Stockholm School of Economics

Bachelor Thesis, spring 2010

The impact of a firm's payout policy on stock performance during economic crises

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This paper measures the effect of payout policies on stock returns in times of economic turbulence. We go through the most recent financial crisis from 2007 to the end of 2009 as well as the dotcom bubble in the end of 2000. We also look at an older crisis that took place in the late 1980's, cumulating with the Black Monday stock market crash in 1987. We extract our sample from the S&P 500 Index constituents listed on the US stock market and sort these companies into portfolios separated by their payout policy. The portfolios are categorized before each crisis and their returns performance are monitored over a five-year period. Our research finds evidence for that paying out more cash to shareholders in terms of both stock repurchase programs as well as dividends has a clear positive effect on returns even during crisis times. We also take into account other variables e.g. size, capital expenditure, earnings beta and book to market variables in order to see if they can explain the returns performed by each payout portfolio.

Keywords: Payout Policy, Dividends, Stock performance, Financial Crisis

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Acknowledgements: We would like to thank our tutor Per Strömberg for his valuable guidance with our thesis.

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1. Introduction

The area of payout policy has been widely researched all around the world. Academics have argued both for and against the benefits of the payout to shareholders. In the early days academics looked in to the best form of payout and how companies should allocate payout versus investments decisions. In recent years most of the research has covered the area of stock return predictability by looking at their respective dividend yields. We aim to continue this research but with a different approach than many other of the published papers in this field. Many people have questioned the generous payout policies gaining shareholders during the recent financial crisis. Critiques have argued that companies that pay out their cash reserves to shareholders are worse off when the crisis hits them. However, little research has been done in this field thus leaving these arguments with weak theoretical backgrounds. We therefore aim to research if it is in fact true that companies that have generous payout policies actually handle times of economic crisis worse than companies that are more restrictive with their cash reserves.

1.1 Purpose of study

Our purpose of this study is to examine the effect of payout policy on stock returns during financial crisis. The study on correlation between dividend policy and stock return predictability has been a frequently discussed subject. However, following the recent financial crisis starting in 2007, a number of institutions have raised their arguments against a too generous payout policy. The main argument is that firms with higher dividend yields or repurchase rates are reserving less equity buffer, mostly in terms of cash, in times of financial distress. We, however, wanted to test this hypothesis in a more academic way to see if these arguments have any theoretical ground to stand on.

This approach is as far as we have understood it very unique in two ways. Firstly, the crisis perspective of payout policies has never been tested in this way. Secondly, the whole payout policy has not been researched as much as the dividend part. As we will show stock repurchases have grown dramatically over the past years and its importance as a form of payout? Taking into account stock repurchases as a predictor of returns further makes this study interesting and different from many previous works that only took into account dividends.

This study will look at three different crisis to see if the conclusions that we draw can be generalized or if it is in fact true in some crisis and in others not. We will look at the late 1980's economic crisis that struck the world. We will also look at the dot com bubble in the late 2000's. Finally we will look into the most recent financial crisis from 2007-2009.

We chose to look at the S&P 500 companies in the United States. These companies have very good and qualitative data for our study. This will make the results more reliable and trustworthy. The purpose of looking at this data is that since this is the first time this kind of study is performed we wanted to begin researching the biggest and most common companies in the world and that resulted in our choice of the S&P 500.

Since many other variables could affect returns in terms of crisis we also want to take into account different control variables. Many academics have shown that many anomalies exist that affect returns for example Banz (1981) and Fama and French (1995) such as Book-to-Market values, Size variables and Market risk premium.

1.2 Contribution

The contribution of our study is mainly that we show whether a generous payout policy in the face of an economic crisis is affecting returns positively or negatively. By doing this our research could show companies how they could design their payout policy in the most effective way. By taking the stock repurchases into account as a form of payout we continue the approach to research more into this new field and to show academics that stock repurchases is very important in today's payout decisions. Our study aims to look at the US market and we hope that we, with this unique approach, could inspire other researchers to mimic this study on the other equity markets in order to see if the results we found can be more generalized to all financial markets

1.3 Outline

This paper is organized in the following way. Section 2 goes through the previous literature regarding payout policy and also is trying to show the reader the growing importance of stock repurchase programs as a form of payout. In this section we also take up the most famous critique against the viewpoint that returns can be predicted with payout policy. Section 3 explains the data that we have been using for getting our results in this paper. Moving on to section 4 we explain the methodology of our essay. The first part goes through how the data was organized and second part looks into the different regressions models used. The next section, section 5 displays our results from the different data analysis and regressions. We also try to give some kind of intuition of our results as well in this part of the paper. Finally in section 6 and 7 we have the conclusion of essay and the main findings summarized as well as the suggestions for further research in this field.

2 Previous Literature

In this section we go through previous studies of payout policy that has been written. A lot of the previous works examines dividend policy and not whole payout policy with repurchase programs included.

In the first section we aim to go through the literature regarding dividend yields as predictors of future stock returns. We also look into studies concerning the different strategies including dividends as a component for getting returns. The next section gives another perspective looking at the critique against dividend yields as a predictor of future returns.

Since our study also incorporates stock repurchases as a part of the whole payout policy we give the reader the explanation of our approach by looking through recent studies showing the growing importance of stock repurchase programs and the decline in dividend paying companies.

2.1 Dividend yields as a predictor of future stock returns

Many of the earlier works handling payout policy has been about dividends and their effect on future returns, especially the aggregate dividend ratios as a predictor of returns. Michael O'Higgins popularized this approach with his book, Beating the Dow (1991), where he argues that well-established companies do not change their dividend to reflect the external economic conditions but on the other hand the company's stock price fluctuates throughout business cycles. Therefore companies with high dividend yields[1] are near the bottom of their cycle and therefore should expect their stock price to go up faster than companies with a low dividend yield. Following this strategy should according to O'Higgins outperform the overall market. His study was conducted on the Down Jones Industrial Index.

Other researcher have mimicked O'Higgins approach and applied it to other indices for example, Visscher and Filbeck (2003) where they look at the Canadian stock market and performs an investment strategy research on the Toronto 35 and the Toronto Stock Exchange (TSE) 300 Composite Index. They then compared the returns for the 10 highest dividend yielding stocks in the Toronto 35 Index against their benchmarks. Their findings were also in line with O'Higgins and their top then portfolios outperformed the benchmark index also after taking into effect taxes and transaction costs. They also looked at risk adjustments and found that their strategy produced a very high Sharpe ratio that measures total risk. In conclusion they found this strategy highly successful.

Many studies have as shown above found this positive relationship between dividend yields and returns but the question why this relationship exists has been debated more intensely between academics. One theory explains this relationship as an effect of that dividend is taxed higher than capital gains in the US.

[1] $Dividend\ yield = \frac{D(t)}{P(t-1)}$

The yield is the current dividend divided with market capitalization of the beginning of the year. Another ratio is also the dividend price ratio that is the dividend dividend with the price at the end of the year.

Investors therefore should demand higher pre tax returns from companies that pay most of their cash in dividends, Litzenberger Ramaswamy (1979). This paper finds a strong evidence of this hypothesis. Their data indicates that for every dollar increase in return from dividends investors will demand an additional 23% in pre tax return.
Another study have looked more into the relation between size and dividends as well as calendar effects is Keim (1985). First however he sorts companies into portfolios according to their dividend yield. He constructs these portfolios by taking the largest 20% quintile of dividend payers, and then the next 20% quintile of dividend payers and so on until he had formed 5 portfolios. He also adds a sixth portfolio that consists of companies that do not pay any dividend during the period. When looking at the data he first of all finds that the zero dividend paying portfolio has on average the largest return while dividend paying portfolios tend to have a higher return as the portfolios dividend is increasing.

The paper then furthers examines this relationship by incorporating size variables into their research. They see that the lowest dividend paying portfolio have on average larger market capitalization than the portfolios that pay more dividends. This could indicate that it's not a dividend effect that creates the higher returns but it could be the characteristics of the companies paying more returns, for example that they are smaller. Keim finds that this seems to be the case since 57% of the smallest firms are centered into the zero dividends and highest dividend portfolio, those portfolios that also had the highest returns.

Keim is then further looking at seasonality effects, more specifically the January effect. He finds a significant January effect in his sample and excluding observations from January actually takes away the whole predictability effect of dividend yields on returns.

Morgan Thomas (1997) took this study to the UK market and replicated Keims methodology. The interesting thing about their study is the tax system in the UK. In the US dividend is taxed higher than capital gains but in the UK the tax system is the opposite. Tax is higher for capital gains than for dividends. This is very interesting since you now can test whether divided yield predict returns and if they do it means that the tax based explanation of this phenomenon actually can be rejected since if the tax argument holds, investors should demand higher pre tax returns for dividend paying companies.
After having created 5 dividend portfolios and sorted them into quintiles of 20% and also created a non dividend portfolio they run the same regression as Keim(1985) did. They find the same result that high yielding stocks create positive risk adjusted returns and low yielding stocks create negative risk adjusted returns. They also control for the size and seasonality effects documented by Keim(1985) but the result is still the same. With these results they conclude that the tax based explanation can be rejected when explaining why dividend yields can predict returns.

2.2 Critique

Many studies have shown this positive relationship between dividend yields and returns, however, two important papers that have got a lot of attention criticize previous studies empirical methods as well as the results.

Black Scholes (1974) questions earlier works empirical methods for testing the hypothesis that dividend yields can predict returns. They argue that earlier works primarily have used cross sectional tests to see this effect of dividend yields. They see a problem of controlling for other effects than dividends that

might explain returns. Further, they argue that cross sectional regressions are hard for getting accurate estimates of significance from the results obtained. Most importantly they point out the most crucial weakness of the cross sectional tests performed earlier, that it is very difficult to determine in which direction the casual relationship found between returns and dividends runs.

Black Scholes (1974) methodology was to change the initial hypothesis that others had used. Previous works simply wanted to answer the question will increasing dividend increase the price of a companies share. Black Scholes on the other hand turned the question to will an increase in dividend reduce the expected return on a company's shares.

With this new hypothesis they went on with getting around the previous unsatisfactory cross sectional tests by constructing portfolios of stocks whose expected returns was the quantity they wanted to test. To avoid bias, they selected stocks for the portfolio at each point in time with only information available and that time. Finally they selected a portfolio with the smallest variance of return conditioned on the two previous points in order to get an efficient estimator.

With these improved ways of testing their hypothesis the showed that they could not show any significant differences between the return on companies with high dividend yields compared to companies with low dividend yields.

Goetzmann Jorion (1995), also look into the previous studies performed. They take up the famous problem of survivorship bias in samples used before. Survivorship bias is the problem that at the end of sample period a lot of companies that have survived the whole period are very strong and successful and they might distort the results. It might in fact be that their superior business model is creating good returns and not dividend yields.

Like the Black Scholes (1974) study they also criticize the empirical methods used in many papers. The correction of standard errors for example are only valid asymptotically and there is a lot of debate whether you should see asymptotically correct in terms of years, decades or centuries.

They further critize the fact that many studies used data mining as a part of their procedure of getting results that could prove predictability in returns from dividend yields. This could create a bias in the results if for example the sample is too small for statistical inferences

Their testing's made by using long data series from 1871 in both the UK and the US. To cope with the biases in previous studies they used a method of reporting empirical marginal significance levels with a fixed dividend procedure and a vector autorgression with stochastic prices and dividends. For both the U.S. and U.K. data, they found little evidence dividend yields as a predictor of returns

2.3 The growing importance of stock repurchase and the decline in dividend

In recent years we have seen a surge of stock repurchase programs. Bagwell and Shoven (1989) with their paper found that repurchases between 1977 and 1987 increased with an incredible 824 percent which means that management is starting to see stock repurchases as a very important form of payout. The

article further explains this surge with the fact that corporations are learning and adjusting to the fact that stock repurchases generate lower-taxed capital gains.

Fama (2001) investigates dividends and comes to the conclusion that they have declined in percent of firms paying cash dividends from 66,5 in 1978 to 20,8 in 1999. They also recognize the large increase in share repurchases especially 1980s, but they don't find the conclusion that it is a substitution between the two payout methods. Why then are dividends decreasing as a form of payout methods? The article explains this as mainly caused by the new listings on the US stock markets. For example they find that one third of newly listed companies in 1973-1977 paid dividends on the new exchange, however in 1999 only 3,7% paid dividends. They explain this by looking at the specific characteristics of the new firms listed in their sample period and they find that these new firms have the characteristics of firms that often skip dividends. More companies with small size, low earnings, and a large investment ratio relative to earnings have been more common on the traded exchanges. These companies in the past have been known not to pay dividends.
In contradiction with Fama(2001) results Grullon and Michaely(2002) find a substitution effect between dividends and share repurchases. However, most importantly the rest of their results that they find are also in line with previous research. For their sample from 1980-2000 they see that repurchase expenditures grew at an annual rate of 26,1% while dividends grew with a modest 6,8%. That meant that share repurchases as a percent of total dividends surged from 13,1% in 1980 to 113,1% in 2000. Further on they also find that the number of repurchasing firms increase from 31% in 1972 to 80% in 2000.

On the basis of many recent papers we think it is very important to recognize these findings and incorporate these results in our study and look at repurchases as well in order to not miss out on an important factor.

3. Data

This section will describe the selection and adjustments of data used for this paper. We will start by describing the specific data chosen for our study (S&P 500 firm-specific data) and present the motivation of our selection along with the data source. Subsequently, we describe the essential data adjustments applied in order to run the regression tests.

3.1 Data Selection Criteria

Our study aims to test the implied relationship between firms' payout policies and stock returns for the overall stock market. Thus, we aim to find a good proxy for the general stock market worldwide. This proxy market should have well-functioning pricing mechanisms, which implies that it must satisfy the criteria for liquidity, transparency, and trade volume as well as good access of domestic and international capital.

We apply a top-down approach and first select the data on country level. Based on the stated criteria and taking into account the availability of quality data, we decided to narrow our search within U.S. data because the United States have the world's largest stock market with good databases of historical price information.

On the next level, we continue our selection through the major U.S. indices to find our proxy for the general market. Here, we look for an index which is composed by firms from a wide range of industries and contains a good number of firms. Historically, the Dow Jones Industrial Average (DJIA) Index was once the most renowned index for U.S. Stocks. However, it contains only 30 companies which is too small a sample for serious regression tests. In the end, we decided to extract our data from the Standard & Poor's 500 Index companies partly for the reason that it would generate far more cross-sectional observations and better sample data.

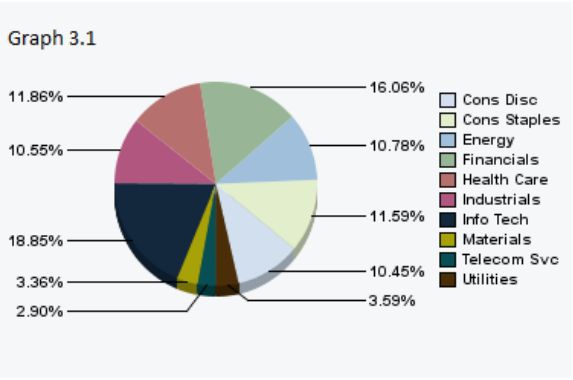
3.2 Data Description of S&P 500 Index

The Standard & Poor's 500 Index (S&P 500) is one of the most commonly used benchmarks for the overall U.S. stock market. The index is free-float capitalization-weighted of the prices of 500 large-cap common stocks actively traded in the United State.

Part of the logic behind our decision to use the S&P 500 as our proxy market is associated with the investor's perspective. Since the proxy should reflect the general worldwide market, then investors should also be expected to diversify their risks across nations and asset classes without substantial amount of extra efforts or costs. This implies that the marginal investor is more likely to be an institutional investor, for example pension funds. These investors are likely to invest a bigger proportion of their capital in large-cap firms due to stability and liquidity reasons among others, and this is also why we selected this index with large-cap companies.

The Index characteristics are listed below:

Table 3.1[2]	
No. of Constituents	500
Adjusted Market Capitalization ($ Billion)	9,688
Constituent Market Capitalization (Adjusted $ Billion)	
- Average	19.38
- Largest	284.83
- Smallest	1.01
- Median	8.61
% Weight Largest Constituent	2.94%
Top 10 Holdings(% Market Cap share)	18.98%



Graph 3.1[3] gives an illustration over the S&P 500 firm's industry types and the latter's respective weights of the index. As shown, the index incorporates a wide range of industries in relatively even proportions, which gives us the diversification effect we searched for.

3.3 Description of Sample Periods

Our paper differs from previous work in the way we determine sample periods. In contrast to earlier approaches to test the relationship between stock returns and firm payout ratios during both bull- and bear markets, we focus only on the stock performance during economic downturns in order to better find the impact of payout policy on stock prices.

According to US Business Cycle Data from The National Bureau of Economics Research (NBER[4]), the previous 5 economic downturns have started at: December 2007, March 2001, July 1990 and July 1981 respectively. We have chosen to study the three most recent crises, although we begin our study of the 1990 crisis already in year 1987 to incorporate the effect of the Black Monday in October 1987 when the US market fell over 20% in a single trading day.

We begin our sample period two years before each crisis for the purpose to generate payout ratios that can be used to divide our sample firms into different payout portfolios at the starting point of the crisis. Then, our sample period runs for 5 more years to generate return data for 5 years. We use quarterly data, which generates a total of 28 time periods over 7 years for each crisis.

3.5 Data Description of Regression Factors

Our equity database is the COMPUSTAT FTP file dataset which delivers firm-specific data for our entire sample. We obtain the risk-free rate and market return from the Fama-French factors list. From the COMPUSTAT online database, we export quarterly input data such as *Closing Price, Dividend per Share, Repurchase Price, Number of Shares Repurchased, Number of Shares Outstanding, Book Value of*

[2] Source: Standard& Poor's official webpage. Link: www.standardandpoors.com
[3] Source: Standard& Poor's official webpage. Link: www.standardandpoors.com
[4] Source: The National Bureau of Economic Research. Link: www.nber.org/cycles/cyclesmain.html

Equity, Earning per Share and *Capital Expenditure* to generate the variables *Total Return, Payout Yield, Market Value, Earnings Ratio, Capex Ratio* and *Book-to-Market (BTM) rates*.

The sample is subject to some survivorship bias due to the relatively large sizes of the S&P 500 firms compared to market average. This size effect implies higher possibility to survive economic downturns and may result in some upward pressure for our results. We have recorded cases stock price delisting during our observation period, as result of bankruptcy and buyouts, but these data are excluded from the panel regression due to lack of required information after the delisting. If our data is inaccurate, it is most likely that the data is slightly overstated and that we have adjusted for the delisted firms in the panel regression, although the returns of the delisted firms are still incorporated in the t-test.

3.6 Firm Data Adjustments

The following adjustments were made to the firm-specific data used to create the regression variables. Firstly, we include only firms with continuous *Closing Price* and *Market Capitalization* information starting from twelve month before each crisis' date. This adjustment is made to generate the payout- and return ratios that are required for categorization of firms at the starting point of each economic crisis. Then, we take into account the effect of *Stock Splits* during the sample period in our returns calculation. This is adjusted for by dividing the *Closing Price* and the *Dividend per Share* data with an adjustment factor given by COMPUSTAT.

A major issue that must be adjusted for is the delisting of firms during the sample periods. Basically, we exclude all delisted firms from our regressions due to lack of information such as *Market Capitalization, Earning Ratio* and *Book-to-Market rate* which are necessary for running panel data regression. However, we have tried to improve the data by searching each delisted firm's acquisition price and calculate the total return from the starting point of the crisis. In case of bankruptcy, the total return will be -100%. These efforts lead to better data for running the t-tests between payout portfolios' total returns over the sample period.

4. Methodology

In this section, we go through the methodology for creating the dataset of our thesis and also some econometric and statistical methods used to test our hypothesis. In section 4.1 we explain the process to creating the matrix and the different portfolios. The next section, 4.2 aims to look at our portfolio approach and the calculation of the payout yields. In section 4.3 we go through the regression models used to study the correlation between payout ratios and stock performance as well as the statistical tests performed.

4.1 Modeling Strategy

This section aims to give a practical guide into the way we constructed our models in order to run the previously described regression tests on our sample data, using Excel and the data analysis program STATA.

Before describing our models for running specific regression tests, we would like to present the necessary calculations and adjustments of the raw data that were required before constructing any of the models.

Step 1: Generating the Required Variables

Once extracted the raw data from COMPUSTAT, all the S&P 500 firms are listed first according to Ticker Symbol alphabetically and then chronologically starting exactly two years before the crisis we look at. This two-year gap fulfils the purpose to categorize firms into payout portfolios at the beginning of each crisis by calculating their payout yields during these two years.

Below is a list over the required variables and their sources:

Variables Required	Calculation Using COMPUSTAT Input Data
Adjusted Closing Price	Closing Price (t) / Adjustment Factor Pay-date (t)
Adjusted Dividend	Dividend per Share/ Adjustment Factor Pay-date (t)
Market Capitalization	Closing Price (t) * Number of Shares Outstanding
Total Return (t), n years	[Adj. Closing Price (t+n) + Sum Adj. Dividend (t: t+n)]/Adj. Closing Price(t) - 1
Total Dividend	Dividend per Share * Number of Shares Outstanding
Total Repurchase	Total Repurchased Shares * Average Repurchase Price
Total Payout	Total Dividend + Total Repurchase
Payout Ratio	Total Payout (t)/Market Capitalization(t-1)
Payout Ratio (Avg LTM)	Average of Payout Ratio in the Last Twelve Month Period, 4 Quarters
Total Earnings	Earnings per Share * Common Shares Used to Calculate Earnings per Share
Earnings Ratio	Total Earnings (LTM)/ Average of Market Capitalization (LTM)
Capex Ratio	Capex(LTM)/Average Total Assets (LTM)
Book-to-Market Ratio	Average Common Equity (LTM) / Average Market Capitalization (LTM)

The use of last-twelve-month (LTM) averages is to smooth the calculated ratios since single-period ratios will inevitably result in higher volatility in the ratio development. In addition, the COMPUSTAT database has missing values for a considerable number of firms and time periods, which will result in

error values if using single-period calculations. Nevertheless, this issue solves itself to a high extent when using average values since there are higher chances that at least one of the four quarters do not have missing value. In conclusion, the use of LTM averages is very useful in researches that have a limited amount of observations, and we believe this will benefit us significantly by reducing the occurrence of errors and extreme values across our sample.

Taking into consideration the needs for more advanced models in later stages, we have decided to add more variables in this first stage to make the modeling process less rigorous. These variables are the same ones that we have previously calculated, such as Annual- and Total Returns, but are listed side-by-side with previous variables. In this way, we would only need to refer to one single Excel row in order to get time-series data.

Step 2: Preparation for Data Sorting

For further modeling requirements, the newly generated variables must be able to be sorted according to modeling needs. At the same time, it is essential in a research like this to have a flexible model built on links that all eventually refer to the input sheet.

Consequently, we leave the original input sheet and the calculations for generating new variables untouched in all further work. Instead, we make a copy of the required data and paste their respective links to a new Excel sheet. In this way, only the columns (variable name) are fixed while the rows (variable data) can be freely moved. To lower the probability of mistakes, we have a separate Excel file for each of the three crises we have chosen to study.

For easier use of data, the new sheet will be sorted first chronologically and then alphabetically. With that, we can now extract information about the S&P 500 firms in any of the specific quarters we decide to look at[5]. For easier reference, we will name this Excel sheet as "Data Sort" forth going.

Step 3: Calculation of Firm Betas in the Starting Period

Beta is an interesting variable with is generally acknowledged to affect stock returns. This effect is well-described in the CAPM theories. In our case, we decide to measure how firm-level betas affect the returns and for that we need to calculate firm-level beta values for the base period of our study.

To run a regression with satisfactory results, we need more observation periods. Thus, we look up to four quarters back in time and obtain the total return values for the same companies. This requires some adjustment efforts since previous periods usually have a larger number of firms, which in our base period might have been erased as error data due to bankruptcy or acquisition.

Once obtained the returns data for same companies for 4 time periods, we regress the returns versus market return in STATA and received the firms' respective betas.

[5] However, the first year of the sample period will not have correct variable ratios since they will be using information from the firm listed above. This is not an issue since our researched time period starts first in the second year.

4.1.1 Construction of Return Matrix for T-tests

In order to effectively run the T-tests, it is preferred to have a two-dimensional matrix constituted of return values. This will give a clear view overlooking the differences of returns data between different categories and sub-groups. By repeating the same process and creating a return matrix for each time period, it will also be easy to follow the development of the returns data and its differences between sub-groups over time. At the end, the data from different matrixes can be used to increase the number of observations for the tested variables and improve the test results.

Step 1: Generating Payout Portfolios

As we aim to follow the total returns starting from the economic peak, which is also the same calendar quarter or at most one quarter before each crisis, we extract the S&P 500 firm variables from previously sorted links described above. We copy the firm specifics in each crisis starting point, which is the end of June 1987, March 2001 and December 2007, and then paste the links to a separate sheet.

In this new sheet, firms are sorted according to their average Payout Yields (LTM). We then separate the zero-payout firms and categorize them as the Zero Payout group. Other firms are then divided into five groups with circa equal number of observations, ranging from the 20% (quintile) with lowest payout yields to the 20% (quintile) with highest payout yields.

Step 2: Generating Sub-Groups

Subsequently, we will be looking at five other variables – Beta, Size, Capital Expenditures Ratio, Earnings Ratio and Book-to-Market Ratio. We create 6 worksheets for each of the five stated sub-group factors and paste the link of the 6 payout portfolios that was just created. In each worksheet, we sort the firms according to their respective values of sub-group factors. The firms are then divided into quintiles ranging from the lowest 20% to the highest 20%.

Step 3: Creation of Returns Matrixes

We start by calculating each portfolios average total return in their respective worksheet. Once this is done, we can simply link their values into a new worksheet where the return values are listed as a two-dimensional matrix.

Since we had previously created more variables that represented total returns for a larger number of time periods, we can now simply create return matrixes for up to 5-year total returns.

This entire procedure of creating return matrixes is done three times, once for each crisis.

4.1.2 Construction of Payout Portfolio Specifics for Cross-Sectional Regressions

The cross-sectional regression aims to test the correlations and impacts that a number of tested variables have on the payout portfolios' return performance. For this regression, we need to divide firms into payout portfolios as previously done and follow their annual returns over time. The tested variables are:

Market Premium, Size, Earnings Ratio, Capital expenditure ratio and Book-to-Market Ratio. Since our sample period is 5 years starting from each crisis, we will follow the portfolios' average value of the stated ratios over this 5 year period.

Step 1: Sort Data

From previous modeling, we have already extracted the 5-year information required for the starting period of the crisis. However, the number of time-series observations is still too small for reaching satisfactory regression results. Thus, we decide to obtain similar 5-year annual data for each quarter up to four quarters before the crises' staring periods.

For this, we apply a similar approach to how we adjusted the data for beta calculation. This time, we place the observations from different time periods next to each other and sort out the firms that do not exist in the starting point. In the end, we will have 5-year return from 4 quarters which have same constituents as the starting period. This increases our observation periods four-folds.

Step 2: Fama French Risk-free Rate and Market Premium

To calculate excess return and market premium, we need the risk-free rate and market return rate from a reliable source. We have chosen to use the Fama French Factors that have been frequently used in other studies and in course literatures.

Some adjustments are still necessary for our data, because our time periods start in different months. Since the Fama French factors are given on monthly basis, we are able to calculate a geometric annual total for each of our four quarters, up to five years ahead.

Step 3: Summary for Regression

The sorted variables are then listed horizontally with annual rates on the vertical line. This Table is repeated four times, each with a starting point from a different calendar quarter. Putting them together as columns, we now have many enough observations for STATA regression. (see section 4.3 for a detailed description of the regression)

This process is done once for each payout portfolio and repeated for two crises. The 2007 crisis had simply too few observations for any use other than the t-test.

4.1.3 Generation of Firm Specifics for Panel Data Regressions

With the panel data regression, we aim to test the impacts of a number of variables on excess returns. What is unique from previous regression is that we now test this relationship on firm-level across the entire sample and also take into account the beta for each year.

Step 1: Sort Data

The firm specific data are generated in a similar way as for the cross-sectional regression. However, instead of using previous quarters' data, we now sort the data forward in time using annual variables and make sure that the number and constitution of firms are constant across the 5-year period we look at based on the starting period.

Step 2: Beta Calculation

Here we decided to add the firm-level beta into consideration since it can explain a large portion of the movement in firm-level returns across the years. We have now already sorted the data forward in time starting from the quarter closest to the crisis, and can extract annual return for each of the five years we look at. Nevertheless, to increase the number of time period observations we need to incorporate the sorted data from the cross-sectional regression. Basically, we sort out the firms that exist in the cross-sectional regression observations but that do not longer exist in our forward-looking data list. In this way, we have always a four-period rolling time period for each of the five year we look at and can generate the beta for each year of the 5-year period.

Step 3: Regression

What is noticeable in this regression is the need to adjust for cluster effects. Otherwise it is quite similar to the previous regression. (see section 4.3 for a detailed description of the regression)

This procedure is also done for only the 1987 and 2001 crises, since the 2007 crisis has only two years data which is not enough for running effective time-series regression.

4.2 Payout portfolios

The purpose of categorizing our sample firms into *Payout Portfolios* is to follow the stock performance of these firms over the sample period of 5 years. During the time, we can use different regression methods to test the significance of impact which payout yields have on stock performance during the crisis period.

The determination of Payout Yield is as following:

$$\boldsymbol{Payout\ Yield_t} = \frac{\boldsymbol{Total\ Payout_t}}{\boldsymbol{Market\ Capitalization_{t-1}}} \qquad \boldsymbol{Expected\ Payout\ Yield_t} = \frac{\boldsymbol{Total\ Payout_{t+1}}}{\boldsymbol{Market\ Capitalization_t}}$$

Nevertheless, many times the firm's future dividend- or repurchase plans are already declared before the actual payments, for example at shareholders' meetings one year or a few quarters in advance. This is the reason we want to test the effect of the Expected Payout Yields in the panel regression. This ratio is simply the Payout Yield of the next period, calculated as:

4.3 Models of Performance Measurement

We employ a number of performance measurement tests: t-test on return matrixes with sub-variables, cross-sectional regression on payout portfolios and panel regression on every firm in the sample. The details are described below.

4.3.1 T-test on Return Matrixes

T-test is a statistical hypothesis test method which assesses whether the means of two groups are statistically different from each other. We apply this test on the return matrixes we extract from the sample data. The matrixes are constructed to be divided according to payout portfolios horizontally and then divided vertically by other variables (Beta, BTM, Earnings- and Capex ratio). In the matrixes are values for total returns for the different groups, and each matrix represents total return data for each year starting from the crisis period. Our hypotheses are as follows

$H_0: Portfolio_i = Portfolio_j$

$H_1: Portfolio_i \neq Portfolio_j \ , i \neq j$

Even if we can see a difference in return between different portfolios over the years but fail to reject the null hypothesis we cannot make a conclusion from the matrix about our results since it is not statistically significant.

4.3.2 Cross-sectional Regression on Payout Portfolios

Cross-sectional regressions are applied in our study for the purpose to test the impact of payout yields and other factors on the stock returns, which is determined as both dividend gain and capital gain.

In the Payout Portfolio cross-sectional regression, we run a regression for each of the payout portfolios. We run this test with different control variables such as size, capital expenditure ratio, earnings ratio and book to market rates against the excess returns of the specific payout portfolio over the 5 year period. The regression coefficients and the t-stat will show the impact of the variables on return and their respective explanatory powers. The regression equation is displayed as follows.

$$R_{pt} - rf_t = \alpha_p + \beta_1[Rm_{pt} - rf_{pt}] + \beta_2 Size_{pt} + \beta_3 Earnings_{pt} + \beta_4 CapExRatio_{pt} + \beta_4 BtM_{pt}$$

R_{pt} = return on portolio, t = 1,2..,5
rf_t = risk free rate, t = 1,2..,5
α_p = the intercept for the portfolio
Rm_{pt} = market return for each portfolio with t = 1,2..,5
$Size_{pt}$ = Market capitalization for each portfolio, t = 1,2 …,5
$Earnings_{pt}$ = Earnings for each portfolio, t = 1,2 …,5

$\text{CapExRatio}_{pt} = \frac{\text{Capital expenditure}}{\text{Total Assets}}$ for each portfolio, t = 1,2 … ,5
BtM_{pt} = Book to market for each portfolio, t = 1,2 … ,5

4.3.3 Panel Regression on the S&P 500 firms

The panel regression that we run on our sample is for each and every stock on the S&P 500. We set our panel with calendar year as our time dimension and each firm as our cross sectional dimension. We then perform the regression taking into account a cluster analysis. The cluster correction takes into account that standard errors tend to be highly correlated in times of crisis and by correcting for them we get a more correct measure of our significance. The equation by which we test our panel data is:

$$R_{i.t} - rf_{i.t} = \gamma_1[Rm_{i.t} - rf_{i.t}] + \gamma_2 Payoutyield_{i.t} + \gamma_3 Size_{i.t} + \gamma_4 Earningsratio_{i.t} + \gamma_5 CapExRatio_{i.t} + \gamma_6 BtM_{i.t} + \gamma_7 \beta_{i.t} + a_i + u_{i.t}$$

R = Return for each stock
rf = risk free rate
Rm = Return on market
Payoutyield = Payout yield for each company
Size = Market capitalization for each company
Earningsratio = Earnings divided by market capitalization
CapExRatio = Capital expenditure divided with total asset
BtM = Book to Market
β = Beta
a_i = Unobserved effect
$u_{i.t}$ = Error term for each firm and over time

Important to note is that the unobserved effect in our sample is treated with fixed effect since we anticipate this effect to be correlated with our explanatory variables.

5. Results

In this section we go through the findings of our research. In the first section we evaluate the general findings over the crisis period of 1985-1992, 1999-2006 and 2007-2009. We examine the pooled cross sectional regression during the crisis period with the control variables. The next section shows the result of our unique way of sorting up the S&P 500 data into payout organized portfolios. Here we show how these portfolios performed during the 5 years after the introduction of the crisis. We show both the statistical tests and the performance of these portfolios in tables and graphs. Finally in the last section the portfolio performance of the 5 year after the crisis is regressed using a time series regression with control variables for size, capital expenditure and book to market variables. For the panel regression and the portfolio regression only results from the two earliest crises are presented since we have too few observations for the late 2007's crisis. However, for the matrix results we have decided to take into account the latest financial crisis and present the results under that section.

All tables with the variables can be found in the appendix.

5.1 Panel regressions for the S&P500

In this section we present the panel regression performed on the whole sample of the S&P 500 companies. We have two approaches of this test with one testing the last twelve months payout yield and the other tests the expected payout yield. Both regressions' results will be presented below.

To begin with we look at the 1987 crisis starting with the year of 1985 to 1992 and with last twelve months dividends. From Table 14 we can clearly see that the payout variable has a slightly negative beta of and it is insignificant. Thus we cannot draw any conclusion about the validity of the result in this case. Other variables in this regression that significantly affect the return on the S&P 500 companies are the return on the overall market as well as the book to market ratio both displaying a positive relation. For the market variable this indicates that companies move in the same direction as the market in the crisis period and for the book to market variable it means that undervalued companies perform relative better than overvalued companies.

Changing the assumption about dividends to expected payout yield we can see in Table 14 that the market variable has a beta of 0, 86 and it is significantly different from zero. This again indicates that our companies move into the same direction as the market in the crisis time. Looking at the most important variable for our research we can see that the payout variable has a beta of 0,43 and it is significantly different from zero. This indicates that a higher payout generates a higher return for the companies in our sample. The rest of our control variables are all insignificant except the book to market ration that display the same trend as in the previous regression

For the late 2000's crisis with a payout yield calculated over the last twelve months we can conclude by looking at Table 14 that the return on the market variable has a beta of 1,2 and is significant at the 5 percent level. As the previous economic crisis this shows a positive relationship between the market return and the companies at the S&P 500. Looking at the payout variable we have a positive relationship against the stock returns but and it is insignificantly different from zero. Hence we cannot draw any conclusion for the payout variable in this crisis. For our different control variables we clearly see that beta has a significant negative effect on returns telling us that a smaller beta affect returns positively. Looking at other variables, the size variable interestingly shows a negative relationship with returns for this particular crisis and that indicates that companies with smaller market capitalization perform better than bigger ones in line with Banz (1981). Capital expenditure, book to market and earnings variables in the table all show insignificant effects on returns so we cannot draw any conclusion about these variables.

Changing the assumption again so we have expected payout rate we still cannot get a significant effect from the payout yield on the return on the S&P 500 index as shown in Table 14. Hence, the conclusion from this result is that payout yield doesn't significantly affect the return for the S&P 500 companies. For the beta variable we have a significant negative relationship between the value of this variable and the return on different companies for the S&P 500. As before, we have shown that lower beta companies seem to perform better than higher beta companies. For the return on the market we have a beta of 1,2 and it is significantly different from zero. Looking at other control variables we can see that size still has a negative relationship with S&P 500 returns telling us that smaller companies perform better than larger ones. Earnings, capital expenditure and book to market ones again have insignificant effects on the S&P 500 companies.

5.2 Payout Portfolio Matrixes

In this section we present the findings of our analysis of the different payout portfolios as well as the analysis of the zero payout portfolios. This is our main section and it shows whether companies with higher payout perform worse or better than lower payout companies during crisis which is our initial research question.

We begin by looking at the late 1980's crisis. In Table 1-3 you can see the matrixes that we constructed for determining different payout returns. Looking at the payout data graphically (see Figure 1), we can see that the lowest payout portfolio seem to outperform the other payout portfolios during the first years but drops during the last years. However, even if this effect seems to be present looking at the data, we further perform a t-test to statistically prove this. Looking at Table 9 you can see that we fail to reject the null hypothesis that the highest payout portfolio is statistically different from the zero payout portfolio sorted by beta values, however, among the payout portfolios the lowest payout portfolio is statistically different from the highest payout portfolio.

In Table 1-3 we also present different ways of sorting the portfolios looking at size, beta, capital expenditure, earnings and book to market values. Interestingly to notice is that all portfolios seem to demonstrate a rising trend for the higher the value of the variable is in each portfolio. For the beta portfolios, size portfolios and the book to market portfolio we can significantly say that a higher value on each of these variables creates a higher return in our matrix (see Table 9 for t-statistics).

When we look at the market capitalization or size for our different portfolios we can conclude that the smallest companies are located in the lowest payout portfolios. Portfolio 5 arguably has the largest companies represented. This could indicate that size explains the high returns of the zero payout portfolio in our sample however we did not find a small firm effect on returns when we regressed all our 500 companies (see Figure 4).

Looking at capital expenditure we see a clear decreasing trend for the portfolios. Zero payout companies seem to spend a lot more on capital expenditure relative to their assets compared to the high payout companies. In our first panel regression we also got an insignificant value for our coefficient regarding capital expenditure so we cannot say for sure that it determines the performance of our portfolios (see figure 4).

Finally we look at the different beta values for our different portfolios. Interestingly the lowest beta portfolio performs very well looking at our first graph. This is quite interesting since you would expect the opposite result. Once again we can also refer to our first panel regression where we found that beta did not have a significant effect on our securities returns (see Figure 4).

In Table 4-6, you can see the matrix that we constructed in order to find out whether higher payout portfolios perform better than low payout portfolio and the zero payout portfolios in the late 2000's crisis. In the matrix you can obviously see that the higher payout portfolios perform better than the lower payout portfolios and the zero payout portfolios as well. This trend seems to be holding on over the whole 5 year period after the initial crisis as well which is very interesting to see. Looking further down in the matrixes we can see how size, capital expenditure, earnings and book to market have affected returns. Companies with a smaller size clearly outperform the bigger companies in the 5 year horizon that we are looking at and the same goes for higher beta companies. The matrix data over the capital expenditure is hard to interpret and we cannot draw any conclusion about its effect on returns from only looking at the matrix in Table 4-6. Earnings on the other hand show a positive relationship between more earnings and better returns. All tests showed a significant difference between the biggest portfolio and the smallest one except capital expenditure and earnings.

For the late 2000's recession our results can also be shown graphically (see Figure 2) over time as follows looking at payout portfolios.

What you clearly see from the graph is that the zero payout portfolios perform worst during the crisis year and also after the crisis and before the crisis. This is a clear statement that paying no cash to shareholders was not a good strategy for a company during the crisis that occurred in the late 2000's. Another bad strategy seemed to be having low payout for a company. The lowest payout portfolio performed slightly better than the zero payout portfolios but far worse than the other portfolios paying more cash to investors. The high payout portfolios unambiguously performs the best during these years and We can see this relationship graphically as shown above but we also want to prove this statistically. In order to perform these tests we do a students t-test between the highest payout portfolios compared to the lowest payout portfolio. Looking at table 10 we see that the highest payout portfolio significantly performs better than the lowest payout portfolio with a t statistics of -2,5 . This confirms the above findings statistically as well.

Looking at size, figure 3 tells us that the smallest companies are located in the portfolios with the highest payout. This could indicate that a size effect is present and could explain some of the better return for companies in this portfolio as found by Keim(1985). We also find evidence of this in our previous panel regression for this time period. The size variable significantly explained return with a negative coefficient telling us that smaller companies affect returns positively while larger companies have the opposite effect.

Looking further on in figure 3 at our capital expenditure ratio we can see that the smaller the expenditure is the higher payout the company seems to have. We found this effect in our first regression over all of the S&P 500 companies in the previous section as well but as in the previous crisis this effect is insignificant so we cannot draw any conclusion from this graph.

Finally looking how the beta of the companies is distributed between our portfolios we can see the following relationship presented in figure 3. The lowest beta stocks are all placed in the zero portfolio and the highest beta stocks are all placed in the highest payout portfolio. This proofs that the higher payout portfolios perform better than the lower payout portfolios and we saw in the previous panel regression that the effect from beta on returns proved to be significantly different from zero.

Since our last economic crisis that started in 2007 not has lasted for five years, we don't have complete data of a five year period after the start of the crisis. Despite this, we will at least present our findings for 2 years after this last crisis in our essay.

First we have the general findings over the two year period of our six portfolios. In graph xxx and table 7-8 we can draw the conclusion that the zero payout portfolio performed worst during the 2 year period after the initial crisis period. We can also see that the next highest payout portfolio performed best of all paying portfolios. Next we want to test if this apparent fining is statistically significant by performing t-tests. In table 11 you can see that the lowest payout portfolio is statistically different from the highest paying portfolio. This is in line with the other crisis and shows a consistent result that higher paying companies perform better during all the crises. Looking at other ways of sorting the matrix in table 7-8 we can conclude in table 11 that the beta in the different portfolios is significantly different for the highest values compared to the lowest. The same effect can be seen for the book to market factor in the same table and it is significantly different

5.3 Portfolios

We begin by looking at the late 1980's crisis. Looking at table 13 we can see that for the zero payout portfolio we can see that the market coefficient has a positive relation with the return on the portfolio. The book to market factor is also significant but its relationship with the portfolio is negative indicating that a low book to market ratio affect returns positively. Portfolio 1 also shows a positive and significant relationship with the market return and it is slightly higher than the relation observed in the zero payout portfolio. All other variables have an insignificant effect on the portfolio. For portfolio 2 until portfolio 5 we can see that the market return coefficient is always positive and significant. The size factor also seems to be significant and display a negative effect on returns indicating that smaller size generates larger returns on the portfolios. Earnings also affect returns significantly and also show a negative relationship on portfolio return but for the highest payout portfolio the earnings coefficient is positive and that indicates that more earnings is positive for the individual portfolio return.

Moving on to look at the late 2000's crisis table 13 explains our results. Similar to the late 1980's crisis we can conclude by looking at the table that all portfolios except portfolio 4 have significant coefficients for the market return. For the size variable we can see that for portfolio 1 there is a very small but significant positive relationship between the variable and the portfolio's excess return. For the rest of the portfolios this effect is insignificant for the size variable. The other control variables also have insignificant effects on the excess return on each portfolio.

6. Conclusion

In this study we have studied the performance of companies on the S&P 500 by looking at their payout policy. This is a unique study that tries to answer the question whether companies that have a generous payout policy are worse off or better in times of economic crisis. We have also incorporated stock repurchase programs as a part of the whole payout policy in order to acknowledge the growing importance of this form of payout.

Generally when we looked at the S&P 500 companies we could not find any significant effect from payout policy on stock returns when we used the approach of calculating payout policies twelve months back in time for both crises. On the other hand calculating the payout policy in the second way using the payout expectation approach we found that payout policy did have a significant positive effect on returns for the late 1980's crisis. However, when we did the same test for the late 2000's crisis this effect had disappeared.

The main test of this essay was our unique approach of sorting the S&P 500 companies into a matrix with different sorting criteria's such as beta values on the S&P 500 companies just before the crisis, size variables, capital expenditure, earnings and book to market. The conclusions from these tests are that among the companies actually paying cash to shareholders we can see that the portfolios that paid more cash to shareholders actually performed better during the late 1980's crisis, the late 2000's crisis and in the late 2007's crisis than the portfolio with the smallest payout yield. Looking at the zero payout portfolio compared to the highest paying portfolios we did not find a stable relationship that the zero portfolio performs worse than the highest paying portfolios. This could be due to the specific firm characteristics of these companies for example that they constitute or companies with a smaller market capitalization and could this be affected by the small firm effect documented by Banz (1981).

Finally we looked at the specific characteristics of the different portfolios as for example book to market values in the portfolios, their respective market capitalization etc in order to find out whether it was in fact their characteristics that explained their return or only the their different payout yields Here we did not find any consistent evidence that a specific characteristic such as size for example could explain the difference in return between the portfolios. Between the crises we did not either find any consistent results showing that specific characteristics dominated as an explanation to the difference in returns between the portfolios.

In conclusion, we have shown with our approach of testing whether higher payout yields predict returns in economic crisis that among payout portfolios actually paying cash companies perform

better if they pay out more during crisis. On one hand, our results are not consistent since the initial panel regression that disregards the portfolio approach showed no significant effects from payout yields on returns for the late 2000's crisis. On the other hand, we could not find any statistical support for the argument against having a generous payout policy either.

7. Further research

As discussed above our results show inconsistent evidence of that companies paying a higher amount of cash to their shareholders in crisis are worse off than companies being more restrictive with their cash reserves. One of the more interesting things with our essay is the zero payout portfolios that had very inconsistent returns in the crisis both in the specific crisis and between crises. It could be interesting to go more deeply into the reasons for this as well as testing more hypothesizes about zero paying companies. Secondly, since the last financial crisis just have occurred it could be interesting to perform more tests after a couple of years to test the effect on payout portfolios on this the most recent economic crisis. Finally, our sample is only concentrated to the largest US companies and a study incorporating other countries as well as market capitalizations of the companies could be very interesting for further research.

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APPENDIX

Figure 1
Payout Portfolio Total Return Chart 1987 – 1992

The figure below illustrates the total return for the six payout portfolios starting in the end of June 1987 to June 1992. The figure below covers the five-year period with the base point in 2nd quarter 1987, including two financial crisis – one in October 1987 (the "Black Monday") and one in the beginning of the 1990's. The time periods are listed on quarterly basis because the measure Total Return incorporates dividend payments which only occur on quarterly basis. The *Zero Payout* line represents returns for the firms with zero payouts between 1985 and 1987. *PO 1* represents the quintile of the payout firms with lowest payout yields, while *PO 5* represents the quintile with highest yields.

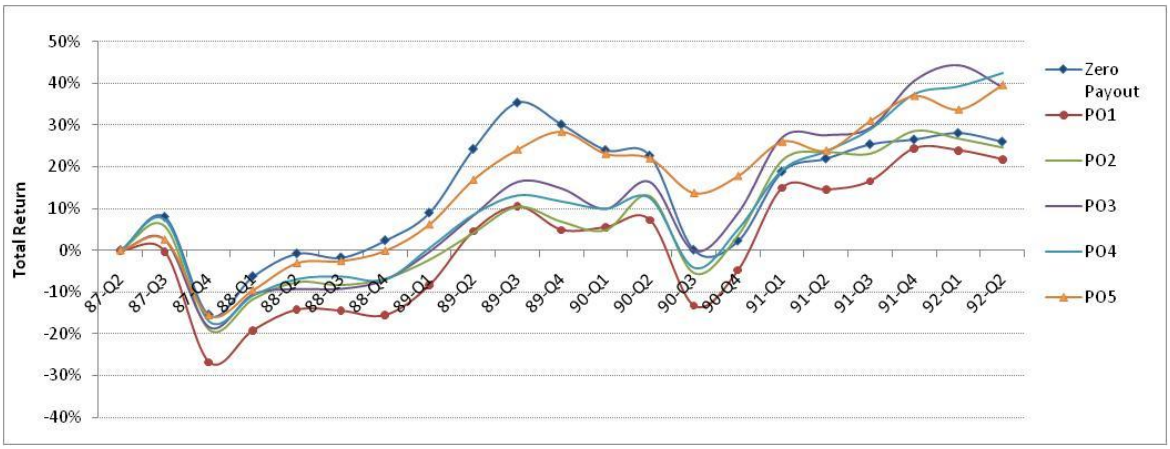

Figure 2
Payout Portfolio Total Return Chart 2001 – 2006

The figure below illustrates the total return for the six payout portfolios starting in the end of March 2001 to March 2006. This period covers the burst of the famous Dot-Com bubblein March 2001. The time periods are listed on quarterly basis because the measure Total Return incorporates dividend payments which only occur on quarterly basis. The *Zero Payout* line represents returns for the firms with zero payouts between 1999 and 2001. *PO 1* represents the quintile of the payout firms with lowest payout yields, while *PO 5* represents the quintile with highest yields.

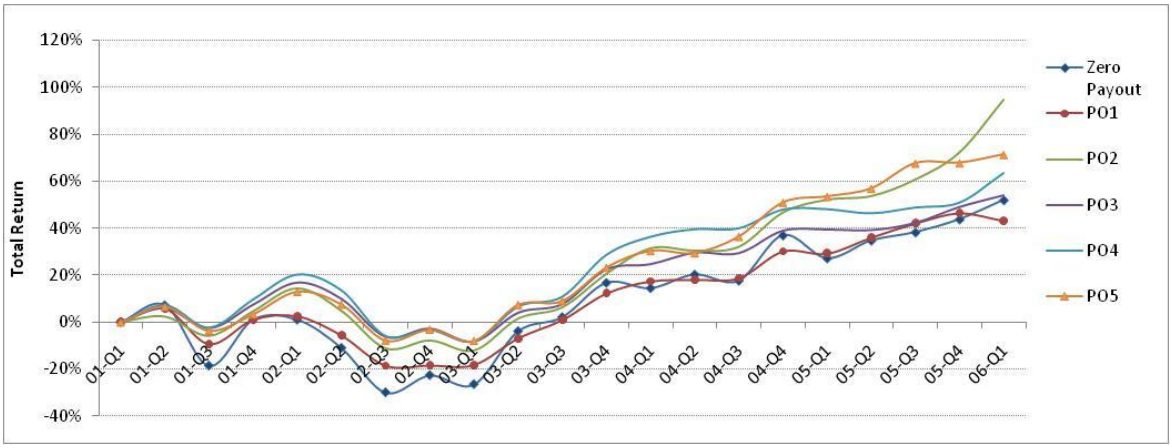

Figure 3
Payout Portfolio Total Return Chart 2007 - 2009

The figure below illustrates the total return for the six payout portfolios starting in the end of March 2001 to March 2006. This period covers the burst of the famous Dot-Com bubblein March 2001. The time periods are listed on quarterly basis because the measure Total Return incorporates dividend payments which only occur on quarterly basis. The *Zero Payout* line represents returns for the firms with zero payouts between 2005 and 2007. *PO 1* represents the quintile of the payout firms with lowest payout yields, while *PO 5* represents the quintile with highest yields.

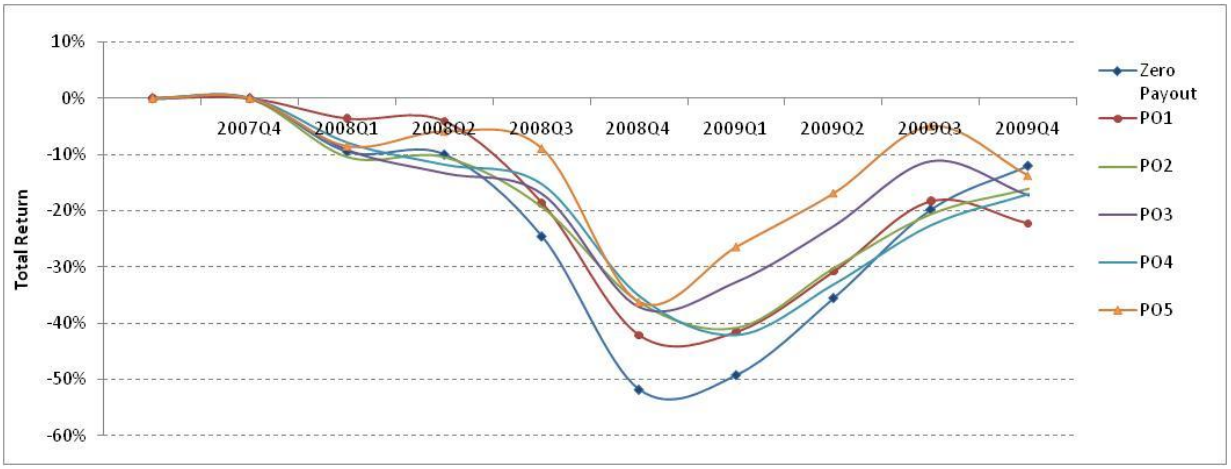

Figure 4
Payout Portfolio Specifics 1987 & 2001

The combined figures below illustrate the firm specifics of the respective payout portfolios for the period 1987-Q2 and 2001-Q1. The variables described are Capex Ratio, which is the combined capital expenditure of the previous twelve-month period divided by the average value of the firms' total asset value over that period. Beta values are calculated in STATA using LTM Total Return values.

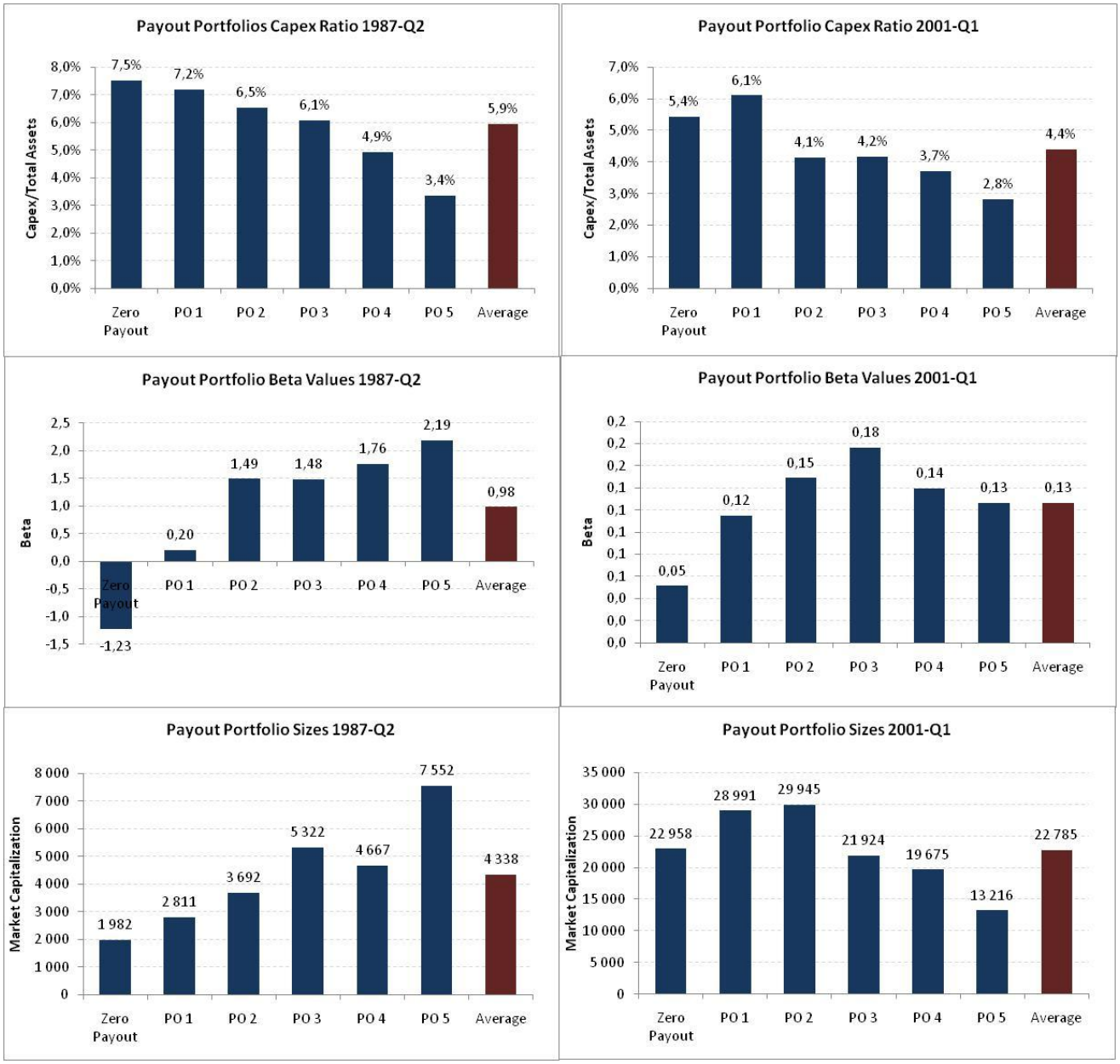

Table 1

1-Year Total Return Matrix 1987 - 1988

Total returns of observed S&P 500 firms are listed below according to the period specified by the table, with the starting date just at/before the economic peak stated by the *National Bureau of Economic Research.* In the table below, this starting point is July 1987 or the beginning of the 3rd quarter.

The sample observations are sorted horizontally according to their respective payout yields in the two-year period starting two years before the economic peak. Subsequently, the observations are sorted as a single group with no payouts, named *Zero Payout*, and five groups consisting of quintiles (20% of sample) of which *PO 1* represents the quintile with lowest payout yields and *PO 5* the highest. Then, the observations are sorted vertically with regard to multiple factors such as the *Beta value, Market Capitalization* (Size), *Capital Expenditure Rate*, *Earnings Ratio* and *Book-to-Market Ratio*, where *BT1, S1, C1, E1* & *BM1* represent the quintiles with lowest ratios and *BT5, S5, C5, E5 & BM5* are the highest quintiles.

1 Year Total Return, July 1987 - June 1988								
		Zero Payout	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**Average**
	Avg PO	-0,8%	-13,1%	-7,7%	-9,2%	-5,2%	-3,1%	
	No. Firms	44	82	82	81	82	82	
Beta Portfolios								
Lowest	**BT 1**	-10,8%	-12,9%	-0,8%	-19,0%	-1,9%	-13,9%	**-10%**
	BT 2	18,0%	-21,7%	-11,2%	-2,9%	-7,4%	1,6%	**-4%**
	BT 3	-14,0%	-14,1%	-10,0%	-12,2%	-5,9%	-0,4%	**-9%**
	BT 4	-6,8%	-9,2%	-8,1%	-2,1%	-2,4%	4,8%	**-4%**
Highest	**BT 5**	11,5%	-7,8%	-8,5%	-9,4%	-8,6%	-7,0%	**-5%**
Size Portfolios								
Lowest	**S 1**	-6,5%	-10,3%	-13,1%	-12,8%	0,1%	-3,8%	**-8%**
	S 2	3,7%	-15,5%	-6,5%	-2,6%	4,2%	-5,4%	**-4%**
	S 3	5,5%	-6,3%	-0,9%	-7,6%	-6,4%	-3,9%	**-3%**
	S 4	5,4%	-23,5%	-6,7%	-5,4%	-10,0%	-1,0%	**-7%**
Highest	**S 5**	-10,1%	-10,8%	-11,3%	-17,7%	-14,3%	-1,3%	**-11%**
Capex Portfolios								
Lowest	**C 1**	4,3%	-6,2%	-8,8%	-13,5%	-6,2%	-7,1%	**-6%**
	C 2	1,7%	-18,5%	-11,5%	-12,1%	-3,3%	-3,1%	**-8%**
	C 3	-2,4%	-18,9%	-15,8%	-9,5%	-6,4%	4,1%	**-8%**
	C 4	-5,1%	-10,9%	-1,4%	-0,7%	-10,3%	-3,3%	**-5%**
Highest	**C 5**	-1,2%	-11,8%	-1,1%	-10,9%	0,4%	-5,7%	**-5%**
Earnings Portfolios								
Lowest	**E 1**	-14,4%	-1,5%	-4,7%	-6,5%	-6,8%	8,9%	**-4%**
	E 2	11,4%	-16,3%	1,9%	-6,5%	-6,8%	-3,9%	**-3%**
	E 3	-0,8%	-2,1%	-9,0%	-14,4%	-8,5%	-6,2%	**-7%**
	E 4	7,6%	-29,1%	-17,9%	-5,0%	-4,1%	-9,5%	**-10%**
Highest	**E 5**	-7,4%	-17,1%	-8,6%	-13,5%	-0,1%	-4,5%	**-9%**
BTM Portfolios								
Lowest	**BM 1**	15,8%	-7,1%	1,6%	-5,1%	-7,4%	-7,6%	**-2%**
	BM 2	-7,3%	-19,7%	-16,5%	-16,2%	-2,0%	-4,7%	**-11%**
	BM 3	-12,8%	-18,5%	-3,0%	-13,0%	-9,0%	5,0%	**-9%**
	BM 4	10,4%	-7,0%	-9,4%	-1,8%	-9,1%	-6,2%	**-4%**
Highest	**BM 5**	-9,2%	-13,4%	-10,4%	-9,8%	1,5%	-1,7%	**-7%**

Table 2

3-Year Total Return Matrix 1987 - 1990

Total returns of observed S&P 500 firms are listed below according to the period specified by the table, with the starting date just at/before the economic peak stated by the *National Bureau of Economic Research.* In the table below, this starting point is July 1987 or the beginning of the 3rd quarter.

The sample observations are sorted horizontally according to their respective payout yields in the two-year period starting two years before the economic peak. Subsequently, the observations are sorted as a single group with no payouts, named *Zero Payout*, and five groups consisting of quintiles (20% of sample) of which *PO 1* represents the quintile with lowest payout yields and *PO 5* the highest. Then, the observations are sorted vertically with regard to multiple factors such as the *Beta value, Market Capitalization* (Size), *Capital Expenditure Rate*, *Earnings Ratio* and *Book-to-Market Ratio*, where *BT1, S1, C1, E1* & *BM1* represent the quintiles with lowest ratios and *BT5, S5, C5, E5 & BM5* are the highest quintiles.

3 Year Total Return, July 1987 - June 1990								
		Zero Payout	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**Average**
	Avg PO	22,8%	13,0%	13,8%	16,4%	16,3%	22,1%	
	No. Firms	44	82	82	81	82	82	
Beta Portfolios								
Lowest	**BT 1**	0,6%	1,4%	1,4%	8,0%	8,9%	16,6%	**6%**
	BT 2	36,8%	-0,8%	13,0%	30,4%	12,8%	20,6%	**19%**
	BT 3	-0,8%	4,2%	21,5%	22,0%	19,1%	31,8%	**16%**
	BT 4	6,6%	47,8%	2,7%	13,9%	31,4%	26,2%	**21%**
Highest	**BT 5**	72,0%	13,8%	30,6%	8,0%	9,4%	14,9%	**25%**
Size Portfolios								
Lowest	**S 1**	18,8%	4,4%	-10,8%	14,3%	14,9%	16,7%	**10%**
	S 2	16,8%	14,3%	20,1%	4,8%	20,6%	12,8%	**15%**
	S 3	10,8%	21,7%	20,6%	12,5%	12,1%	18,2%	**16%**
	S 4	60,0%	-10,1%	11,3%	29,7%	15,5%	25,7%	**22%**
Highest	**S 5**	5,7%	34,8%	28,9%	20,6%	18,6%	37,4%	**24%**
Capex Portfolios								
Lowest	**C 1**	7,5%	1,8%	7,7%	26,8%	16,4%	13,7%	**12%**
	C 2	23,8%	27,8%	18,0%	13,6%	10,3%	21,0%	**19%**
	C 3	63,9%	13,5%	22,2%	2,2%	18,1%	37,1%	**26%**
	C 4	8,1%	17,9%	14,7%	21,4%	8,4%	12,8%	**14%**
Highest	**C 5**	8,8%	4,5%	6,7%	17,4%	28,6%	26,7%	**15%**
Earnings Portfolios								
Lowest	**E 1**	-9,6%	33,4%	17,7%	15,4%	-3,6%	49,4%	**17%**
	E 2	43,9%	15,0%	24,2%	6,1%	28,5%	15,5%	**22%**
	E 3	43,9%	16,3%	10,2%	9,6%	15,7%	13,5%	**18%**
	E 4	21,7%	-4,2%	7,1%	39,6%	8,4%	15,2%	**15%**
Highest	**E 5**	9,9%	4,8%	10,2%	11,5%	31,4%	17,5%	**14%**
BTM Portfolios								
Lowest	**BM 1**	31,1%	12,2%	17,9%	10,1%	15,2%	7,7%	**16%**
	BM 2	15,5%	23,1%	15,8%	25,8%	45,5%	21,5%	**25%**
	BM 3	15,4%	3,9%	24,1%	23,9%	11,5%	43,6%	**20%**
	BM 4	73,3%	22,7%	-5,1%	19,6%	-16,2%	22,1%	**19%**
Highest	**BM 5**	-16,0%	2,1%	17,3%	1,9%	25,6%	15,3%	**8%**

Table 3

5-Year Total Return Matrix 1987 – 1992

Total returns of observed S&P 500 firms are listed below according to the period specified by the table, with the starting date just at/before the economic peak stated by the *National Bureau of Economic Research.* In the table below, this starting point is July 1987 or the beginning of the 3rd quarter.

The sample observations are sorted horizontally according to their respective payout yields in the two-year period starting two years before the economic peak. Subsequently, the observations are sorted as a single group with no payouts, named *Zero Payout*, and five groups consisting of quintiles (20% of sample) of which *PO 1* represents the quintile with lowest payout yields and *PO 5* the highest. Then, the observations are sorted vertically with regard to multiple factors such as the *Beta value, Market Capitalization* (Size), *Capital Expenditure Rate*, *Earnings Ratio* and *Book-to-Market Ratio*, where *BT1, S1, C1, E1* & *BM1* represent the quintiles with lowest ratios and *BT5, S5, C5, E5 & BM5* are the highest quintiles.

5 Year Total Return, July 1987 - June 1992								
		Zero Payout	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**Average**
	Avg PO	27,1%	27,5%	23,4%	38,9%	45,9%	39,9%	
	No. Firms	44	82	82	81	82	82	
Beta Portfolios								
Lowest	**BT 1**	-12,1%	-2,2%	3,6%	29,7%	33,5%	24,5%	**13%**
	BT 2	33,4%	27,8%	21,6%	59,7%	27,7%	34,1%	**34%**
	BT 3	14,0%	41,2%	29,7%	57,8%	40,3%	56,2%	**40%**
	BT 4	-4,4%	42,2%	38,4%	21,7%	77,5%	61,0%	**39%**
Highest	**BT 5**	108,0%	29,5%	24,5%	26,3%	51,8%	23,5%	**44%**
Size Portfolios								
Lowest	**S 1**	38,4%	-7,9%	-6,5%	35,0%	41,0%	33,0%	**22%**
	S 2	2,9%	12,3%	19,7%	19,7%	37,9%	32,8%	**21%**
	S 3	29,9%	66,6%	38,5%	29,4%	43,1%	43,5%	**42%**
	S 4	47,7%	12,7%	15,2%	63,9%	48,3%	39,2%	**38%**
Highest	**S 5**	12,8%	53,5%	51,0%	47,0%	59,8%	51,1%	**46%**
Capex Portfolios								
Lowest	**C 1**	1,6%	23,7%	17,7%	54,7%	45,6%	30,2%	**29%**
	C 2	15,6%	44,8%	32,5%	23,0%	31,5%	35,8%	**31%**
	C 3	68,5%	29,3%	13,1%	27,5%	54,2%	50,9%	**41%**
	C 4	12,9%	30,9%	22,4%	34,9%	42,9%	30,0%	**29%**
Highest	**C 5**	36,5%	8,8%	31,6%	54,8%	55,7%	53,8%	**40%**
Earnings Portfolios								
Lowest	**E 1**	-2,9%	61,2%	36,2%	35,2%	33,0%	87,2%	**42%**
	E 2	45,1%	26,8%	27,5%	21,2%	71,1%	37,3%	**38%**
	E 3	38,2%	4,0%	13,5%	23,3%	27,3%	16,7%	**21%**
	E 4	70,4%	39,2%	10,0%	63,6%	38,0%	20,2%	**40%**
Highest	**E 5**	-16,8%	8,8%	30,0%	52,3%	60,3%	39,6%	**29%**
BTM Portfolios								
Lowest	**BM 1**	62,2%	0,1%	14,2%	20,1%	55,3%	14,2%	**28%**
	BM 2	-11,4%	37,3%	31,0%	64,9%	99,2%	44,2%	**44%**
	BM 3	36,5%	34,6%	33,9%	41,6%	27,7%	62,7%	**39%**
	BM 4	69,5%	43,8%	4,5%	39,7%	5,2%	41,4%	**34%**
Highest	**BM 5**	-11,4%	20,1%	34,2%	26,8%	41,5%	36,6%	**25%**

Table 4
1-Year Total Return Matrix 2001 – 2002

Total returns of observed S&P 500 firms are listed below according to the period specified by the table, with the starting date just at/before the economic peak stated by the *National Bureau of Economic Research.* In the table below, this starting point is April 2001 or the beginning of the 2rd quarter.

The sample observations are sorted horizontally according to their respective payout yields in the two-year period starting two years before the economic peak. Subsequently, the observations are sorted as a single group with no payouts, named *Zero Payout*, and five groups consisting of quintiles (20% of sample) of which *PO 1* represents the quintile with lowest payout yields and *PO 5* the highest. Then, the observations are sorted vertically with regard to multiple factors such as the *Beta value, Market Capitalization* (Size), *Capital Expenditure Rate*, *Earnings Ratio* and *Book-to-Market Ratio*, where *BT1, S1, C1, E1* & *BM1* represent the quintiles with lowest ratios and *BT5, S5, C5, E5 & BM5* are the highest quintiles.

1 Year Total Return, Apr 2001 - Mar 2002								
		Zero Payout	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**Average**
	Avg PO	1,0%	2,6%	14,3%	16,8%	20,3%	13,1%	
	No. Firms	67	71	71	70	71	71	
Beta Portfolios								
Lowest	**BT 1**	-26,4%	-14,5%	14,7%	8,9%	18,9%	23,3%	**4%**
	BT 2	-3,4%	-5,3%	16,4%	16,6%	10,0%	20,3%	**9%**
	BT 3	15,4%	11,2%	18,5%	16,5%	0,4%	3,2%	**11%**
	BT 4	13,9%	2,2%	8,4%	11,2%	48,0%	8,1%	**15%**
Highest	**BT 5**	6,5%	20,6%	13,7%	31,5%	24,5%	9,7%	**18%**
Size Portfolios								
Lowest	**S 1**	9,6%	24,4%	40,2%	36,0%	50,4%	10,6%	**29%**
	S 2	20,9%	7,6%	18,8%	16,1%	27,5%	22,6%	**19%**
	S 3	11,5%	0,1%	15,3%	15,4%	18,0%	28,6%	**15%**
	S 4	-22,4%	-12,5%	3,7%	12,3%	2,9%	7,7%	**-1%**
Highest	**S 5**	-16,0%	-8,3%	-8,2%	2,9%	0,7%	-4,0%	**-5%**
Capex Portfolios								
Lowest	**C 1**	11,8%	-3,6%	7,7%	6,1%	8,4%	4,8%	**6%**
	C 2	8,9%	12,5%	16,7%	37,4%	27,0%	20,8%	**21%**
	C 3	1,5%	-6,1%	6,4%	23,3%	19,1%	22,7%	**11%**
	C 4	-16,1%	8,4%	11,6%	17,9%	31,6%	16,6%	**12%**
Highest	**C 5**	-2,0%	2,1%	29,7%	0,6%	16,4%	1,1%	**8%**
Earnings Portfolios								
Lowest	**E 1**	-12,8%	-6,9%	13,8%	17,9%	47,1%	13,7%	**12%**
	E 2	-1,2%	6,1%	6,6%	11,0%	8,6%	13,0%	**7%**
	E 3	-9,8%	-6,0%	11,4%	14,7%	14,4%	-1,1%	**4%**
	E 4	12,4%	9,7%	17,8%	13,8%	19,3%	15,3%	**15%**
Highest	**E 5**	18,3%	10,8%	22,0%	26,5%	10,2%	24,4%	**19%**
BTM Portfolios								
Lowest	**BM 1**	-15,0%	-12,4%	0,9%	19,0%	0,5%	8,1%	**0%**
	BM 2	-13,2%	-1,7%	-9,2%	16,5%	12,1%	-0,6%	**1%**
	BM 3	22,4%	-0,9%	14,9%	14,2%	13,0%	17,8%	**14%**
	BM 4	-4,6%	4,4%	35,5%	16,4%	14,9%	19,5%	**14%**
Highest	**BM 5**	15,0%	24,6%	30,5%	17,6%	62,6%	20,9%	**29%**

Table 5
3-Year Total Return Matrix 2001 – 2004

Total returns of observed S&P 500 firms are listed below according to the period specified by the table, with the starting date just at/before the economic peak stated by the *National Bureau of Economic Research.* In the table below, this starting point is April 2001 or the beginning of the 2rd quarter.

The sample observations are sorted horizontally according to their respective payout yields in the two-year period starting two years before the economic peak. Subsequently, the observations are sorted as a single group with no payouts, named *Zero Payout*, and five groups consisting of quintiles (20% of sample) of which *PO 1* represents the quintile with lowest payout yields and *PO 5* the highest. Then, the observations are sorted vertically with regard to multiple factors such as the *Beta value, Market Capitalization* (Size), *Capital Expenditure Rate*, *Earnings Ratio* and *Book-to-Market Ratio*, where *BT1, S1, C1, E1* & *BM1* represent the quintiles with lowest ratios and *BT5, S5, C5, E5 & BM5* are the highest quintiles.

3 Year Total Return, Apr 2001 - Mar 2004								
		Zero Payout	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**Average**
	Avg PO	14,4%	17,4%	31,4%	24,6%	36,3%	30,4%	
	No. Firms	67	71	71	70	71	71	
Beta Portfolios								
Lowest	**BT 1**	-14,6%	-1,1%	8,1%	10,3%	25,2%	50,6%	**13%**
	BT 2	-14,9%	12,0%	27,7%	31,8%	14,7%	40,1%	**19%**
	BT 3	37,4%	17,5%	38,7%	27,6%	3,9%	31,8%	**26%**
	BT 4	49,6%	11,4%	41,1%	19,4%	68,8%	2,7%	**32%**
Highest	**BT 5**	15,0%	48,7%	42,8%	35,3%	69,4%	25,3%	**39%**
Size Portfolios								
Lowest	**S 1**	38,8%	61,2%	74,9%	55,9%	99,0%	41,0%	**62%**
	S 2	45,5%	34,9%	61,6%	23,0%	43,4%	40,3%	**41%**
	S 3	18,4%	5,2%	32,4%	42,5%	18,3%	47,9%	**27%**
	S 4	-7,2%	-9,0%	3,4%	5,9%	8,8%	17,0%	**3%**
Highest	**S 5**	-25,5%	-8,2%	-18,5%	-5,1%	7,3%	5,1%	**-7%**
Capex Portfolios								
Lowest	**C 1**	18,0%	36,8%	41,8%	6,4%	10,7%	24,5%	**23%**
	C 2	63,4%	29,8%	27,4%	64,8%	46,4%	32,4%	**44%**
	C 3	7,6%	-2,1%	26,4%	39,9%	19,8%	43,6%	**23%**
	C 4	-15,3%	4,7%	34,7%	21,1%	85,5%	27,6%	**26%**
Highest	**C 5**	-1,2%	16,5%	25,7%	-6,6%	20,7%	24,3%	**13%**
Earnings Portfolios								
Lowest	**E 1**	3,0%	13,6%	34,7%	13,8%	105,8%	48,5%	**37%**
	E 2	-8,3%	8,8%	2,3%	26,5%	8,7%	19,1%	**10%**
	E 3	27,1%	3,4%	30,0%	27,2%	22,6%	6,3%	**19%**
	E 4	18,4%	10,7%	24,9%	18,1%	30,4%	29,7%	**22%**
Highest	**E 5**	31,8%	51,0%	64,6%	38,6%	9,0%	47,1%	**40%**
BTM Portfolios								
Lowest	**BM 1**	13,0%	-8,1%	-5,0%	25,5%	4,4%	7,5%	**6%**
	BM 2	-15,4%	2,9%	-7,2%	24,2%	17,1%	15,2%	**6%**
	BM 3	48,5%	14,3%	29,8%	27,5%	34,3%	37,8%	**32%**
	BM 4	10,1%	10,8%	64,6%	28,3%	18,3%	47,9%	**30%**
Highest	**BM 5**	13,5%	69,0%	77,1%	17,9%	109,7%	45,2%	**55%**

Table 6
5-Year Total Return Matrix 2001 – 2006

Total returns of observed S&P 500 firms are listed below according to the period specified by the table, with the starting date just at/before the economic peak stated by the *National Bureau of Economic Research.* In the table below, this starting point is April 2001 or the beginning of the 2rd quarter.

The sample observations are sorted horizontally according to their respective payout yields in the two-year period starting two years before the economic peak. Subsequently, the observations are sorted as a single group with no payouts, named *Zero Payout*, and five groups consisting of quintiles (20% of sample) of which *PO 1* represents the quintile with lowest payout yields and *PO 5* the highest. Then, the observations are sorted vertically with regard to multiple factors such as the *Beta value, Market Capitalization* (Size), *Capital Expenditure Rate*, *Earnings Ratio* and *Book-to-Market Ratio*, where *BT1, S1, C1, E1* & *BM1* represent the quintiles with lowest ratios and *BT5, S5, C5, E5 & BM5* are the highest quintiles.

5 Year Total Return, Apr 2001 - Mar 2006								
		Zero Payout	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**Average**
	Avg PO	52,0%	43,3%	94,6%	54,0%	63,3%	71,3%	
	No. Firms	67	71	71	70	71	71	
Beta Portfolios								
Lowest	**BT 1**	75,1%	17,0%	45,4%	19,5%	41,8%	117,9%	**53%**
	BT 2	-13,8%	40,7%	111,2%	63,7%	77,3%	84,0%	**60%**
	BT 3	65,8%	51,6%	90,9%	50,6%	22,5%	55,9%	**56%**
	BT 4	71,3%	26,5%	109,3%	65,7%	89,7%	46,5%	**68%**
Highest	**BT 5**	58,6%	82,5%	119,8%	73,0%	86,5%	49,2%	**78%**
Size Portfolios								
Lowest	**S 1**	128,0%	117,4%	198,3%	85,2%	130,6%	84,3%	**124%**
	S 2	81,4%	61,7%	154,8%	48,1%	82,6%	94,9%	**87%**
	S 3	59,8%	41,9%	83,2%	83,0%	50,5%	98,6%	**70%**
	S 4	11,6%	12,7%	29,0%	51,0%	33,9%	65,0%	**34%**
Highest	**S 5**	-27,5%	-22,5%	0,3%	2,7%	13,9%	13,0%	**-3%**
Capex Portfolios								
Lowest	**C 1**	52,4%	92,1%	94,5%	32,9%	30,7%	38,9%	**57%**
	C 2	107,0%	46,8%	90,1%	118,1%	63,7%	83,8%	**85%**
	C 3	44,5%	9,9%	55,7%	72,1%	52,1%	90,6%	**54%**
	C 4	9,3%	27,0%	89,1%	41,7%	129,7%	66,5%	**61%**
Highest	**C 5**	47,2%	37,1%	143,6%	8,2%	42,5%	79,2%	**60%**
Earnings Portfolios								
Lowest	**E 1**	46,6%	38,4%	145,0%	43,2%	117,9%	99,8%	**82%**
	E 2	17,3%	21,3%	19,2%	55,1%	35,6%	46,1%	**32%**
	E 3	60,6%	8,6%	73,0%	44,9%	71,2%	37,1%	**49%**
	E 4	66,6%	27,0%	68,9%	50,9%	51,1%	61,2%	**54%**
Highest	**E 5**	68,4%	121,6%	163,4%	76,1%	36,7%	110,4%	**96%**
BTM Portfolios								
Lowest	**BM 1**	75,0%	7,3%	8,0%	32,1%	16,9%	18,4%	**26%**
	BM 2	2,2%	-7,6%	50,8%	47,4%	60,2%	42,7%	**33%**
	BM 3	48,2%	44,5%	52,8%	63,9%	49,8%	88,5%	**58%**
	BM 4	55,1%	43,4%	126,1%	76,2%	63,5%	94,4%	**76%**
Highest	**BM 5**	77,8%	131,5%	241,4%	52,9%	129,1%	116,5%	**125%**

Table 7

1-Year Total Return Matrix 2007 - 2008

Total returns of observed S&P 500 firms are listed below according to the period specified by the table, with the starting date just at/before the economic peak stated by the *National Bureau of Economic Research.* In the table below, this starting point is end of Dec 2007 or the beginning of the 1st quarter 2008.

The sample observations are sorted horizontally according to their respective payout yields in the two-year period starting two years before the economic peak. Subsequently, the observations are sorted as a single group with no payouts, named *Zero Payout*, and five groups consisting of quintiles (20% of sample) of which *PO 1* represents the quintile with lowest payout yields and *PO 5* the highest. Then, the observations are sorted vertically with regard to multiple factors such as the *Beta value, Market Capitalization* (Size), *Capital Expenditure Rate*, *Earnings Ratio* and *Book-to-Market Ratio*, where *BT1, S1, C1, E1* & *BM1* represent the quintiles with lowest ratios and *BT5, S5, C5, E5 & BM5* are the highest quintiles.

1 Year Total Return, Dec 2007 - Dec 2008								
		Zero Payout	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**Average**
	Avg PO	-51,9%	-42,1%	-36,2%	-37,2%	-35,1%	-36,2%	
	No. Firms	17	85	85	86	85	85	
Beta Portfolios								
Lowest	**BT 1**	-49,4%	-35,5%	-31,2%	-37,8%	-37,3%	-35,8%	**-38%**
	BT 2	-70,4%	-40,4%	-30,8%	-26,0%	-31,3%	-23,3%	**-37%**
	BT 3	-43,4%	-36,3%	-28,1%	-31,9%	-19,8%	-37,6%	**-33%**
	BT 4	-40,3%	-46,6%	-38,6%	-33,7%	-40,3%	-38,9%	**-40%**
Highest	**BT 5**	-59,5%	-51,9%	-52,1%	-56,8%	-45,9%	-45,6%	**-52%**
Size Portfolios								
Lowest	**S 1**	-62,8%	-42,3%	-43,6%	-46,4%	-32,7%	-33,1%	**-43%**
	S 2	-32,4%	-52,0%	-31,6%	-31,7%	-33,5%	-31,3%	**-35%**
	S 3	-58,8%	-35,4%	-37,8%	-34,0%	-42,9%	-48,3%	**-43%**
	S 4	-48,5%	-41,2%	-31,4%	-41,6%	-30,5%	-33,9%	**-38%**
Highest	**S 5**	-51,0%	-39,4%	-36,3%	-31,8%	-36,7%	-35,2%	**-38%**
Capex Portfolios								
Lowest	**C 1**	-31,4%	-36,1%	-44,4%	-49,3%	-43,0%	-44,8%	**-42%**
	C 2	-45,8%	-41,4%	-30,0%	-33,7%	-40,1%	-39,8%	**-38%**
	C 3	-70,7%	-49,4%	-33,3%	-33,4%	-27,3%	-32,2%	**-41%**
	C 4	-58,7%	-38,7%	-33,9%	-37,0%	-34,2%	-31,4%	**-39%**
Highest	**C 5**	-53,2%	-45,8%	-38,7%	-32,1%	-30,1%	-32,1%	**-39%**
Earnings Portfolios								
Lowest	**E 1**	-61,2%	-48,7%	-54,5%	-49,7%	-44,5%	-38,1%	**-49%**
	E 2	-43,8%	-52,3%	-26,4%	-27,9%	-26,2%	-31,7%	**-35%**
	E 3	-52,4%	-35,9%	-35,0%	-29,1%	-27,8%	-40,2%	**-37%**
	E 4	-32,2%	-36,2%	-27,1%	-44,1%	-34,6%	-31,1%	**-34%**
Highest	**E 5**	-66,6%	-37,0%	-36,8%	-34,5%	-41,6%	-40,0%	**-43%**
BTM Portfolios								
Lowest	**BM 1**	-66,0%	-32,1%	-33,3%	-30,1%	-23,8%	-39,9%	**-38%**
	BM 2	-59,7%	-47,5%	-36,1%	-32,4%	-23,2%	-27,6%	**-38%**
	BM 3	-35,1%	-43,9%	-34,9%	-32,8%	-32,7%	-21,8%	**-34%**
	BM 4	-61,0%	-39,5%	-35,5%	-44,7%	-47,3%	-44,8%	**-45%**
Highest	**BM 5**	-38,5%	-48,3%	-41,3%	-46,5%	-49,2%	-45,8%	**-45%**

Table 8

2-Year Total Return Matrix 2007 - 2009

Total returns of observed S&P 500 firms are listed below according to the period specified by the table, with the starting date just at/before the economic peak stated by the *National Bureau of Economic Research.* In the table below, this starting point is end of Dec 2007 or the beginning of the 1st quarter 2008.

The sample observations are sorted horizontally according to their respective payout yields in the two-year period starting two years before the economic peak. Subsequently, the observations are sorted as a single group with no payouts, named *Zero Payout*, and five groups consisting of quintiles (20% of sample) of which *PO 1* represents the quintile with lowest payout yields and *PO 5* the highest. Then, the observations are sorted vertically with regard to multiple factors such as the *Beta value, Market Capitalization* (Size), *Capital Expenditure Rate*, *Earnings Ratio* and *Book-to-Market Ratio*, where *BT1, S1, C1, E1* & *BM1* represent the quintiles with lowest ratios and *BT5, S5, C5, E5 & BM5* are the highest quintiles.

2 Year Total Return, Dec 2007 - Dec 2009								
		Zero Payout	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**Average**
	Avg PO	-12,0%	-22,3%	-16,0%	-17,3%	-17,0%	-12,9%	
	No. Firms	17	85	85	86	85	85	
Beta Portfolios								
Lowest	**BT 1**	-15,1%	-14,7%	-9,9%	-20,6%	-18,5%	-16,1%	**-16%**
	BT 2	-13,5%	-29,8%	-18,0%	1,3%	-16,4%	-7,8%	**-14%**
	BT 3	-6,2%	-12,3%	-11,5%	-14,0%	-8,1%	-13,2%	**-11%**
	BT 4	-7,0%	-29,3%	-11,9%	-11,2%	-18,7%	-11,8%	**-15%**
Highest	**BT 5**	-19,4%	-24,9%	-28,8%	-41,6%	-22,9%	-15,2%	**-25%**
Size Portfolios								
Lowest	**S 1**	-7,0%	-12,6%	-13,7%	-18,1%	-3,0%	0,4%	**-9%**
	S 2	15,9%	-33,5%	-14,3%	-9,0%	-18,0%	-4,7%	**-11%**
	S 3	-29,3%	-18,3%	-15,0%	-17,1%	-24,7%	-27,8%	**-22%**
	S 4	-34,0%	-26,9%	-16,8%	-22,3%	-18,5%	-19,7%	**-23%**
Highest	**S 5**	-1,7%	-20,2%	-20,3%	-19,6%	-22,3%	-14,1%	**-16%**
Capex Portfolios								
Lowest	**C 1**	13,0%	-19,0%	-27,8%	-41,0%	-33,0%	-31,3%	**-23%**
	C 2	13,1%	-27,3%	-16,4%	-5,9%	-25,0%	-17,6%	**-13%**
	C 3	-33,2%	-21,3%	-5,9%	-11,5%	0,7%	1,4%	**-12%**
	C 4	-44,5%	-13,8%	-9,3%	-12,3%	-9,8%	-5,0%	**-16%**
Highest	**C 5**	-9,9%	-30,0%	-19,3%	-14,2%	-16,1%	-9,8%	**-17%**
Earnings Portfolios								
Lowest	**E 1**	-19,0%	-16,4%	-30,4%	-37,0%	-19,1%	-17,6%	**-23%**
	E 2	20,8%	-34,8%	-8,8%	0,6%	-8,1%	-9,2%	**-7%**
	E 3	-3,9%	-20,5%	-17,3%	-13,4%	-13,0%	-18,3%	**-14%**
	E 4	-13,8%	-22,2%	-9,3%	-17,3%	-16,1%	-2,0%	**-13%**
Highest	**E 5**	-44,6%	-17,7%	-13,4%	-18,1%	-28,6%	-17,2%	**-23%**
BTM Portfolios								
Lowest	**BM 1**	-1,5%	-13,2%	-12,2%	-5,9%	-6,3%	-6,4%	**-8%**
	BM 2	-30,7%	-27,4%	-12,0%	-3,5%	-7,5%	-9,5%	**-15%**
	BM 3	5,2%	-33,4%	-18,6%	-11,6%	-10,9%	3,5%	**-11%**
	BM 4	-46,1%	-15,3%	-17,3%	-30,0%	-27,5%	-22,3%	**-26%**
Highest	**BM 5**	3,6%	-23,3%	-20,3%	-35,9%	-33,2%	-29,0%	**-23%**

Table 9

T-Tests on Payout Portfolio Total Returns

The table below lists the t-test results generated by the data analysis program STATA. In the test, five years of total returns data are used to generate 25 respective 30 observations. Test number 1 tests the difference between total returns of Zero Payout portfolios and PO5 portfolios across the 5-year period, etc. Results with T-value higher than |2| are proof for significance.

T-Tests Matrix Returns						
Time period: Jun 1987 - Jun 1992						
Test No.	**Tested Variables**	**Obs.**	**Mean**	**Std.Err.**	**Std.Dev**	**Results**
1.	ZeroPayout	25	.1946933	.0641763	.3208815	T = -0.0652
	PO5	25	.1995002	.0348646	.174323	
2.	PO1	25	.110801	.0408364	.2041818	T = -3.2786
	PO5	25	.1995002	.0348646	.174323	
3.	Beta1	30	.0419047	.0232646	.1274252	T= -3.5538
	Beta5	30	.2257359	.0503436	.2757435	
4.	Size1	30	.0942699	.0311678	.1707133	T = -2.1952
	Size5	30	.1916341	.0423305	.2318538	
5.	Capex1	30	.1279376	.0302128	.1654821	T = -1.8086
	Capex5	30	.163339	.0352259	.1929402	
6.	Earning1	30	.1931462	.0474092	.259671	T = 1.5425
	Earning5	30	.1285111	.0363894	.1993128	
7.	BTM1	30	.1459378	.0327469	.1793622	T = 1.1814
	BTM5	30	.0933179	.0305261	.1671981	

Table 10

T-Tests on Payout Portfolio Total Returns

The table below lists the t-test results generated by the data analysis program STATA. In the test, five years of total returns data are used to generate 25 respective 30 observations. Test number 1 tests the difference between total returns of Zero Payout portfolios and PO5 portfolios across the 5-year period, etc. Results with T-value higher than |2| are proof for significance.

T-Tests Matrix Returns						
Time Period: Mar 2001 - Mar 2006						
Test No.	**Tested Variables**	**Obs.**	**Mean**	**Std.Err.**	**Std.Dev**	**Results**
1.	ZeroPayout	25	.1355302	.0723107	.3615535	T = -2.4450
	PO5	25	.3176197	.0682971	.3414854	
2.	PO1	25	.1516999	.0560526	.280263	T = -2.5479
	PO5	25	.3176197	.0682971	.3414854	
3.	Beta1	30	.1525244	.0666361	.3649811	T = -3.7517
	Beta5	30	.3826388	.0622026	.3406974	
4.	Size1	30	.5764106	.0935766	.5125403	T = 7.9379
	Size5	30	-.0959317	.0273869	.1500042	
5.	Capex1	30	.2110037	.0544523	.2982474	T = 0.6299
	Capex5	30	.1859663	.0648688	.3553008	
6.	Earning1	30	.3258403	.0840479	.4603495	T = -1.5323
	Earning5	30	.4355342	.0802679	.4396452	
7.	BTM1	30	.0654442	.0410759	.224982	T = -4.6860
	BTM5	30	.5552706	.1074212	.58837	

Table 11

T-Tests on Payout Portfolio Total Returns

The table below lists the t-test results generated by the data analysis program STATA. In the test, five years of total returns data are used to generate 25 respective 30 observations. Test number 1 tests the difference between total returns of Zero Payout portfolios and PO5 portfolios across the 5-year period, etc. Results with T-value higher than |2| are proof for significance.

T-Tests Matrix Returns						
Time Period: Dec 2007 - Dec 2009						
Test No.	**Tested Variables**	**Obs.**	**Mean**	**Std.Err.**	**Std.Dev**	**Results**
1.	ZeroPayout	10	-.3240978	.0731297	.2312563	T = -1.6184
	PO5	10	-.2452877	.0431526	.1364604	
2.	PO1	10	-.3218683	.0402758	.1273632	T = -2.7589
	PO5	10	-.2452877	.0431526	.1364604	
3.	Beta1	12	-.2681515	.0359667	.1245925	T = 5.6721
	Beta5	12	-.3872435	.0450785	.1561566	
4.	Size1	12	-.2626005	.0578354	.2003476	T = 0.3863
	Size5	12	-.2739008	.0386818	.1339976	
5.	Capex1	12	-.3234162	.0480617	.1664907	T = -0.9686
	Capex5	12	-.2761956	.0405874	.140599	
6.	Earning1	12	-.3635703	.0454881	.1575753	T = -0.8658
	Earning5	12	-.3300318	.0437341	.1514993	
7.	BTM1	12	-.225593	.05434	.1882392	T = 2.4774
	BTM5	12	-.3397332	.0439938	.1523991	

Table 12

Cross-Sectional Regression on Payout Portfolios 1987 - 1992

The cross-sectional regressions below test the impact that the tested variables (*Market Premium, Size, Earnings Ratio, Capex Ratio and BTM Ratio*) have on the dependant variable (*Portfolio Excess Return*). The degree of the impact is showed by the Beta value listed below. The regressions also test the significance of the impact, which is captured by the T-values which a T-value over or below 2.0 means the result is significant and valid. The R-squared values explain the explanatory power of the regression, of which 1.00 is the highest grade with 100% explanatory power.

Cross-Sectional Regression Analysis							
Time period: 1987 - 1992							
Tested Portfolio	**Dependant Variable**	**Tested Variables**	**No. Obs.**	**Beta**	**Std.Err.**	**T-value**	**R2**
Zero Payout	Portfolio Excess Return	Market Premium	24	1.121382	.1294048	8.67	0.9069
	(Annual)	Size	24	-.000099	.0000843	-1.17	
		Earnings Ratio	24	.1169063	.2942123	0.40	
		Capex Ratio	24	-1.499732	1.03298	-1.45	
		Book-to-Market Ratio	24	-.4533805	.2062082	-2.20	
PO 1	Portfolio Excess Return	Market Premium	24	1.179925	.0986308	11.96	0.9192
	(Annual)	Size	24	-3.36e-06	8.39e-06	-0.40	
		Earnings Ratio	24	-2.172381	1.137849	-1.91	
		Capex Ratio	24	.1805675	.9264324	0.19	
		Book-to-Market Ratio	24	.1954967	.25101	0.78	
PO 2	Portfolio Excess Return	Market Premium	24	.9507507	.0656229	14.49	0.9112
	(Annual)	Size	24	-.0000659	.000021	-3.13	
		Earnings Ratio	24	-4.24161	1.016787	-4.17	
		Capex Ratio	24	-.2539563	.8722862	-0.29	
		Book-to-Market Ratio	24	.4783562	.3567647	1.34	
PO 3	Portfolio Excess Return	Market Premium	24	1.055083	.0613202	17.21	0.9595
	(Annual)	Size	24	-.0000374	.0000125	-2.99	
		Earnings Ratio	24	-1.619958	1.086917	-1.49	
		Capex Ratio	24	-.1936857	.6373522	-0.30	
		Book-to-Market Ratio	24	.2020743	.209244	0.97	
PO 4	Portfolio Excess Return	Market Premium	24	1.102805	.0627325	17.58	0.9355
	(Annual)	Size	24	-.0000306	.0000187	-1.64	
		Earnings Ratio	24	-2.238378	.5845354	-3.83	
		Capex Ratio	24	.4658751	.9071903	0.51	
		Book-to-Market Ratio	24	-.063276	.2232385	-0.28	
PO 5	Portfolio Excess Return	Market Premium	24	.9272524	.061582	15.06	0.9355
	(Annual)	Size	24	-.0000172	.0000141	-1.22	
		Earnings Ratio	24	1.3457	.3263498	4.12	
		Capex Ratio	24	.1216282	.9594724	0.13	
		Book-to-Market Ratio	24	-.4853641	.2233608	-2.17	

Table 13

Cross-Sectional Regression on Payout Portfolios 2001 – 2005

The cross-sectional regressions below test the impact that the tested variables (*Market Premium, Size, Earnings Ratio, Capex Ratio and BTM Ratio*) have on the dependant variable (*Portfolio Excess Return*). The degree of the impact is showed by the Beta value listed below. The regressions also test the significance of the impact, which is captured by the T-values which a T-value over or below 2.0 means the result is significant and valid. The R-squared values explain the explanatory power of the regression, of which 1.00 is the highest grade with 100% explanatory power.

Cross-Sectional Regression Analysis							
Time period: 2001 - 2006							
Tested Portfolio	**Dependant Variable**	**Tested Variables**	**No. Obs.**	**Beta**	**Std.Err.**	**T-value**	**R2**
Zero Payout	Portfolio Excess Return	Market Premium	20	1.207429	.1724384	7.00	0.9039
	(Annual)	Size	20	2.35e-06	4.92e-06	0.48	
		Earnings Ratio	20	-.6464836	1.411547	-0.46	
		Capex Ratio	20	-.0129794	1.865379	-0.01	
		Book-to-Market Ratio	20	-.2738109	.9318089	-0.29	
PO 1	Portfolio Excess Return	Market Premium	20	.4438431	.1507616	2.94	0.6823
	(Annual)	Size	20	.0000232	6.41e-06	3.61	
		Earnings Ratio	20	1.379838	.9867749	1.40	
		Capex Ratio	20	1.182	1.968682	0.60	
		Book-to-Market Ratio	20	1.492942	1.124644	1.33	
PO 2	Portfolio Excess Return	Market Premium	20	.4942723	.1370572	3.61	0.6642
	(Annual)	Size	20	.0000107	6.88e-06	1.56	
		Earnings Ratio	20	1.108078	1.994229	0.56	
		Capex Ratio	20	1.602906	3.312072	0.48	
		Book-to-Market Ratio	20	-1.522975	1.182754	-1.29	
PO 3	Portfolio Excess Return	Market Premium	20	.4490184	.1255721	3.58	0.5871
	(Annual)	Size	20	.0000207	.000018	1.15	
		Earnings Ratio	20	-2.106427	2.731088	-0.77	
		Capex Ratio	20	1.947587	3.481007	0.56	
		Book-to-Market Ratio	20	-.7596431	1.398976	-0.54	
PO 4	Portfolio Excess Return	Market Premium	20	.2867618	.1757198	1.63	0.5442
	(Annual)	Size	20	.0000262	.0000167	1.57	
		Earnings Ratio	20	-1.136667	1.155946	-0.98	
		Capex Ratio	20	3.082484	4.956672	0.62	
		Book-to-Market Ratio	20	-.188109	.4808192	-0.39	
PO 5	Portfolio Excess Return	Market Premium	20	.7141361	.2609013	2.74	0.5952
	(Annual)	Size	20	-1.32e-06	.0000123	-0.11	
		Earnings Ratio	20	.1822044	.2502765	0.73	
		Capex Ratio	20	-1.451373	2.739539	-0.53	
		Book-to-Market Ratio	20	.0928836	.1836032	0.51	

Table 14

Panel Regression on Payout Portfolios

The panel regressions below test the impact and correlation which the tested variables have on the depandant variable, or the firm-level excess return. The Beta coefficients describe the amount of the impact while the z-value describe the validity of the test. Z-values over or under the absolute vaule of 2.0 mean the regression show significant evidence.

Panel Regression Analysis						
Tested Periods	**Dependant Variable**	**Tested Variables**	**No. Obs.**	**Beta Coef.**	**Std.Err.**	**Z-value**
1987 - 1992	Firm Excess Return (Total)	Payout Yield (Last-Twelve-Month)	424	-0,0275211	0,129659	-0.21
		Beta (firm)	424	0,0319306	0,027828	1.15
		Market Premium	424	0,8649505	0,101297	8.54
		Size	424	3,08E-07	9,89E-07	0.31
		Earnings Ratio	424	-0,0935072	0,122435	-0.76
		Capex Ratio	424	0,3007886	0,306999	0.98
		Book-to-Market Ratio	424	0,05108	0,021927	2.33
1987 - 1992	Firm Excess Return (Total)	Payout Yield (Expected Rate)	424	0,438083	0,157571	2.78
		Beta (firm)	424	0,0283571	0,027687	1.02
		Market Premium	424	0,8619041	0,101384	8.50
		Size	424	1,31E-07	9,84E-07	0.13
		Earnings Ratio	424	-0,1008778	0,123574	-0.82
		Capex Ratio	424	0,3452014	0,306784	1.13
		Book-to-Market Ratio	424	0,0485409	0,022407	2.17
2001 - 2006	Firm Excess Return (Total)	Payout Yield (Last-Twelve-Month)	395	0,0336944	0,416278	0.08
		Beta (firm)	395	-0,0341493	0,016338	-2.09
		Market Premium	395	1,201757	0,059458	20.21
		Size	395	-1,34E-06	2,95E-07	-4.54
		Earnings Ratio	395	0,1373549	-1,04	0.300
		Capex Ratio	395	-0,2057084	0,356123	-0.58
		Book-to-Market Ratio	395	0,0368003	0,02904	1.27
2001 - 2006	Firm Excess Return (Total)	Payout Yield (Expected Rate)	395	0,0596667	0,308288	0.19
		Beta (firm)	395	-0,0335529	0,015243	-2.20
		Market Premium	395	1,199665	0,061526	19.50
		Size	395	-1,33E-06	2,90E-07	-4.58
		Earnings Ratio	395	0,1385453	-1,03	0.30
		Capex Ratio	395	-0,1752112	0,364185	-0.48
		Book-to-Market Ratio	395	0,0369229	0,029163	1.27