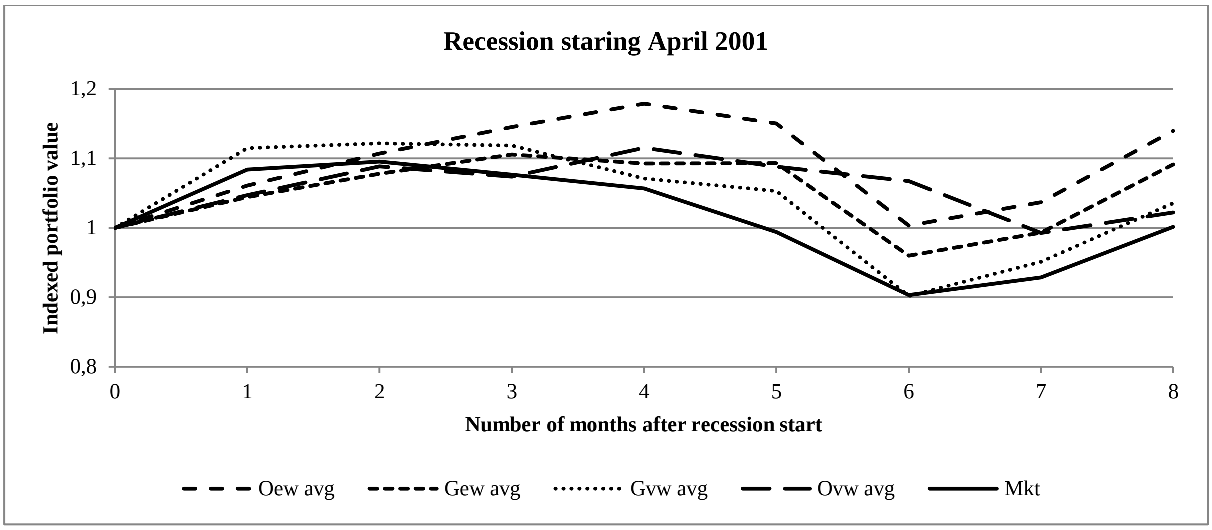

Figure 11 - The graph depicts the performance (gross of costs) of a one dollar investment in a fictive portfolio mirroring an equally weighted average of each of the three value and equally-weighted (mean-variance is excluded due to insensible results) Graham and Oppenheimer portfolios respectively versus a value-weighted market index, during the specified recessionary time-period.

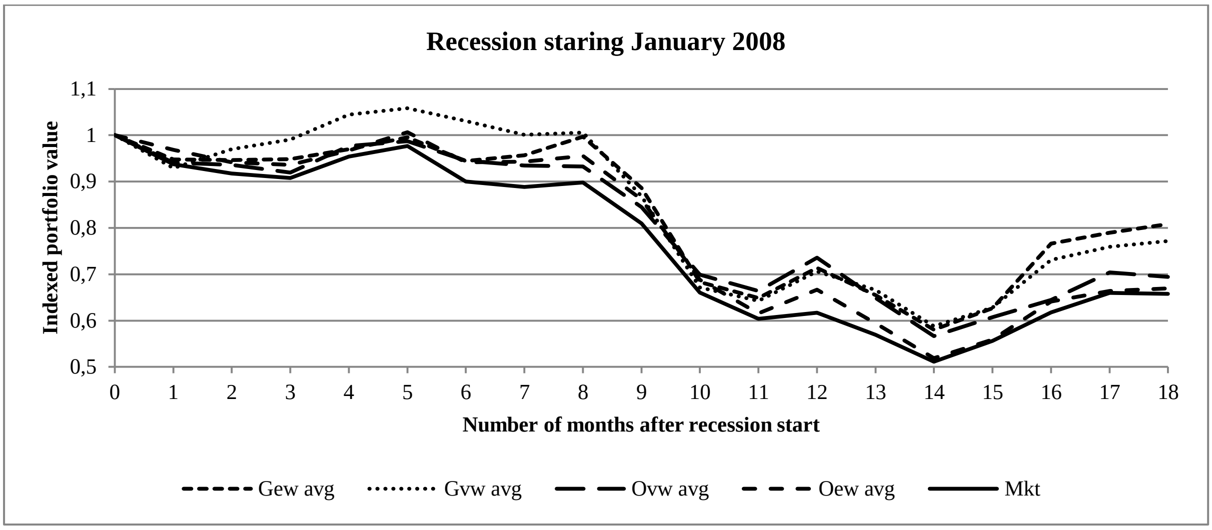

Figure 12 - The graph depicts the performance (gross of costs) of a one dollar investment in a fictive portfolio mirroring an equally weighted average of each of the three value and equally-weighted (mean-variance is excluded due to insensible results) Graham and Oppenheimer portfolios respectively versus a value-weighted market index, during the specified recessionary time-period.

Price is what you pay, value is what you get

-Warren E. Buffett, Value Investor, 3^{rd} wealthiest man on earth