Empirical Study on Market Value Balance Sheet (MVBS)

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Abstract

This paper presents the results of an empirical study on Market Value Balance Sheet (MVBS). The model thoroughly explained the relationship between market value of assets and market value of liabilities. This paper takes *compustat* stocks universe as sample size and conducted a series of cross-section studies on the Enterprise Value (EV) in the MVBS model. The results show great significances and illustrate that the MVBS Enterprise Value (EV) is consistent with market efficiency. This paper further concludes that an investor can outperform market with a higher Sharpe Ratio than market with a replica by holding a portfolio that buys the stocks with the largest increase of Enterprise Value (EV) and sells the stocks with the smallest increase (or largest decrease) of Enterprise Value (EV), which can be implemented in practice.

1 Introduction

Modigliani and Miller developed Market Value Balance Sheet (MVBS). The work explained thoroughly about the relationship between Market Value of Assets and Market Value of Liabilities. On the left side, the model presents Cash and Enterprise Value, two main components of Market Value of Assets. On the right side, the model presents Debt and Equity, two main components of Market Value of Liabilities [1].

Although widely cited in the field of corporate finance, the scholars in behavioral finance and asset pricing barely used the model. The traditional cross-sectional study done by De Bondt and Thaler (1985) put a lot of attention on Long Run Reversals in particular. The sort of stock universe by winners and losers which is a measurement of stock returns. They are able to construct a replica portfolio and generate a market-like return by a long portfolio in long-run losers and a short portfolio in long-run winners [2]. This sort solely depends on market returns and does not take any other fundamental factors into consideration. On the other side, Hawanini and Keim (1995) attempted to sort the stock pool by the size [4]. They claim that small stocks have outperformed large stocks by about 12% a year over 1951-1989 time period [4]. This argument has been developed about stock-picking between buying a lot of small stocks or big stocks. The answer goes back to study the risk-return in the stock profiles. Their paper also studied the stock universe by market-to-book sort. That is, if we sort the cross-sectional study on book-to-market, we would get a portfolio with excess return of almost 0.35% monthly by a long portfolio in value stocks (high book-to-market) and a short portfolio in growth stocks (low book-to-market) [4].

This paper takes this model and examine the Enterprise Value by applying cross-sectional study on *compustat* stocks universe. This paper aims to illustrate MVBS model is consistent with market efficiency. Furthermore

we are able to construct a replica portfolio with more attractive return-risk profile.

2 Model

According to the MVBS model, Market Value of Assets should always equal to Market Value of Liabilities. Market Value of Assets are composed of Cash and Enterprise Value. Market Value of Liabilities are composed of Debt and Liabilities. Hence, we have the following:

$$MVA = MVL, \tag{1}$$

where the model denotes market value of assets on the left and market value of liabilities on the right. He further detailed the definition of each component as the following:

$$C + EV = MVA, \tag{2}$$

$$D + E = MVL. \tag{3}$$

We can take equation (1) and subtract Cash from both sides. Then we have the following equation:

$$EV = D + E - C \tag{4}$$

For the definition of Enterprise Value (EV), we assume that market value of debt (MVD) is Total Liabilities and we use the book definition for consistency purpose:
Book Definition

$$EV = Total\ Liabilities + Total\ Shareholders'\ Equity - Cash, \tag{5}$$

We will use this definition for Enterprise Value in our paper. That is, we can look at companies by looking at Total Market Value of Liabilities subtract Cash. This model uniquely presents the relationship in a corporate point of view. Furthermore, the model suggests persuasive power that the change of debt-equity structure does not affect stock price.

The interest stems from the MVBS model where it efficiently explained virtually all situations that could have happened in practice. That is, an investor could replicate this model and look at all companies from the same logical perspective, an theory consistent with the philosophy of FF-3 (1992). We also used Carhart factor to construct a momentum factor on top of FF-3, namely FF-4 as the following.

$$\alpha = r_{fund} - (r_f = \beta_{mkt}\lambda mkt + \beta_{smb}\lambda smb + \beta_{hml}\lambda_{hml} + \beta_{umd}\lambda_{umd} \tag{6}$$

We examine this by applying FF-3 and FF-4 model. From FF-3 and FF-4, we can look at the return of stock prices by looking at market premium, size, book-to-market, and momentum. In FF-3 and FF-4, stocks are sorted by value-weight or equal-weight by market value. If we sort the cross-sectional study by Enterprise Value and we are able to generate significances in our model, we are confident to argue that Enterprise Value in MVBS is a good way of looking at cross-section study of stock returns. The FF-3 in our test has the following form:

$$r_t^i = \beta_{MKT}^i MKT_t + \beta_{SMB}^i SMB_t + \beta_{HML}^i HML_t + \epsilon_t^i, \tag{7}$$

and the FF-4 has the following form:

$$r_t^i = \beta_{MKT}^i MKT_t + \beta_{SMB}^i SMB_t + \beta_{HML}^i HML_t + \beta_{UMD}^i UMD_t + \epsilon_t^i. \tag{8}$$

3 Data

We take the *compustat* data from Wharton Research Data Services and we had the stock universe from 1950 to 2013. This gave us over a quarter of million observations.

4 Results

4.1 Summary

We conduct cross-section regression to study the concept Enterprise Value (EV) in the MVBS model. First, we sort the universe by how much Enterprise Value E(V) is in Total Assets. Second, we sort the universe by the change on Enterprise Value (EV) over Total Assets. Thirdly, we sort the universe by Enterprise Value (EV) over Total Assets. All portfolios are sorted value weighted. We did not use any equally weighted sort because we believe value weighted can sort the universe more closely to the real market in practice. We conducted all studies with FF-3 and FF-4, with 5 portfolios and 10 portfolios (both NYSE breaks). That is, there are 12 studies conducted studying how Enterprise Value (EV) and the change of Enterprise Value ($\triangle$EV) can affect the return of the portfolios.

Universally, all sorts present excess return of large portfolio than small portfolio to be a positive percentile. That is, an investor could construct a portfolio simply by a long portfolio of high Enterprise Value (EV) stocks (or big increase on Enterprise Value) and a short portfolio of low Enterprise Value (EV) stocks (or small increase on Enterprise Value) blindly with NYSE breaks and he could make an average of 0.502% (from

"xret" in Table (8)). This results of a universally positive excess return from the large Enterprise Value (EV) portfolio minus the small Enterprise Value (EV) portfolio show consistency with traditional FF-3 and FF-4 sorted by market cap, implying the same trading strategy and investment philosophy between an investor using book-to-market and an investor using Enterprise Value (EV).

All portfolios have coefficients for market factor to be close to one with high significances. This result is not surprising and it is consistent with EMH. In other words, for every dollar a portfolio returns we can construct replicate portfolio by investing in close to one dollar of market, which implies market efficiency.

4.2 Sort by how much Enterprise Value (EV) is in Total Assets

4.2.1 Five Portfolios, Value weighted on FF-3 and FF-4

The first table have significant coefficients on market factor and book-to-market factor. Portfolio 5, a portfolio that is demanded to hold the stocks that have high percentile of Enterprise Value (EV) in Total Assets can be replicated with a positive loading on size and a negative loading on book-to-market. This implies that stocks that have less cash and majority of Enterprise Value (EV) in the Total Assets tend to small cap growth stocks. Although two coefficients are significant and we can reject null hypothesis for the coefficients to be equal to zero, it is hard to argue this is consistent with EMH since there is no clear pattern observed in size factor and book-to-market factor. Individually responding to each factor, we can make somewhat persuasive arguments about stocks that have more corporate activities tend to be growth stocks.

[*Table (1) goes here.*]

Compare to Table (1), Table (2) gives us more dramatic change and clearer pattern on the book-to-market factor. The column of the book-to-market factor gives us positive loading on book-to-market for stocks that have less Enterprise Value (EV) in Total Assets and also negative loading on book-to-market for stocks that have higher Enterprise Value (EV) in Total Assets. That is, for any two companies, if one has higher percentage of Enterprise Value (EV) in Total Assets, this company tends to be large cap growth stocks. This observation is consistent with market efficiency.

[*Table (2) goes here.*]

4.2.2 Ten Portfolios, Value weighted on FF-3 and FF-4

Table (3) clearly shows us a better pattern on the loadings of size factor and book-to-market factor sorted by

how much Enterprise Value E(V) is in Total Assets. The ten portfolios from small percentile to big percentile of Enterprise Value (EV) in Total Assets show increasing loading on size factor and decreasing loading on book-to-market factor. This fact gives us even stronger evidence to claim that stocks with less cash on high Enterprise Value (EV) tend to be large cap growth stocks, which is consistent with market efficiency. That is, companies are valued higher tend to have larger market capital and lower book-to-market ratio. We can also construct a portfolio by a long portfolio in stocks with high percentage of Enterprise Value (EV) and a short portfolio in stocks with low percentage of Enterprise, but we will explain this part more

[*Table (3) goes here.*]

The loading patterns on size factor and book-to-market factor appeared the same in table (4), but the momentum factor appears to be influencing Enterprise Value (EV) quadratically. The stocks on two sides, stocks that have too big of a percentage of Enterprise Value (EV) and stocks that have too small of a percentage of Enterprise Value (EV), have negative loadings on the momentum factor, implying that stocks that have imbalance of Cash and Enterprise Value (EV) in the assets tend to be losers. This fact, although some coefficients show insignificance in the momentum factor, explained indirectly that majority of winning stocks have a relatively medium weights of the Cash balance in their books. We certainly do not expect stocks with small amount of Cash to perform as well as stocks with big amount of Cash on average in practice.

[*Table (4) goes here.*]

4.3 Sort by ratio of difference between Enterprise Value (EV) and the lagging time over Total Assets

This sub-section we sort the *compustat* universe by the ratio of difference between Enterprise Value (EV) and the lagging time over Total Assets. That is, we define the indicator by $\frac{EV-lag(EV,12,nan)}{AT}$ where EV is Enterprise Value (EV), AT refers to Total Assets, and lag(EV,12,nan) refers to lagging using annual base. In other words, we are sorting by how much the Enterprise Value (EV) changes comparing to Total Assets.

4.3.1 Five Portfolios, Value weighted on FF-3 and FF-4

From Table (5), we observe that excess returns on all portfolios tend to increase when the ratio of change of Enterprise Value (EV) from the past year over Total Assets increase. This result is not surprising. Corporations that have positive corporate activities to generate Enterprise Value (EV). The sort of Enterprise Value (EV) change over Total Assets governs the portfolios to be sorted based on the positive decisions of corporate activities. The replicate portfolio in this table for L/S actually gives us an excess return of 0.42%,

which is just about the average market return.

[*Table (5) goes about here.*]

We experience similar pattern on access returns for FF-4 sorted the same way with a forth factor, the momentum factor. However, the model tilts more toward book-to-market factor on the L/S portfolio, which explicitly explains the corporations that have bigger increase of Enterprise Value (EV) in the last year over Total Assets are actually more likely to be growth stocks (low book-to-market stocks) on average. In other words, we can construct a portfolio with similar Sharpe Ratio as market Sharpe Ratio by a long portfolio in the stocks that have big change on Enterprise Value (EV) in the past year over Total Assets and a short portfolio in the stocks that havae small change on Enterprise Value (EV) in the past year over Total Assets. This conclusion is consistent with EMH.

[*Table (6) goes about here.*]

4.3.2 Ten Portfolios, Value weighted on FF-3 and FF-4

Table (7) and Table (8) are the same sort as the tables presented in section 4.3.1 but with more decile, ten portfolios (NYSE breaks). These two tables share similar patterns with the previous two.

[*Table (7) goes about here.*]

[*Table (8) goes about here.*]

4.4 Sort by Enterprise Value (EV) over lagging

This sub-section we sort the portfolios by Enterprise Value over the lagging time 12 months in the past. Instead of looking at the change over the Total Assets. We are looking at how the Enterprise Value change by itself.

4.4.1 Five Portfolios, Value weighted on FF-3 and FF-4

We notice the replica portfolio for L/S has a highly significant positive loading on book-to-market factor. That is, the replica portfolio by a long portfolio in the stocks with highest increase in Enterprise Value

(EV) over Total Assets and a short portfolio in the stocks with the lowest increase (or biggest decrease) in Enterprise Value (EV) over Total Assets can be constructed by buying the value stocks and short selling the growth stocks, implying that the stocks with highest increase in Enterprise Value (EV) over Total Assets tend to value stocks. In other words, if a pool of stocks is undervalued by the market (with a small market cap), the portfolio return can be improved by holding the ones with the highest increase in Enterprise Value (EV).

[*Table (9) goes about here.*]

We replicate the same method and conduct cross-sectional study on FF-4 in the same sort. This gives us a highly significant and positive loading on book-to-market. This is consistent with the results presented above.

[*Table (10) goes about here.*]

4.4.2 Value weighted FF-3 and FF-4

We got the same results here when we split the portfolios into more deciles.

[*Table (11) goes about here.*]

[*Table (12) goes about here.*]

4.5 Comparison of L/S stategies

We summarize all of the L/S portfolios in Table (17). We also list the Sharpe Ratio of the replica portfolios in the last two columns as comparisons. The table is constructed by four categories: (1) Percentile of how much Enterprise Value (EV) in Total Assets, (2) Change of Enterprise Value (EV) over Total Assets, (3) Enterprise Value (EV) over Total Assets, and (4) Replica of traditional FF-3 sort. The same structure is presented in Table (18) with FF-4.

The results from our test suggested the highest Sharpe Ratio we can constructed is the portfolio sort by the change of Enterprise value (EV) over Total Assets. Moreover, the more decile we separated the more attractive the Sharpe Ratio is. Our L/S replica portfolio of five breaks gives us a Sharpe Ratio of 0.4299 and the L/S replica portfolio of ten breaks gives us a Sharpe Ratio of 0.5511, compared to the Sharpe Ratio of the

replica portfolio with traditional sort by market value to be 0.3066. Although we generated a higher Sharpe Ratio by change of Enterprise Value (EV) over Total Assets, we are rather arguing Change of Enterprise Value (EV) is the key here in this model. When a company acquires an asset, it is the value added to the whole company from that acquisition that attracts and affects decision making process. Modigliani and Miller (1958) argued that the value of the firm should not be affected by the share of debt in its financial structure or by what will be done with the returns. Following this proposition (*Proposition II*), the decision made on pricing the stock should not be affected by share of debt in the financial structure since the decision made on pricing the stock is related to the value of the firm and the value of the firm does not change here. However, we do not see a strict follow-the-definition pricing activities in the market, which is why we want to understand what is happening in the pricing activities that can explain what should have been done.

[*Table (17) goes about here.*]

[*Table (18) goes about here.*]

The data, however, showed us that the returns can be explained by certain factors out there, which means these factors somewhat affect the pricing of the security either directly or indirectly. In other words, when an investment decision is made in the market, the decision maker does not only follow the Enterprise Value (EV) but some other factors that they think could be important. If they do strictly follow Enterprise Value (EV), there should be no way that we can exploit the sort by Enterprise Value (EV) and generate a higher Sharpe Ratio. The fact that there is a higher Sharpe Ratio appeared in the replica portfolio showed us that some decision making process deviated away from Enterprise Value E(V). Under the assumption that Enterprise Value (EV) is the real model that represent true security value in the market, this gives us a way to generate a significant alpha with higher-than-market Sharpe ratio.

5 Conclusion

We conducted a series of cross-sectional study on examining the Enterprise Value (EV) in the Market Value Balance Sheet (MVBS) model by Modigliani and Miller (1958). This paper is a practice for the purpose to understand how much is the concept of Enterprise Value (EV) used in this market when there is a pricing decision being made.

We found out that by looking at different sorts of different related concept developed by Enterprise Value

(EV) we get very different results from traditional book-to-market sort. We look at both FF-3 and FF-4 in five deciles and ten deciles with the *compustat* stock universe. We presented a series of cross-sectional regressions in this paper. The data showed us that we are able to construct a replica portfolio by a long portfolio in the stocks with the highest change in Enterprise Value (EV) over Total Assets and a short portfolio in the stocks with the lowest change in Enterprise Value (EV) over Total Assets. The significant alpha generated with this strategy showed us there is someway we can exploit the concept of Enterprise Value (EV) and take advantage of the market. This implies that there are some players in this market that have not taken Enterprise Value (EV) into decision making consideration when they make an investment decision. If everyone in this market perform efficiently and only look at Enterprise Value (EV) (or how does this value changes) in the decision making process, the alpha, the Sharpe Ratio, and the significances should be fairly similar (or even the same) when the cross-sectional regressions on average stock returns are sort by change of Enterprise Value (EV) and market returns or book-to-market ratio. The fact that these numbers are not the same showed us someone is not making decision based on EV or is making decision with other factors influencing him.

Finally, this paper concludes sorting the stock universe by the change of Enterprise Value (EV) over Total Assets can generate a significant alpha over the market by a long portfolio in the stocks with the highest increase in the change of Enterprise Value (EV) over Total Assets and a short portfolio in the stocks with the lowest increase in the change of Enterprise Value (EV) over Total Assets. The paper further hypothesizes that an investment decision should be make solely based on how Enterprise Value (EV) changes over the company's overall assets. In macro perspective, this market should be pricing securities by the change of Enterprise Value (EV) over the book value of those securities. If not, there will be arbitrage opportunities in this market that allow smart investors to exploit.

6 Reference

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7 Tables

Table 1. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted directly by the percentile of how much Enterprise Value (EV) in Total Assets, value weighted from small to large (1-5) portfolios by NYSE breaks on FF-3. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml
1	0.564	-0.049	0.894	-0.021	0.221
	[3.88]	[-0.87]	[66.07]	[-1.08]	[10.33]
2	0.628	-0.037	0.994	-0.057	0.216
	[4.00]	[-0.75]	[83.63]	[-3.25]	[11.50]
3	0.653	-0.012	1.019	-0.038	0.163
	[4.03]	[-0.24]	[83.45]	[-2.11]	[8.45]
4	0.615	0.040	0.988	-0.098	-0.015
	[3.87]	[0.86]	[87.03]	[-5.90]	[-0.83]
5	0.733	0.252	1.033	0.050	-0.434
	[3.94]	[4.63]	[78.92]	[2.60]	[-20.99]
L/S	0.169	0.300	0.140	0.071	-0.654
	[1.49]	[3.41]	[6.58]	[2.29]	[-19.54]

Table 2. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted directly by the percentile of how much Enterprise Value (EV) in Total Assets, value weighted from small to large (1-5) portfolios by NYSE breaks on FF-4. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml	umd
1	0.564	-0.034	0.891	-0.022	0.216	-0.015
	[3.88]	[-0.59]	[65.07]	[-1.11]	[9.87]	[-1.08]
2	0.628	-0.050	0.996	-0.056	0.220	0.013
	[4.00]	[-0.98]	[82.74]	[-3.22]	[11.46]	[1.05]
3	0.653	-0.045	1.024	-0.036	0.174	0.034
	[4.03]	[-0.86]	[83.14]	[-2.03]	[8.85]	[2.64]
4	0.615	0.019	0.992	-0.097	-0.008	0.022
	[3.87]	[0.40]	[86.37]	[-5.85]	[-0.41]	[1.86]
5	0.733	0.261	1.032	0.050	-0.437	-0.010
	[3.94]	[4.66]	[77.78]	[2.57]	[-20.65]	[-0.69]
L/S	0.169	0.295	0.141	0.072	-0.653	0.006
	[1.49]	[3.25]	[6.54]	[2.30]	[-19.03]	[0.26]

Table 3. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted directly by the percentile of how much Enterprise Value (EV) in Total Assets, value weighted from small to large (1-10) portfolios by NYSE breaks on FF-3. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml
1	0.644	0.023	0.883	-0.018	0.261
	[4.27]	[0.32]	[49.78]	[-0.68]	[9.34]
2	0.538	-0.087	0.922	-0.003	0.199
	[3.47]	[-1.26]	[55.40]	[-0.11]	[7.58]
3	0.581	-0.077	0.981	-0.043	0.210
	[3.67]	[-1.32]	[69.35]	[-2.05]	[9.40]
4	0.698	0.004	1.015	-0.047	0.256
	[4.21]	[0.06]	[62.48]	[-1.99]	[9.99]
5	0.615	-0.065	1.030	-0.008	0.173
	[3.65]	[-1.03]	[67.40]	[-0.34]	[7.19]
6	0.696	0.035	1.007	-0.037	0.171
	[4.24]	[0.56]	[66.81]	[-1.66]	[7.19]
7	0.613	-0.005	1.019	-0.047	0.030
	[3.65]	[-0.08]	[68.24]	[-2.14]	[1.27]
8	0.627	0.080	0.972	-0.111	-0.062
	[3.83]	[1.21]	[61.05]	[-4.76]	[-2.46]
9	0.670	0.108	1.044	-0.081	-0.158
	[3.82]	[1.81]	[72.03]	[-3.78]	[-6.92]
10	0.747	0.312	1.017	0.146	-0.587
	[3.73]	[4.32]	[58.44]	[5.71]	[-21.38]
L/S	0.103	0.289	0.135	0.164	-0.849
	[0.72]	[2.65]	[5.13]	[4.24]	[-20.46]

Table 4. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted directly by the percentile of how much Enterprise Value (EV) in Total Assets, value weighted from small to large (1-10) portfolios by NYSE breaks on FF-4. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml	umd
1	0.644	0.055	0.878	-0.019	0.250	-0.033
	[4.27]	[0.73]	[48.94]	[-0.74]	[8.76]	[-1.78]
2	0.538	-0.079	0.921	-0.003	0.196	-0.008
	[3.47]	[-1.12]	[54.59]	[-0.13]	[7.31]	[-0.47]
3	0.581	-0.069	0.979	-0.043	0.207	-0.009
	[3.67]	[-1.14]	[68.35]	[-2.07]	[9.05]	[-0.61]
4	0.698	-0.037	1.021	-0.046	0.270	0.043
	[4.21]	[-0.54]	[62.31]	[-1.92]	[10.33]	[2.52]
5	0.615	-0.108	1.036	-0.006	0.188	0.045
	[3.65]	[-1.66]	[67.28]	[-0.26]	[7.64]	[2.77]
6	0.696	0.013	1.011	-0.036	0.179	0.023
	[4.24]	[0.20]	[66.25]	[-1.61]	[7.34]	[1.47]
7	0.613	-0.041	1.025	-0.045	0.042	0.038
	[3.65]	[-0.65]	[67.98]	[-2.07]	[1.76]	[2.44]
8	0.627	0.069	0.974	-0.111	-0.058	0.012
	[3.83]	[1.01]	[60.38]	[-4.74]	[-2.25]	[0.73]
9	0.670	0.131	1.040	-0.082	-0.166	-0.024
	[3.82]	[2.12]	[70.94]	[-3.83]	[-7.10]	[-1.53]
10	0.747	0.327	1.015	0.145	-0.592	-0.015
	[3.73]	[4.40]	[57.55]	[5.68]	[-21.07]	[-0.84]
L/S	0.103	0.272	0.138	0.164	-0.843	0.018
	[0.72]	[2.42]	[5.17]	[4.26]	[-19.85]	[0.65]

Table 5. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by the percentile of how much Enterprise Value (EV) changed in the past 12 months over Total Assets, value weighted from small to large (1-5) portfolios by NYSE breaks on FF-3. The entries without brackets are coefficients and the entries with brackets are t-statistics. The figure presents the access returns of each portfolios.

	xret	alpha	mkt	smb	hml
1	0.517	-0.059	1.107	0.171	-0.308
	[2.62]	[-1.16]	[89.32]	[9.41]	[-15.84]
2	0.547	0.032	0.985	-0.070	-0.151
	[3.36]	[0.79]	[99.70]	[-4.86]	[-9.72]
3	0.683	0.134	0.954	-0.112	0.024
	[4.49]	[3.30]	[97.41]	[-7.81]	[1.53]
4	0.650	0.053	0.932	-0.088	0.187
	[4.36]	[1.06]	[77.48]	[-4.99]	[9.92]
5	0.850	0.142	1.024	0.181	0.208
	[4.91]	[2.37]	[70.93]	[8.59]	[9.19]
L/S	0.333	0.201	-0.082	0.011	0.516
	[3.40]	[2.43]	[-4.12]	[0.37]	[16.45]

Table 6. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by the percentile of how much Enterprise Value (EV) changed in the past 12 months over Total Assets, value weighted from small to large (1-5) portfolios by NYSE breaks on FF-4. The entries without brackets are coefficients and the entries with brackets are t-statistics. The figure presents the access returns of each portfolios.

	xret	alpha	mkt	smb	hml	umd
1	0.517	-0.031	1.102	0.169	-0.318	-0.030
	[2.62]	[-0.59]	[87.93]	[9.38]	[-16.01]	[-2.32]
2	0.547	0.009	0.989	-0.069	-0.142	0.025
	[3.36]	[0.21]	[99.02]	[-4.81]	[-9.00]	[2.42]
3	0.683	0.109	0.958	-0.111	0.032	0.026
	[4.49]	[2.62]	[96.82]	[-7.78]	[2.06]	[2.57]
4	0.650	0.058	0.931	-0.088	0.185	-0.005
	[4.36]	[1.12]	[76.27]	[-5.00]	[9.59]	[-0.41]
5	0.850	0.114	1.029	0.182	0.218	0.029
	[4.91]	[1.86]	[70.38]	[8.65]	[9.40]	[1.93]
L/S	0.333	0.145	-0.073	0.013	0.536	0.060
	[3.40]	[1.71]	[-3.61]	[0.45]	[16.75]	[2.84]

Table 7. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by the percentile of how much Enterprise Value (EV) changed in the past 12 months over Total Assets, value weighted from small to large (1-10) portfolios by NYSE breaks on FF-3. The entries without brackets are coefficients and the entries with brackets are t-statistics. The figure presents the access returns of each portfolios.

	xret	alpha	mkt	smb	hml
1	0.367	-0.233	1.138	0.160	-0.288
	[1.78]	[-3.34]	[67.43]	[6.50]	[-10.88]
2	0.644	0.071	1.082	0.200	-0.293
	[3.25]	[1.09]	[68.17]	[8.61]	[-11.78]
3	0.547	0.022	1.039	-0.053	-0.221
	[3.04]	[0.35]	[68.92]	[-2.43]	[-9.35]
4	0.561	0.039	0.949	-0.070	-0.070
	[3.51]	[0.69]	[69.28]	[-3.47]	[-3.27]
5	0.693	0.122	0.982	-0.129	0.049
	[4.32]	[2.14]	[71.08]	[-6.36]	[2.26]
6	0.683	0.160	0.916	-0.062	-0.014
	[4.48]	[2.93]	[69.50]	[-3.19]	[-0.68]
7	0.679	0.086	0.927	-0.105	0.194
	[4.47]	[1.40]	[62.85]	[-4.88]	[8.38]
8	0.616	0.007	0.938	-0.042	0.187
	[3.95]	[0.11]	[60.61]	[-1.86]	[7.69]
9	0.839	0.153	0.993	0.153	0.213
	[4.92]	[2.23]	[59.97]	[6.33]	[8.18]
10	0.869	0.095	1.081	0.297	0.241
	[4.49]	[1.15]	[54.04]	[10.17]	[7.67]
L/S	0.502	0.328	-0.057	0.137	0.529
	[4.36]	[3.13]	[-2.24]	[3.71]	[13.31]

Table 8. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by the percentile of how much Enterprise Value (EV) changed in the past 12 months over Total Assets, value weighted from small to large (1-10) portfolios by NYSE breaks on FF-4. The entries without brackets are coefficients and the entries with brackets are t-statistics. The figure presents the access returns of each portfolios.

	xret	alpha	mkt	smb	hml	umd
1	0.367	-0.189	1.130	0.159	-0.303	-0.046
	[1.78]	[-2.65]	[66.30]	[6.45]	[-11.23]	[-2.61]
2	0.644	0.099	1.077	0.199	-0.303	-0.029
	[3.25]	[1.47]	[67.01]	[8.58]	[-11.90]	[-1.75]
3	0.547	0.053	1.034	-0.055	-0.232	-0.033
	[3.04]	[0.82]	[67.75]	[-2.48]	[-9.60]	[-2.06]
4	0.561	-0.026	0.960	-0.067	-0.048	0.069
	[3.51]	[-0.45]	[70.13]	[-3.40]	[-2.19]	[4.83]
5	0.693	0.095	0.986	-0.128	0.059	0.029
	[4.32]	[1.61]	[70.55]	[-6.32]	[2.65]	[2.02]
6	0.683	0.145	0.919	-0.061	-0.008	0.017
	[4.48]	[2.57]	[68.74]	[-3.16]	[-0.40]	[1.20]
7	0.679	0.085	0.927	-0.105	0.194	0.001
	[4.47]	[1.35]	[61.93]	[-4.88]	[8.19]	[0.06]
8	0.616	0.025	0.935	-0.043	0.181	-0.019
	[3.95]	[0.38]	[59.57]	[-1.89]	[7.26]	[-1.15]
9	0.839	0.126	0.997	0.154	0.222	0.029
	[4.92]	[1.78]	[59.47]	[6.37]	[8.36]	[1.67]
10	0.869	0.087	1.082	0.298	0.244	0.008
	[4.49]	[1.02]	[53.32]	[10.17]	[7.57]	[0.40]
L/S	0.502	0.276	-0.048	0.139	0.547	0.055
	[4.36]	[2.57]	[-1.87]	[3.76]	[13.47]	[2.05]

Table 9. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by Enterprise Value (EV) over the lagging time, value weighted from small to large (1-5) portfolios by NYSE breaks on FF-3. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml
1	0.539	-0.045	1.133	0.097	-0.292
	[2.73]	[-0.93]	[97.21]	[5.68]	[-15.99]
2	0.594	0.029	0.998	-0.086	-0.017
	[3.71]	[0.71]	[102.58]	[-6.04]	[-1.14]
3	0.643	0.056	0.960	-0.125	0.131
	[4.28]	[1.46]	[104.26]	[-9.26]	[9.07]
4	0.646	0.020	0.960	-0.119	0.241
	[4.28]	[0.43]	[87.13]	[-7.41]	[13.96]
5	0.866	0.143	1.031	0.165	0.245
	[5.03]	[2.55]	[75.85]	[8.29]	[11.50]
L/S	0.326	0.188	-0.102	0.068	0.538
	[3.38]	[2.38]	[-5.32]	[2.43]	[17.91]

Table 10. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by Enterprise Value (EV) over the lagging time, value weighted from small to large (1-5) portfolios by NYSE breaks on FF-4. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml	umd
1	0.539	-0.010	1.127	0.095	-0.304	-0.037
	[2.73]	[-0.21]	[95.84]	[5.63]	[-16.34]	[-2.99]
2	0.594	0.013	1.001	-0.085	-0.012	0.017
	[3.71]	[0.31]	[101.53]	[-6.01]	[-0.76]	[1.66]
3	0.643	0.032	0.964	-0.124	0.139	0.025
	[4.28]	[0.83]	[103.59]	[-9.22]	[9.44]	[2.55]
4	0.646	0.032	0.958	-0.120	0.237	-0.013
	[4.28]	[0.68]	[85.73]	[-7.43]	[13.39]	[-1.10]
5	0.866	0.128	1.034	0.165	0.251	0.016
	[5.03]	[2.21]	[74.98]	[8.32]	[11.47]	[1.12]
L/S	0.326	0.138	-0.093	0.070	0.555	0.053
	[3.38]	[1.70]	[-4.82]	[2.51]	[18.12]	[2.62]

Table 11. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by Enterprise Value (EV) over the lagging time, value weighted from small to large (1-10) portfolios by NYSE breaks on FF-3. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml
1	0.454	-0.126	1.156	0.160	-0.376
	[2.16]	[-1.98]	[75.14]	[7.13]	[-15.57]
2	0.621	0.021	1.113	0.054	-0.189
	[3.23]	[0.35]	[75.19]	[2.47]	[-8.13]
3	0.519	-0.059	1.022	-0.068	-0.032
	[3.07]	[-1.04]	[75.09]	[-3.40]	[-1.51]
4	0.692	0.125	0.990	-0.095	0.007
	[4.27]	[2.31]	[75.91]	[-5.00]	[0.36]
5	0.618	0.015	0.998	-0.167	0.134
	[3.88]	[0.29]	[77.64]	[-8.89]	[6.65]
6	0.679	0.105	0.924	-0.074	0.128
	[4.54]	[2.02]	[73.77]	[-4.06]	[6.49]
7	0.666	0.039	0.970	-0.145	0.241
	[4.30]	[0.71]	[72.66]	[-7.42]	[11.48]
8	0.625	-0.009	0.950	-0.072	0.256
	[4.04]	[-0.15]	[65.10]	[-3.39]	[11.17]
9	0.860	0.145	1.007	0.103	0.300
	[5.07]	[2.14]	[61.70]	[4.33]	[11.71]
10	0.893	0.128	1.078	0.317	0.208
	[4.64]	[1.67]	[58.30]	[11.73]	[7.15]
L/S	0.439	0.255	-0.078	0.157	0.583
	[3.89]	[2.59]	[-3.30]	[4.53]	[15.70]

Table 12. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by Enterprise Value (EV) over the lagging time, value weighted from small to large (1-10) portfolios by NYSE breaks on FF-4. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml	umd
1	0.454	-0.077	1.148	0.159	-0.393	-0.052
	[2.16]	[-1.18]	[74.00]	[7.09]	[-16.00]	[-3.24]
2	0.621	0.033	1.111	0.053	-0.193	-0.012
	[3.23]	[0.52]	[73.98]	[2.45]	[-8.10]	[-0.77]
3	0.519	-0.044	1.020	-0.068	-0.037	-0.016
	[3.07]	[-0.76]	[73.86]	[-3.43]	[-1.71]	[-1.11]
4	0.692	0.081	0.998	-0.094	0.023	0.046
	[4.27]	[1.46]	[75.93]	[-4.95]	[1.09]	[3.40]
5	0.618	0.025	0.997	-0.168	0.131	-0.010
	[3.88]	[0.46]	[76.40]	[-8.90]	[6.33]	[-0.76]
6	0.679	0.045	0.935	-0.072	0.148	0.063
	[4.54]	[0.86]	[74.64]	[-4.00]	[7.48]	[4.85]
7	0.666	0.063	0.966	-0.146	0.232	-0.025
	[4.30]	[1.10]	[71.44]	[-7.48]	[10.84]	[-1.77]
8	0.625	-0.013	0.951	-0.072	0.257	0.005
	[4.04]	[-0.22]	[64.19]	[-3.38]	[10.97]	[0.32]
9	0.860	0.147	1.006	0.103	0.299	-0.002
	[5.07]	[2.11]	[60.77]	[4.32]	[11.40]	[-0.14]
10	0.893	0.104	1.082	0.318	0.216	0.025
	[4.64]	[1.33]	[57.71]	[11.77]	[7.26]	[1.28]
L/S	0.439	0.181	-0.066	0.160	0.609	0.077
	[3.89]	[1.81]	[-2.75]	[4.64]	[16.09]	[3.11]

Table 13. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by book-to-market ratio (replica of traditional FF-3 sort), value weighted from small to large (1-5) portfolios by NYSE breaks on FF-3. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml
1	0.606	0.049	1.039	-0.044	-0.286
	[3.58]	[1.73]	[186.02]	[-4.81]	[-35.24]
2	0.655	0.010	0.995	-0.051	0.013
	[3.91]	[0.29]	[139.62]	[-4.40]	[1.27]
3	0.734	-0.015	0.982	-0.058	0.301
	[4.16]	[-0.34]	[115.49]	[-4.15]	[24.34]
4	0.834	-0.095	1.025	0.062	0.618
	[4.12]	[-2.37]	[128.84]	[4.74]	[53.44]
5	1.051	-0.115	1.103	0.329	0.939
	[4.28]	[-2.30]	[112.20]	[20.36]	[65.69]
L/S	0.446	-0.164	0.064	0.373	1.225
	[2.88]	[-3.10]	[6.09]	[21.76]	[80.78]

Table 14. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by book-to-market ratio (replica of traditional FF-3 sort), value weighted from small to large (1-5) portfolios by NYSE breaks on FF-4. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml	umd
1	0.606	0.064	1.037	-0.045	-0.291	-0.011
	[3.58]	[2.20]	[179.92]	[-4.96]	[-33.59]	[-1.63]
2	0.655	0.023	0.991	-0.051	0.005	-0.018
	[3.91]	[0.63]	[134.72]	[-4.36]	[0.47]	[-2.12]
3	0.734	-0.000	0.981	-0.059	0.297	-0.010
	[4.16]	[-0.01]	[111.28]	[-4.24]	[22.38]	[-0.95]
4	0.834	-0.059	1.016	0.061	0.602	-0.038
	[4.12]	[-1.43]	[124.33]	[4.68]	[48.92]	[-4.03]
5	1.051	-0.068	1.093	0.327	0.919	-0.044
	[4.28]	[-1.32]	[107.89]	[20.32]	[60.28]	[-3.73]
L/S	0.446	-0.131	0.056	0.373	1.210	-0.033
	[2.88]	[-2.42]	[5.16]	[21.75]	[74.62]	[-2.63]

Table 15. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by book-to-market ratio (replica of traditional FF-3 sort), value weighted from small to large (1-10) portfolios by NYSE breaks on FF-3. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml
1	0.571	0.016	1.077	-0.072	-0.335
	[3.23]	[0.37]	[129.07]	[-5.22]	[-27.60]
2	0.683	0.116	0.984	0.006	-0.198
	[4.13]	[2.69]	[115.25]	[0.41]	[-15.92]
3	0.659	0.042	0.992	-0.044	-0.057
	[3.93]	[0.96]	[114.01]	[-3.08]	[-4.49]
4	0.686	-0.049	1.038	-0.027	0.156
	[3.73]	[-0.89]	[96.66]	[-1.55]	[10.00]
5	0.705	-0.024	0.984	-0.063	0.250
	[3.98]	[-0.46]	[95.21]	[-3.70]	[16.62]
6	0.769	-0.023	0.998	-0.038	0.373
	[4.13]	[-0.42]	[90.67]	[-2.09]	[23.26]
7	0.770	-0.129	1.018	0.065	0.552
	[3.84]	[-2.44]	[97.54]	[3.80]	[36.34]
8	0.916	-0.047	1.026	0.086	0.688
	[4.37]	[-0.95]	[105.54]	[5.41]	[48.69]
9	1.037	-0.059	1.085	0.236	0.843
	[4.42]	[-1.06]	[99.06]	[13.10]	[52.91]
10	1.033	-0.266	1.150	0.511	1.096
	[3.72]	[-3.39]	[74.10]	[20.04]	[48.54]
L/S	0.461	-0.282	0.074	0.583	1.431
	[2.38]	[-3.41]	[4.52]	[21.69]	[60.16]

Table 16. The table uses *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by book-to-market ratio (replica of traditional FF-3 sort), value weighted from small to large (1-10) portfolios by NYSE breaks on FF-4. The entries without brackets are coefficients and the entries with brackets are t-statistics.

	xret	alpha	mkt	smb	hml	umd
1	0.571	0.032	1.074	-0.073	-0.341	-0.014
	[3.23]	[0.73]	[124.52]	[-5.30]	[-26.27]	[-1.40]
2	0.683	0.131	0.983	0.004	-0.203	-0.008
	[4.13]	[2.95]	[111.45]	[0.28]	[-15.27]	[-0.82]
3	0.659	0.049	0.985	-0.041	-0.066	-0.022
	[3.93]	[1.11]	[112.75]	[-2.94]	[-4.98]	[-2.16]
4	0.686	-0.017	1.032	-0.029	0.142	-0.031
	[3.73]	[-0.30]	[92.87]	[-1.66]	[8.50]	[-2.37]
5	0.705	-0.016	0.985	-0.064	0.249	-0.001
	[3.98]	[-0.30]	[91.93]	[-3.77]	[15.48]	[-0.10]
6	0.769	0.008	0.992	-0.039	0.359	-0.030
	[4.13]	[0.14]	[87.02]	[-2.18]	[20.94]	[-2.25]
7	0.770	-0.090	1.008	0.064	0.533	-0.041
	[3.84]	[-1.66]	[93.79]	[3.75]	[32.98]	[-3.31]
8	0.916	-0.019	1.020	0.085	0.677	-0.028
	[4.37]	[-0.38]	[101.36]	[5.34]	[44.69]	[-2.37]
9	1.037	-0.011	1.075	0.234	0.822	-0.043
	[4.42]	[-0.19]	[95.29]	[13.07]	[48.44]	[-3.30]
10	1.033	-0.198	1.135	0.508	1.065	-0.069
	[3.72]	[-2.46]	[71.00]	[19.99]	[44.28]	[-3.73]
L/S	0.461	-0.230	0.062	0.580	1.406	-0.055
	[2.38]	[-2.70]	[3.67]	[21.64]	[55.36]	[-2.81]

Table 17. This is a summary table for all L/S strategy portfolio from Table (1) - (16), using the *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by how much Enterprise Value (EV) in Total Assets, change on Enterprise Value (EV) over Total Assets, and Enterprise Value (EV) over Total Assets, value weighted from small to large (1-5, 1-10) portfolios by NYSE breaks on FF-3. The first row represents the excess returns, alpha, market premium, small-minus-big, and high-minus-low. The following rows are separated by the sorts accordingly. The entries without brackets are coefficients and the entries with brackets are t-statistics. SR_1 refers to the Sharpe Ratio for the series of portfolios equally weighted. SR_2 refers to the Sharpe Ratio for the series of portfolios value weighted.

	xret	alpha	mkt	smb	hml	xret	alpha	mkt	smb	hml	SR_1	SR_2
Percentile of how much Enterprise Value (EV) in Total Assets												
	5 LS					10 LS						
L/S	0.169	0.300	0.140	0.071	-0.654	0.103	0.289	0.135	0.164	-0.849	0.1865	0.0900
	[1.49]	[3.41]	[6.58]	[2.29]	[-19.54]	[0.72]	[2.65]	[5.13]	[4.24]	[-20.46]		
Change of Enterprise Value (EV) over Total Assets												
	5 LS					10 LS						
L/S	0.333	0.201	-0.082	0.011	0.516	0.502	0.328	-0.057	0.137	0.529	0.4299	0.5511
	[3.40]	[2.43] [	-4.12]	[0.37]	[16.45]	[4.36]	[3.13]	[-2.24]	[3.71]	[13.31]		
Enterprise Value (EV) over Total Assets												
	5 LS					10 LS						
L/S	0.326	0.188	-0.102	0.068	0.538	0.439	0.255	-0.078	0.157	0.583	0.4278	0.4917
	[3.38]	[2.38]	[-5.32]	[2.43]	[17.91]	[3.89]	[2.59]	[-3.30]	[4.53]	[15.70]		
Replica of traditional FF-3 sort by market value												
	5 LS					10 LS						
L/S	0.446	-0.164	0.064	0.373	1.225	0.461	-0.282	0.074	0.583	1.431	0.3066	0.2529
	[2.88]	[-3.10]	[6.09]	[21.76]	[80.78]	[2.38]	[-3.41]	[4.52]	[21.69]	[60.16]		

Table 18. This is a summary table for all L/S strategy portfolio from Table (1) - (16), using the *compustat* universe from 1950 to 2014 monthly data as sample. The table is sorted by how much Enterprise Value (EV) in Total Assets, change on Enterprise Value (EV) over Total Assets, and Enterprise Value (EV) over Total Assets, value weighted from small to large (1-5, 1-10) portfolios by NYSE breaks on FF-4. The first row represents the excess returns, alpha, market premium, small-minus-big, and high-minus-low. The following rows are separated by the sorts accordingly. The entries without brackets are coefficients and the entries with brackets are t-statistics. SR_1 refers to the Sharpe Ratio for the series of portfolios equally weighted. SR_2 refers to the Sharpe Ratio for the series of portfolios value weighted.

	xret	alpha	mkt	smb	hml	umd	xret	alpha	mkt	smb	hml	umd	SR_1	SR_2
Percentile of how much Enterprise Value (EV) in Total Assets														
	5 LS						10 LS							
L/S	0.169	0.295	0.141	0.072	-0.653	0.006	0.103	0.272	0.138	0.164	-0.843	0.018	0.1865	0.0900
	[1.49]	[3.25]	[6.54]	[2.30]	[-19.03]	[0.26]	[0.72]	[2.42]	[5.17]	[4.26]	[-19.85]	[0.65]		
Change of Enterprise Value (EV) over Total Assets														
	5 LS						10 LS							
L/S	0.333	0.145	-0.073	0.013	0.536	0.060	0.502	0.276	-0.048	0.139	0.547	0.055	0.4299	0.5511
	[3.40]	[1.71]	[-3.61]	[0.45]	[16.75]	[2.84]	[4.36]	[2.57]	[-1.87]	[3.76]	[13.47]	[2.05]		
Enterprise Value (EV) over Total Assets														
	5 LS						10 LS							
L/S	0.326	0.138	-0.093	0.070	0.555	0.053	439	0.181	-0.066	0.160	0.609	0.077	0.4278	0.4917
	[3.38]	[1.70]	[-4.82]	[2.51]	[18.12]	[2.62]	[3.89]	[1.81]	[-2.75]	[4.64]	[16.09]	[3.11]		
Replica of traditional FF-3 sort by market value														
	5 LS						10 LS							
L/S	0.446	-0.131	0.056	0.373	1.210	-0.033	0.461	-0.230	0.062	0.580	1.406	-0.055	0.3066	0.2529
	[2.88]	[-2.42]	[5.16]	[21.75]	[74.62]	[-2.63]	[2.38]	[-2.70]	[3.67]	[21.64]	[55.36]	[-2.81]		

8 Figures

Figure 1. This is a summary of all of the Sharpe Ratios from L/S strategy portfolios from Table (1) - (16), using the *compustat* universe from 1950 to 2014 monthly data as sample.

Figure 1.1 Sort by Enterprise Value (EV) in Total Assets, five portfolios, NYSE breaks, FF-3

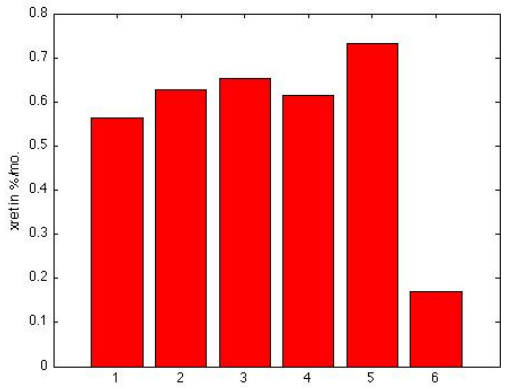

Figure 1.2 Sort by Enterprise Value (EV) in Total Assets, five portfolios, NYSE breaks, FF-4

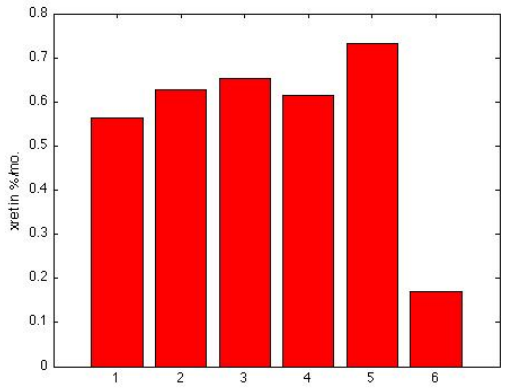

Figure 1.3 Sort by Enterprise Value (EV) in Total Assets, ten portfolios, NYSE breaks, FF-3

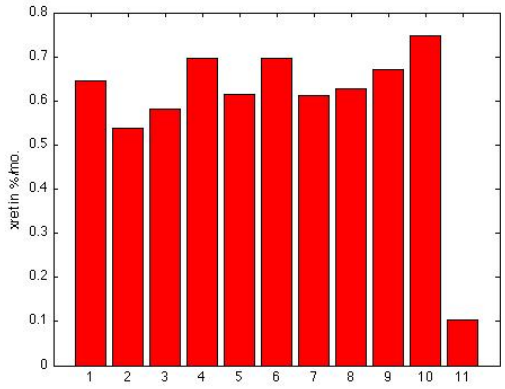

Figure 1.4 Sort by Enterprise Value (EV) in Total Assets, ten portfolios, NYSE breaks, FF-4

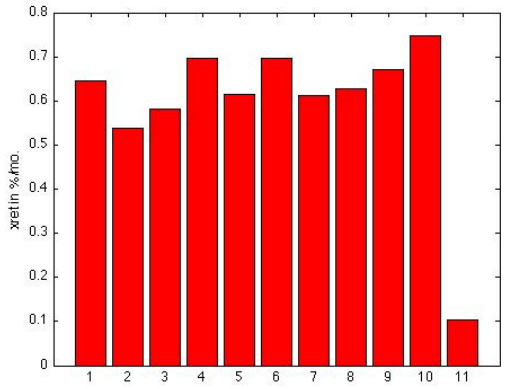

Figure 1 to be continued.

Figure 1.5 Sort by Change of Enterprise Value (EV) over Total Assets, five portfolios, NYSE breaks, FF-3

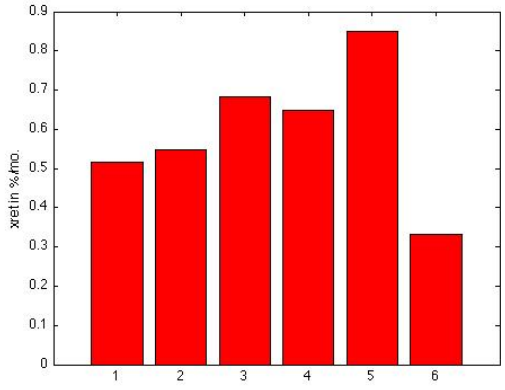

Figure 1.6 Sort by Change of Enterprise Value (EV) over Total Assets, five portfolios, NYSE breaks, FF-4

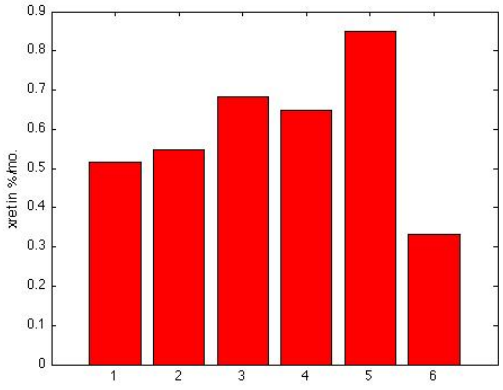

Figure 1.7 Sort by Change of Enterprise Value (EV) over Total Assets, ten portfolios, NYSE breaks, FF-3

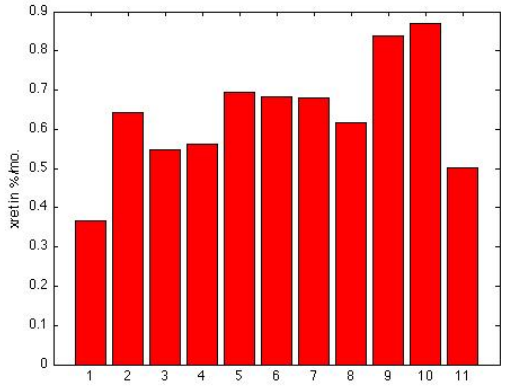

Figure 1.8 Sort by Change of Enterprise Value (EV) over Total Assets, ten portfolios, NYSE breaks, FF-4

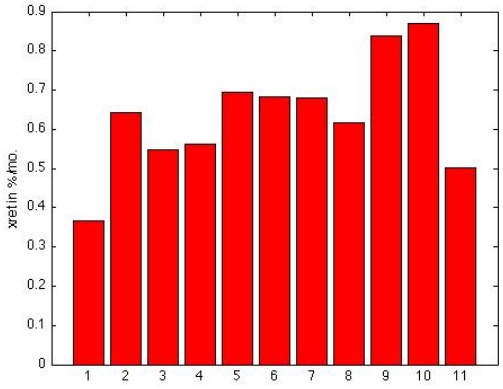

Figure 1 to be continued.

Figure 1.9 Sort by Enterprise Value (EV) over Total Assets, five portfolios, NYSE breaks, FF-3

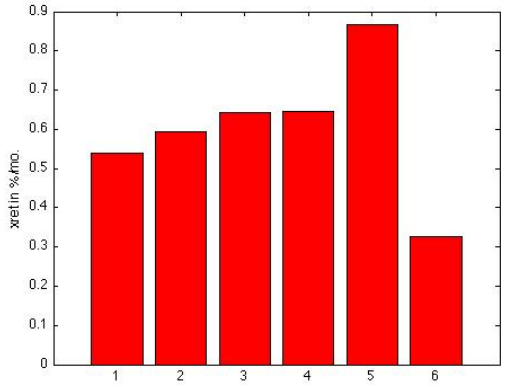

Figure 1.10 Sort by Enterprise Value (EV) over Total Assets, five portfolios, NYSE breaks, FF-4

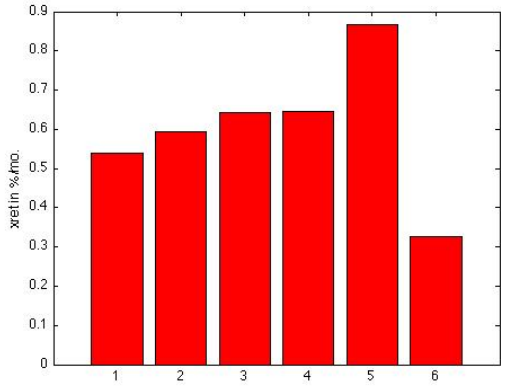

Figure 1.11 Sort by Enterprise Value (EV) over Total Assets, ten portfolios, NYSE breaks, FF-3

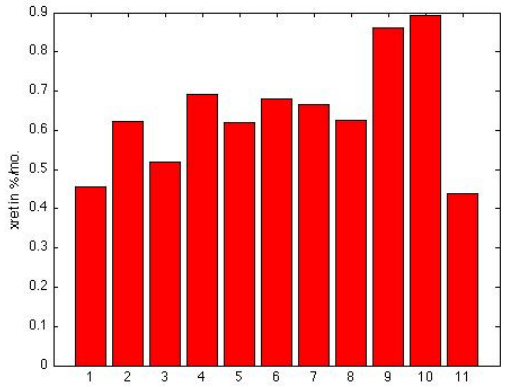

Figure 1.12 Sort by Enterprise Value (EV) over Total Assets, ten portfolios, NYSE breaks, FF-4

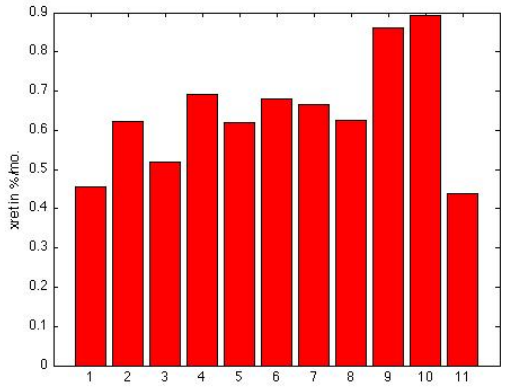

Figure 1 ends here.