TESTS OF OVERREACTION EFFECT
IN
İSTANBUL STOCK EXCHANGE

A THESIS
SUBMITTED TO THE DEPARTMENT OF MANAGEMNET
AND THE GRADUATE SCHOOL OF BUSINESS ADMINISTRATION
OF BİLKENT UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION

BY
İRFAN ÇETİNER
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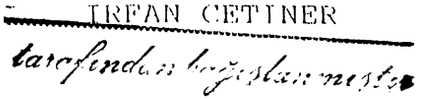
IREAN CETINER



To

my parents

Anne ve Babama

I certify that I have read this thesis and in my opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Business Administration.

Assist. Prof. Gulnur Muradoglu

I certify that I have read this thesis and in my opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Business Administration.

Assoc. Prof. Kursat Aydogan

I certify that I have read this thesis and in my opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Business Administration.

Assoc. Prof. Gokhan Capoglu

Approved for the Graduate School of Business Administration

Prof. Dr. Subidey Togan

ABSTRACT

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IN

ISTANBUL STOCK EXCHANGE

Irfan Cetiner

MBA

Supervisor: Assist. Prof. Gulnur Muradoglu

Overreaction hypothesis claims that extereme movements in stock prices will be followed by subsequent price movements in the opposite direction, and the more extreme initial price movement, the greater will be the subsequent price adjustment. Therefore the information in past prices or returns can be used for achieving excess returns in future.

In this study, the hypothesis is tested for Istanbul Stock Exchange first common market's adjusted-price data. The period covered is 1 January 1988, and December 31, 1991.

The emprical evidence, is consistent with the overreaction hypothesis for 17 diffrent periods at ISE market. Substantial weak form market inefficiencies are discovered. The results are also supported by T- test results.

OZET

ISTANBUL MENKUL KIYMETLER

BORSASINDA

ASIRIREAKSIYON

TESTLERI

Irfan Cetiner

Yuksek Lisans Tezi, Isletme Enstitusu

Tez Yoneticisi: Yrd.Doc. Dr. Gulnur Muradoglu

Asirireaksiyon hipotezi hisse senedi fiyatlarindaki asiri hareketlerin ters yonde fiyat hareketlerine neden olacagini ve sonraki fiyat hareketlerinin ilk hareket ne kadar asiri olursa, o derecede buyuk olacagini iddia eder. Bu nedenle gecmise ait fiyat ve getiri bilgileri gelecekte normalin uzerinde bir kazanc saglamada yardimci olur.

Bu calismada, Hipotez Istanbul Menkul Kiymetler Borsasi Birinci Hisse Senedi Pazarinin duzeltilmis-fiyat serisine uygulanmistir. Kullanilan fiyat dizisi 1 Ocak 1988, 31 Aralik 1991 donemini kapsamaktadir.

Yapilan deneysel sonuclar 17 degisik donem icin asirireaksiyon hiopotezi ile uygunluk gostermistir ve Zayif Etkinlik Hipotezine ters sonuclar bulunmustur. Sonuclar T-test bulgulari ile de ayrica desteklenmistir.

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I. INTRODUCTION

"Overreaction" hypothesis has been the source of many academic research over the past ten years. The subject attracted wide attention, because it has significant real world implications for investors and portfolio managers.

It has been accepted for a long time that stock prices should be determined by the expectation of the present value of future cash flows. This important idea reflects the rational market hypothesis for the valuation of the equity prices.

In recent years, however, the empirical evidence appears to be inconsistent with the valuation hypothesis. Strong seasonalities in stock prices excess volatility relative to the variation of dividend payments and the price earning ratio anomalies are just some examples, (Shiller 1987, Basu 1983). This new evidence would be inconsistent with the rationality of market participants. On the other hand, given that the equity markets are efficient in the sense that new information is incorporated rapidly, it should not be surprising that investors tend to attach relatively more weight to short run economic events.

Moreover, the uncertainty that investors must confront when estimating long-run valuation models is so large that they should be mainly concerned with short term price variations. Especially for Turkish capital market it is too risky to make long-run

investments due to speculative investments and uncertainty of the economy. To distinguish between a short-run and long-run perspective in a future notion of market efficiency seems to be an adequate route to follow.

The aim of this study is to investigate the behavior the Turkish investor and his/her reaction to either very high or very low price levels. This study is based on the previous work of De Bondt and Thaler (1985, 1987). It is motivated by the idea that most investors are not Bayesian decision makers. This behavior implies that individuals tend to overreact in the sense that they give excessive weight recent information and under-weight to prior information. Prices will be biased by either optimism or pessimism, relative to long run fundamental values. Stock prices would be consistently pushed to either high or low unsustainable levels. This behavior necessarily leads to disappointment for the optimists who have pushed the prices too high, whilst the contrary happens for pessimists.

It seems that the recent empirical findings on the U.S market are so important for the traditional ideas on how financial markets work that it becomes crucial to provide evidence on these issues for Turkish capital market. Results of this study will help Turkish investors in making their future decisions and to researchers in their studies about market efficiencies.

The Efficient Market Theory asserts that market prices fully and instantaneously reflect all available information. Therefore, the share prices can be looked upon as "correct" and provide accurate signals for the optimal allocation of resources. Thus, prices are determined in a way which equates the marginal rates of return for all producers and savers. As a result, any trading rule which is using past price changes or any past market data should have little value in predicting future price changes.

As pointed by De Bondt and Thaler (1985) if prices systematically overshoot, their reversals should be predictable from past prices. Then it becomes unnecessary to use fundamental data. This result violates the traditional weak-form of market efficiency, as it claims that no investor can earn excess returns by developing trading rules based on historical price or return information. At the same time the idea that stock returns may be predictable from past levels of equity prices has been tested and accepted by Fama and French (1986).

Following a brief review of the literature about overreaction hypothesis in chapter 1 the methodology of the study is presented in chapter 2 and findings presented are in chapter 3. Finally, the study closes with a summary of results with conclusions, and possible implications of the study are presented in chapter 4.

II. LITERATURE SURVEY

2.1 Historical Development & Existing Models:

Interest in market overreaction dates back at least as far as the tulip bulb craze of 1630s. In 1929, Pigou wrote of the links between businessmen, which "acts conducting rods along which an error of optimism or pessimism, once generated , propagates itself about the business world "(Pigou, 1929 p.127). Modern "group think" theories of overreaction are expounded by Dreman (1983) and other finance practitioners. The possibility of overreaction has also been suggested by academics, including Smidt (1976), who investigated the link between exaggerated reactions to good or bad news and extremely high or low price-earnings ratio and Ackley (1983), who has noted that price movements may develop a cumulative momentum in one direction, which can easily overshoot the ... long run equilibrium price . Other studies have considered the impact of imposing various constraints on the agents in the model. Goldman and Sosin (1979), for example, proposed a model in which information becomes available first to "speculators" and only later to "investors" and demonstrated that overreaction is possible within this model.

Research in cognitive psychology has revealed deviations of individual decision-making from the norm of perfect rationality (Kahnemen 1982). Experimental data show that individuals tend to put too much emphasis on the most recent information. In a financial setting, this finding suggests that investors might

overweight recent news. Any event in which there is a price reaction followed by a correction (reversal) can be taken as evidence of overreaction. But systematic studies of such events are rare. Neiderhoffer (1987) found evidence of market overreaction to world events. De Bondt and Thaler (1987), in the preeminent study of the market overreaction, found evidence supporting long term overreaction. Arbel and Jaggi (1982) examined the price behavior of stocks experiencing "extreme" price jumps and concluded that stocks that experienced "bad losses over a two-week period subsequently out performed the market" .

One of the earliest observations about overreaction in markets was made by J.M. Keynes: "... day-to-day fluctuations in the profits of existing investments, which are obviously ephemeral and non significant character, tend to have an altogether excessive, and even an absurd, influence on the market" (Keynes,1964 p.153-154). About the same time, Wiliams (1956)noted in this "Theory of Investment Value" prices have been based too much on current earning power and too little on long-term dividend paying power". More recently, Arrow has concluded that the work of Kahnemen and Tversky " typifies very precisely the excessive reaction to current information which seems to characterize all the securities and future markets " (Arrow, 1982 p.1-9). Two specific examples of the research to which Arrow (1982) was referring are the excess volatility of security prices and the so called price earnings ratio anomaly.

The excess volatility issue has been investigated most thoroughly by Shiller (1981). Shiller concludes that, at least over the last century, dividends simply do not vary enough to rationally justify observed aggregate price movements. In spite of the observed trendiness of dividends, investors seem to attach disproportionate importance to short run economic developments. The price earnings ratio (P/E) anomaly refers to the observation that stocks with extremely low P/E ratios (i.e, lowest decile) earn larger risk-adjusted returns than high P/E stocks. Most financial economists seem to regard the anomaly as a statistical artifact. Explanations are usually based on alleged misspecifications of the capital asset pricing model (CAPM).

An alternative behavioral explanation for the anomaly based on investor overreaction is what Basu (1977)called "price-ratio" hypothesis. Companies with very low P/E's are thought to be temporarily "undervalued" because investors become excessively pessimistic after a series of bad earnings reports or other bad news. Once future earnings turn out to be better than the unreasonably gloomy forecasts, the price adjusts. Similarly, the equity of companies with very high P/E's is thought to be "over valued", before (predictably) falling in price.

De Bondt and Thaler (1985), basing on the research in experimental psychology suggest that, in violation of Bayes' rule, most people tend to "overreact" to unexpected and dramatic news events. Their study of market efficiency investigated whether such

behavior effects stock prices, and concluded that NYSE common stock prices are consistent with the overreaction hypothesis, and substantial weak form market inefficiencies occur. The results also gave information on the January returns earned by prior winners and losers. De Bondt and Thaler (1987) found " systematic price reversals for stocks that experience extreme long term gains or losses; ie. Past losers significantly out perform past winners" (De Bondt & Thaler, 1985, p.793).

Alonso and Rubio (1990) examined the overreaction hypothesis within the Spanish capital market. In their research zero-beta CAPM model was used by assuming that the market portfolio index is mean-variance efficient during the period. By using this model risk adjustment is also done. The results are corrected for size by considering smallest and largest firms in terms of size; size is defined as the market value of the firm's equity at the end of the ranking period. As a conclusion they found that the overreaction hypothesis is accepted even after correcting for size.

Zarowin (1989) examined the subsequent stock return performances of firms that had experienced extreme earnings years and found that while the poorest earners out perform the best earners by a statistically significant amount, the poorest earners are also significantly smaller in size than the best earners at the time of portfolio formation . When the poorest earners are matched with the best earners of equal size, there is virtually no evidence of

differential stock return performance ,suggesting that size discrepancies between winners and losers may be responsible for the apparent overreaction phenomenon. Zarowin (1990) in his second study on this subject performed two sets of tests to examine the role of firm size in the overreaction phenomenon. First, by matching subgroups of winners and losers of equal size, he found that all return discrepancies are eliminated. Second, he performed separate analyses on periods when losers are smaller than winners, and on periods when winners are smaller than losers. He concluded that "when losers are smaller, they out perform winners; when winners are smaller, they out perform losers. The tendency for losers to be smaller than winners, therefore, appears to be responsible for the overreaction phenomenon" (Zarowin, 1990, p.113). Zarowin (1990)also investigated the risk differences and seasonalities to explain the winner versus loser phenomenon. He found that neither risk nor seasonality alone can account for the results.

On the other hand in their follow up paper, De Bondt and Thaler (1987) reported additional evidence that supports the overreaction hypothesis that is inconsistent with two alternative hypothesis based on firm size and differences in risk, as measured by CAPM betas.

Besides, Seyhun (1990) in his study investigating 1987 Crash in American Stock Exchange (ASE) suggests that overreaction was an important part of the Crash.He claimed that those stocks that

declined more during Crash were also purchased more by insiders and stocks that were purchased more extensively by insiders during 1987 Crash showed larger positive returns in 1988.

III. DATA & METHODOLOGY

3.1 Data

Daily return data for stocks listed at the Istanbul Securities Exchange and data for stock splits, preemtive right offerings and dividends, as compiled by Capital Market Board is taken as the raw data. The data set covers the period between January 1988, and December 1992. The price series is adjusted to remove the effect of stock splits and rights offering on prices which might lead to biased and/or incorrect results.

3.2 Formation of the Data Set:

The first criteria for the stocks to be included in to the data set was to have the available data about stock splits and rights offerings. Those stocks without appropriate stock split and rights offering data as well as stocks that were not traded for more than four consecutive weeks are discarded. For those stocks that no trading has been done during the day the last price observed was considered to be the relevant price for the week. The application of the above criteria leads to the elimination of 4 stocks out of 46, 51, 85, and 108 stocks for years 1988,1989, 1990 & 1991 respectively.

Stock prices are adjusted for stock splits, rights offering anddividend payments by using the following formula:

$$P_{new} = \left(\frac{P_{t-1} + 1000 * S_d - 1000 * D}{P_{t-1}(1 + S_d + S_s)} \right) P_{old} \qquad (1)$$

P_{new} : Adjusted price

P_{t-1} : Price the week before the stock split or dividend payment

S_d : Rights offerings in percent

D : Dividend payment in percents

S_s : Stock split in percents

P_{old} : Price before adjustment

3.3 Test Procedure:

The empirical test procedures used here are variants on a design originally proposed by Beaver and Landsman (1981) in a different context. Typically, the tests of semi-strong form of marketefficiency start at time t=0, with the formation of portfolios on the basis of some event that effects all the stocks in the portfolio, say, an earnings announcement. One than goes on to investigate whether later on (t>0) the estimated residual portfolio return measured relative to the single-period CAPM-equals zero. Statistically significant departures from zero are interpreted as evidence consistent with semi strong form market efficiency, even though the results may also be due to misspecifications of the CAPM, misestimation of the relevant alphas and/or betas, or simply market inefficiency of the weak form. In contrast, the tests in this study assess the extent to

which systematic nonzero residual return behavior in the period after the portfolio formation ($t>0$) is associated with the residual returns in the preformation months ($t<0$). This study will focus on stocks that have experienced either extreme capital gains or extreme losses over the periods. In other words, "winner" (W) and "loser" (L) portfolios are formed conditional upon past excess returns, rather than some firm-generated informational variable such as earnings.

In this study, the analysis is based on market adjusted excess returns. The other methods which can be used for analysis are market model residuals and excess returns that are measured relative to the Sharpe-Litner version of CAPM. However, since all three methods are single-index models that follow from the CAPM, misspecifications problems may still confound the results. Whichever of the three types of residuals are used, the results of the prior empirical analysis are similar and that the choice does not seem to affect the main conclusions (De Bondt & Thaler, 1985).

There is no risk adjustment except for movements of the market as a whole and the adjustments is identical for all stocks since, for any period t, the same (constant) market return R_{mt} is subtracted from all stock returns R_{it}, the results are presented in terms of returns in percentage. De Bondt (1985) shows that winner and loser portfolios, formed on the basis of market adjusted excess returns, do not systematically differ with respect to either market value of equity, dividend yield or financial leverage. This is an

advantage of using market adjusted excess returns.

The following steps are used for the rest of the study:

1. In this study, for calculating market-return (R_{mt}), Istanbul Stock Exchange Market index is used,and the weekly returns are calculated as follows basing on the daily adjusted prices:

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}} \qquad (2)$$

The data set contains 208 weeks market and stock returns for four years (1988 January - 1991 December). For calculating weekly excess returns for each stock the following formula is used:

$$ER_{it} = R_{it} - R_{mt} \qquad (3)$$

$$i=1,\ldots,N$$

$$t=1,\ldots,T$$

where

ER_{it} is the excess-return on asset i for time t;

R_{it} is the return of asset i for time t;

R_{mt} is the market return for time t;

N is the number of assets ;

T is the total number of weeks which is 208;

2. Previous studies that test overreaction use predetermined test periods. In this study test periods did not determined before, instead tests are performed for all the periods starting from 1 week to 52 weeks. The purpose was to search for overreaction periods in the data set instead of testing a predetermined period for overreaction. The time period of 1988 to 1991 is divided up in to portfolio formation periods and test periods the number of these periods depends on testing period (1 to 52 periods). First period is chosen as the portfolio formation period and following time period is taken as test period and test period is followed by another portfolio formation period. This procedure is done for all the data set and equal number of portfolio formation periods and testing periods are formed. A detailed description of this step will be given as an example.

3. For each portfolio formation period cumulative excess returns are calculated ;

$$CER_i = \sum_{T}^{0} ER_{it} \qquad (4)$$

$$i=1,\ldots,N \quad t=1,\ldots,T$$

As time goes on new securities appear on the disk, and more and more stocks qualify for this step.

CER's are ranked from high to low and portfolios are constructed on the basis of that ranking. The top five stocks are assigned to the winner portfolio (W) ; and the bottom five stocks to the loser

portfolio (L) . The same procedure is repeated for ten stocks, top ten are assigned to winner portfolio (W) and bottom ten stocks to the loser portfolio in order to see the effect of the number of stocks in the W & L portfolios on the overreaction hypothesis.

4. For all portfolios the average excess return of all the securities in the winner and loser portfolios are calculated for each nonoverlapping test periods as follows:

$$AER_{W,n,t} = \sum_{i=1}^{m} 1/m \; ER_{it} \qquad (5a)$$

$$AER_{L,n,t} = \sum_{i=1}^{m} 1/m \; ER_{it} \qquad (5b)$$

where

m : number of stocks in the portfolio (m=5 or m=10)

n : number of testing periods starting from 1 (n=1...104)

t : number of weeks for each testing period 1 to 52 weeks (t=1...52)

5.The next step is to obtain the cumulative average excess return for all portfolios and for all periods by using the following formula:

$$CAER_{W,n,t} = \sum_{0}^{t} AER_{W,n,t} \qquad (6a)$$

$$CAER_{W,n,t} = \sum_{0}^{t} AER_{W,n,t} \qquad (6b)$$

n : number of testing periods starting from 1

t : number of testing periods for each testing period starting from 1

6.Finally, using the CAER's from all the test periods, average cumulative average excess returns were obtained for both portfolios and each week, as follows:

$$ACAER_{W,t} = \left(\sum_{n}^{k} CAER_{W,n,t}\right) / K \qquad (7a)$$

$$ACAER_{L,t} = \left(\sum_{n}^{k} CAER_{L,n,t}\right) / K \qquad (7b)$$

K : number of test periods (K=1...104)

Hypothesis:

The overreaction hypothesis predicts that,

$ACAER_{W,t} < 0$ and $ACAER_{L,t} > 0$.

Alternatively, the null hypothesis can be written as

$$(ACAER_{L,t} - ACAER_{W,t}) = 0$$

If the null hypothesis is rejected we conclude overreaction.

In order to assess whether, at any time t, there is indeed a statistically significant difference in investment performance, a pooled estimate of the population variance in $ACAER_t$ is calculated,

$$S_t^2=\left[\sum(CAER_{W,n,t}-ACAER_{W,t})^2+(CAER_{L,n,t}-ACAER_{L,t})^2\right]/2(N-1) \qquad (8)$$

With two samples of equal size N, the variance of the difference of sample means equals $2\ S_t^2/\ N$ and the t-statistics used is as follows:

$$T_t = \frac{\left[ACAER_{L,t} - ACAER_{W,t}\right]}{\sqrt{2\ S_t^2/N}} \qquad (9)$$

For example, for a four week portfolio formation and test period following steps are followed:

1. For every stock i on data set starting in January 1988 the weekly excess returns are calculated.
2. The full period is divided in to 26 blocks of eight weeks each. The first four week of each block is was named the formation period, while the last four weeks of each block becomes the testing period. Hence, we had 26 portfolio formation and testing periods.
3. For each of 26 portfolio formation period CER,s are calculated and ranked from high to low and top stocks are assigned as winners (W) and bottom five to losers (L).

Steps 4 & 5 which are described in test procedure are followed for the rest of the test.

For performing all the calculations described in this section, a computer program written in Turbo Pascal is used. The program is presented in Appendix C. When the program is executed it asks for the minimum and maximum number of test period and by giving an interval all the tests are performed for that interval by the program. It is also possible to define the test for any number of stocks in the portfolio (number of stocks question is also asked when the program is executed). The program gives the output of ACAER values for both loser portfolio and winner portfolio as well as the t values.

IV. FINDINGS

The results report consistency with the overreaction hypothesis but the results are not significant statistically as t-statistics have low values (see Table 1). Over the last four year period , loser portfolios of 5 stocks outperform the market 2,4,6,7,11,14,20,21,23,25,30,31,32,33,34,36,37 and 42 weeks after portfolio formation. These periods are chosen with respect to $ACAER_L$-$ACAER_W$differences, for the above listed periods differences are positive values which implies losers outperformence with respect to winners. Figure 1. shows the movement of ACAER's for a six week period as we progress through the test period, the difference in cumulative average excess returns between the extreme portfolios [$ACAER_{L,6}$-$ACAER_{W,6}$] equals 15.91 % (t-statistics: 1.43) six weeks after portfolio formation.

Table 1. further indicate the results of the tests for different test periods at the end of portfolio testing periods. For a test period of 32 weeks cumulative excess return difference reaches to 105 % (t-statistics: 1.27) 32 weeks after portfolio formation cumulative excess return difference is obtained for two week period, two weeks after the portfolio formation cumulative excess return differences between the extreme portfolios is 1.8 % (t-statistics: 1.12). Detailed results for the cumulative excess return differences between the extreme portfolios can be seen in Appendix B with t-statistics results for each week after portfolio formation and also the graphical representations of all overreaction periods are given in Appendix A.

FIGURE 1

ACAER's After Portfolio Formation

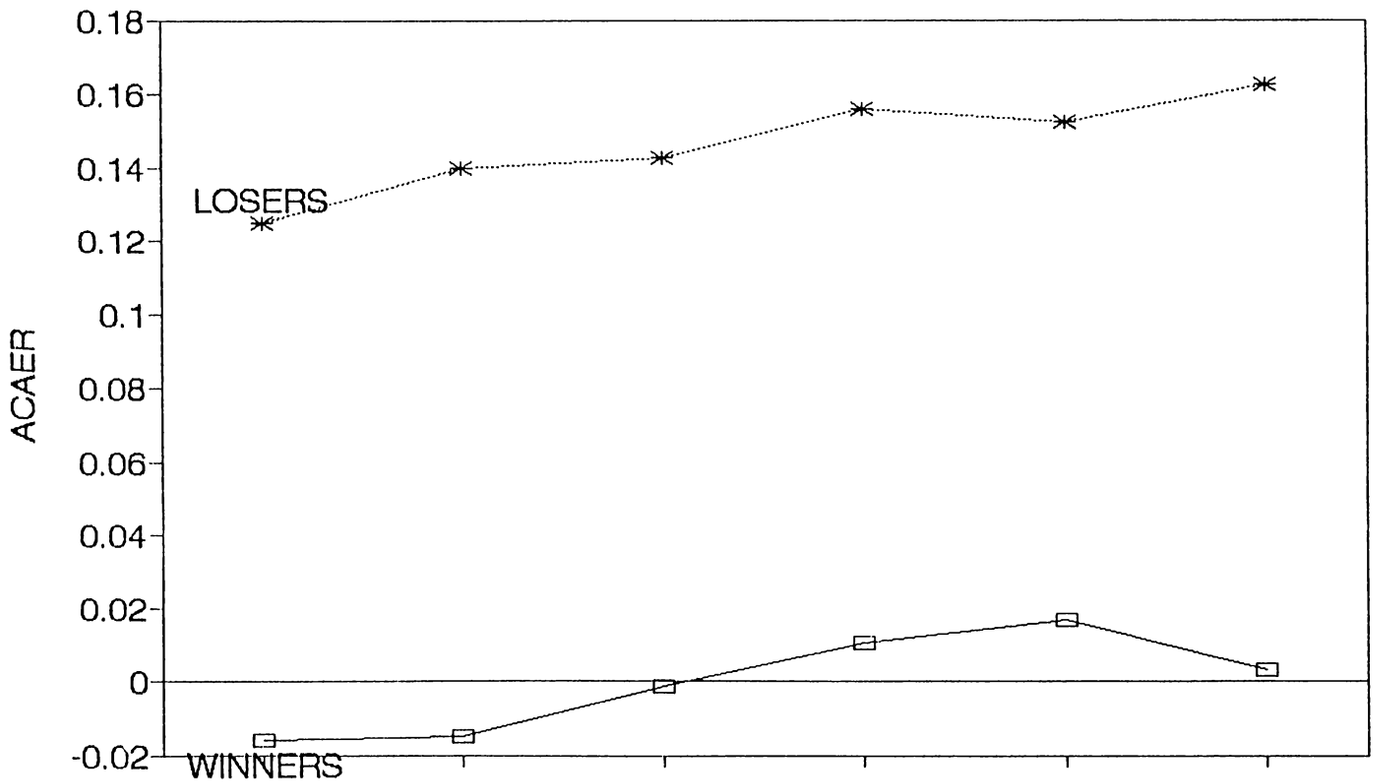


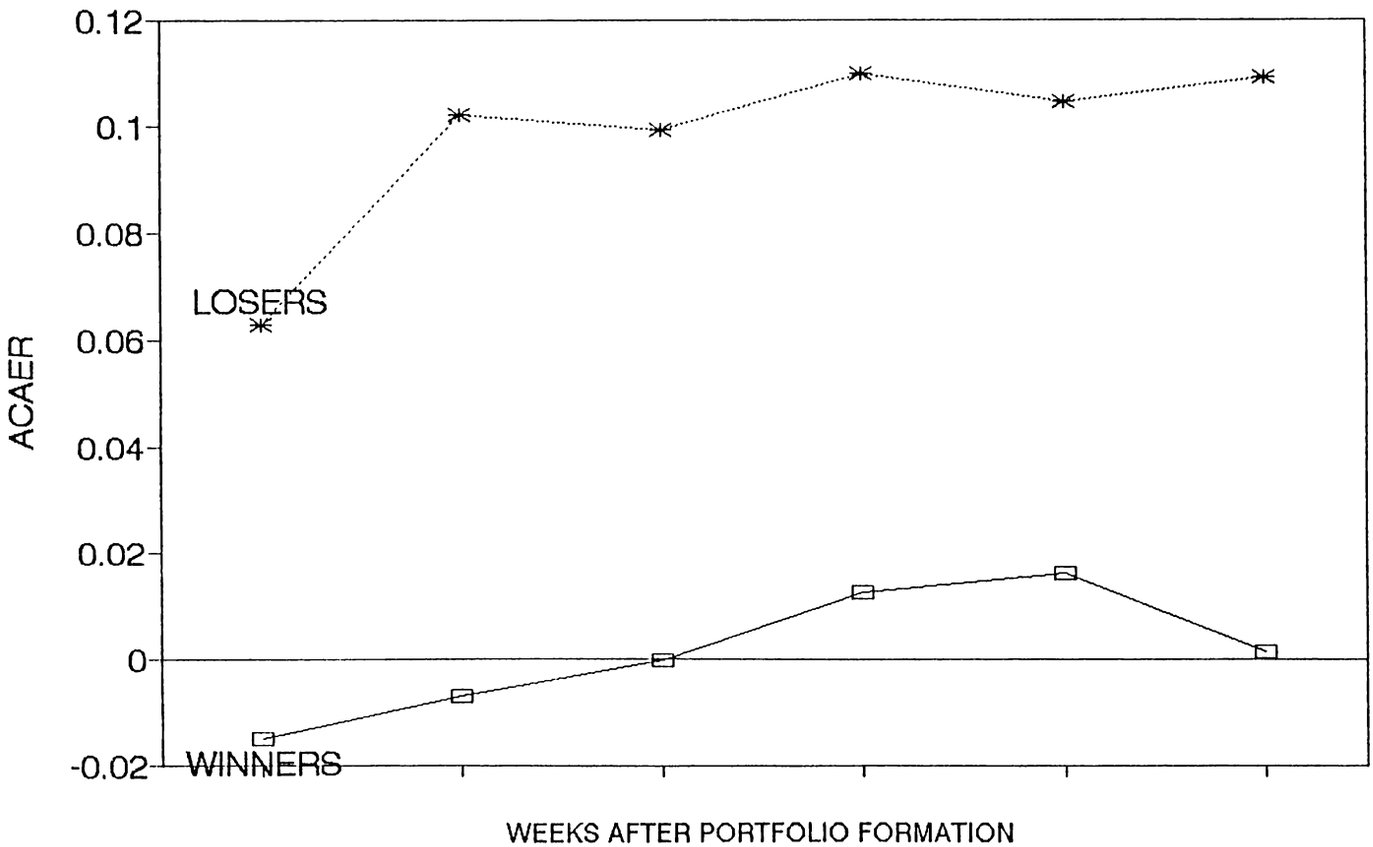
TABLE 1

Differences in Cumulative Average Excess Returns Between the Winner and Loser Portfolios at the End of the Testing Period

5 STOCK PORTFOLIO			10 STOCK PORTFOLIO		
period	T	$ACAER_L - ACAER_W$	period	T	$ACAER_L - ACAER_W$
2	1.12	0.018	2	0.87	0.013
4	1.66	0.116	4	1.78	0.071
6	1.43	0.159	6	1.78	0.107
7	2.12	0.086	7	1.43	0.054
11	0.92	0.063	11	0.98	0.051
14	0.67	0.176	14	0.90	0.121
20	1.01	0.209	20	0.64	0.085
22	1.29	0.518	22	1.08	0.255
23	1.27	0.433	23	1.60	0.241
30	1.15	0.169	30	1.68	0.233
31	1.66	0.030	31	1.12	0.176
32	1.27	1.048	32	0.85	0.388
33	1.35	0.944	33	0.96	0.382
34	1.14	0.894	34	0.37	0.171
36	1.18	0.918	36	0.55	0.188
37	1.43	0.885	37	0.10	0.040
42	0.55	0.525	42	0.47	0.271

Istanbul Stock Exchange is a small market with respect to other world markets because the total number of stocks in ISE is 106 by the end of 1991 . Hence, the overreaction might be as a result of strong stocks in the 5 stock portfolio so in order to check this effect the same tests are performed for a 10 stock portfolio and the results were similar to those obtained by 5 stock portfolio consistency with the overreaction hypothesis.Graphical solutions of 10 stock portfolio is given in Appendix D, also ACAER differences and t-statistics values can be seen in Appendix E. Figure 2. shows the movement of the ACAER's for a six week period as we progress through the test period, for the 10 stock portfolio. Graphics of both 10 & 5 stocks are similar to each other for all the overreaction periods, this can be easily seen when Figure 1. & Figure 2. are compared with each other. The average cumulative excess returns of the two portfolios are different .This can be observed from the ACAER differences at the end of each portfolio formation period (see Table 1.). The $ACAER_L$-$ACAER_W$ values of 10 stock portfolios are always smaller than 5 stock portfolios for all periods.Indeed this should be an expected result because as the number of stocks increases they will balance each others effect (stocks that overshoot too much more will be balanced by other stocks).

FIGURE 2
ACAER's After Portfolio Formation



As it can be seen from Table 2 high t values are observed as the testing periods increased to 47, 48, 49, & 50 weeks test periods. For these testing periods some negative values of $ACAER_L$-$ACAER_W$ are observed (Appendix B) so they are not considered as overreaction periods, but the results in Table 2 tells that it is quite significant to obtain those positive $ACAER_L$-$ACAER_W$values at the end of presented weeks for different testing periods.

The findings have other notable aspects. First the overreaction is asymmetric; it is much larger for losers than for winners. Indeed, this is what we expected because losers are formed among those stocks which have a performance at the bottom line of all stocks. A positive overshoot is expected and seen from losers while the winners are constant.

Secondly, winners oscillate around the zero value generally which implies that winners do not out perform gains or losses with respect to market.Winner portfolios are generally formed from strong stocks of Turkish market, this might be the main reason for this effect because this type of stocks react close to market and excess returns returns comes out to be close to zero. By saying strong stocks which belong to reliable, well known and profitable companies of Turkish economy.

TABLE 2

Differences in Cumulative Average Excess Returns Between

The Winner and Loser Portfolios For 5 Stock Portfolio

Period 47	weeks after portfolio formation	t values	$ACAER_L$-$ACAER_W$
	14	5.33	0.214
	15	3.10	0.258
	16	3.88	0.248
	17	5.75	0.248
Period 48	11	2.29	0.236
	12	5.29	0.302
	13	6.51	0.259
	14	3.78	0.196
	15	6.09	0.168
Period 49	8	3.66	0.271
	9	10.48	0.379
	10	7.40	0.337
	11	5.06	0.308
	12	7.49	0.234
Period 50	5	3.22	0.230
	6	8.25	0.324
	7	4.99	0.338
	8	3.58	0.358
	9	2.64	0.284

V. CONCLUSIONS & RECOMMENDATIONS

"Overreaction hypothesis" implies that extreme movements in stock prices will be followed by subsequent price movements in the opposite direction, and the more extreme initial price movement,the greater will be the subsequent price adjustment. In this study this hypothesis is tested for stocks listed at the Istanbul Securities Exchange.

The hypothesis is tested by using on the market adjusted excess returns model for periods starting from 1 week to 52 weeks. Results of the tests verified the hypothesis for several test periods, which implies that Turkish investors give excessive weight to recent information and under-weight prior information. These results also contradict with the Efficient Market Theory. Same tests are performed after increasing the number of stocks in the portfolio in order to correct the results for different number of stocks in the portfolio.

Performance of the tests for portfolios containing different number of stocks, gave similar results, but the overreaction effect has been more significant for smaller portfolios. Difference between the returns of loser and winner portfolios are more and t-values are higher which implies better level of statistically significance. This result is an expected one because it is reasonable to see a decrease in the differences as the number of stocks increases, especially for Istanbul Stock Exchange

due to the limited number of stocks traded.

Consistent with the predictions of the overreaction hypothesis, portfolios of prior "losers" are found to out-perform prior "winners". This result implies a violation of weak form efficiency which means the information in past prices or returns is useful and relevant in achieving excess returns in the future.

T-test results for difference of loser and winner portfolios result accepted the overreaction hypothesis for all periods and for 5 and 10 stocks. Of course, it is possible to question the effectiveness of the market-adjusted excess returns model. For example, the results have not been adjusted with respect to risk. Returns might be adjusted with respect to risk by using the zero-beta CAPM, as it is proven by De Bondt and Thaler adjustment with respect to risk will not change the results, even Zarowin (1990) supported this claim. Alonso and Rubio (1990)performed the test as risk adjusted and found the same results (overreaction effect exists).

Another question mark can be the role of size in the winner vs. loser phenomenon. De Bondt and Thaler (1987) claim that "the winner-loser effect is not primarily a size effect " but an opposite argument came from Zarowin (1990) so it is still a question mark. The effect of size on winner-loser phenomenon can be invested in a future study.

It is found out that overreaction is asymmetric and winners generally oscillate around zero value , the result for this might be that the winner portfolios are generally formed from strong stocks of Turkish market which reacts close to market while losers are more volatile with respect to the market.

It is observed for the long testing periods that more significant t values occurred but these periods show overreaction for a time period not for the whole period.

Results of tests imply real world applications so they can be used by portfolio managers and investors in their decision making process and also they will be helpful for researchers who are searching market efficiency.

This study considers a very short-period of time (4 years) overreaction, after the number of stocks in the Istanbul Stock Exchange Market increases, it is suggested to perform the test for a longer period, the results will be more reliable.

REFERENCES

[1] Alonso, A. and G. Rubio (1990) "Overreaction in the Spanish Equity Market" *Journal of Banking and Finance* 14,pp.469-481.

[2] Arbel,A. and Jaggi B.(1982) "Market Information Assimilation Related to Extreme Daily Price Jumps," *Financial Analyst Journal,* November/December.

[3] Arrow, K.J. (1982) "Risk Perception in Psychology and Economics". *Economic Inquiry 20,* January, pp. 1-9.

[4] Basu, S. (1977) "Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios:A Test of the Efficient Market Hypothesis." *Journal of Finance* 3, June, pp.663-682.

[5] Beaver W.and Landsman W.R. (1983) "Note on the Behavior of Residual Security Returns for Winner and Loser Portfolios." *Journal of Accounting and Economics* 3, December, pp.233-241.

[6] De Bondt, W.and R. Thaler (1985), "Does the Stock Market Overreact?" *Journal of Finance* 40, pp.793-805.

[7] De Bondt, W. and R. Thaler (1987), "Further Evidence on Investor Overreaction and Stock Market Seasonality, *Journal of Finance* 42, pp.557-581.

[8] Fama, E. and K. French (1986), "Common Factors in the Serial Correlation of Stock Returns", *Working Paper* (University of Chicago).

[9] Kahnemen, N (1982) *Judgment Under Uncertainty : Heuristics and Biases* (London: Cambridge University University Press)

[10] Keynes J.M. (1964) *The General Employment, Interest and Money.* London:Harcourt Brace Jovanovich.

[11] Niederhoffer, V (1971),"The Analysis of World Events and Stock Prices", *Journal of Business,* April.

[12] Pigou, A.C.(1929), *Industrial Fluctuations,* Second Edition, (London: McMillan).

[13] Seyhun N.H. (1990), "Overreaction or Fundamentals: Some Lessons from Insiders' Response to the Market Crash of 1987". *The Journal of Finance*45, pp.1363-1387.

[14] Smidt S. (1983), "A New Look at the Random Walk Hypothesis," *Journal of Financial and Quantitative Analysis,* September 1968, and G. Ackley, "Commoditiesand Capital: Prices and Quantatities," *American Economic Review,* March.

[15] Shiller R.J. (1981) "Do Stock Prices Move Too Much to be Justified Subsequent Changes in Dividends?." *American Economic Review* 71,pp.412-436.

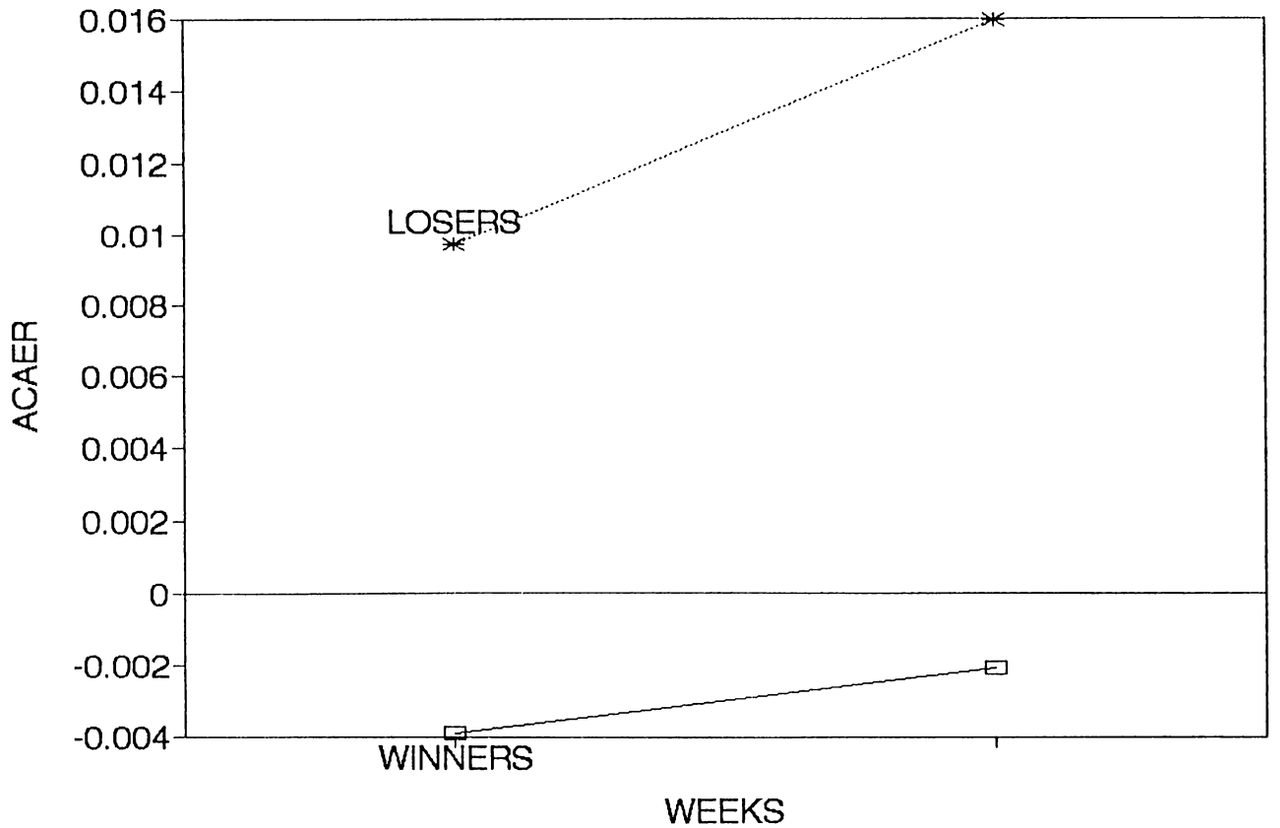
[16] Zarowin, P. (1990) "Size, Seasonality, and Stock Market Overreaction." *Journal of Financial and Quantitative Analysis* 25, March, pp.113-125.

[17] Williams, J.B. (1956) *The Theory of Investment Value.* Amsterdam: North-Holland.

APPENDIX A

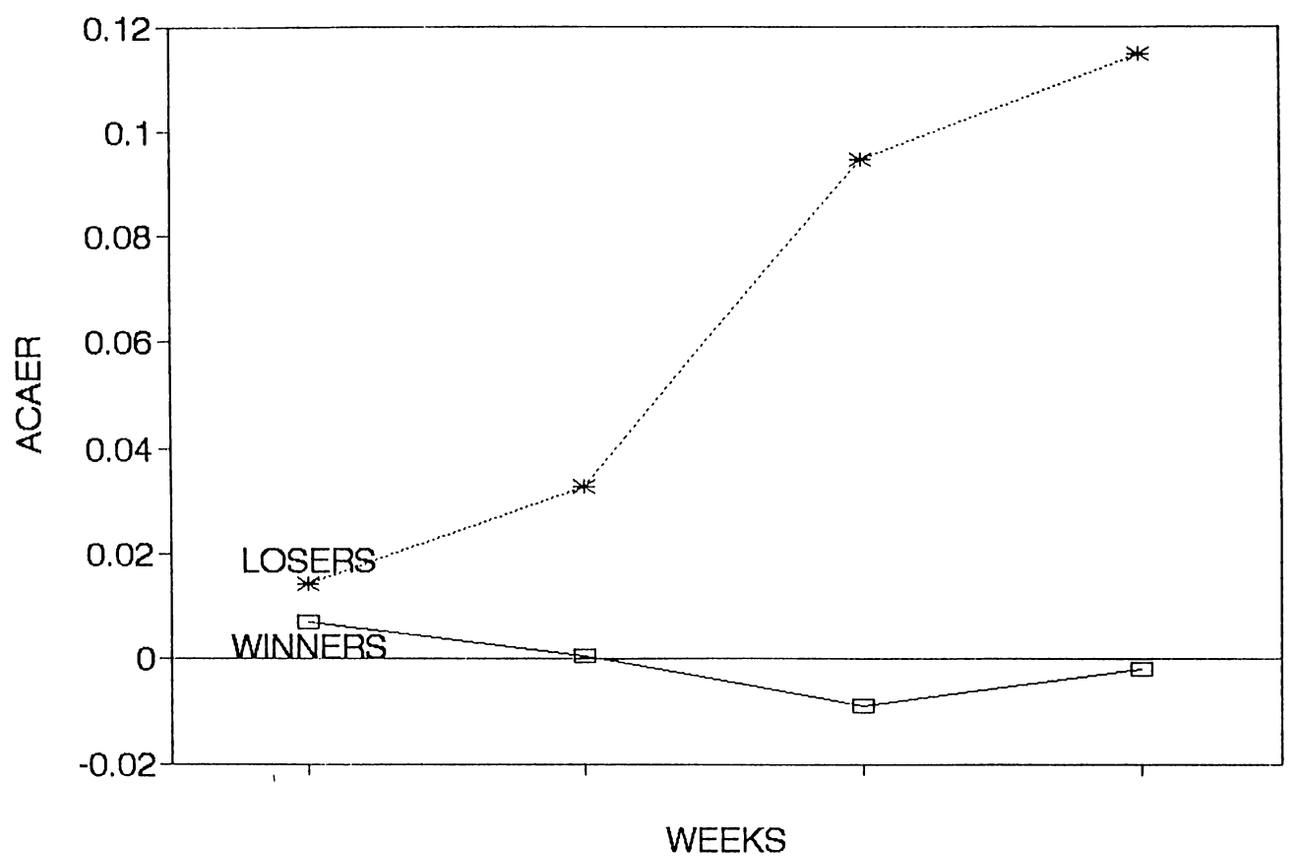
APPENDIX A.1

5 STOCK PORTFOLIO FOR PERIOD 2



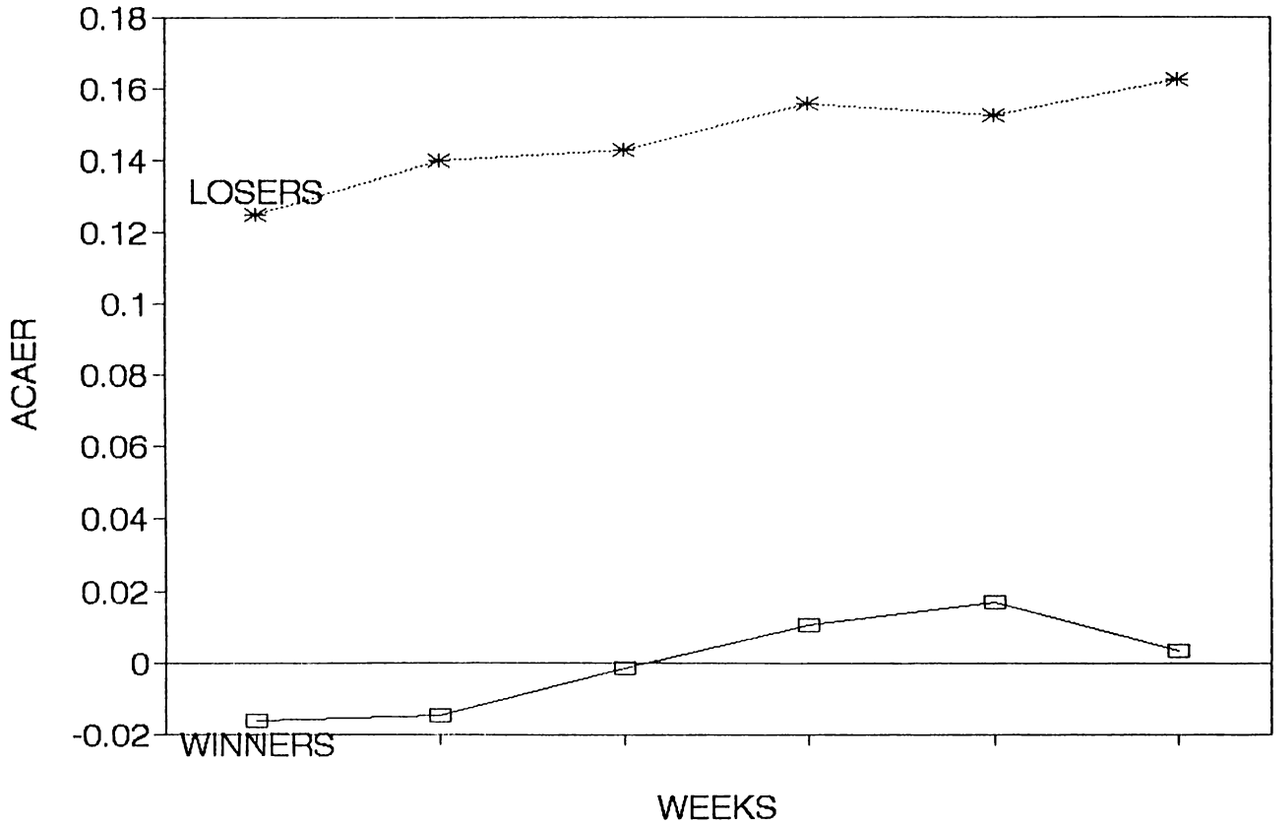
APPENDIX A.2

5 STOCK PORTFOLIO FOR PERIOD 4



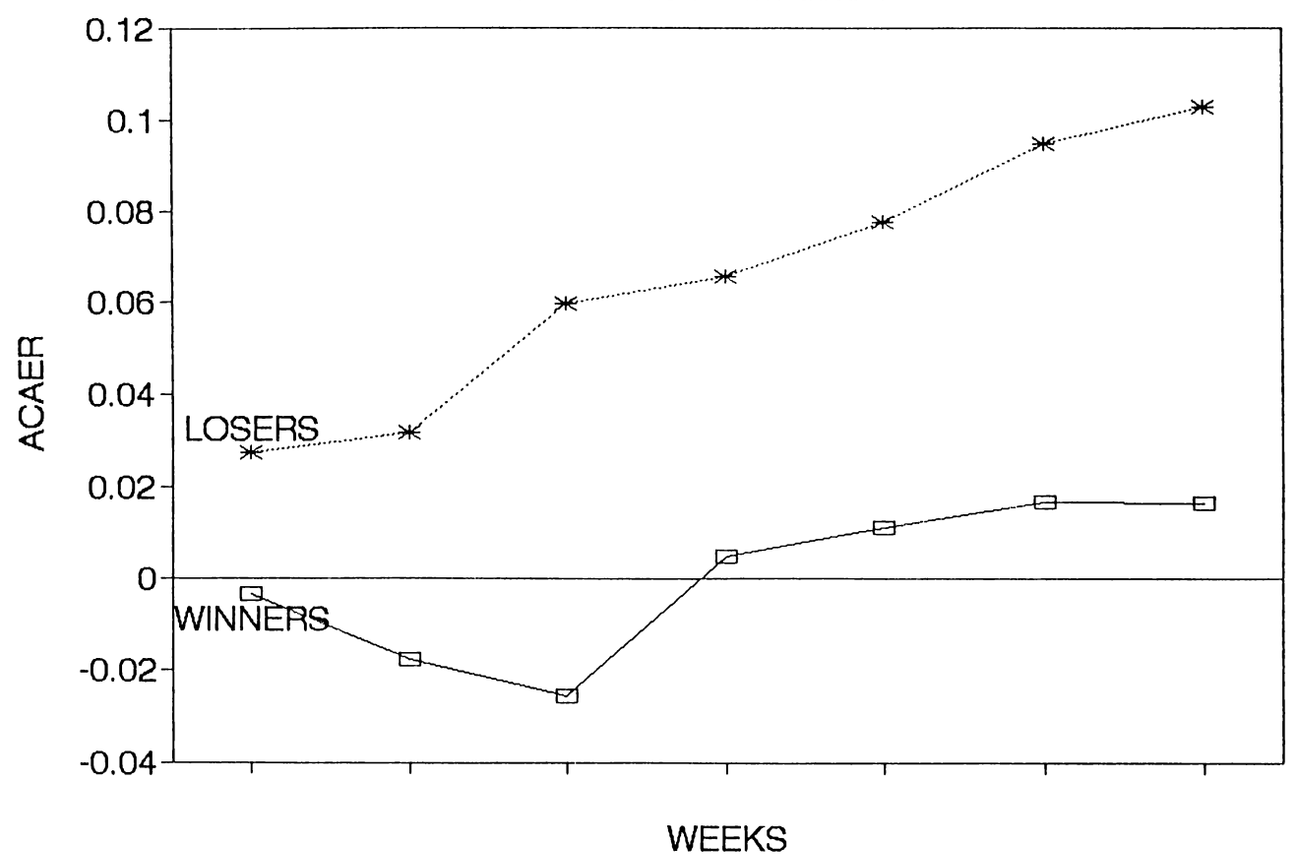
APPENDIX A.3

5 STOCK PORTFOLIO FOR PERIOD 6



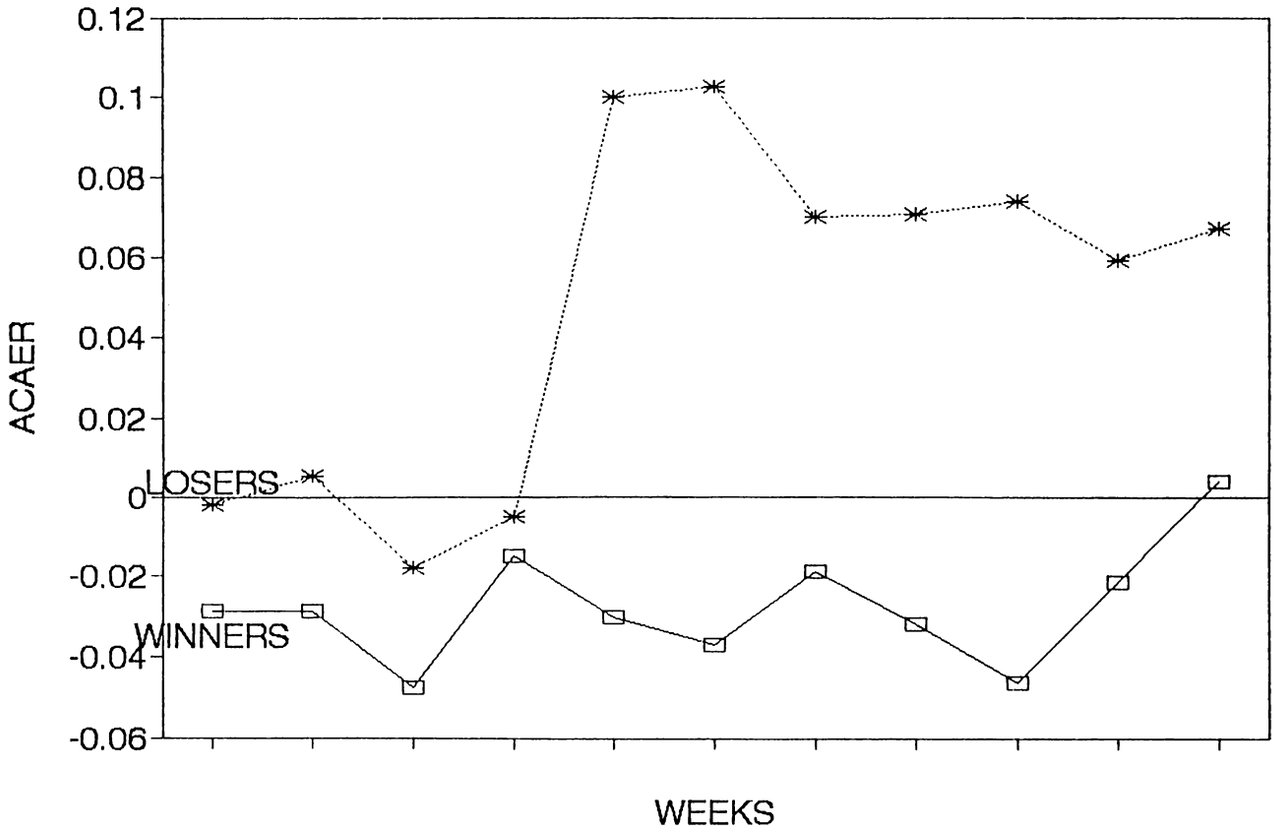
APPENDIX A.4

5 STOCK PORTFOLIO FOR PERIOD 7



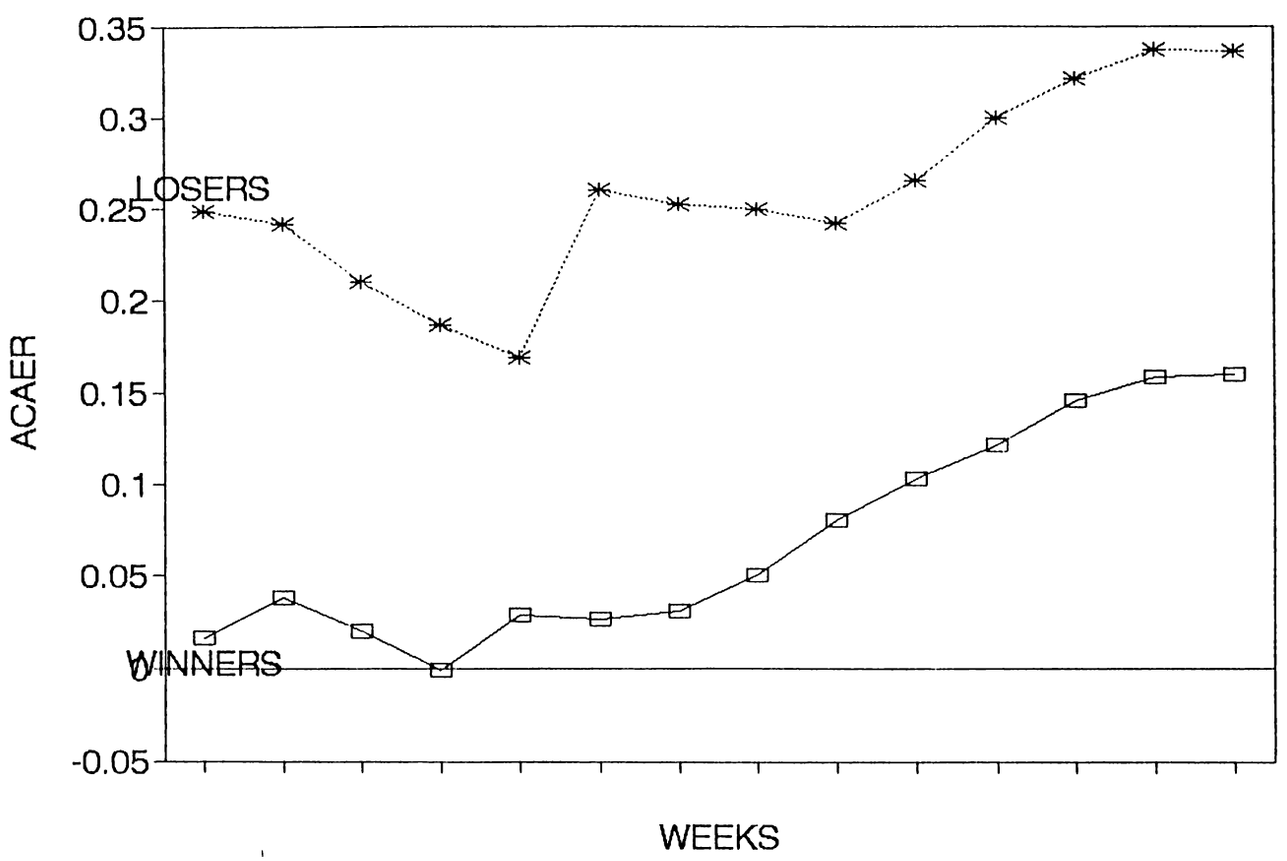
APPENDIX A.5

5 STOCK PORTFOLIO FOR PERIOD 11



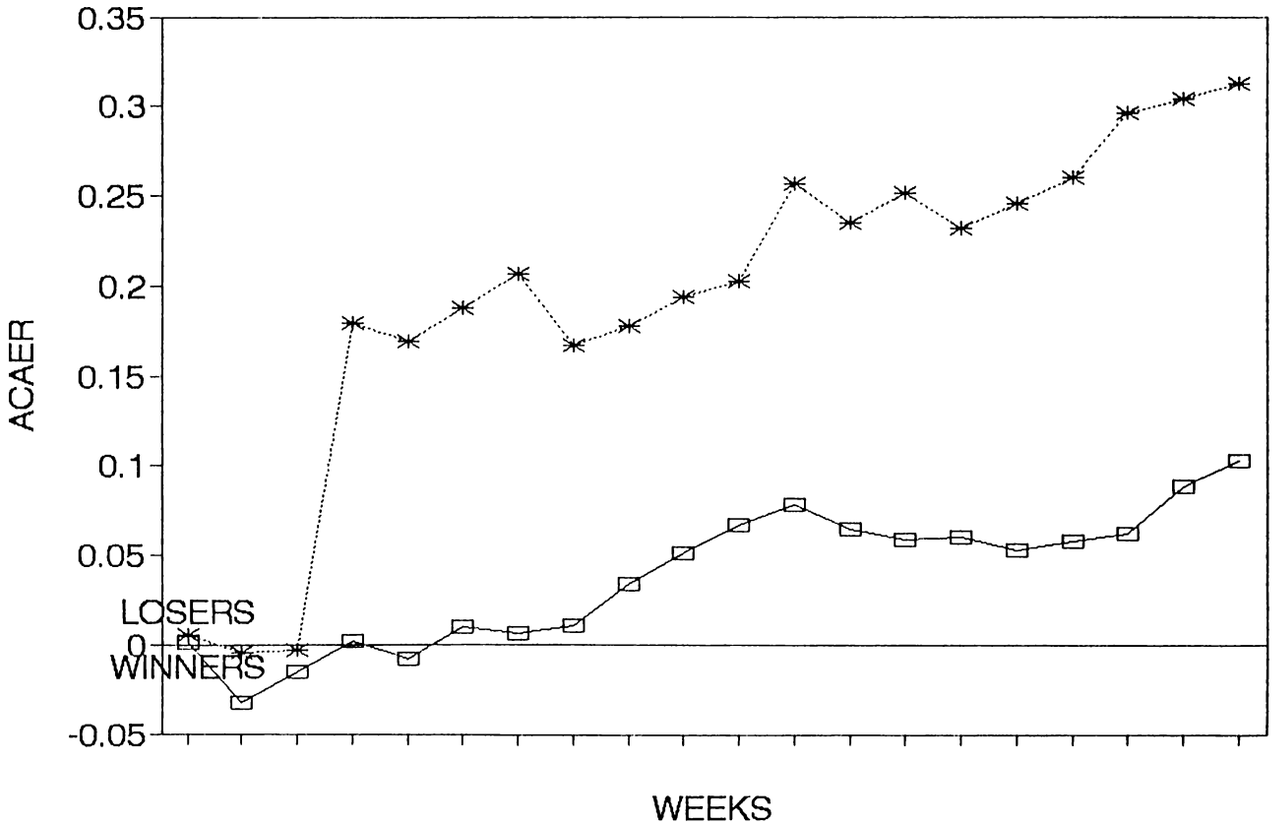
APPENDIX A.6

5 STOCK PORTFOLIO FOR PERIOD 14



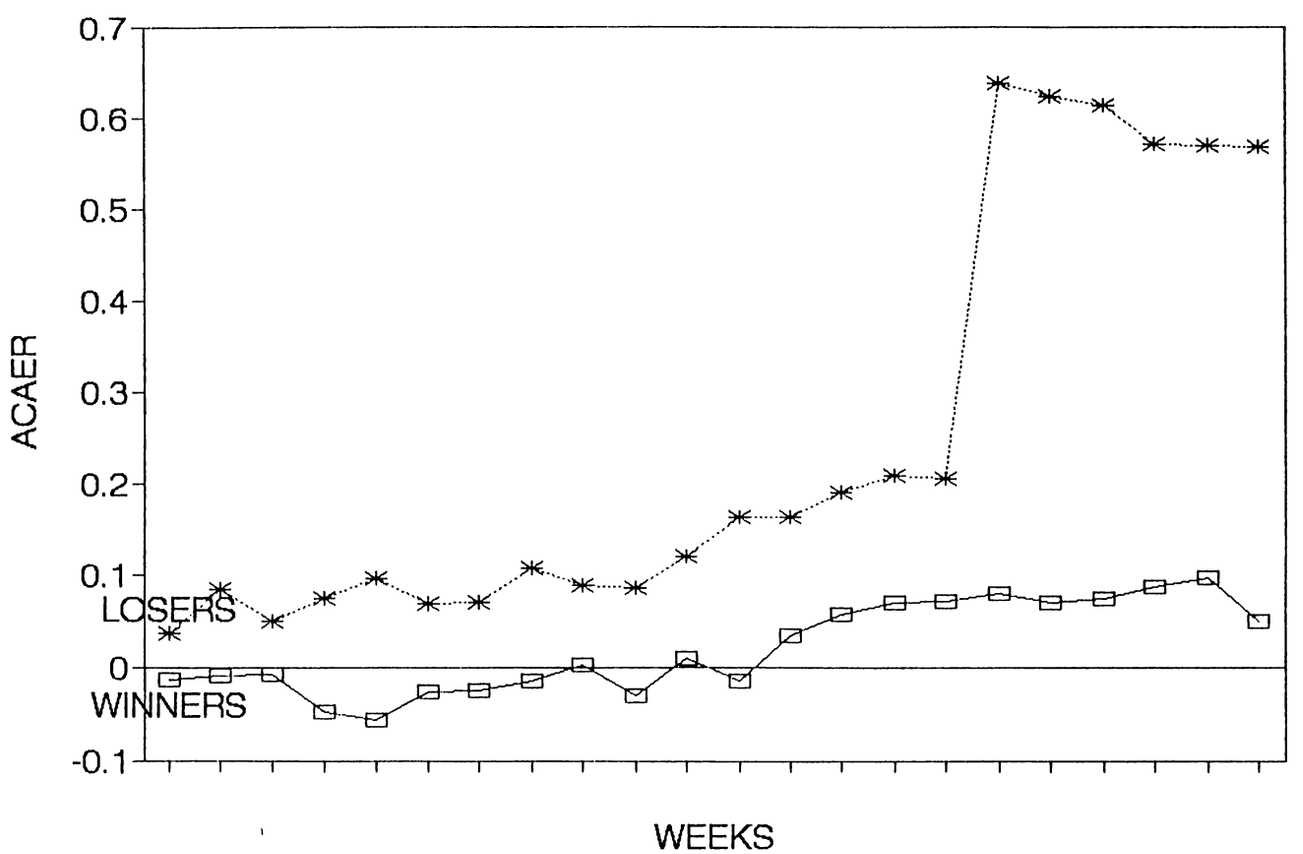
APPENDIX A.7

5 STOCK PORTFOLIO FOR PERIOD 20



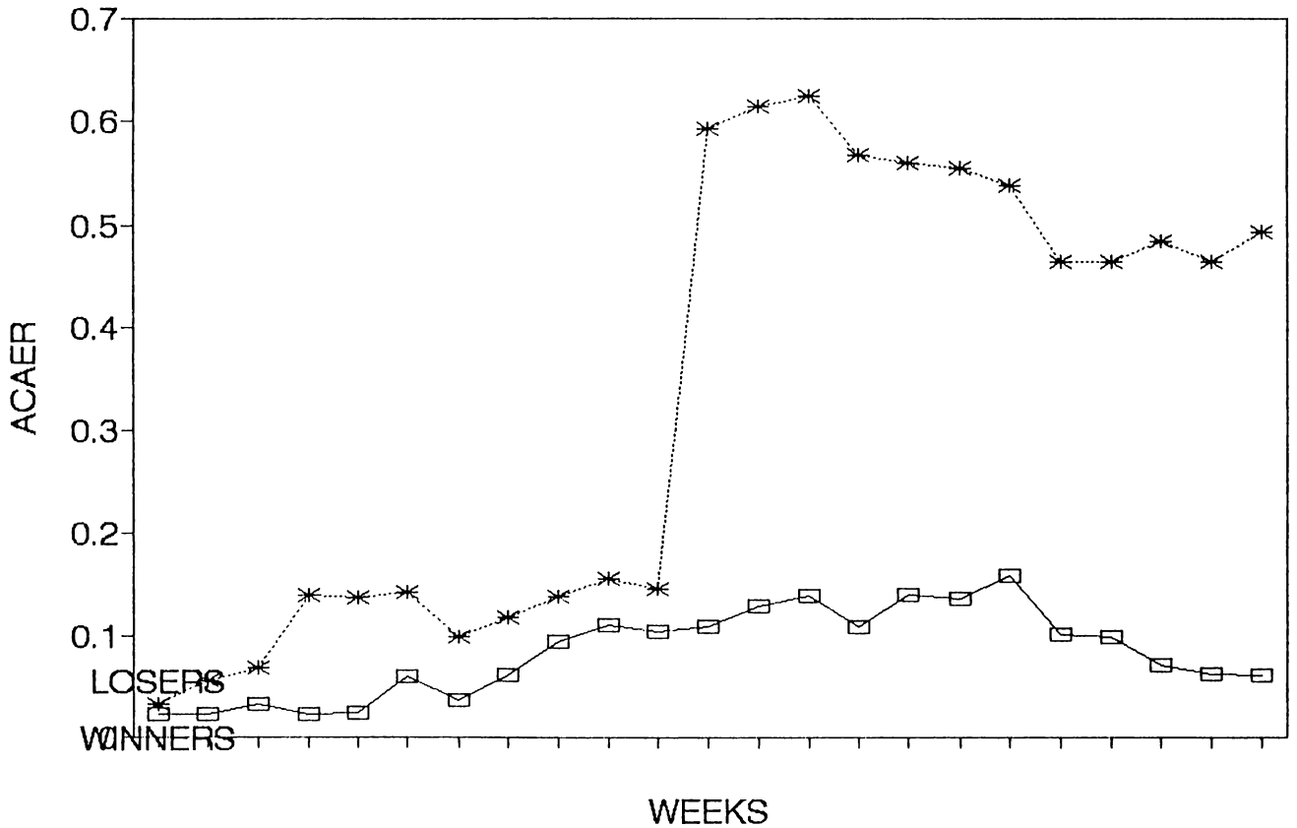
APPENDIX A.8

5 STOCK PORTFOLIO FOR PERIOD 22



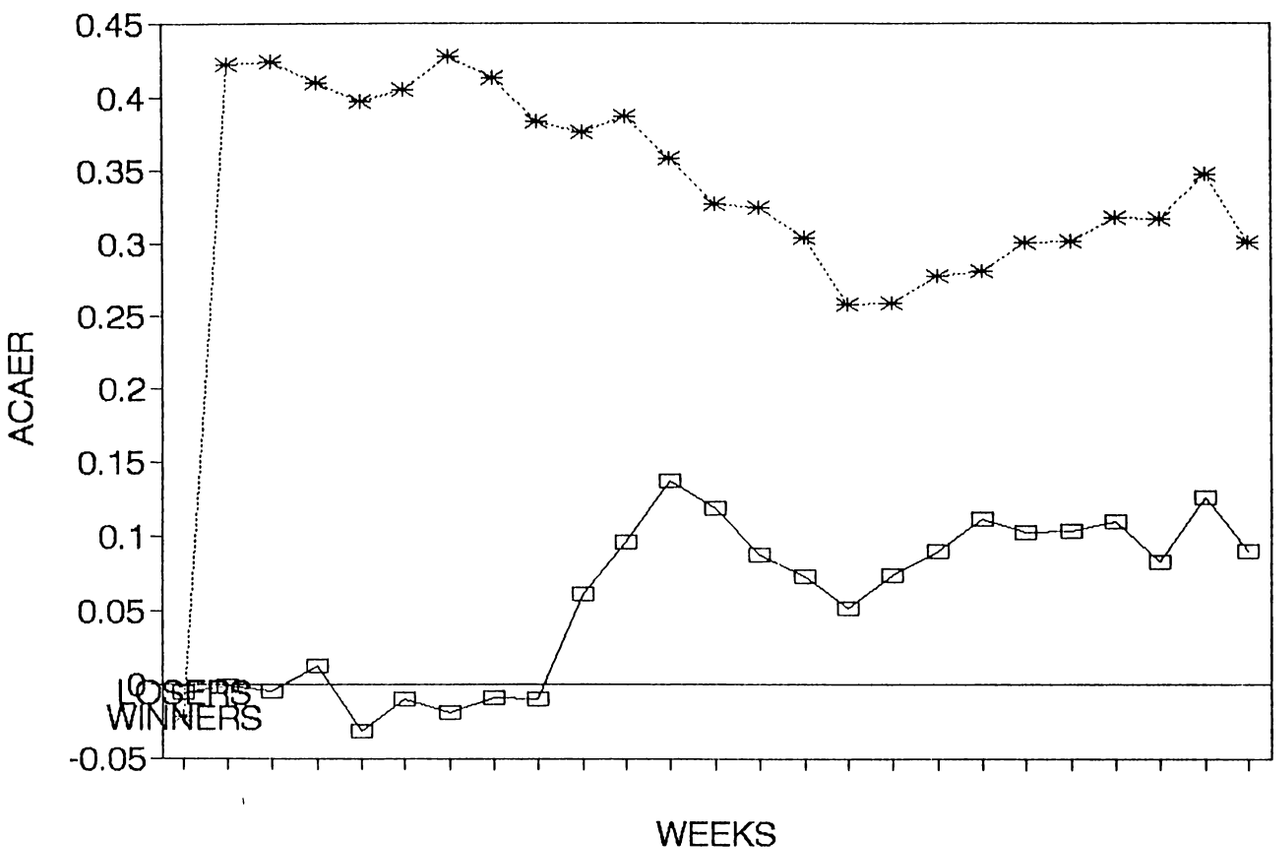
APPENDIX A.9

5 STOCK PORTFOLIO FOR PERIOD 23



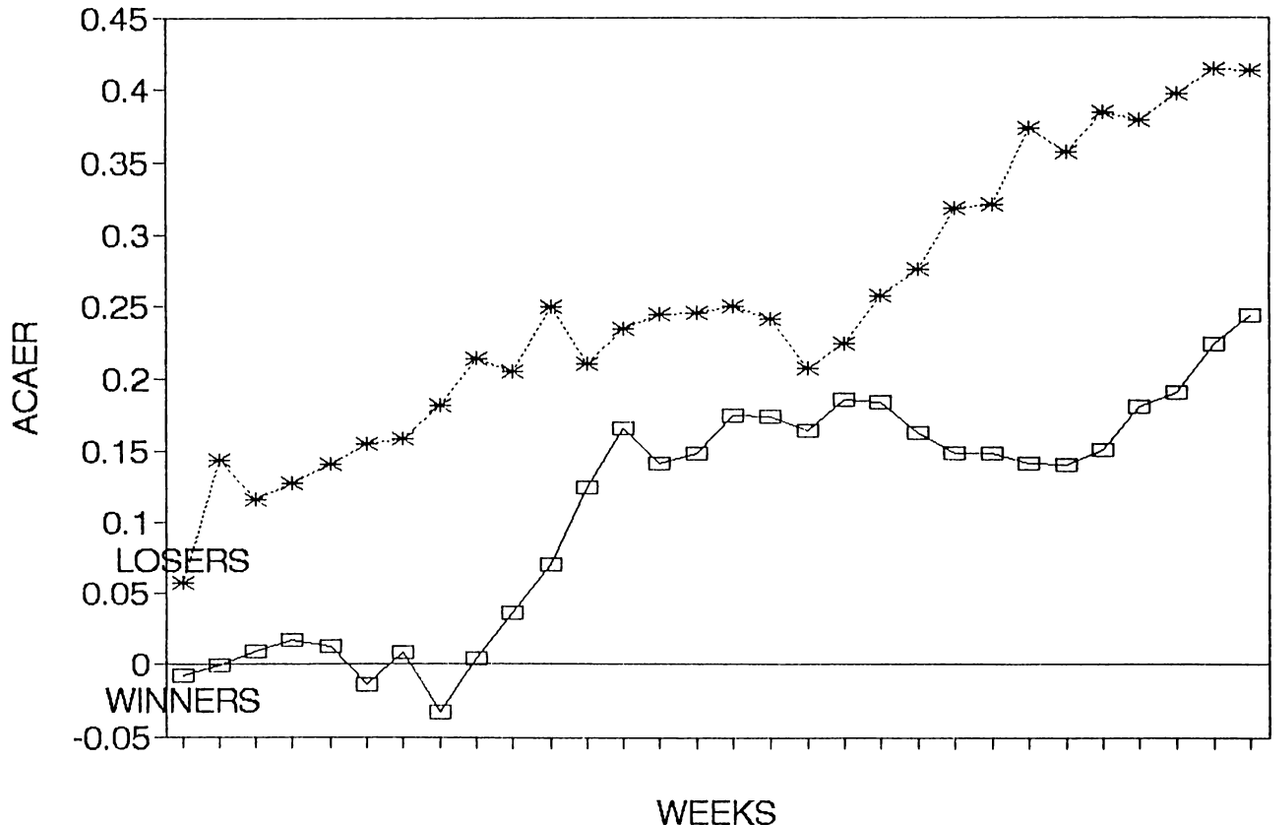
APPENDIX A.10

5 STOCK PORTFOLIO FOR PERIOD 25



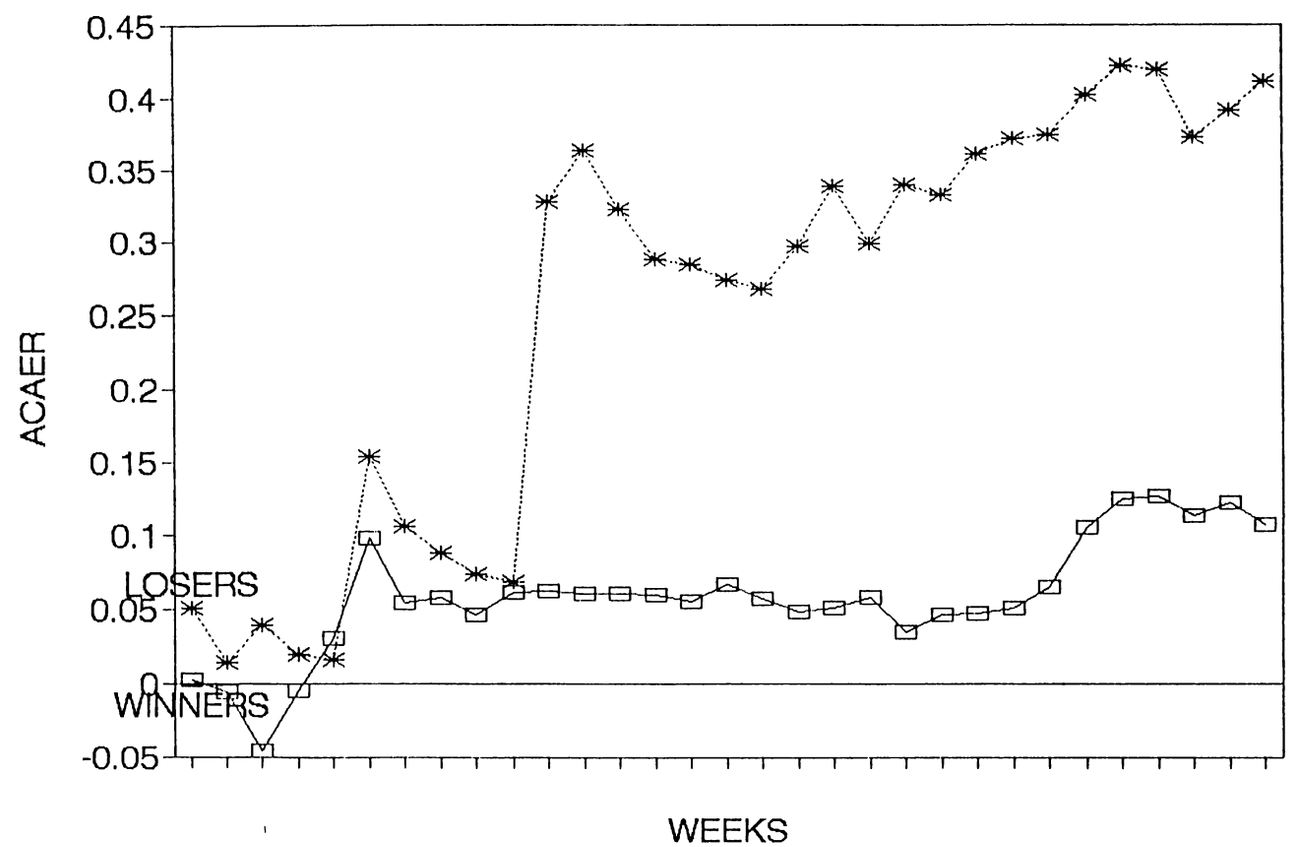
APPENDIX A.11

5 STOCK PORTFOLIO FOR PERIOD 30



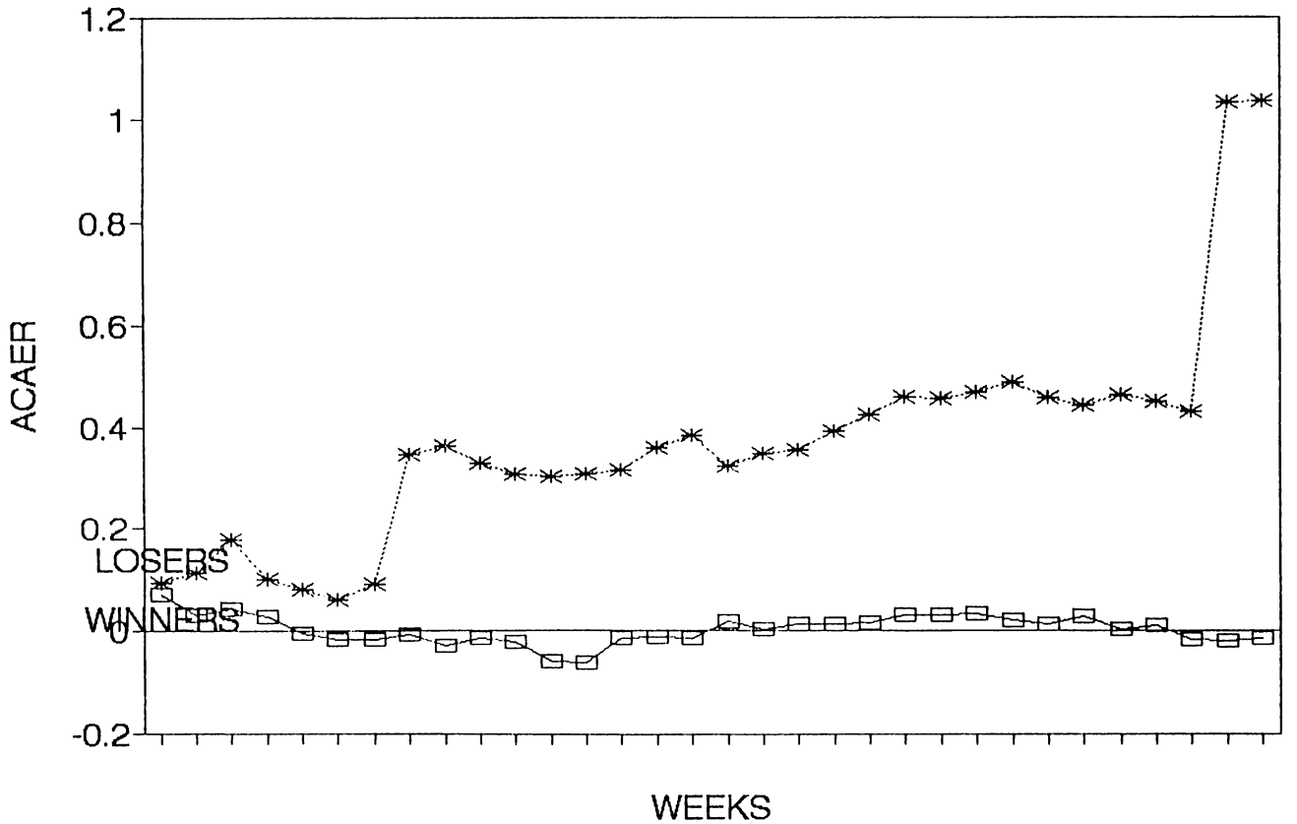
APPENDIX A.12

5 STOCK PORTFOLIO FOR PERIOD 31



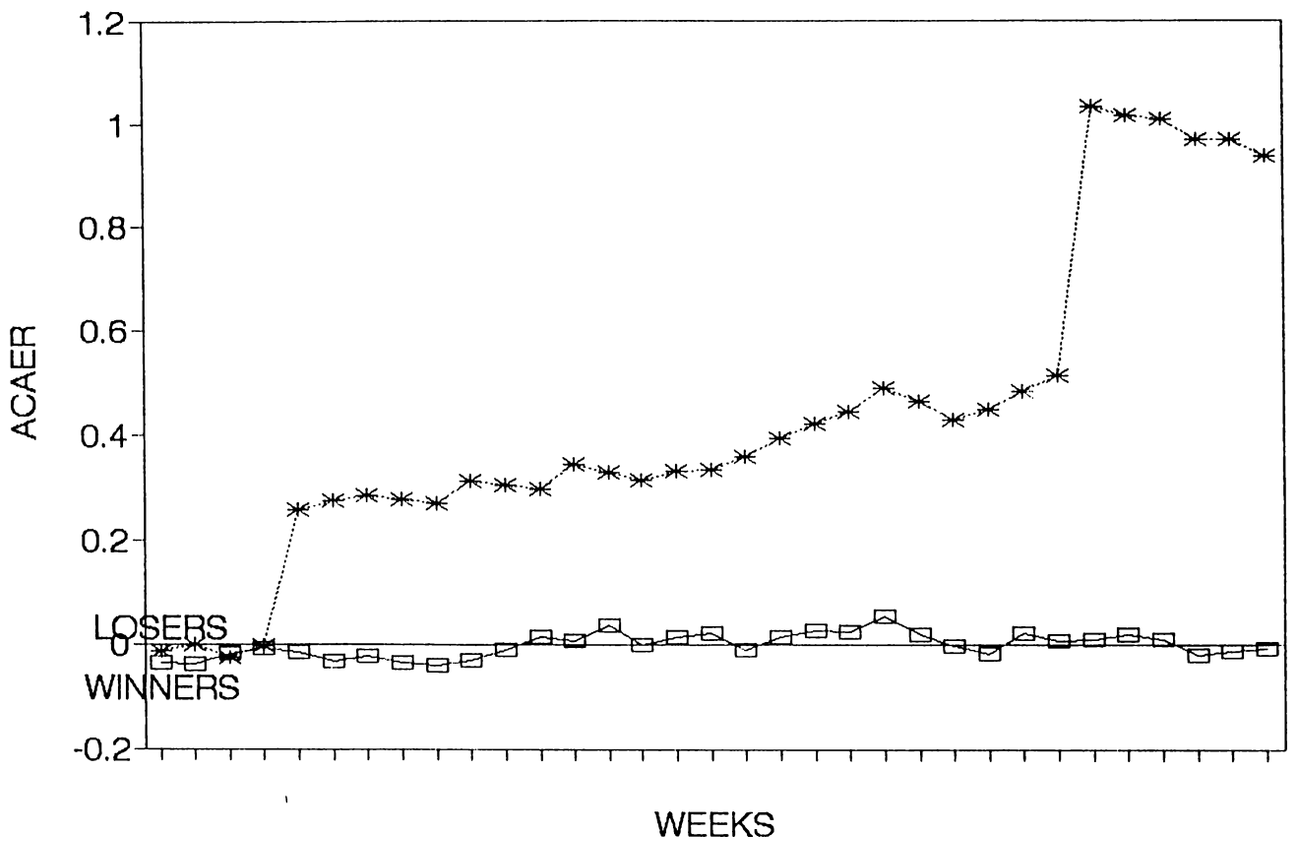
APPENDIX A.13

5 STOCK PORTFOLIO FOR PERIOD 32



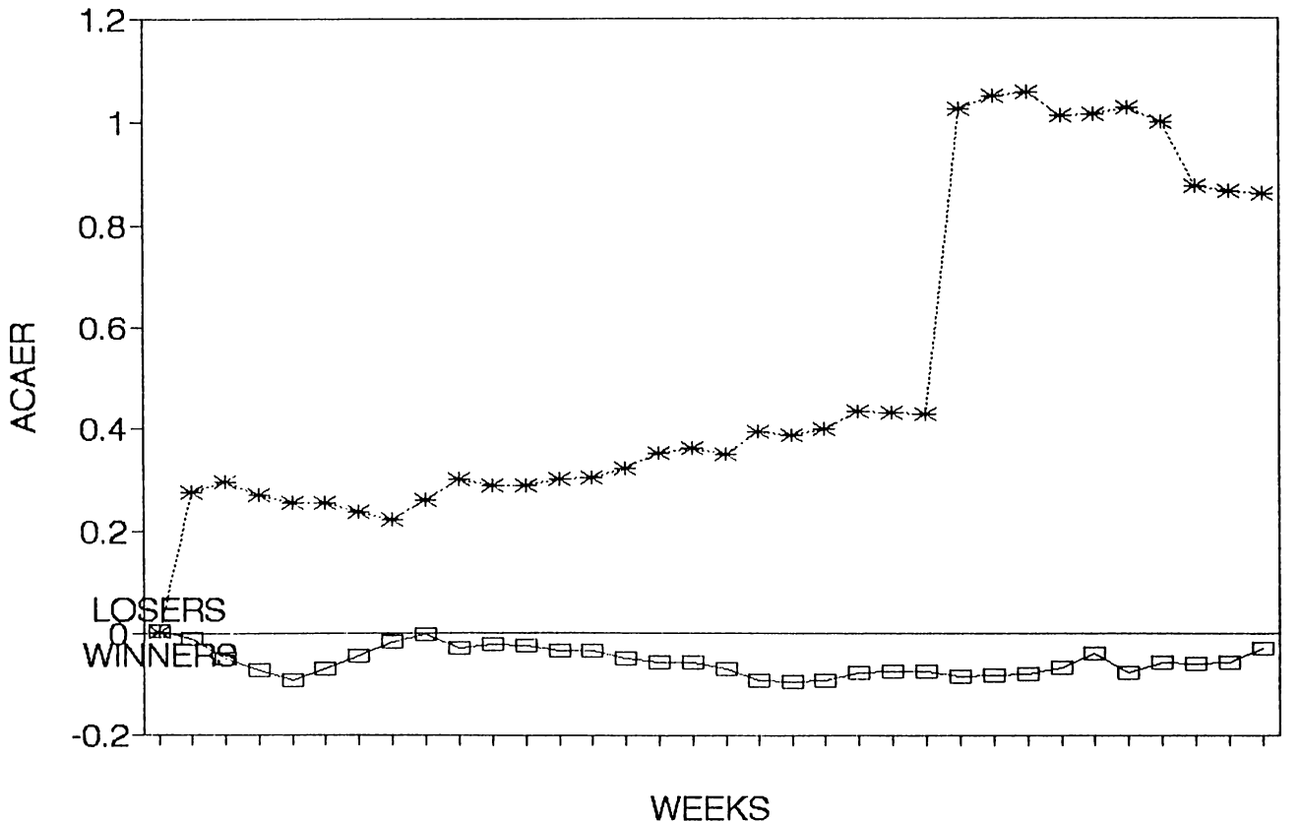
APPENDIX A.14

5 STOCK PORTFOLIO FOR PERIOD 33



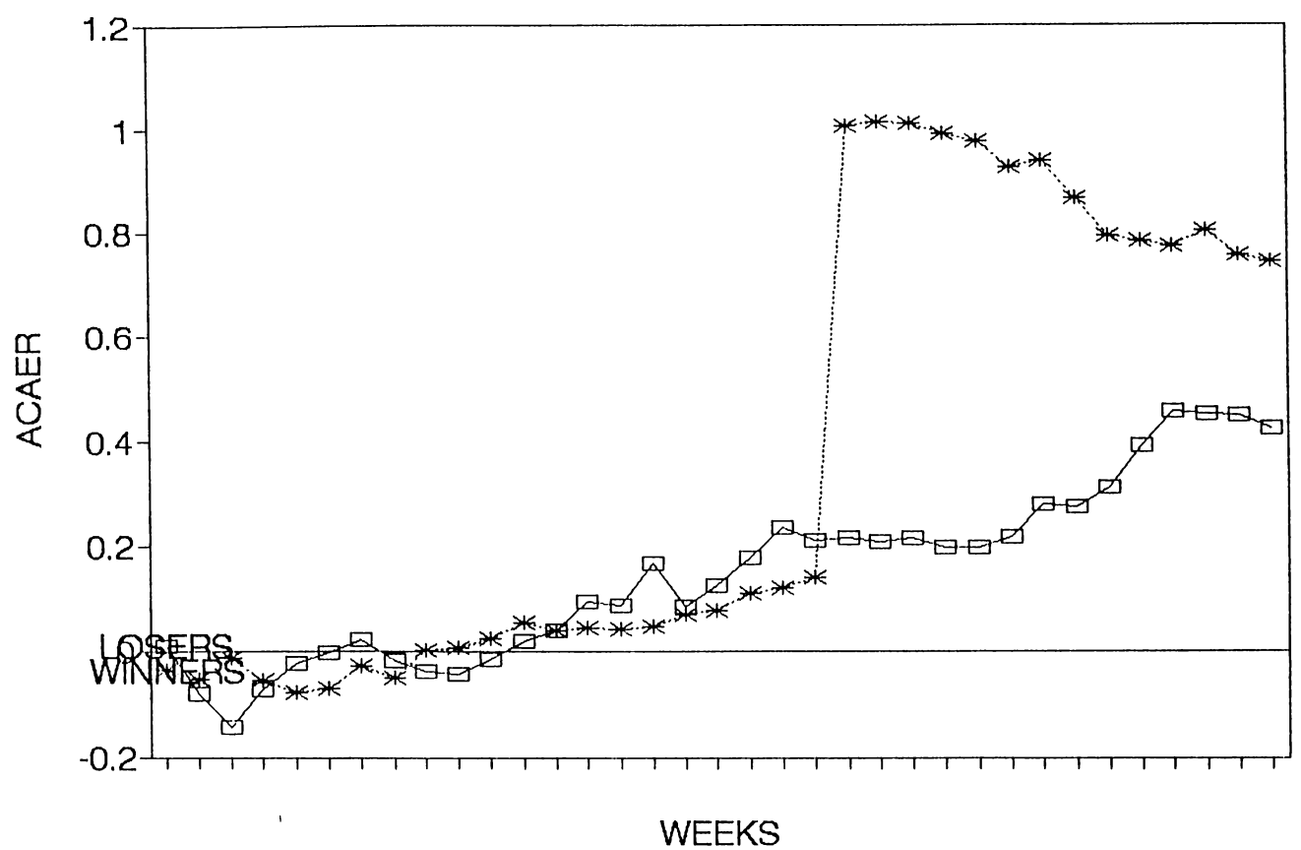
APPENDIX A.15

5 STOCK PORTFOLIO FOR PERIOD 34



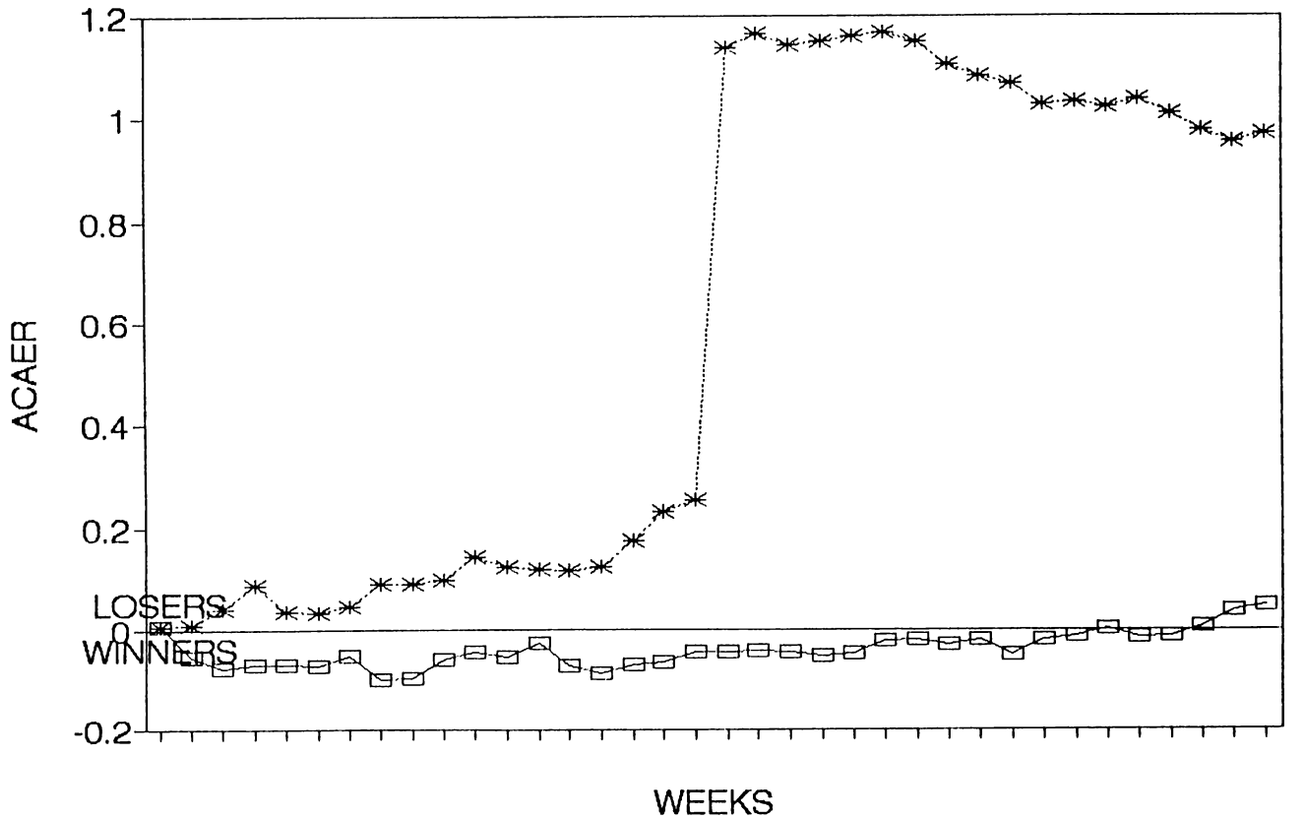
APPENDIX A.16

5 STOCK PORTFOLIO FOR PERIOD 35



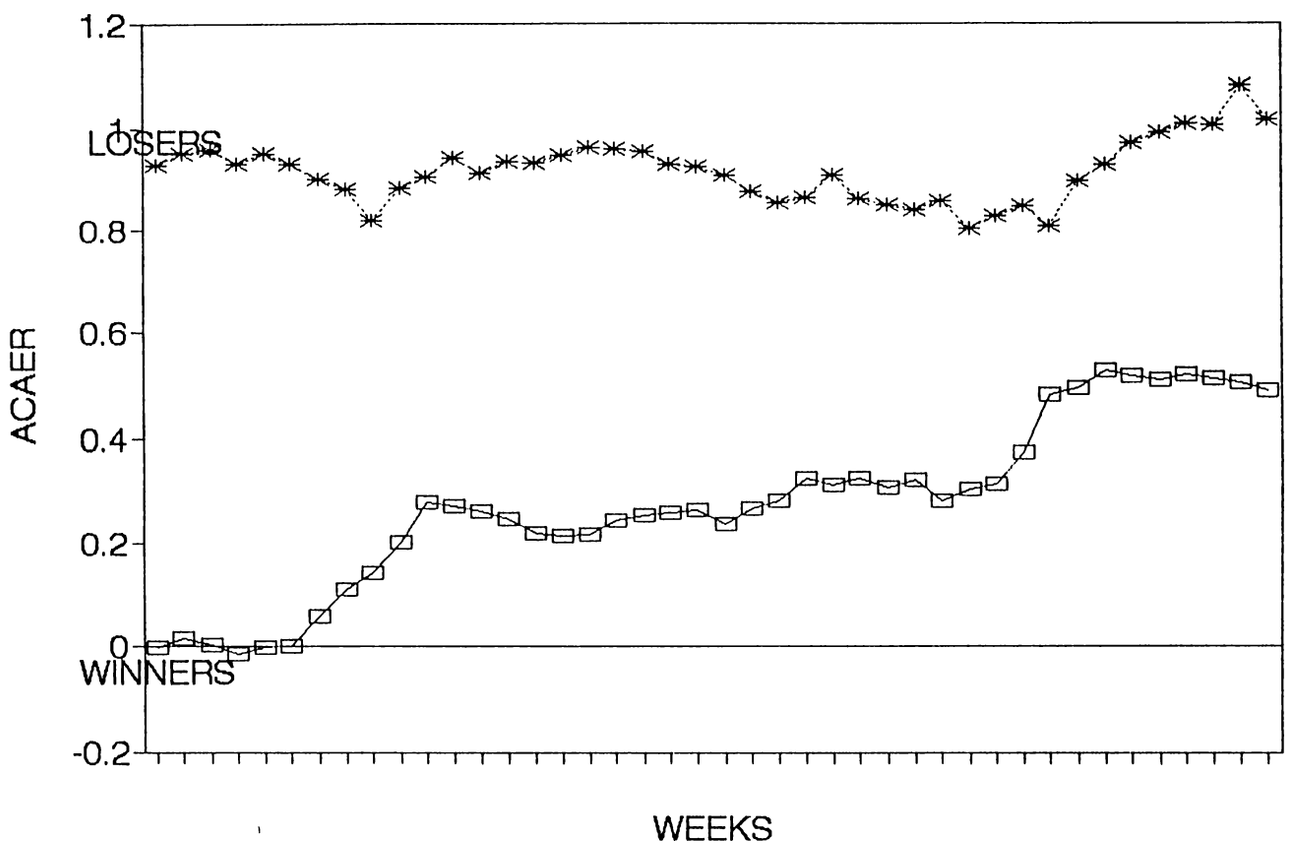
APPENDIX A.17

5 STOCK PORTFOLIO FOR PERIOD 36



APPENDIX A.1

5 STOCK PORTFOLIO FOR PERIOD 42



APPENDIX B

APPENDIX B

T VALUES & ACAER DIFFERENCES FOR 5 STOCK PORTFOLIO

period	t values	ACAER DIF.
1	0.987774	0.008566
2	1.25671	0.013661
	1.122865	0.018019
3	-0.61241	-0.00786
	-0.61217	-0.01129
	-0.37602	-0.00786
4	0.421949	0.007095
	1.336867	0.032524
	1.460143	0.103658
	1.660696	0.116829
5	-0.0101	-0.00015
	-0.22427	-0.00518
	-0.03086	-0.00078
	0.175757	0.005317
	0.639876	0.020894
6	1.308901	0.141063
	1.421719	0.154658
	1.303738	0.144244
	1.332291	0.145299
	1.224592	0.135346
	1.434315	0.159178
7	1.4346	0.030891
	1.644118	0.049604
	2.237261	0.085368
	1.6515	0.061031
	1.744683	0.066671
	1.941288	0.078098
	2.124014	0.086318
8	-2.73386	-0.05946
	-1.00903	-0.03514
	0.344453	0.015194
	0.350911	0.020746
	-0.11073	-0.00607
	-0.1003	-0.00476
	-0.64317	-0.03288
	-0.11246	-0.00595
9	0.690201	0.014421
	0.213867	0.007079
	0.844966	0.032802
	0.310785	0.013962
	0.393841	0.016348
	0.250715	0.013025
	-0.06781	-0.00338
	-0.89886	-0.05589
	-0.37728	-0.02294
10	2.171577	0.042575
	2.155779	0.064344
	1.266666	0.051425
	0.710003	0.041598
	0.405108	0.025479
	0.019086	0.001224
	-0.26907	-0.01987
	-0.12699	-0.00883
	-0.46964	-0.03451
	-0.72932	-0.05238
11	0.940046	0.026657
	0.890248	0.033874
	0.702322	0.029696
	0.250918	0.009996
	1.694364	0.130226
	1.895016	0.13965
	1.510718	0.089372
	1.641223	0.102902
	1.843019	0.120334
	1.184656	0.081164
	0.922658	0.063196
12	-1.06142	-0.02828
	-0.53384	-0.02127
	-0.39988	-0.01901
	0.077823	0.004023
	-0.50175	-0.03341
	-0.53601	-0.03951
	-1.22865	-0.09864
	-1.43254	-0.11293
	-1.42428	-0.13686
	-1.04526	-0.09664
	-0.74046	-0.07767
	-0.68713	-0.07341
13	2.678597	0.069366
	2.352652	0.072103
	1.847545	0.080492
	0.979254	0.051695
	0.100337	0.005551
	-0.31645	-0.01747
	-0.23161	-0.01428
	-0.55243	-0.03994
	-0.31956	-0.02506
	0.848402	0.19081
	0.85374	0.192034
	0.963297	0.214347
	1.332913	0.300176
14	0.872813	0.232352
	0.761229	0.20347
	0.69777	0.19036
	0.687146	0.187441
	0.510913	0.140692
	0.845599	0.234182
	0.806653	0.222195
	0.728248	0.199909
	0.616124	0.161789
	0.604801	0.162869
	0.654445	0.178784
	0.640361	0.175478
	0.700235	0.178903
	0.674963	0.17667
15	-0.52868	-0.02515
	-0.13918	-0.00961
	0.443392	0.037042
	-0.01535	-0.0011
	-0.44118	-0.03078
	-0.67612	-0.04385
	-0.10236	-0.00615
	0.38594	0.022795
	0.152813	0.009868
	0.366582	0.02265
	0.325418	0.020875
	0.768074	0.048443
	0.661925	0.03989
	0.520192	0.035505
	0.643009	0.041808
16	0.773678	0.015085
	0.066888	0.002472
	0.322157	0.017184
	0.31349	0.016566
	0.454816	0.031682
	0.1706	0.013016
	0.304704	0.025962
	0.212001	0.01629
	-0.00487	-0.0004
	0.326178	0.025084
	-0.5136	-0.03258
	-0.6867	-0.0438
	-0.80784	-0.04769
	-1.48046	-0.08571
	0.825401	0.227802
	0.659536	0.18485
17	0.883914	0.019481
	-0.27386	-0.01485
	-0.16932	-0.00785
	-0.93116	-0.04257
	-0.45105	-0.02582
	-0.709	-0.05956
	-0.79351	-0.04955
	0.771706	0.232093
	0.834624	0.248207
	0.870125	0.2513
	0.768853	0.222169
	0.800534	0.231117
	0.877907	0.250526
	0.864771	0.247228
	0.782195	0.223149
	0.808496	0.230933
	0.743976	0.214334
18	0.467484	0.021453
	0.260225	0.012077
	0.403597	0.028775
	0.622374	0.049435
	0.64337	0.056962
	0.888932	0.082862
	0.534231	0.065342
	0.06913	0.007826
	-0.02846	-0.00348
	-0.3671	-0.04611
	-0.39818	-0.05948
	-0.3699	-0.05264
	-0.53376	-0.07496
	0.418705	0.084614
	0.44626	0.08566
	0.486075	0.08041
	0.427816	0.063184
	0.288221	0.042723
19	-0.24915	-0.00844
	-0.36261	-0.02025
	-0.09551	-0.0053
	-0.32485	-0.02384
	-1.4569	-0.07966
	-1.84221	-0.10843
	-1.06295	-0.0771
	-0.53899	-0.04337
	0.792693	0.137999
	0.75223	0.125228
	0.493229	0.075947
	0.408308	0.05786
	0.40542	0.053474
	0.650203	0.10023
	0.640639	0.107598
	0.457666	0.080866
	0.514514	0.097859
	0.460674	0.084555
	0.682604	0.122626
20	0.125695	0.003765
	0.570132	0.02762
	0.376424	0.011823
	1.073379	0.178131
	1.04217	0.177884
	1.043622	0.17851
	1.373814	0.200528
	1.035958	0.157009
	0.934113	0.145381
	0.889756	0.143972
	0.774742	0.135944
	0.997783	0.177905
	0.967767	0.170539
	1.134921	0.192763
	1.003422	0.172639
	1.068631	0.193238
	1.033967	0.202393
	1.136296	0.233928
	1.02932	0.215161
	1.00821	0.20929
21	1.360686	0.027758
	2.900637	0.103243
	2.469228	0.17347
	1.980846	0.065828
	1.034413	0.044214
	0.376038	0.029564
	0.250148	0.015954
	0.697144	0.02917
	1.093253	0.048636
	1.134431	0.059117
	1.410118	0.097976
	0.552	0.046548
	-0.18096	-0.01913
	-0.33023	-0.03365
	0.030666	0.002982
	-0.49392	-0.08145
	-0.18832	-0.02309
	-0.42976	-0.06705
	-0.20223	-0.03366
	-0.50502	-0.09412
	-0.63367	-0.11303
22	2.632459	0.049519
	2.367869	0.093534
	1.192526	0.056872
	1.563624	0.12153
	2.208436	0.151955
	1.180867	0.094271
	1.460607	0.093218
	2.109945	0.121958
	1.436809	0.085531
	1.831573	0.115448
	2.730562	0.110683
	3.197527	0.177139
	2.032199	0.127402
	2.2234	0.132185
	1.948611	0.139123
	2.486783	0.133384
	1.352128	0.557661
	1.314351	0.554608
	1.308866	0.539505
	1.197675	0.483468
	1.169349	0.473407
	1.291114	0.517922
23	0.598729	0.009912
	0.720594	0.034041
	0.806662	0.036726
	1.412248	0.117818
	1.43415	0.114533
	0.724957	0.083443
	0.468487	0.062337
	0.378269	0.055684
	0.33346	0.044126
	0.364857	0.046027
	0.318343	0.041384
	1.258982	0.483516
	1.267498	0.485061
	1.300733	0.484213
	1.241228	0.459283
	1.137234	0.420342
	1.152147	0.419469
	1.055988	0.380872
	1.035079	0.364209
	1.075214	0.365906
	1.232846	0.413156
	1.24964	0.402321
	1.275129	0.433447

APPENDIX B

T VALUES & ACAER DIFFERENCES FOR 5 STOCK PORTFOLIO

period	t values	ACAER DIF.
24	-0.381584	-0.028801
	0.0881875	0.0049261
	-0.038799	-0.003134
	-0.524759	-0.047488
	-0.582378	-0.062112
	-0.096377	-0.009276
	1.0104953	0.4295136
	0.9991502	0.4298212
	0.9139623	0.3853106
	1.0404988	0.4091633
	0.9506984	0.3760953
	0.9164761	0.3649635
	0.9129954	0.3429583
	0.7804217	0.2811012
	0.7158877	0.2449849
	0.5317643	0.1936175
	0.4792773	0.1762863
	0.3890503	0.1525971
	0.530994	0.1979843
	0.6593853	0.2510185
	0.7641077	0.2853565
	0.7850755	0.2810323
	0.8164402	0.3013666
	0.8184234	0.293458
25	-0.320113	-0.016091
	0.9472122	0.4233357
	0.9439978	0.4277543
	0.881629	0.3979094
	0.9944711	0.426253
	0.9714869	0.4152318
	1.1014265	0.4464199
	1.0649759	0.4216135
	1.087181	0.3934766
	0.940061	0.3151321
	0.8391979	0.291109
	0.6294758	0.2212777
	0.5517576	0.2086453
	0.6583465	0.2373446
	0.6081882	0.2311387
	0.5509715	0.2067454
	0.4969012	0.1852293
	0.5024978	0.1869257
	0.4685178	0.170194
	0.5481684	0.197998
	0.5536293	0.1983638
	0.6001978	0.2080268
	0.6666541	0.2344676
	0.6196944	0.221318
	0.5714236	0.2101642
26	0.0219241	0.0004526
	-0.96804	-0.022523
	-1.021849	-0.050437
	-0.790188	-0.093411
	-1.19385	-0.156668
	-1.263047	-0.178499
	-1.048453	-0.19601
	-1.106812	-0.20102
	-1.088829	-0.187027
	-1.051055	-0.171324
	-0.987244	-0.150034
	-1.216478	-0.154386
	-1.12232	-0.157436
	-0.997386	-0.150209
	-1.203562	-0.183271
	-1.345734	-0.205326
	-0.996664	-0.154277
	-1.0028	-0.16058
	-0.952995	-0.155082
	-1.233315	-0.238061
	-1.090081	-0.209854
	-1.221913	-0.214351
	-0.926159	-0.166789
	-1.029984	-0.173686
	-0.915685	-0.146965
	-0.737895	-0.110939
27	0.0039239	0.0002428
	-0.363505	-0.039124
	-0.438793	-0.037994
	-0.187278	-0.019305
	-0.101734	-0.008492
	0.0615233	0.00661
	0.3628346	0.0324666
	0.2224721	0.0197178
	-0.72353	-0.03882
	-0.531742	-0.023893
	-0.924556	-0.054764
	-1.812643	-0.126372
	-1.443791	-0.101349
	-1.499491	-0.094988
	-2.334237	-0.14183
	-1.778511	-0.138983
	-0.938855	-0.082677
	-1.246014	-0.075456
	-1.484291	-0.102138
	-1.026253	-0.076145
	-1.072904	-0.095026
	-0.971283	-0.09097
	-0.845454	-0.104664
	-0.861774	-0.12752
	-0.755164	-0.15822
	-0.367547	-0.109051
	-0.385259	-0.110023
28	0.3846933	0.0163776
	1.9779217	0.0679784
	1.3158045	0.0590681
	1.5718235	0.0470679
	1.0792657	0.0340464
	-0.33248	-0.02375
	-0.164508	-0.01028
	-0.439028	-0.024702
	-0.691742	-0.058189
	0.0509937	0.0029069
	-0.096552	-0.006949
	0.4478542	0.0280717
	0.0342522	0.0022117
	-0.299098	-0.017526
	1.3238069	0.0533436
	0.5615793	0.0565331
	0.4885613	0.0565356
	0.2172603	0.0304702
	-0.023397	-0.00338
	-0.386541	-0.068291
	-0.01042	-0.002352
	-0.213402	-0.050969
	-0.350991	-0.100477
	-0.215707	-0.060392
	-0.287968	-0.094454
	-0.213229	-0.07563
	-0.176468	-0.060102
	0.0070424	0.0020495
29	-0.560395	-0.031022
	-0.819819	-0.058023
	-0.87815	-0.10621
	-0.17621	-0.01273
	1.2405918	0.0544365
	-1.210468	-0.053453
	-0.857391	-0.050906
	-0.513556	-0.025265
	0.1893427	0.0096257
	0.3419995	0.0227285
	1.0316989	0.0611438
	1.0568476	0.0695471
	0.4408755	0.0240145
	0.4602789	0.031501
	0.0484421	0.0056613
	0.3075652	0.0517696
	0.2429321	0.0407985
	0.1313217	0.0252832
	0.2084578	0.0394731
	-0.095593	-0.021029
	-0.123351	-0.029196
	-0.096462	-0.026924
	0.0656867	0.016885
	0.3240788	0.0811884
	0.497974	0.1237779
	0.3721729	0.1038262
	0.4976761	0.1382056
	0.5103591	0.1406521
	0.5969964	0.1687059
30	1.2597658	0.0650365
	2.1048263	0.1442989
	1.5543532	0.1072569
	1.991518	0.1110404
	1.542452	0.128434
	1.5990941	0.1697037
	1.3957356	0.1510027
	2.1614685	0.21528
	1.8456547	0.2107024
	1.9318855	0.169631
	1.3930924	0.1800321
	0.6222931	0.0868847
	0.4218132	0.0685475
	0.6733918	0.1035293
	0.6588983	0.0977552
	0.5223073	0.0753851
	0.3956831	0.0669831
	0.2503091	0.04328
	0.2194342	0.0380367
	0.438918	0.0731272
	0.6629359	0.1131708
	1.1102601	0.1706891
	1.2500706	0.1734983
	1.4824537	0.2327644
	1.3496454	0.2173467
	1.4189049	0.2328392
	1.1376964	0.1974904
	1.2473199	0.2058843
	1.1905099	0.1892598
	1.1471412	0.1692119
31	2.1277033	0.0483003
	0.7525638	0.0194644
	2.19031	0.0850308
	0.4737369	0.0239225
	-0.267455	-0.014145
	0.7983793	0.0558824
	0.4624092	0.0513764
	0.1685804	0.0302892
	0.1588974	0.0276152
	0.0452546	0.007256
	1.1831349	0.2660919
	1.3823127	0.3040119
	1.3680736	0.2626324
	1.489311	0.2285554
	1.4344765	0.2298492
	1.4978296	0.2067159
	1.6568226	0.2109636
	1.9765857	0.2491331
	1.7664458	0.2882695
	1.5815984	0.2411545
	2.0868693	0.3049617
	1.7907334	0.2872789
	2.0008917	0.3141629
	2.0001811	0.3211307
	1.6927937	0.3097789
	1.5155826	0.2965421
	1.6276458	0.2972315
	1.4342803	0.2927062
	1.3056013	0.2598068
	1.5289842	0.2696691
	1.660776	0.3036098
32	0.3157021	0.021962
	0.9573949	0.0825092
	1.2638177	0.1346
	0.8582124	0.0718765
	0.8148954	0.0838789
	0.720786	0.076423
	0.9397221	0.10852
	1.6183482	0.3554275
	1.8310661	0.3955389
	1.5784391	0.3442206
	1.914645	0.3324135
	2.1697327	0.3624069
	2.2555923	0.3690153
	2.1715557	0.3295276
	2.2916382	0.3737363
	2.0122473	0.398984
	1.8347571	0.3047999
	1.9318897	0.3426877
	1.9008671	0.3446514
	1.986961	0.3822352
	1.9994862	0.4099726
	2.0270432	0.4316228
	1.906243	0.4284904
	1.8997627	0.4372035
	2.0025034	0.470063
	1.9525341	0.4475374
	1.7522634	0.4186674
	1.7997694	0.4622258
	1.740761	0.4429074
	1.6755206	0.4494996
	1.2967296	1.0531677
	1.2742155	1.0489388
33	0.3917386	0.0241403
	0.3938195	0.0386084
	-0.079046	-0.008431
	0.0329671	0.004547
	1.5829016	0.2709711
	1.7225408	0.3080706
	1.5790954	0.3073489
	1.8175694	0.3138145
	1.5139731	0.3115487
	1.6675438	0.3416763
	1.6263241	0.3148465
	1.2385811	0.2842165
	1.35082	0.3384424
	1.4405662	0.2909758
	1.3802637	0.3141141
	1.372934	0.3171986
	1.3499929	0.3141656
	1.4353559	0.37018
	1.4509415	0.381307
	1.4791229	0.3955588
	1.6296232	0.419307
	1.5784634	0.4362203
	1.7606295	0.4470916
	1.7295506	0.4333467
	1.7383727	0.4654678
	1.7552805	0.4618862
	2.0436603	0.507765
	1.4015928	1.0248992
	1.345003	0.9974769
	1.3591919	0.9993626
	1.406471	0.9907257
	1.4061761	0.9826981
	1.3532994	0.9440187

APPENDIX B

T VALUES & ACAER DIFFERENCES FOR 5 STOCK PORTFOLIO

period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.
34	-0.040457	-0.00102	36	0.0661702	0.0022676	38	-0.43029	-0.007677	40	-1.076323	-0.152954
	0.975108	0.2851792		1.3483928	0.0642385		0.1332549	0.0049902		-2.345624	-0.102058
	1.2112219	0.3447793		3.0993133	0.1218685		-0.59107	-0.019171		-1.196637	-0.094934
	1.2715804	0.3421382		2.6265996	0.1619136		-1.098725	-0.052534		-0.52537	-0.059415
	1.4762581	0.346804		3.3827069	0.1091257		-0.917343	-0.053056		-0.416681	-0.081041
	1.3274232	0.3240439		2.5879726	0.1058604		-0.081356	-0.00746		-0.27689	-0.046598
	1.0837961	0.2814048		3.1210881	0.1000958		-0.579915	-0.109882		0.8943109	0.8340112
	0.9458759	0.2396711		2.8906767	0.1915934		-0.630863	-0.076651		0.8801504	0.8397828
	1.0062971	0.2630036		3.1714014	0.1904839		-0.531194	-0.084208		0.8747939	0.8178572
	1.1892957	0.3297972		1.9140766	0.1586829		-0.561981	-0.119786		0.9462614	0.8548947
	1.256215	0.3099702		2.3972114	0.1884291		-0.742619	-0.181892		1.0469611	0.9089184
	1.2054854	0.3110237		1.9317777	0.1811232		-0.668544	-0.165042		1.2009063	0.9664147
	1.3427178	0.3357009		1.5343154	0.145667		0.8824185	0.7848584		1.2711822	0.9533067
	1.3323273	0.336369		3.0263028	0.1915848		0.9470345	0.8204721		1.3634129	0.9101029
	1.5186476	0.369421		2.1267456	0.2137344		1.0195274	0.8382256		1.2442373	0.7982012
	1.5978992	0.4073698		1.8529536	0.244758		1.0292197	0.7911053		1.1511417	0.7531895
	1.500614	0.4172881		2.1000229	0.2933166		1.0538018	0.7979791		1.06356	0.693417
	1.4427295	0.41859		2.0218407	0.2974398		1.0895594	0.8080242		1.0957883	0.7317969
	1.6565491	0.4850303		1.4082996	1.1809309		1.0450691	0.7756424		1.1507501	0.72107
	1.7635509	0.4781966		1.4424457	1.2073121		1.1113075	0.747972		1.1820095	0.7380886
	1.8861506	0.4906254		1.4135777	1.1864559		1.1158874	0.6960833		1.1818208	0.7373674
	1.9269542	0.5099648		1.4410671	1.2025146		1.1505648	0.7161212		0.993782	0.6352592
	1.9452754	0.5048325		1.4671284	1.2074431		1.0802404	0.6696499		1.0707165	0.6799817
	1.8921637	0.5008264		1.4884927	1.1895371		1.0093399	0.6658749		0.9556934	0.6447385
	1.3459537	1.1107822		1.4371905	1.1680699		1.0200692	0.6397231		0.8449224	0.5942779
	1.3928158	1.132078		1.387489	1.1346927		1.0288804	0.6710818		0.7916216	0.5578764
	1.4255878	1.1362786		1.41088	1.1011991		0.9710079	0.6136055		0.7642529	0.5119965
	1.3768707	1.0803448		1.4059668	1.1189635		0.9833228	0.5970826		0.7874834	0.5200297
	1.3399985	1.053498		1.3099183	1.046552		1.0507682	0.6176137		0.7058323	0.4870681
	1.4279726	1.1036141		1.2643108	1.0457495		1.0920825	0.627756		0.6528575	0.4411965
	1.3260966	1.0577271		1.337232	1.0202409		1.0163058	0.6139369		0.5423123	0.3799188
	1.1615508	0.9378571		1.3824728	1.0534442		0.979619	0.6068682		0.6189823	0.4304805
	1.1869585	0.9251595		1.3585722	1.0218056		0.8902938	0.5599518		0.4949008	0.3384601
	1.1355554	0.8944411		1.2502715	0.9697567		0.9296797	0.5680989		0.5525081	0.369157
				1.1336535	0.9154732		0.8236271	0.5526203		0.4956647	0.3381539
35	-1.769157	-0.045269		1.1839115	0.9187523		0.8874193	0.542557		0.4328054	0.2952663
	0.2629679	0.0282442					0.8079621	0.5326063		0.4771579	0.3286103
	1.6508687	0.1307989	37	1.9920494	0.1391333		0.6460486	0.4587879		0.5478953	0.3409136
	0.2727787	0.0167336		3.6025186	0.1035079					0.443195	0.2888961
	-0.416217	-0.055005		3.7357265	0.169214	39	-1.332387	-0.023853		0.3144056	0.2213877
	-0.63703	-0.066791		2.635597	0.1465536		-1.386894	-0.080601			
	-0.606477	-0.049569		1.6821748	0.1476067		-2.155703	-0.113154	41	-0.719413	-0.049074
	-0.471768	-0.03277		2.2129681	0.1597805		-1.195729	-0.217704		-0.68138	-0.084931
	0.4411239	0.0393704		2.0515164	0.1591248		-1.536362	-0.160809		-0.815263	-0.074977
	0.5796253	0.0486091		1.2591451	0.128458		-1.032049	-0.142687		0.9345802	0.8487281
	0.3995297	0.037887		1.3176038	0.1251058		-0.886098	-0.163242		0.9283101	0.8409828
	0.2910985	0.0359648		0.9266806	0.102245		-0.738406	-0.177706		0.9832498	0.8548653
	0.0091434	0.0014308		1.1811011	0.1014953		-0.585125	-0.136576		0.9778338	0.8325156
	-0.25903	-0.048479		0.7957684	0.0699871		0.7756655	0.7191683		0.977409	0.8282037
	-0.233087	-0.044943		0.8739394	0.084115		0.7860093	0.7363955		0.9561131	0.8023759
	-0.36019	-0.118637		0.3930685	0.0686512		0.8654078	0.7711255		0.9290502	0.7421125
	-0.055739	-0.015347		0.8894836	0.1418876		1.0150543	0.823171		0.919285	0.7061648
	-0.144116	-0.0478		1.2960933	1.0665314		1.1255052	0.8657118		0.879536	0.6158122
	-0.180784	-0.066311		1.3129492	1.0646618		1.1362973	0.8610851		0.8187058	0.6145986
	-0.27803	-0.116539		1.3556463	1.064513		1.0314937	0.7648151		0.7068345	0.556989
	-0.164038	-0.068502		1.4759063	1.068414		1.0499282	0.7285226		0.7585171	0.6030643
	0.9777931	0.7931164		1.4385594	1.0589903		1.034475	0.6802883		0.7274277	0.5571405
	0.9959195	0.8062019		1.5011867	1.0621683		0.9037613	0.6227441		0.7657018	0.5924045
	1.0150486	0.7989685		1.5371045	1.0731188		0.7715098	0.544375		0.8331482	0.6035332
	1.0864862	0.7964809		1.854431	1.1259516		0.7690931	0.5517626		0.8499156	0.5782688
	1.0451993	0.7800625		1.7950376	1.039506		0.7518923	0.5297609		0.8320008	0.5831986
	0.9374806	0.7097148		1.6486404	1.009951		0.71727	0.5194998		0.728754	0.5193105
	0.8359045	0.6595595		1.7306227	0.9903414		0.7714602	0.5425206		0.7277556	0.5319659
	0.7627421	0.5923624		1.6616721	1.0245879		0.7029294	0.5109631		0.7112988	0.5374927
	0.6396966	0.4834384		1.606703	0.9409958		0.6961999	0.5106268		0.6236124	0.4646806
	0.4821385	0.3930839		1.5301324	0.9271249		0.5982768	0.4479447		0.6024848	0.4571108
	0.3983274	0.3170746		1.6398045	0.9243254		0.5749994	0.4316404		0.6452864	0.4780141
	0.4333729	0.3527692		1.6012707	0.8911129		0.5732261	0.4256081		0.6179302	0.4485669
	0.3918747	0.3082735		1.5218752	0.8917653		0.4990868	0.3673465		0.5696625	0.4241899
	0.3926269	0.3209445		1.4586712	0.8948582		0.4784228	0.35623		0.5696237	0.4433755
				1.3290876	0.865936		0.380153	0.2870497		0.4302075	0.3147559
				1.423856	0.8843783		0.4310582	0.3111303		0.534131	0.3893096
				1.2845337	0.8377826		0.3336725	0.2528372		0.500836	0.3775072
				1.4399556	0.88556		0.336288	0.253098		0.637864	0.472098
							0.2480808	0.1831226		0.5497735	0.4138081
							0.197331	0.149246		0.4352925	0.344459
							0.2599899	0.1986486		0.4524065	0.3869066
							0.3552006	0.2454846		0.3759481	0.3401653
										0.3526408	0.3591347
										0.3063343	0.3122301
										0.3449475	0.3573951
										0.4215398	0.4362173

APPENDIX B

T VALUES & ACAER DIFFERENCES FOR 5 STOCK PORTFOLIO

period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.
42	1.063928	0.932502	43	1.20707	0.047309	44	-1.0373	-0.06109	45	-0.25441	-0.0217
	1.094978	0.936795		1.115375	0.068037		-1.22937	-0.12748		-0.83689	-0.10365
	1.145013	0.958461		0.507906	0.044938		-1.16226	-0.23168		-0.49163	-0.07423
	1.176612	0.94609		-0.19103	-0.02499		-1.19897	-0.24518		-0.72118	-0.07675
	1.216146	0.953282		-0.34606	-0.05218		-1.25122	-0.34139		-0.59499	-0.06784
	1.209834	0.930328		-0.73525	-0.17501		-1.20651	-0.33069		0.088477	0.004843
	1.16691	0.844592		-0.83758	-0.18098		-1.247	-0.30446		2.101214	0.099472
	1.074519	0.771459		-0.71311	-0.21947		-0.86385	-0.2382		1.400547	0.092844
	1.025829	0.677936		-0.47315	-0.16494		-0.5494	-0.1487		0.731057	0.080832
	0.997305	0.682051		-0.26332	-0.09881		-0.43614	-0.12662		0.600529	0.072867
	0.923405	0.628744		-0.18784	-0.07061		-0.42628	-0.12795		0.526237	0.079901
	0.983841	0.671757		-0.01458	-0.00486		-0.43897	-0.15387		0.437637	0.078501
	1.016686	0.652179		0.115381	0.038484		-0.3798	-0.13079		0.560728	0.112968
	1.062996	0.689155		0.118974	0.043212		-0.30843	-0.11341		0.565149	0.106741
	1.131261	0.717048		0.158643	0.065092		-0.35816	-0.13171		0.306732	0.055064
	1.210653	0.734955		0.100706	0.039082		-0.4347	-0.15386		-0.06552	-0.01057
	1.235129	0.748369		0.068362	0.025653		-0.5563	-0.16835		-0.08421	-0.00918
	1.200411	0.717408		-0.07232	-0.02493		-0.84082	-0.23767		-0.10226	-0.01042
	1.079791	0.701746		-0.12254	-0.03875		-0.8873	-0.29251		0.206699	0.021454
	1.032997	0.672342		0.022624	0.006886		-0.78047	-0.23887		-0.02527	-0.00154
	1.058844	0.663		0.036039	0.011817		-0.98605	-0.27928		1.151938	0.032097
	1.029806	0.672904		-0.30607	-0.09719		-1.03826	-0.2698		0.271532	0.014274
	0.913636	0.612298		-0.23398	-0.06648		-1.03892	-0.23864		1.731353	0.03821
	0.839024	0.572558		-0.37515	-0.10173		-0.95387	-0.21945		-0.04115	-0.00201
	0.805014	0.540055		-0.20271	-0.05138		-1.08593	-0.24436		-0.87636	-0.09253
	0.870537	0.597959		-0.2406	-0.05329		-1.34271	-0.26808		-0.42312	-0.08099
	0.804839	0.539112		0.251557	0.047664		-1.97511	-0.32104		-0.7831	-0.14495
	0.802677	0.544226		0.158263	0.027279		-1.74713	-0.37834		-1.15593	-0.26148
	0.771148	0.518038		0.280281	0.047444		-1.55916	-0.34627		-0.95477	-0.19723
	0.915131	0.576466		-0.00558	-0.00109		-1.40526	-0.37318		-0.88865	-0.22465
	0.765698	0.498148		-0.17384	-0.05029		-1.69523	-0.50017		-1.14829	-0.29726
	0.782163	0.512212		-0.05941	-0.02062		-1.97281	-0.50052		-0.7346	-0.24971
	0.669049	0.473521		-0.46041	-0.17517		-1.62248	-0.4876		-0.69349	-0.1924
	0.397615	0.324722		-0.43536	-0.19569		-1.53038	-0.44285		-0.7762	-0.23134
	0.429655	0.403055		-0.13439	-0.05721		-1.42455	-0.45582		-0.72868	-0.22131
	0.437256	0.4007		-0.15785	-0.06891		-1.50161	-0.47787		-0.75698	-0.22646
	0.500261	0.45547		-0.13654	-0.0591		-1.50316	-0.49941		-0.78454	-0.21249
	0.523941	0.483908		-0.1212	-0.05601		-1.4004	-0.45495		-0.7089	-0.18873
	0.524672	0.490163		-0.13937	-0.06189		-1.25369	-0.42714		-0.88535	-0.26336
	0.542191	0.495196		-0.07483	-0.03527		-1.52151	-0.4871		-0.87804	-0.24977
	0.608682	0.576774		-0.1462	-0.06972		-1.6177	-0.48812		-0.81373	-0.2422
	0.545786	0.525836		-0.09757	-0.0461		-1.53051	-0.49088		-1.09244	-0.27579
				-0.06592	-0.03091		-1.55623	-0.47546		-1.09695	-0.27484
							-1.43311	-0.44483		-1.31743	-0.30215
										-1.32645	-0.32853

APPENDIX B

T VALUES & ACAER DIFFERENCES FOR 5 STOCK PORTFOLIO

period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.
46	0.204311	0.013146	47	1.765824	0.097946	48	-1.36828	-0.02888	49	0.455815	0.008998
	1.115759	0.050101		1.915344	0.046847		-1.87527	-0.03028		3.84181	0.070856
	1.257316	0.082445		0.323865	0.010908		-0.19351	-0.00831		1.814977	0.094345
	1.727497	0.153733		0.20076	0.006189		0.703798	0.056422		1.762079	0.126108
	1.193824	0.108678		0.899916	0.053822		1.325168	0.130323		2.388242	0.170976
	1.434893	0.138029		0.893574	0.089299		0.892635	0.122377		1.542602	0.154178
	1.099241	0.14614		1.033555	0.119601		1.056515	0.122393		1.884475	0.198873
	1.087576	0.169875		1.406407	0.146007		1.387568	0.164936		3.656488	0.271207
	1.045809	0.171723		1.027437	0.143993		1.001057	0.153938		10.47767	0.379057
	1.139746	0.20136		1.346197	0.170231		1.301578	0.20613		7.39682	0.337011
	1.311008	0.239001		1.679812	0.225983		2.290998	0.236441		5.05947	0.308598
	1.175721	0.247346		1.64862	0.196482		5.287556	0.30166		7.489782	0.233623
	1.654613	0.245717		2.114406	0.198309		6.513835	0.259584		1.836308	0.123909
	1.849348	0.236938		5.335782	0.213716		3.783375	0.196026		1.04937	0.153247
	1.764429	0.198036		3.097625	0.245778		6.087307	0.16797		0.657548	0.11691
	1.736686	0.182781		3.886813	0.247076		1.503897	0.1155		0.21164	0.051199
	1.926146	0.22824		5.746502	0.239069		0.528624	0.078823		0.322635	0.077859
	2.808295	0.327791		2.164914	0.136417		0.137492	0.024334		0.482404	0.115473
	2.038113	0.272309		0.649874	0.079657		0.057025	0.012294		0.516697	0.118154
	2.028911	0.249679		0.551473	0.099202		0.250913	0.052699		0.364269	0.096423
	1.855352	0.201773		0.434813	0.087685		0.298877	0.07123		0.319644	0.081297
	2.897133	0.149658		0.254915	0.06741		0.193862	0.041163		0.137825	0.035577
	1.219833	0.15034		0.328415	0.075941		-0.0206	-0.00506		0.243295	0.063055
	0.936468	0.117089		0.154152	0.043929		0.08844	0.021278		0.135691	0.037795
	0.272987	0.052442		0.21183	0.054768		-0.04632	-0.01161		0.36422	0.093674
	0.551578	0.098302		0.008937	0.002786		0.182059	0.042793		0.20183	0.054231
	0.278109	0.070028		0.151545	0.045357		0.026233	0.006746		-0.01183	-0.00403
	0.436824	0.093444		-0.0801	-0.02576		-0.15996	-0.04834		0.020187	0.006641
	0.142088	0.036562		-0.23091	-0.08201		-0.10498	-0.02973		0.218827	0.063409
	-0.06175	-0.01927		-0.20599	-0.07503		0.138824	0.036526		0.029119	0.008482
	-0.09499	-0.02952		0.014183	0.004282		0.04275	0.011879		0.016237	0.004872
	0.208118	0.051148		-0.02445	-0.00749		0.048302	0.014166		0.073598	0.023426
	0.160397	0.041654		-0.00684	-0.00227		-0.10124	-0.02794		0.072478	0.019489
	0.191699	0.051538		-0.02679	-0.00889		0.002189	0.000556		0.270377	0.082889
	0.166188	0.042902		0.013001	0.004298		0.201774	0.054663		0.009811	0.003344
	0.239613	0.063549		0.005995	0.001873		-0.14638	-0.0424		-0.00351	-0.001
	0.306509	0.079898		-0.18837	-0.06703		0.010788	0.003312		0.030787	0.008702
	0.092886	0.029433		-0.05225	-0.01843		0.012582	0.003731		0.165543	0.045449
	0.029645	0.007873		-0.11037	-0.03646		-0.05669	-0.01245		0.30468	0.066309
	0.020049	0.005477		-0.07854	-0.02593		0.054348	0.010256		0.187407	0.041635
	0.109168	0.0296		-0.11868	-0.0371		-0.02442	-0.00543		0.063758	0.013985
	0.022415	0.005296		-0.40642	-0.10707		-0.07736	-0.01787		-0.25612	-0.06964
	-0.03134	-0.0085		-0.39522	-0.11487		-0.34933	-0.10489		-0.17814	-0.05099
	-0.12695	-0.03721		-0.52412	-0.19108		-0.42261	-0.11783		-0.14792	-0.04312
	-0.46061	-0.14017		-0.59788	-0.20295		-0.34367	-0.08707		-0.06771	-0.01649
	-0.42985	-0.13153		-0.52925	-0.17676		-0.23716	-0.04952		-0.10034	-0.02504
				-0.7048	-0.18182		-0.21756	-0.04877		-0.13715	-0.03166
							-0.18656	-0.04262		-0.0814	-0.01563
										0.081692	0.020296

APPENDIX B

T VALUES & ACAER DIFFERENCES FOR 5 STOCK PORTFOLIO

period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.
50	0.403958	0.021505	51	0.735561	0.047043	52	0.17486	0.00387
	2.164822	0.097809		1.187649	0.115875		0.782681	0.010964
	1.143535	0.113278		1.433675	0.174102		-0.87152	-0.01606
	1.47592	0.169569		1.108491	0.154784		-0.45605	-0.03146
	3.216312	0.229246		1.249995	0.188893		0.196777	0.030485
	8.248216	0.324234		1.03095	0.170289		0.213687	0.03658
	4.992041	0.338229		0.913734	0.149787		-0.01241	-0.00272
	3.581284	0.358519		1.303213	0.159182		0.298251	0.054671
	2.639501	0.283999		0.46807	0.066527		0.186971	0.03828
	2.138409	0.200957		0.059639	0.009942		-0.00835	-0.00159
	1.466879	0.182096		-0.02594	-0.00355		-0.13438	-0.03522
	0.653911	0.097735		0.197119	0.027777		-0.05025	-0.01141
	0.284374	0.064551		0.249999	0.032178		-0.15642	-0.04204
	0.634254	0.132772		-0.13933	-0.02329		-0.18423	-0.047
	0.391898	0.096419		-0.07402	-0.01206		-0.28532	-0.07125
	0.351409	0.084168		-0.01935	-0.00262		-0.32854	-0.08771
	0.309889	0.076427		-0.05496	-0.00718		-0.22533	-0.05153
	0.398577	0.097932		-0.02567	-0.00365		-0.48432	-0.10438
	0.471802	0.106901		-0.1842	-0.01974		-0.57826	-0.1388
	0.444168	0.096156		-0.51847	-0.05882		-0.59003	-0.13855
	0.19565	0.04651		-0.25064	-0.03196		-0.83403	-0.21277
	0.287439	0.068889		-0.56645	-0.08699		-0.77299	-0.18222
	0.089432	0.023469		-0.28094	-0.0424		-0.80157	-0.19594
	0.277258	0.074269		-0.67558	-0.11495		-1.04369	-0.304
	0.136713	0.037897		-1.07697	-0.21076		-0.97282	-0.29627
	-0.10654	-0.03567		-0.76868	-0.17849		-0.93867	-0.19506
	-0.1575	-0.04765		-0.90738	-0.13493		-0.84219	-0.1636
	0.252373	0.053774		-0.73011	-0.13406		-1.08776	-0.20532
	0.181234	0.047274		-0.82934	-0.15216		-0.55933	-0.14753
	-0.02378	-0.00617		-0.88175	-0.15009		-0.46335	-0.11976
	0.041434	0.012689		-1.01313	-0.15338		-0.47878	-0.1194
	0.064853	0.018182		-0.56535	-0.10547		-0.57991	-0.15242
	0.078419	0.020243		-0.83272	-0.16742		-0.56696	-0.13834
	-0.12389	-0.03524		-0.95074	-0.15061		-0.53637	-0.14635
	0.020453	0.006236		-1.01122	-0.14867		-0.65452	-0.18275
	0.002923	0.000843		-0.88385	-0.10895		-0.6389	-0.19718
	0.055736	0.014393		-0.60175	-0.08073		-0.68963	-0.19445
	-0.03351	-0.00728		-0.62391	-0.09671		-0.57362	-0.17915
	-0.10866	-0.02126		-0.64686	-0.11654		-0.74034	-0.2386
	-0.09805	-0.0229		-0.79026	-0.19581		-0.50807	-0.13904
	-0.37722	-0.11517		-0.78954	-0.19032		-0.49582	-0.13409
	-0.29222	-0.08657		-0.80735	-0.19332		-0.76952	-0.20769
	-0.29109	-0.08376		-0.67476	-0.14812		-0.71401	-0.2259
	-0.34535	-0.07731		-0.79012	-0.18184		-0.52727	-0.17326
	-0.49289	-0.11931		-0.96943	-0.20476		-0.40639	-0.14396
	-0.25007	-0.06615		-0.98296	-0.19307		-0.43035	-0.12571
	-0.21522	-0.05714		-0.5708	-0.13195		-0.40177	-0.12015
	-0.317	-0.07963		-0.17538	-0.03606		-0.44415	-0.1469
	0.017027	0.003972		-0.36933	-0.09822		-0.20339	-0.07571
	-0.10965	-0.03014		-0.22417	-0.07312		-0.29106	-0.1116
				-0.3413	-0.11661		-0.18198	-0.06189
							-0.27088	-0.09731

APPENDIX C

```
var f:text;
var f2:text;
var f3:text;

const
 NSTOCK = 10;


type
  rstok = array [1..150] of real;
type
  strt  = string[20];


var ers : array [1..209] of ^rstok;
var cer : array [1..150] of real;
var max : array [1..209 div 2,1..NSTOCK] of integer;
var min : array [1..209 div 2,1..NSTOCK] of integer;
var maxr : array [1..209 div 2,1..NSTOCK] of real;
var minr : array [1..209 div 2,1..NSTOCK] of real;
var names : array[1..150] of strt;
var start : array[1..150] of integer;
var ind   : array[1..150] of integer;
var caerw : array[1..209] of real;
var caerl : array[1..209] of real;
var ccerw,
    ccerl : real;
var variance,tpar : real;
var acaerw,acaerl : real;


var
 perlo,
 perhi  : integer;
 totnam : integer;
 pstock : integer;
 period : integer;
 numper : integer;
 i,j,k  : integer;
 numweek: integer;
 ch     : char;
 s      : strt;
 eoff   : boolean;
 r      : real;
 kind   : integer;
 base   : integer;
 l      : integer;
 quit   : boolean;
 ccermax: real;
 ccermin: real;


procedure readtok(var s:strt;var n:real;var kind:integer);
var
 dums:string[40];
 k,j:integer;
begin
  readln(f,dums);
  k:=pos(',',dums);
  val(copy(dums,1,k-1),kind,j);
  val(copy(dums,k+1,length(dums)-k),n,j);
  readln(f,s);
  if kind=1 then
  begin
```

```
      delete(s,1,1);
      delete(s,length(s),1);
    end else
    if s='V' then kind:=2 else
    if s='EOD' then
    begin
      kind:=-2;
      eoff:=TRUE;
    end;
  end;

  {
  procedure writetok(var s:strt;var n:real;kind:integer);
  var
   dums:string[40];
   k,j:integer;
  const
    kindst : array[-2..-1] of string[3]    ('EOD','BOT');
  begin
    case kind of
      -1,
      -2 : begin
             writeln(f3,'-1,0');
             writeln(f3,kindst[kind]);
           end;
       0 : begin
             writeln(f3,'0,0');
             writeln(f3,'""');
           end;
       1 : begin
             writeln(f3,'1,0');
             writeln(f3,'"',s,'"');
           end;
       2 : begin
             writeln(f3,'0,',n);
             writeln(f3,'V');
           end;
     end;
  end;


  procedure header;
  begin
    writeln(f3,'TABLE');
    writeln(f3,'0,1');
    writeln(f3,'""');
    writeln(f3,'VECTORS');
    writeln(f3,'0,0');
    writeln(f3,'""');
    writeln(f3,'TUPLES');
    writeln(f3,'0,0');
    writeln(f3,'""');
    writeln(f3,'DATA');
    writeln(f3,'0,0');
    writeln(f3,'""');
    writeln(f3,'-1,0');
    writeln(f3,'BOT');

  end;

  }
   var
    ff:boolean;
    ii,jj:integer;
```

```
begin

   for i:=1 to 209 do new(ers[i]);
   assign(f,'WEEKPRIC.dif');
   assign(f2,'bbb');
   reset(f);
   rewrite(f2);
   write('Please enter # of stocks in the potfolio : ');readln(pstock);
   write('Please enter minimum test period (in weeks) : ');readln(perlo);
   write('Please enter maximum test period (in weeks) : ');readln(perhi);
   for i:=1 to 14 do readln(f,s);
   for i:=1 to 150 do start[i]:=0;


   totnam:=0;
   j:=0;
   eoff:=FALSE;
   while not eoff do
   begin
     readtok(s,r,kind);
     if kind=1 then
     begin
       k:=0;
       while kind=1 do
       begin
         k:=k+1;
         if s<>'*' then
         begin
           i:=1;
           while (i<=totnam) and (s<>names[i]) do i:=i+1;
           if i<=totnam then ind[k]:=i else
           begin
             totnam:=totnam+1;
             names[totnam]:=s;
             ind[k]:=totnam;
           end;
         end
         else ind[k]:=-1;
         readtok(s,r,kind);
       end;
       while kind>=0 do readtok(s,r,kind);
       for ii:=1 to totnam do
       begin
         ff:=false;
         jj:=1;
         while (not ff) and (jj<=k) do
         begin
           if ind[jj]=ii then ff:=true;
           jj:=jj+1;
         end;
         if not ff then writeln(names[ii],' ',j);
       end;
     end;
     if kind=2 then
     begin
       i:=0;
       j:=j+1;
       while kind>=0 do
       begin
         i:=i+1;
         if (kind=2) and (ind[i]<>-1) then
         begin
```

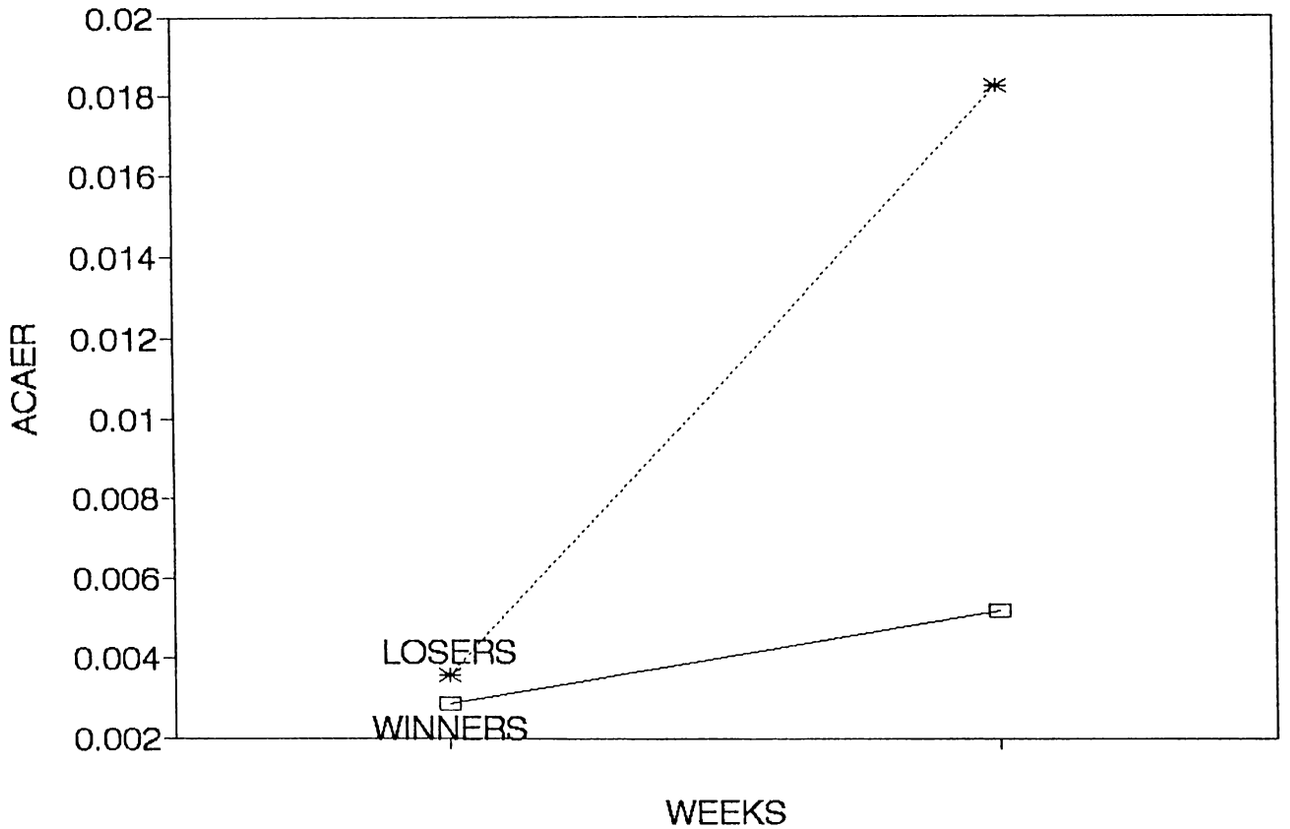
```
            ers[j]^[ind[i]]:=r;
            if start[ind[i]]=0 then start[ind[i]]:=j else
                        ers[j-1]^[ind[i]]:=r/ers[j-1]^[ind[i]]-1;
          end;
          readtok(s,r,kind);
        end;
      end;
    end;
    numweek:=j-1;
    for j:=2 to totnam do
      for i:=start[j] to numweek do ers[i]^[j]:=ers[i]^[j]-ers[i]^[1];

{

    assign(f3,'arda.dif');
    rewrite(f3);
    header;
    for j:=1 to totnam do  writetok(names[j],r,1);
    writetok(s,r,-1);
    for i:=1 to numweek do
    begin
      for j:=1 to totnam do
       if i>=start[j] then writetok(s,ers[i]^[j],2) else
                           writetok(s,r,0);
      writetok(s,r,-1);
    end;
    writetok(s,r,-2);
    close(f3);
}



for period:=perlo to perhi do
begin
    writeln(f2,'"period=",',period);
    numper:=numweek div period;
    if odd(numper) then numper:=numper-1;
    for i:=1 to numper div 2 do
    begin
      base:=(i-1)*period*2;
      for j:=1 to pstock do
      begin
        maxr[i,j]:=-1e10;
        minr[i,j]:=1e10;
      end;
      for j:=2 to totnam do {FROM 2 BECAUSE 1=INDEX}
      begin
        if start[j]<=base+1 then
        begin
          cer[j]:=0;
          for k:=1 to period do cer[j]:=cer[j]+ers[k+base]^[j];
          k:=1;
          quit:=FALSE;
          while (k<=pstock) and not quit do
          begin
            if cer[j]>maxr[i,k] then
            begin
              for l:=pstock-1 downto k do
              begin
                max[i,l+1]:=max[i,l];
                maxr[i,l+1]:=maxr[i,l];
              end;
              maxr[i,k]:=cer[j];
              max[i,k]:=j;
              quit:=TRUE;
```

```
            end;
            k:=k+1;
          end;
          quit:=FALSE;
          k:=1;
          while (k<=pstock) and not quit do
          begin
            if cer[j]<minr[i,k] then
            begin
              for l:=pstock-1 downto k do
              begin
                min[i,l+1]:=min[i,l];
                minr[i,l+1]:=minr[i,l];
              end;
              minr[i,k]:=cer[j];
              min[i,k]:=j;
              quit:=TRUE;
            end;
            k:=k+1;
          end;
        end;
      end;
    end;
{
    for i:=1 to numper div 2 do
    begin
      for j:=1 to pstock do write(names[max[i,j]],',');
      writeln;
      for j:=1 to pstock do write(names[min[i,j]],',');
      writeln;
      writeln;
    end;
    for i:=1 to numper div 2 do
    begin
      for j:=1 to pstock do write(f2,'"',names[max[i,j]],'",');
      for j:=1 to pstock do write(f2,'"',names[min[i,j]],'",');
      writeln(f2);
      base:=(2*i-1)*period;
      for k:=1 to period do
      begin
        for j:=1 to pstock do write(f2,ers[base+k]^[max[i,j]],',');
        for j:=1 to pstock do write(f2,ers[base+k]^[min[i,j]],',');
        writeln(f2);
      end;
    end;
}
    for i:=1 to period do
    begin
      ccermax:=0;
      ccermin:=0;
      for j:=1 to numper div 2 do
      begin
        ccerw:=0;
        ccerl:=0;
        base:=(2*j-1)*period;
        for k:=1 to pstock do
        begin
          for l:=1 to i.do ccerw:=ccerw+ers[base+l]^[max[j,k]];
          for l:=1 to i do ccerl:=ccerl+ers[base+l]^[min[j,k]];
        end;
        caerw[j]:=ccerw/pstock;
        caerl[j]:=ccerl/pstock;
        ccermax:=ccermax+ccerw;
        ccermin:=ccermin+ccerl;
```

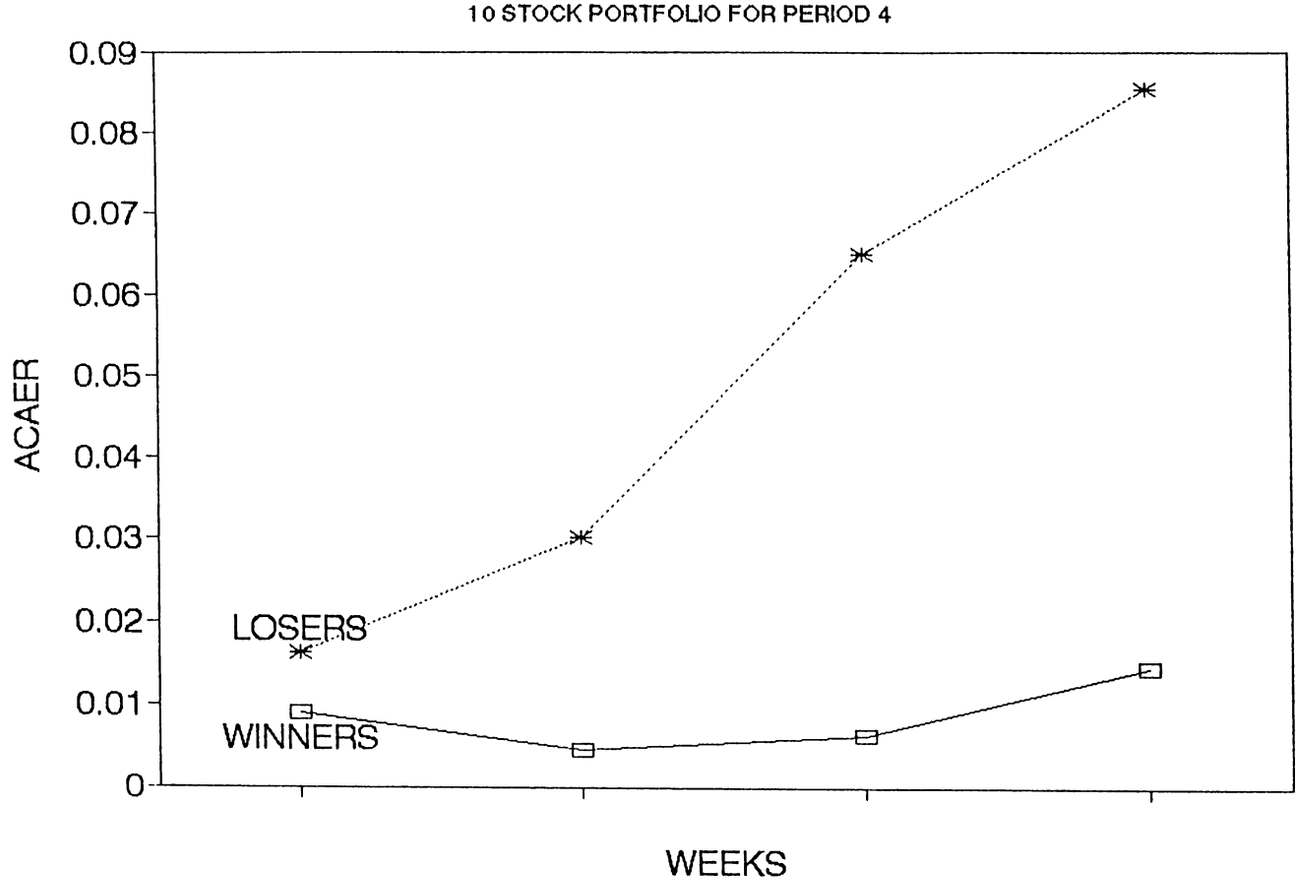
```
      end;
      acaerw:=ccermax/pstock/(numper div 2);
      acaerl:=ccermin/pstock/(numper div 2);
      variance:=0;
      for j:=1 to numper div 2 do variance:=variance+sqr(caerw[j]-acaerw);
      for j:=1 to numper div 2 do variance:=variance+sqr(caerl[j]-acaerl);
      variance:=variance/(2*((numper div 2)-1));
      tpar:=(acaerl-acaerw)/sqrt(2*variance/(numper div 2));
      writeln(f2,i,',',acaerw:20:15,',',acaerl:20:15,',',tpar:20:15);
    end;
    writeln(f2);
  end;
    close(f);
    close(f2);
    for i:=1 to 209 do dispose(ers[i]);


  end.
```

APPENDIX D

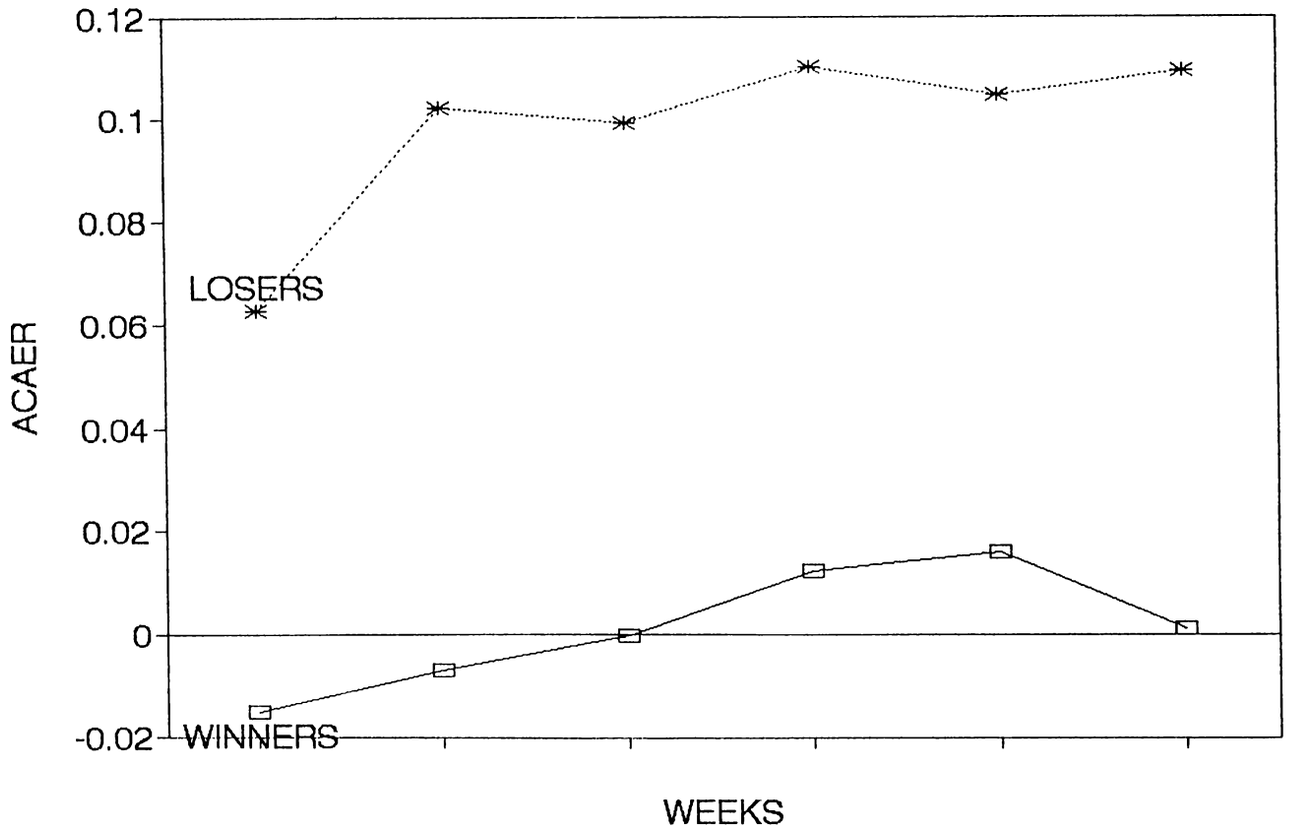
APPENDIX D.1
10 STOCK PORTFOLIO FOR PERIOD 2



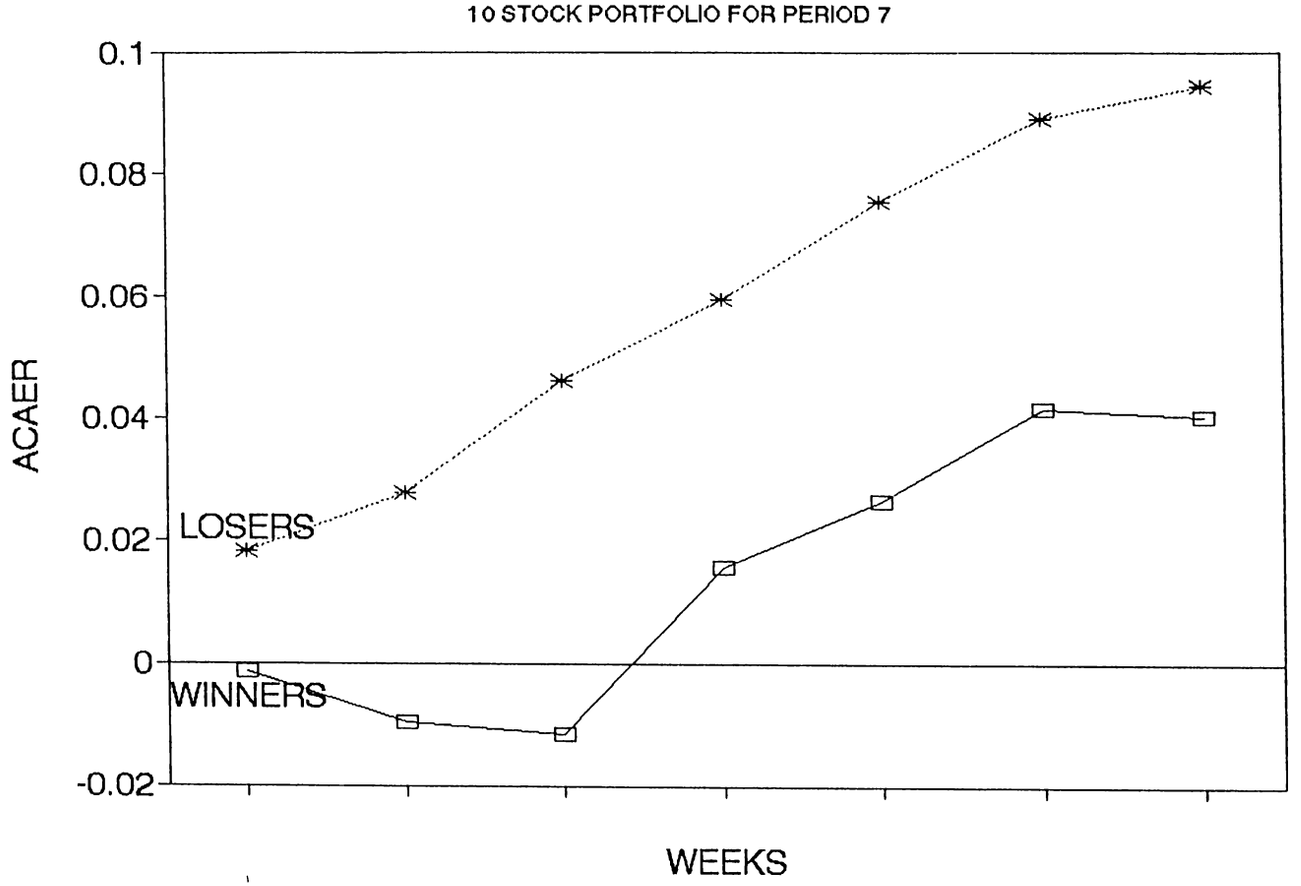
APPENDIX D.2
10 STOCK PORTFOLIO FOR PERIOD 4



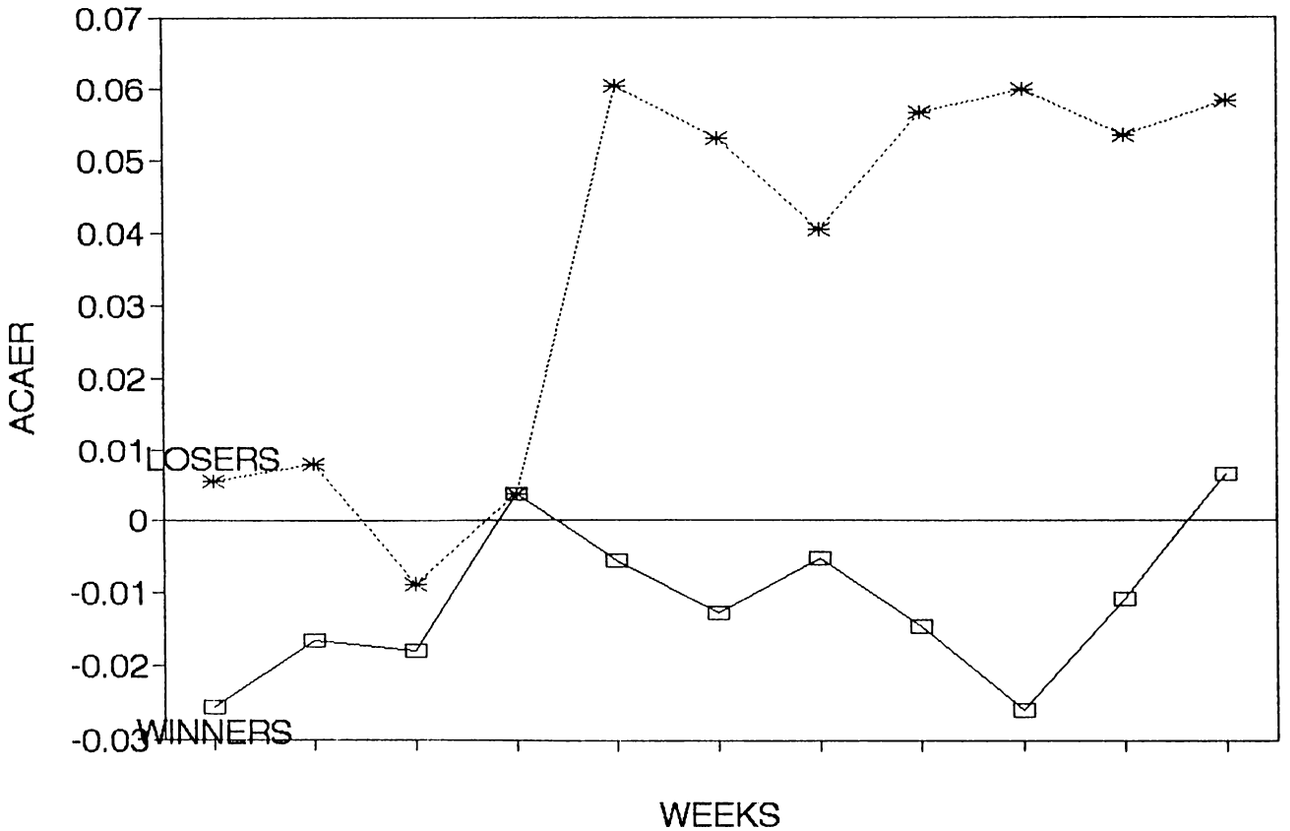
APPENDIX D.3
10 STOCK PORTFOLIO FOR PERIOD 6



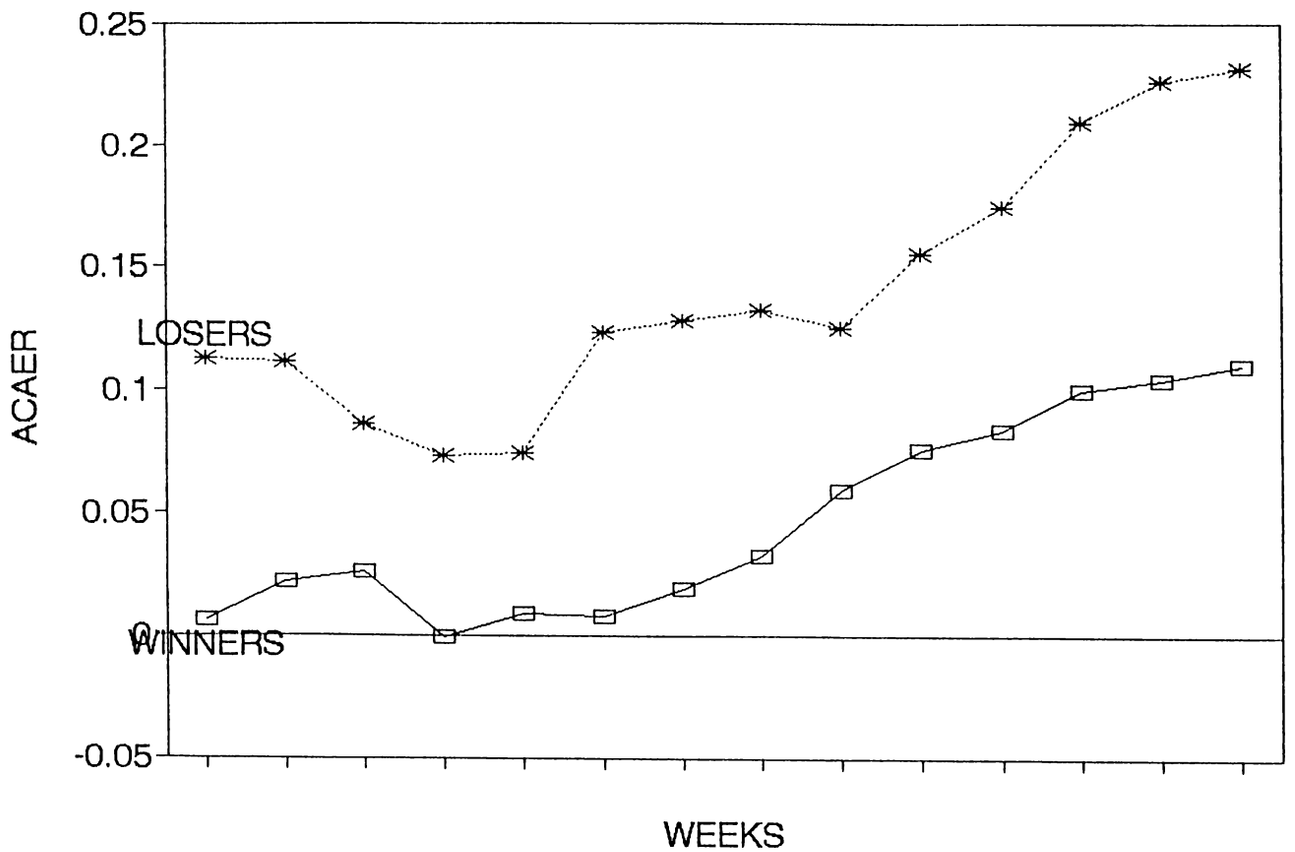
APPENDIX D.4
10 STOCK PORTFOLIO FOR PERIOD 7



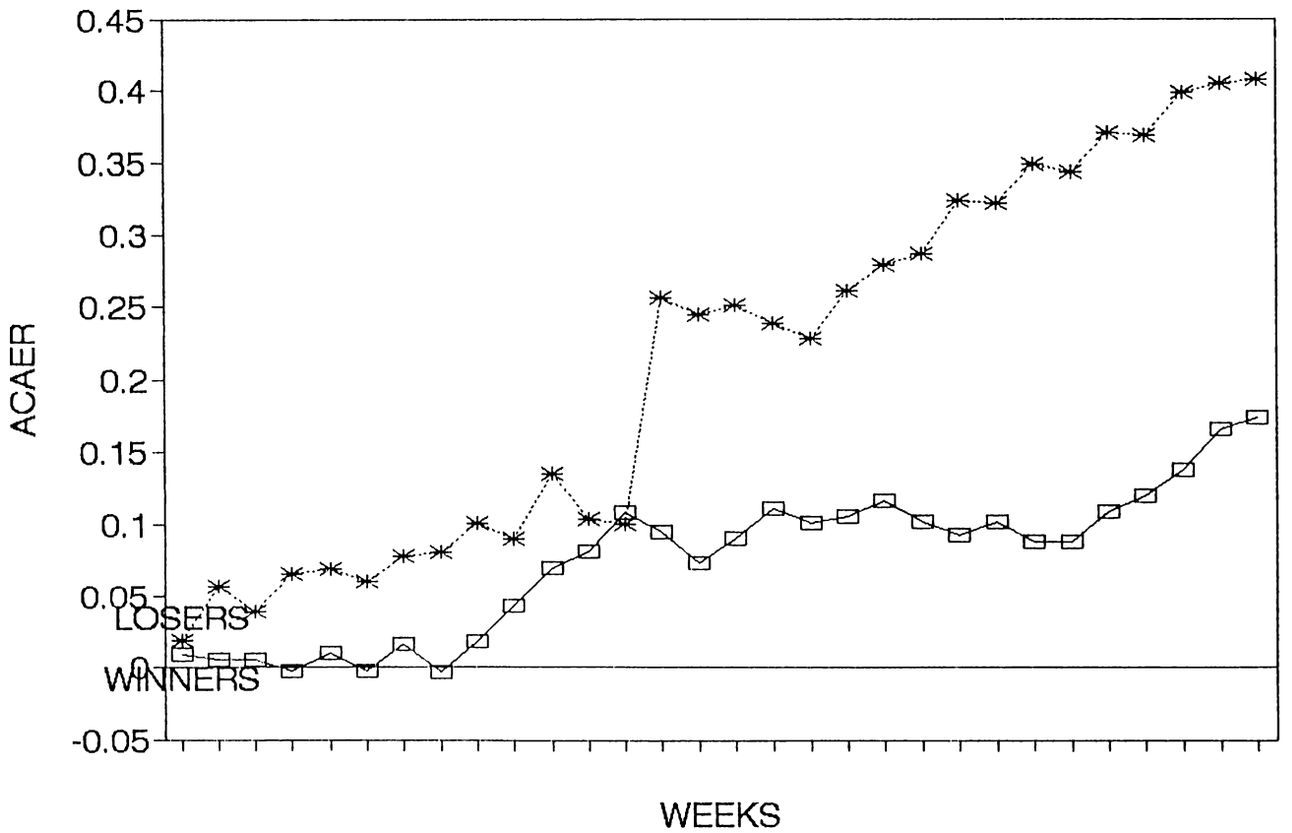
APPENDIX D.5
10 STOCK PORTFOLIO FOR PERIOD 11



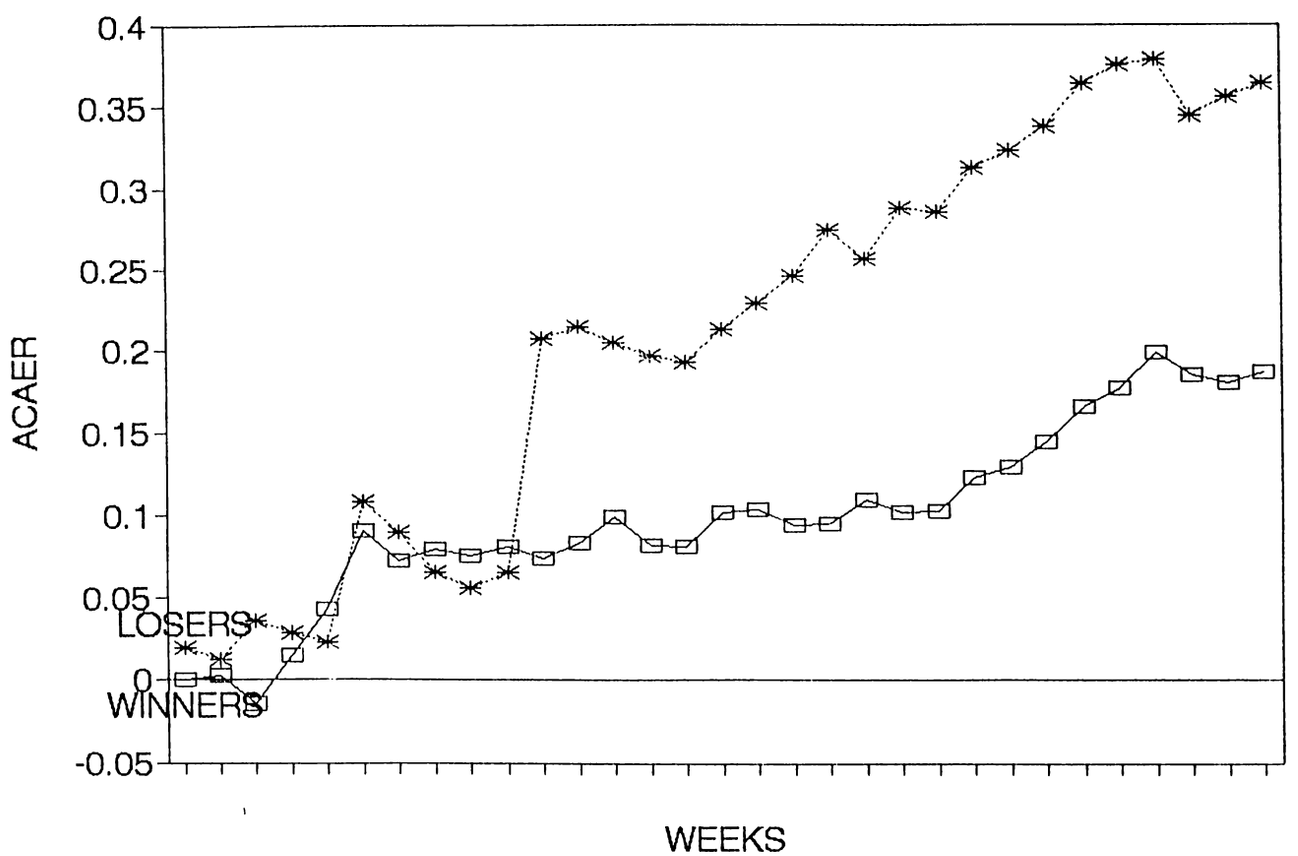
APPENDIX D.6
10 STOCK PORTFOLIO FOR PERIOD 14



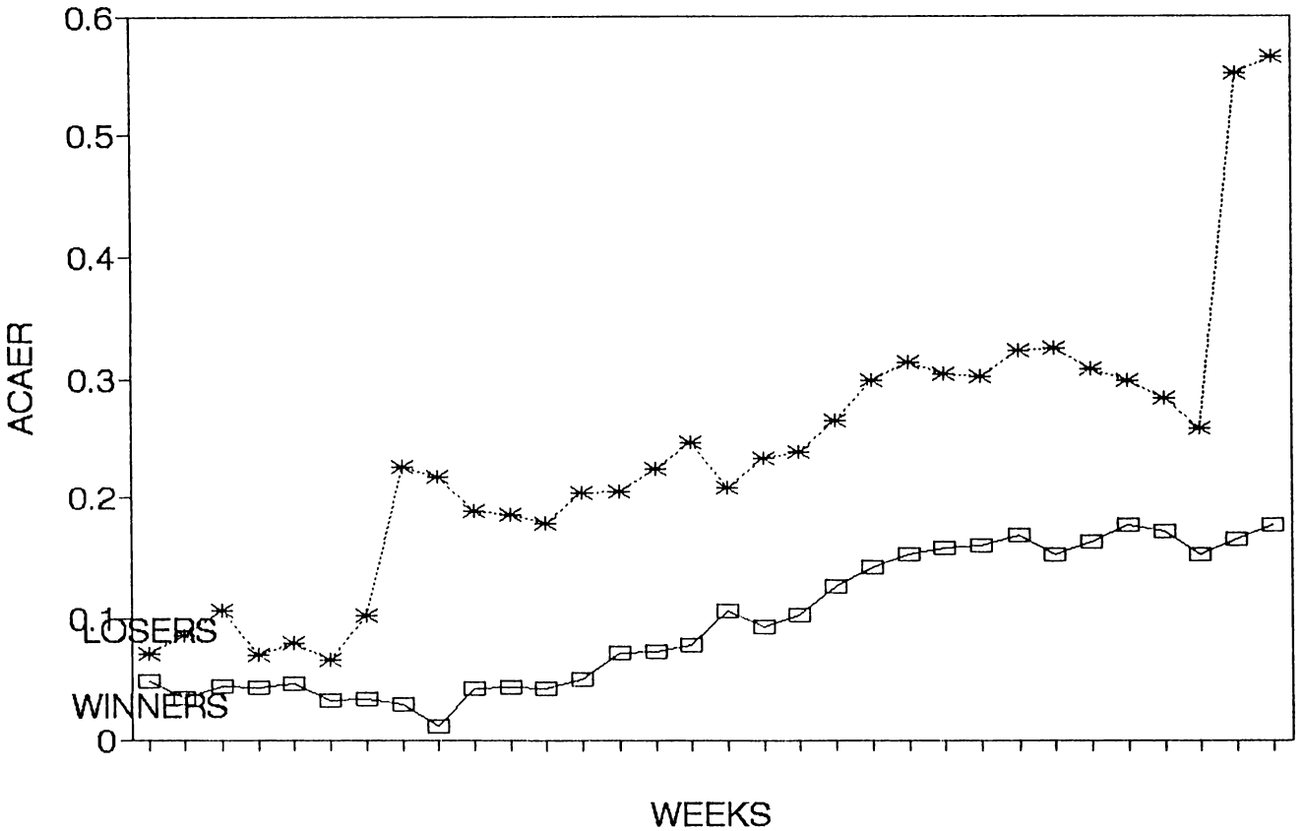
APPENDIX D.11
10 STOCK PORTFOLIO FOR PERIOD 30



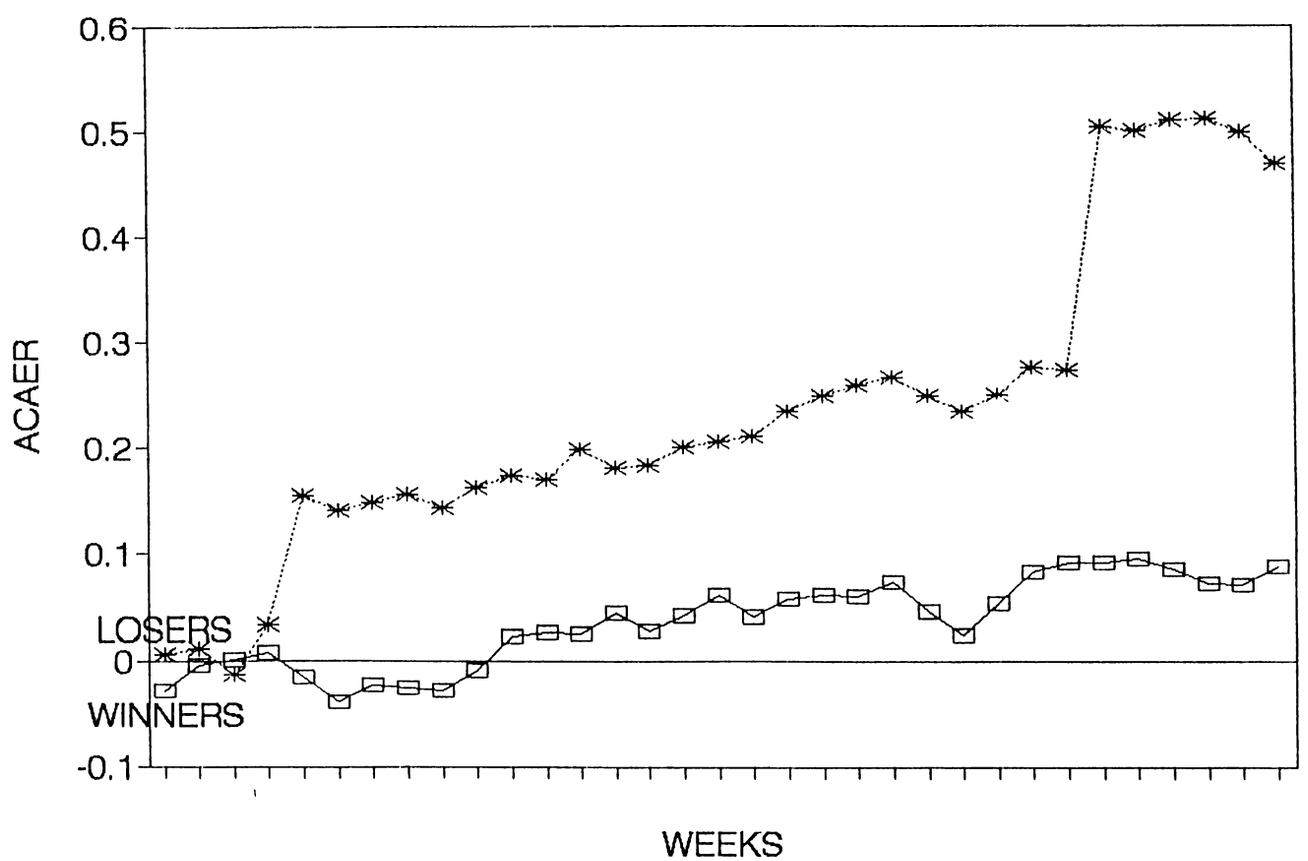
APPENDIX D.12
10 STOCK PORTFOLIO FOR PERIOD 31



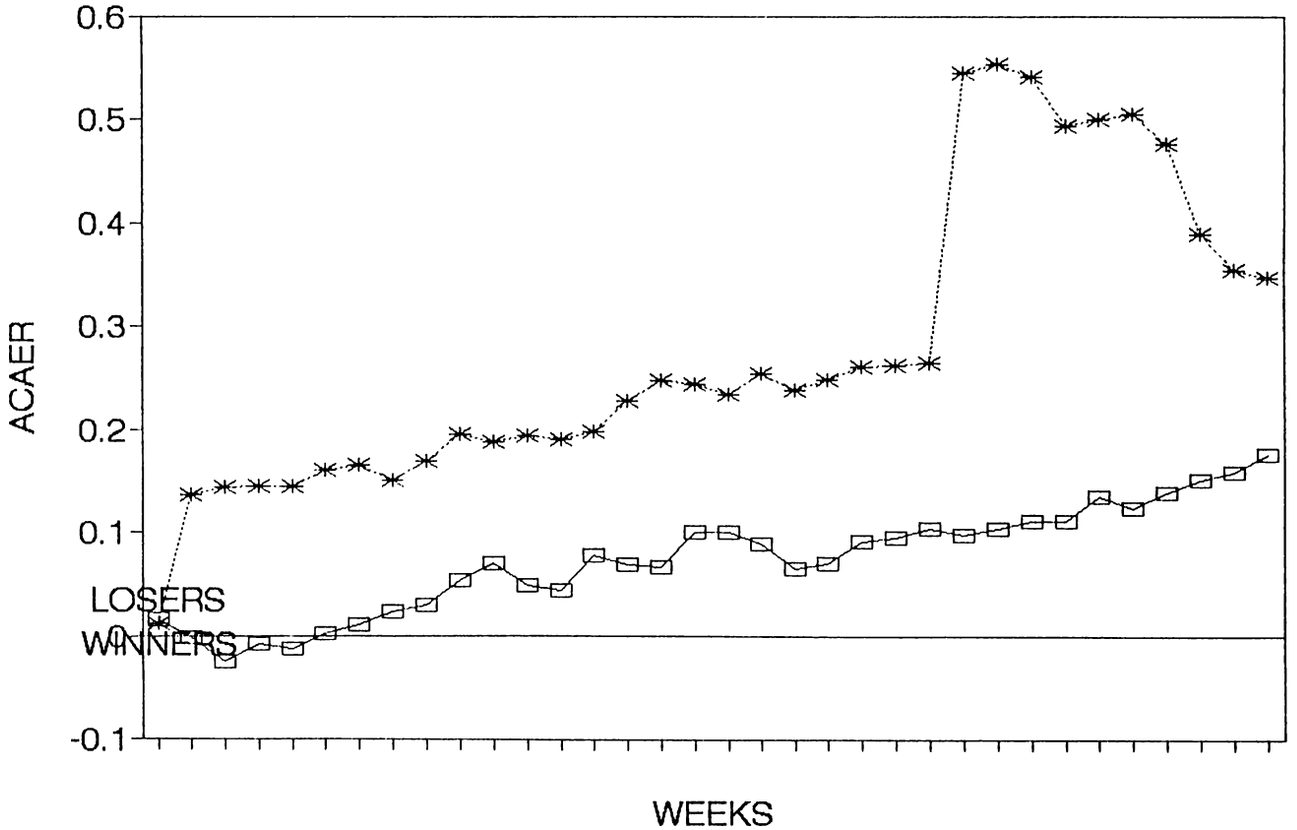
APPENDIX D.13
10 STOCK PORTFOLIO FOR PERIOD 32



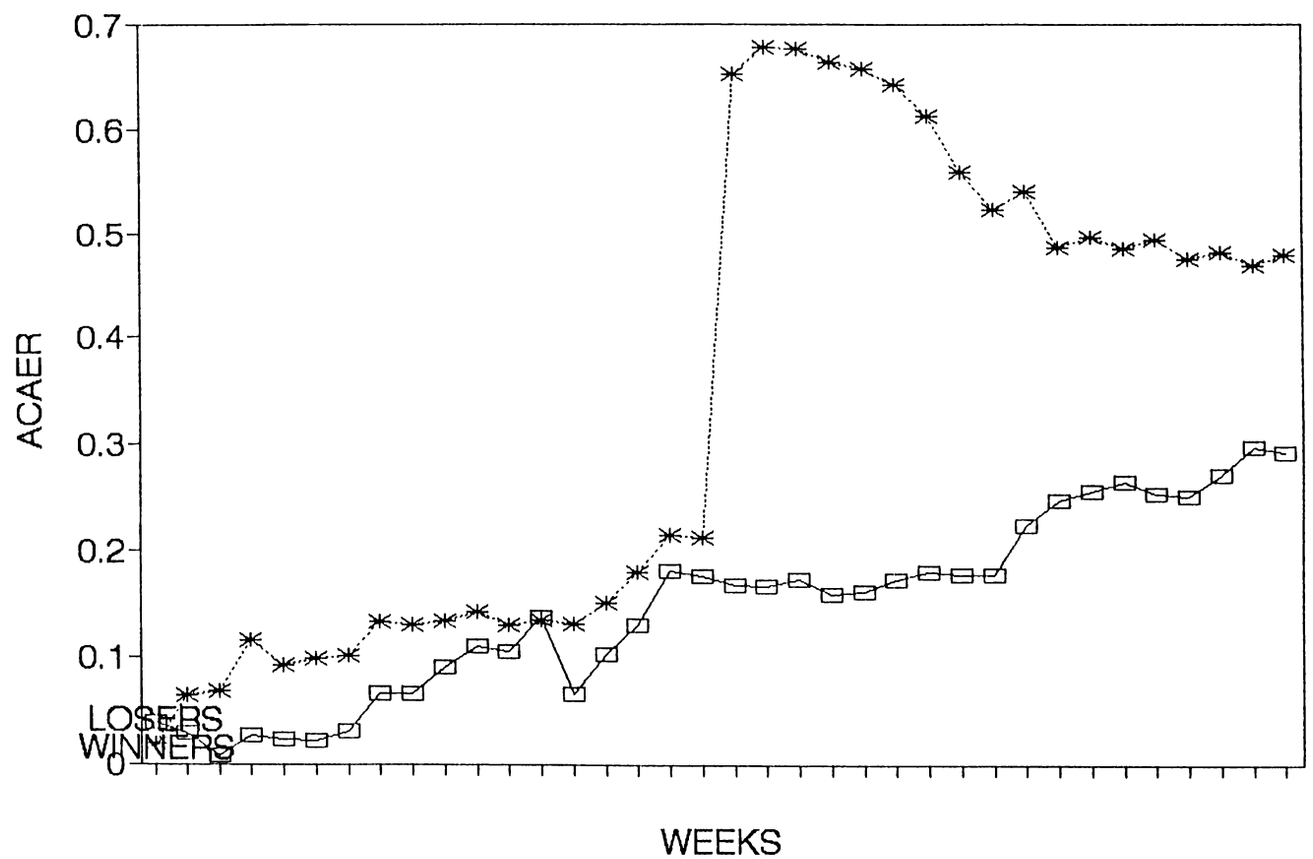
APPENDIX D.14
10 STOCK PORTFOLIO FOR PERIOD 33



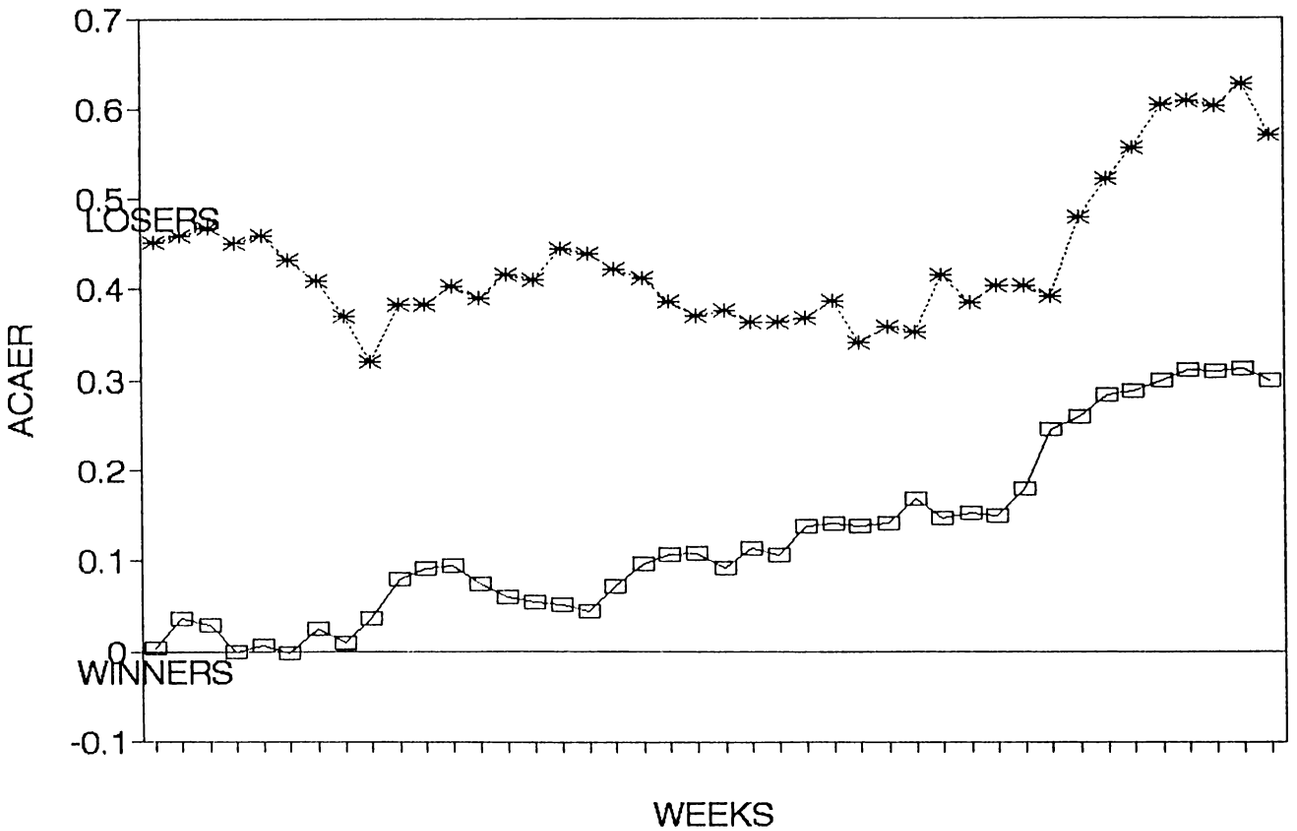
APPENDIX D.15
10 STOCK PORTFOLIO FOR PERIOD 34



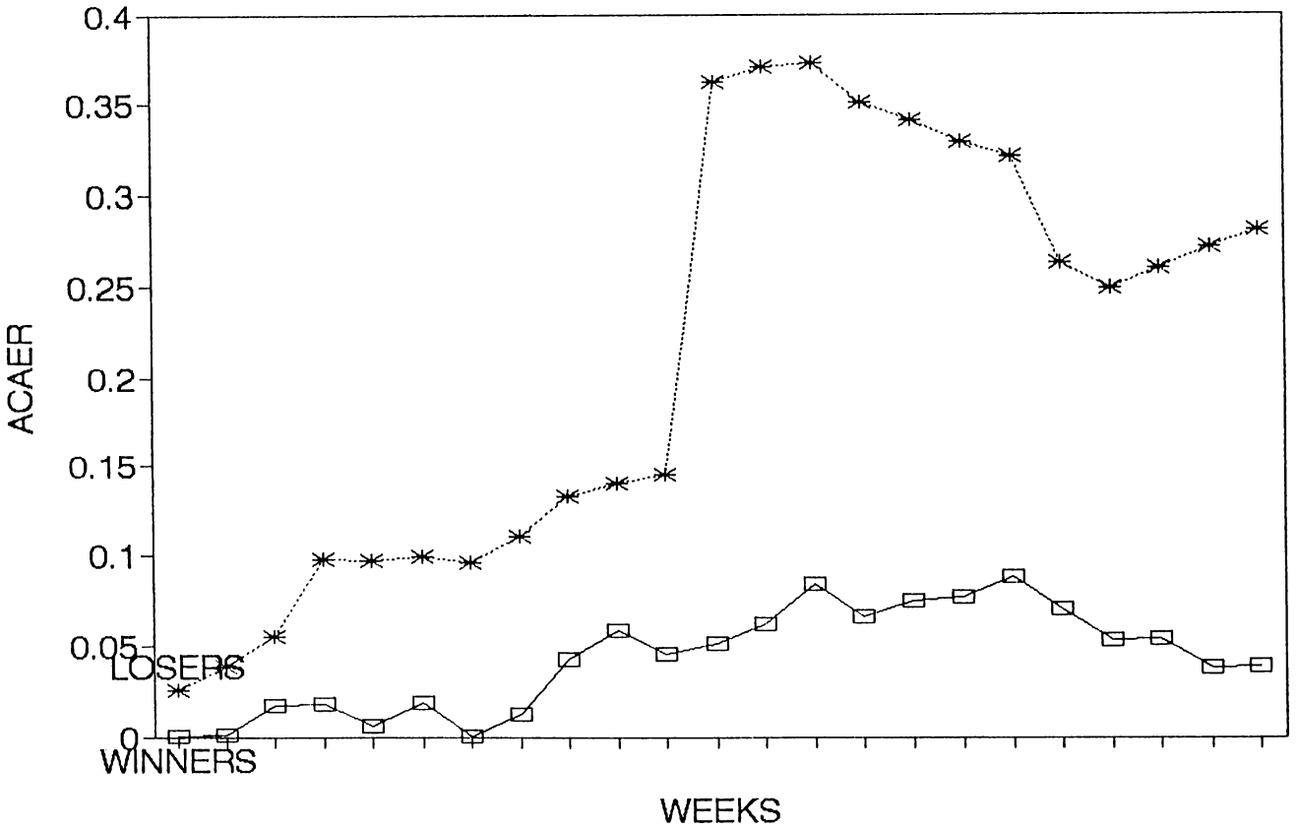
APPENDIX D.16
10 STOCK PORTFOLIO FOR PERIOD 36



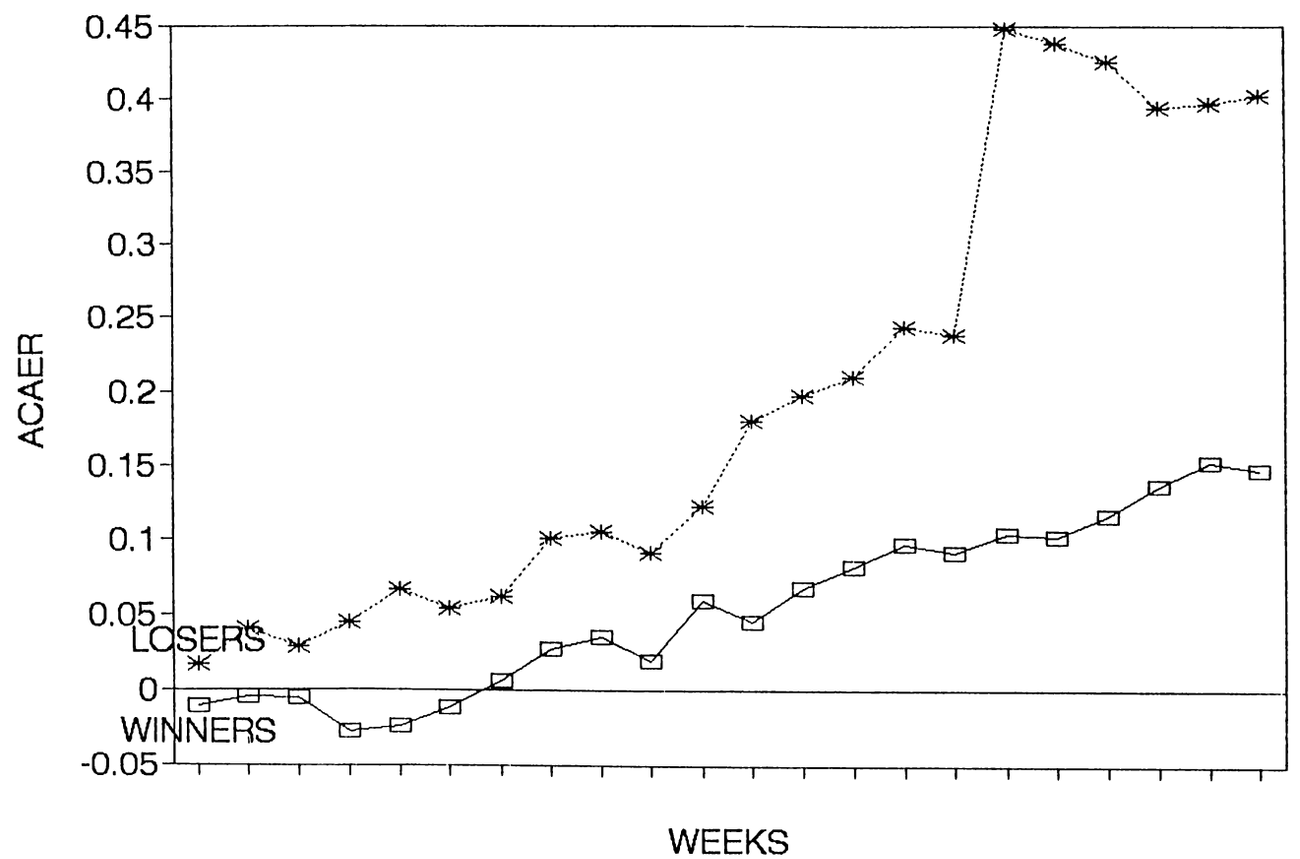
APPENDIX E.17
10 STOCK PORTFOLIO FOR PERIOD 42



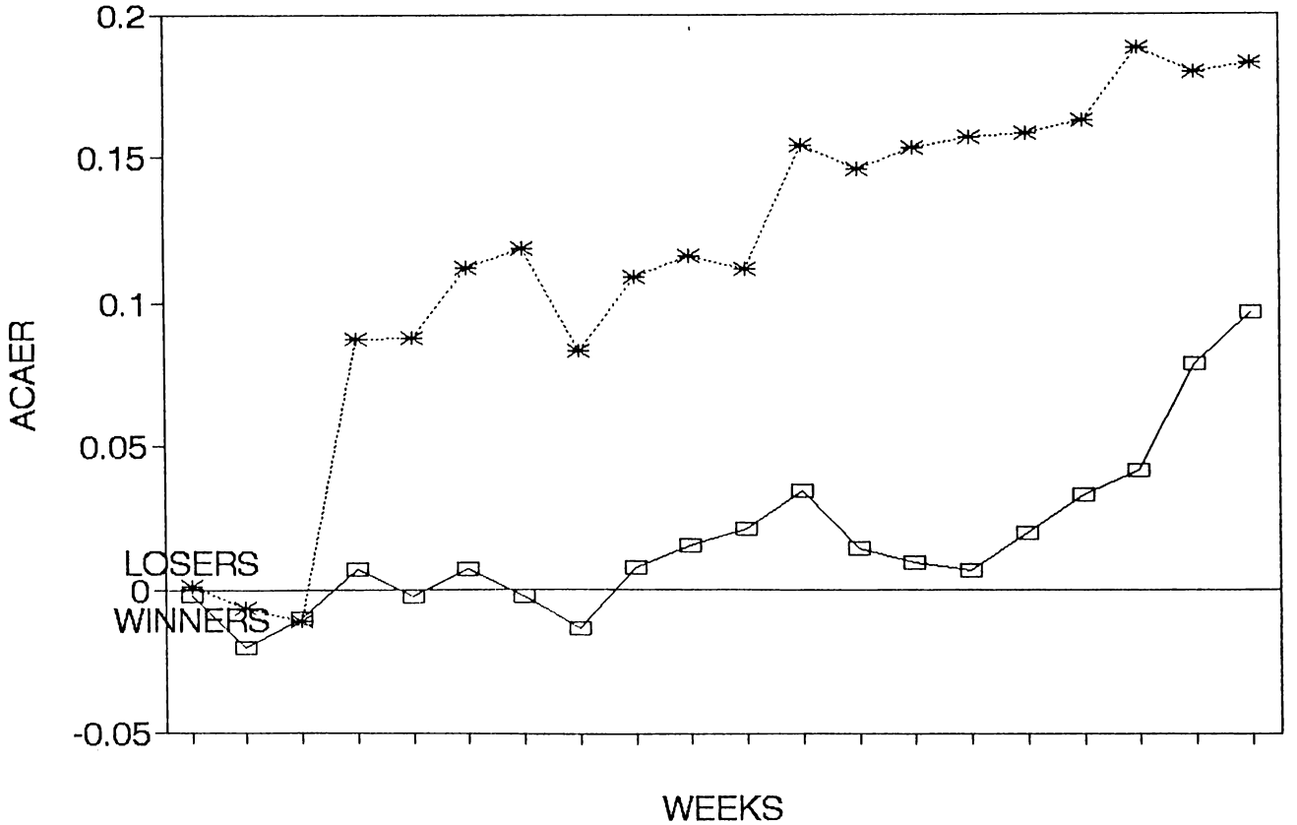
APPENDIX D.9
10 STOCK PORTFOLIO FOR PERIOD 23



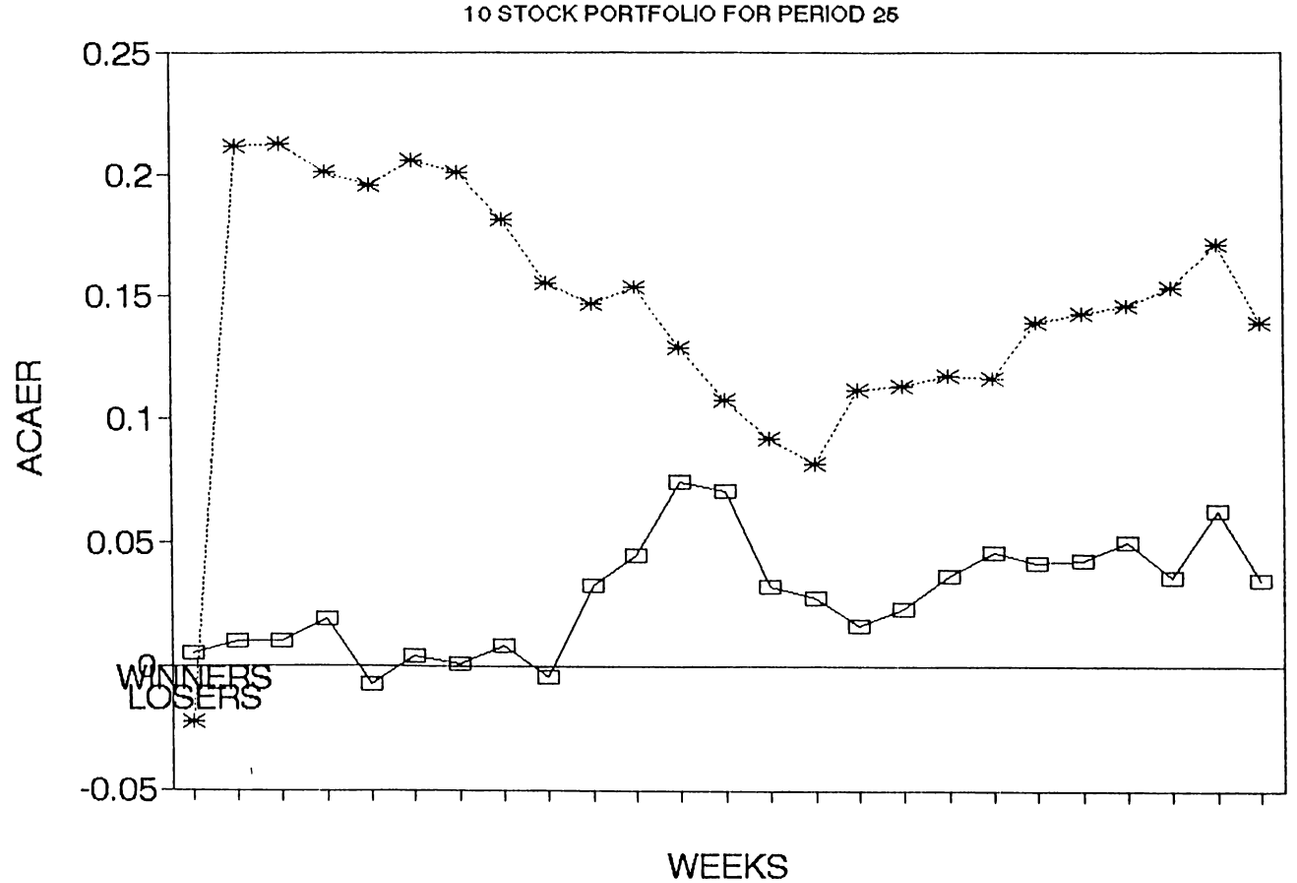
APPENDIX D.8
10 STOCK PORTFOLIO FOR PERIOD 22



APPENDIX D.7
10 STOCK PORTFOLIO FOR PERIOD 20



APPENDIX D.10
10 STOCK PORTFOLIO FOR PERIOD 25



APPENDIX E

APPENDIX E

T VALUES & ACAER DIFFERENCES

period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DI
1	0.722225	0.004314	12	-0.76546	-0.01645	17	0.404339	0.005848	21	0.880633	0.01068
				-0.21333	-0.00897		0.082964	0.001802		2.969482	0.068543
2	0.089645	0.000681		-0.00182	-8.3E-05		0.262703	0.009059		2.408477	0.10742
	0.879083	0.013083		0.083456	0.002581		-0.53389	-0.0168		3.336761	0.067048
				-0.02831	-0.00153		0.005477	0.000173		1.764435	0.053194
3	0.118816	0.001285		0.076286	0.004297		0.871417	0.029383		1.327519	0.052298
	-0.50216	-0.0082		-0.22135	-0.01332		0.915905	0.030526		1.275393	0.044454
	0.083142	0.001512		-0.55228	-0.0349		1.082328	0.163299		1.894572	0.048649
				-0.9125	-0.06597		1.076172	0.165377		2.510239	0.075032
4	0.629377	0.00722		-0.8111	-0.05649		1.042519	0.156452		2.921608	0.070813
	1.317142	0.025622		-0.42666	-0.0328		0.85865	0.130711		2.639683	0.095183
	1.469502	0.058678		-0.24239	-0.01863		0.78657	0.122491		1.24148	0.052052
	1.780257	0.071008					0.879977	0.128482		0.375535	0.026007
			13	2.694941	0.039298		0.838965	0.121575		0.334601	0.024638
5	0.830766	0.00786		1.385069	0.028676		0.718445	0.098205		0.713123	0.044214
	1.040113	0.049689		1.166241	0.03789		0.702891	0.096129		-0.08174	-0.00735
	1.51929	0.072674		0.788666	0.026598		0.445672	0.06542		0.358101	0.031824
	1.737635	0.084406		-0.09009	-0.00399					0.229549	0.021536
	2.069473	0.096771		-0.38202	-0.01774	18	0.963978	0.176984		0.462512	0.045326
				-0.53426	-0.02757		0.924306	0.17025		0.071634	0.00831
6	1.425022	0.077955		-0.58167	-0.03639		1.054324	0.186495		0.005601	0.000644
	1.822802	0.109231		-0.42322	-0.03039		1.149194	0.190112			
	1.649308	0.099568		0.581834	0.079437		1.213262	0.198256	22	3.873633	0.02768
	1.622715	0.097872		0.578357	0.078646		1.347835	0.210345		2.304319	0.04469
	1.439795	0.088592		0.647142	0.088586		1.404898	0.204575		1.70876	0.033791
	1.786763	0.107942		1.116209	0.148536		1.296274	0.172507		2.147831	0.071667
							1.257879	0.16248		2.476609	0.090847
7	1.030308	0.019703	14	0.80156	0.106438		1.017122	0.149441		1.627908	0.065262
	1.466393	0.037353		0.668407	0.089564		0.825649	0.131076		1.786276	0.055837
	2.015166	0.057746		0.435336	0.060401		0.904596	0.143424		1.908041	0.07331
	1.452113	0.043674		0.547955	0.073959		0.822881	0.120978		1.349286	0.070427
	1.471079	0.049374		0.474274	0.065307		1.339992	0.210436		1.20694	0.071917
	1.257333	0.047786		0.779083	0.115395		1.399637	0.209882		0.878792	0.062809
	1.437781	0.054191		0.729963	0.108738		1.484674	0.210874		2.648119	0.134905
				0.727275	0.100224		1.424837	0.203762		1.662398	0.130216
8	-2.35057	-0.0332		0.49674	0.065702		1.322342	0.185597		1.718988	0.126521
	-0.69406	-0.02128		0.584248	0.079618					1.661964	0.146606
	-0.19984	-0.00525		0.669531	0.091557	19	-0.36199	-0.01081		1.710744	0.146606
	-0.33615	-0.01077		0.808782	0.109617		-0.54429	-0.02393		1.467303	0.343215
	-1.24156	-0.03956		0.950319	0.12192		-0.97464	-0.03332		1.364114	0.335152
	-0.9054	-0.02976		0.898032	0.121644		-0.80793	-0.04165		1.268295	0.308714
	-1.19535	-0.03988					-1.47101	-0.07109		1.040841	0.256836
	-0.99952	-0.03402	15	-0.31027	-0.00964		-1.54766	-0.07494		0.989154	0.244222
				0.171334	0.006855		-0.92757	-0.05507		1.088809	0.255133
9	1.39255	0.019338		1.302416	0.060737		-0.48517	-0.03068			
	0.826043	0.017601		0.820074	0.029646		0.593279	0.052607	23	1.352564	0.025605
	1.027669	0.02755		0.276185	0.009382		0.628554	0.054085		1.070527	0.037663
	0.497181	0.013411		0.200503	0.006214		0.35781	0.032872		1.323152	0.03807
	0.651418	0.014867		1.11131	0.036454		0.295307	0.028074		1.38668	0.08015
	0.432269	0.015261		1.451206	0.055136		0.312193	0.029715		1.385298	0.090789
	0.101465	0.00347		0.998015	0.045556		0.408953	0.046114		0.909825	0.080335
	-0.49547	-0.02291		1.719654	0.065861		0.623033	0.068288		0.960844	0.094935
	0.183553	0.00868		1.519378	0.062987		0.576659	0.065325		0.88018	0.097153
				2.016952	0.076043		0.403537	0.051928		0.908082	0.089344
10	1.963885	0.02532		1.706881	0.076344		0.397166	0.05238		0.809306	0.080655
	1.623982	0.035056		1.517631	0.071433		0.530953	0.072319		1.045892	0.096765
	0.765645	0.025047		1.038641	0.050727					1.415921	0.311065
	0.281519	0.012488				20	0.148721	0.003121		1.389408	0.309102
	-0.08047	-0.00432	16	1.185185	0.016765		0.434824	0.013494		1.339255	0.28876
	-0.23382	-0.01303		0.299172	0.00722		-0.05192	-0.00123		1.338146	0.284173
	-0.84389	-0.0501		0.499389	0.014873		0.992447	0.080647		1.260394	0.26607
	-0.35189	-0.019		0.489495	0.012259		1.127689	0.090093		1.189722	0.252098
	-0.56996	-0.03183		0.179252	0.005957		1.136117	0.105149		1.170693	0.232791
	-0.78836	-0.04244		-0.46857	-0.01649		1.306595	0.121452		1.098118	0.192975
				-0.20943	-0.00876		0.985774	0.097132		1.222112	0.186211
11	1.413081	0.031238		-0.81398	-0.02898		0.94499	0.101973		1.263733	0.2087
	0.838721	0.024611		-1.04424	-0.0491		0.899998	0.101219		1.715344	0.233717
	0.271768	0.009102		-0.77225	-0.03288		0.865651	0.091254		1.596148	0.241781
	-0.00355	-0.00012		-0.88863	-0.05154		1.058845	0.119661			
	1.702811	0.066107		-0.78161	-0.05086		1.141612	0.131347			
	1.510646	0.065758		-0.93352	-0.06687		1.308581	0.143694			
	1.165243	0.045802		-1.30283	-0.0981		1.365606	0.149663			
	1.441891	0.071162		0.185144	0.031601		1.147837	0.13863			
	1.761129	0.085795		0.119803	0.020601		1.053314	0.129232			
	1.184431	0.064098					1.149625	0.146486			
	0.98186	0.051546					0.760489	0.100423			
							0.639633	0.085565			

APPENDIX E

T VALUES & ACAER DIFFERENCES

period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.
24	-0.036591	-0.001443	27	0.3806555	0.01694	30	0.3543832	0.0099246	32	0.4216704	0.0227954
	0.2625531	0.0072943		-0.264924	-0.019207		1.7145412	0.0520166		0.871611	0.0519394
	-0.179534	-0.008856		-0.299392	-0.016398		1.3503421	0.033869		1.0060985	0.0612919
	-0.482619	-0.032432		0.074534	0.0035301		3.6725298	0.0684242		0.3736975	0.0264596
	-0.314029	-0.024947		0.0161641	0.0005167		3.469264	0.0595072		0.3869507	0.0327543
	-0.418903	-0.028288		0.621644	0.0171889		2.7691453	0.0631687		0.3829192	0.0334357
	0.8180882	0.1956015		3.0053545	0.0354973		3.2695477	0.0614594		0.7063932	0.069188
	0.8121705	0.1979667		0.6590407	0.0141856		4.2137045	0.0850271		1.6535007	0.1955413
	0.7124067	0.1718256		-0.254714	-0.009156		1.7944569	0.082929		1.901584	0.2051601
	0.877587	0.1968343		0.3952369	0.016158		0.8367721	0.0473656		1.3583125	0.1467367
	0.7751479	0.1749689		1.106703	0.041119		0.5641799	0.0653435		1.4336456	0.1419751
	0.7339435	0.1645245		-0.4453	-0.009529		0.1723465	0.0225883		1.3433187	0.1356372
	0.6630815	0.1345603		-0.542627	-0.009481		-0.061309	-0.008333		1.5286447	0.1535053
	0.5125732	0.097077		1.0250481	0.0355732		1.0140113	0.1617833		1.3640282	0.1333441
	0.3968267	0.072396		0.2552684	0.0110261		1.1269109	0.1714491		1.342885	0.1516308
	0.2498713	0.0475503		0.2353051	0.0113125		1.1777052	0.1614994		1.1977279	0.1680797
	0.2042845	0.038888		0.2600028	0.0157606		0.9912658	0.1278364		0.8688375	0.1019923
	0.2580685	0.0545459		0.8566729	0.0344672		0.9673334	0.1274134		0.9885821	0.1400579
	0.3460374	0.0639497		0.512272	0.0230868		1.1807791	0.1549574		0.9505583	0.1360878
	0.4155181	0.0796837		0.7306773	0.0463269		1.1741149	0.1629005		0.9686783	0.1388711
	0.4259503	0.0831997		0.5816551	0.0479529		1.351717	0.185611		1.0851138	0.1569868
	0.3208594	0.0666709		0.4331781	0.0290177		1.6986175	0.2309582		1.0679141	0.1609791
	0.4596597	0.0876213		0.2750589	0.0225399		2.132776	0.2205995		0.9508862	0.1467488
	0.3995445	0.0714301		0.0810559	0.0080411		2.2537725	0.2610055		0.8827372	0.1426466
				-0.170653	-0.021602		2.1441658	0.2550779		1.0300339	0.1546842
25	-0.70889	-0.027724		0.0413274	0.0082122		2.1346516	0.2616771		1.2249739	0.1725077
	0.8892579	0.2018651		0.0643291	0.0126486		1.9560745	0.2486659		1.0364987	0.1457891
	0.8927291	0.2026872					2.1362953	0.2606322		0.7873767	0.1210248
	0.8099564	0.1824911	28	0.1937629	0.0063958		1.7475991	0.2386982		0.6654408	0.1119317
	0.9863046	0.203811		1.129068	0.0233424		1.6868517	0.2330857		0.6276656	0.1064396
	0.9981633	0.2019443		0.942533	0.0174653					0.8705814	0.3861394
	1.0773801	0.2007451		2.0566931	0.0394548	31	2.350244	0.0187163		0.8587439	0.3885562
	1.0274813	0.1739493		1.8067439	0.037168		0.5271032	0.0094665			
	1.0727179	0.1602784		0.2726167	0.0147425		2.0337687	0.0490652	33	0.7790117	0.0339896
	0.891335	0.114354		0.1480783	0.0073711		0.4086492	0.0132832		0.2643683	0.0159064
	0.7470999	0.1091262		0.0397764	0.0013862		-0.649056	-0.019942		-0.196705	-0.013715
	0.3636424	0.0539975		-0.030562	-0.001537		0.2812867	0.0180123		0.2961339	0.0245378
	0.2109864	0.03603		0.5117874	0.0222515		0.2290504	0.017947		2.1007513	0.1698116
	0.3677603	0.0601062		0.9121718	0.0275373		-0.140699	-0.014256		2.3024294	0.1800217
	0.3036525	0.0544743		1.1022465	0.0509568		-0.20061	-0.019947		2.4686224	0.1703349
	0.5485579	0.0949073		1.3034261	0.0413591		-0.168682	-0.016738		2.5277405	0.1797529
	0.5506928	0.0898486		0.7691504	0.0266993		0.9378042	0.1338212		1.99214	0.1704344
	0.4820108	0.0807413		2.6197357	0.0585575		0.9488787	0.1313964		1.6911667	0.1705939
	0.415309	0.0697005		0.7428652	0.0353237		0.8566613	0.1049689		1.4311896	0.1503467
	0.5865576	0.0972063		0.894664	0.0397799		1.0731449	0.1148482		1.26558	0.143782
	0.6288971	0.100153		0.5900671	0.039201		1.0540878	0.1122197		1.3188784	0.1739138
	0.6067014	0.0953052		0.2205812	0.0122698		1.0270837	0.1113003		1.2103883	0.1367564
	0.7577432	0.1176775		-0.349428	-0.027926		1.028583	0.1257625		1.1480516	0.1558237
	0.6755768	0.1063927		0.0944222	0.0151523		1.2526931	0.1519195		1.1607282	0.1600055
	0.6110117	0.1045503		0.0307944	0.0051804		1.2583124	0.179989		1.0230886	0.1459479
				-0.086426	-0.016521		1.1714271	0.1473039		1.1126017	0.1706778
26	0.7541317	0.0143899		0.1061724	0.0210668		1.4812728	0.1862601		1.1776001	0.1778692
	-0.109959	-0.001996		0.2350467	0.0463531		1.4691075	0.1827821		1.256607	0.1893135
	-0.607823	-0.023034		0.314526	0.0584626		1.510643	0.1909502		1.3821951	0.2006091
	-0.363868	-0.026575		0.3289114	0.065249		1.4229666	0.1944172		1.2157499	0.1932679
	-0.985187	-0.092102		0.5104275	0.0859037		1.2957455	0.1940627		1.2643924	0.2036539
	-1.439776	-0.129068					1.2409877	0.1981931		1.3216604	0.209909
	-1.026078	-0.112506	29	0.1642729	0.0042439		1.322648	0.1977861		1.1232315	0.1979988
	-1.116725	-0.114614		0.2994016	0.0092783		1.0893409	0.1786655		1.0893111	0.1935111
	-1.306848	-0.114077		-0.458717	-0.028117		1.0397901	0.1596922		1.1071778	0.1829563
	-1.542494	-0.111298		0.21599	0.0143056		1.1949843	0.175712		1.0177587	0.414383
	-1.348797	-0.100542		0.8668688	0.0561741		1.1166176	0.1762235		0.9630777	0.4050112
	-1.354444	-0.086772		-0.055355	-0.002454					1.0327691	0.4257212
	-0.389448	-0.030669		0.8446907	0.0220662					1.1116284	0.4411898
	-0.138709	-0.012301		0.5665467	0.0295253					1.0704626	0.429656
	-0.517311	-0.043312		1.4193099	0.0578726					0.9657547	0.3826075
	-0.914171	-0.06956		2.3724068	0.0663751						
	-0.813004	-0.06564		2.3707063	0.0874658						
	-0.843159	-0.068191		2.20079	0.089729						
	-1.004252	-0.076513		2.1498702	0.0656335						
	-1.075198	-0.109812		0.8884586	0.0342266						
	-0.999518	-0.101228		-0.468407	-0.027594						
	-1.200702	-0.118719		0.0057697	0.0005862						
	-0.894939	-0.090063		-0.032571	-0.003318						
	-0.964811	-0.084046		-0.259365	-0.029154						
	-0.985868	-0.087439		-0.343911	-0.032905						
	-0.994804	-0.089609		-0.214767	-0.019443						
				-0.27483	-0.028153						
				-0.065852	-0.006927						
				0.0171984	0.0017375						
				0.3045116	0.0315181						
				0.6000235	0.0569631						
				0.5497421	0.0572197						
				0.8682548	0.0871702						
				1.1784914	0.1091483						
				1.2614519	0.1164214						

APPENDIX E

T VALUES & ACAER DIFFERENCES FOR 10 STOCKS

period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.
34	-0.1358119	-0.0037284	36	-0.7207633	-0.0193591	38	1.10608453	0.01883835	40	-1.1793552	-0.0847378
	0.87721265	0.13686466		0.79586043	0.03486634		0.69045699	0.02350961		-2.9197113	-0.0433972
	1.19355959	0.16751495		1.19487664	0.05985146		-0.0123302	-0.0007298		-1.8811756	-0.0426183
	1.16113761	0.15252722		1.24932688	0.0884331		-0.4809217	-0.0384422		-1.2447257	-0.0663318
	1.24848933	0.15699489		1.23414927	0.08941329		-0.4272167	-0.0444468		-1.0676766	-0.0910403
	1.14958584	0.15828258		0.98858482	0.07657356		-0.8909707	-0.0691951		-0.9365882	-0.07707
	1.02450608	0.15472582		0.88326968	0.06999459		-0.8779273	-0.1101917		0.71935325	0.35160545
	0.80721723	0.12617131		0.86896497	0.06700332		-0.8222816	-0.0555376		0.71780182	0.35644079
	0.82240526	0.13944737		0.99941956	0.0854824		-1.0367901	-0.0972186		0.71951343	0.35046806
	0.73142464	0.1425021		0.51697348	0.04353284		-0.6483184	-0.093095		0.75053423	0.33910634
	0.70820375	0.11912958		0.38007389	0.0334403		-0.5310298	-0.0931291		0.79433725	0.35111185
	0.77004958	0.14516112		0.26772631	0.02599629		-0.5824382	-0.1011402		0.86126574	0.34568564
	0.7602971	0.14694358		-0.0221337	-0.002579		0.68101895	0.35482536		0.95603609	0.34514247
	0.64620511	0.12162605		1.28240375	0.06587306		0.71593124	0.3564342		1.00541652	0.30536995
	0.80539852	0.15888923		0.57629102	0.0486806		0.76387746	0.37557966		0.9273526	0.24185651
	0.90264014	0.18254719		0.47685633	0.05044022		0.82791241	0.38270764		0.81257585	0.22774115
	0.67880571	0.14413606		0.2102272	0.03365973		0.66969792	0.39986567		0.70167678	0.18131742
	0.61087266	0.13431142		0.21636553	0.0352385		0.81275508	0.36056682		0.81932968	0.2055815
	0.75411533	0.16650826		1.18540824	0.48515503		0.75870539	0.32280745		0.77922205	0.1800984
	0.81373289	0.17271819		1.21023188	0.51129761		0.82776915	0.27971017		0.79520723	0.18376901
	0.91625542	0.17757468		1.1963824	0.50453806		0.70455996	0.22469162		0.67079808	0.16787524
	0.84814769	0.16955402		1.33832754	0.50488689		0.55248291	0.20047109		0.48172027	0.13057535
	0.80002265	0.16711901		1.30331525	0.49750258		0.38588832	0.13621112		0.60003827	0.16186123
	0.79584447	0.16013666		1.31891922	0.47063632		0.42458583	0.16353587		0.55060395	0.15599814
	0.93714481	0.44793738		1.1670861	0.43270404		0.33091633	0.11912608		0.36706423	0.11601405
	0.94218987	0.44961749		1.08978309	0.38441345		0.44190863	0.16060758		0.36771043	0.11550465
	0.9047961	0.43020276		1.1363867	0.34750593		0.29345264	0.10760569		0.32556174	0.09421197
	0.82718822	0.38298878		0.88767504	0.31887015		0.17300635	0.06500515		0.32782046	0.09787066
	0.79384998	0.38463595		0.67494097	0.24064007		0.18162883	0.06208975		0.29229839	0.0961667
	0.84999714	0.38094766		0.63460348	0.24165827		0.15777351	0.05245239		0.19890068	0.06276085
	0.72753614	0.33790937		0.66858554	0.22170683		0.11341438	0.03850503		0.08352064	0.02887435
	0.51950538	0.23863831		0.72270664	0.24189807		0.00260574	0.0008877		0.1367384	0.04687892
	0.44902704	0.19724769		0.68451288	0.22571973		-0.1397201	-0.0466134		-0.0541	-0.0179619
	0.37411717	0.17127884		0.61411141	0.21143627		-0.1164271	-0.0381405		0.08498973	0.02819104
				0.4912976	0.17313586		-0.1599952	-0.0549695		0.00238825	0.00063866
35	-3.3789302	-0.0433787		0.54825539	0.18814615		-0.2087462	-0.0660706		-0.0793745	-0.0321999
	0.49506419	0.02092813					-0.2248617	-0.0744222		0.0216743	0.00842367
	1.76706375	0.09309328	37	1.51014526	0.06129763		-0.3662802	-0.1389243		0.12679933	0.0407855
	1.7915955	0.05073373		1.32917472	0.05123312					0.09388552	0.03085524
	0.11480696	0.00485596		2.40053605	0.070579	39	0.02246378	0.00037802		-0.0100058	-0.0035118
	0.26879141	0.01202369		1.77107779	0.06796867		-0.7640635	-0.0219711			
	0.47481928	0.03517453		0.81011667	0.05888072		-1.2445143	-0.0402323	41	-0.1341248	-0.0094066
	0.55499741	0.02646806		0.36304998	0.02642422		-1.2229098	-0.1179557		-0.2760047	-0.0279632
	0.207849	0.01107725		-0.3278669	-0.022567		-3.5809004	-0.1090008		-0.9459115	-0.0710702
	0.48879364	0.03011881		-0.5483487	-0.0483847		-2.0899579	-0.1096228		0.73655331	0.36818795
	0.35682105	0.02824864		-0.5678717	-0.0501034		-1.1788654	-0.1037672		0.73458002	0.37544178
	0.48409803	0.03492463		-0.8532697	-0.1151427		-0.8668249	-0.1131676		0.76239817	0.38147803
	0.12282804	0.01134662		-0.5628788	-0.0528008		-0.7195077	-0.0999273		0.82039525	0.3989314
	-0.0397901	-0.0041713		-0.8034923	-0.0807539		0.70207799	0.34683795		0.8283219	0.39826512
	-0.0325423	-0.0034211		-0.4746366	-0.0688954		0.69117258	0.34837222		0.79896442	0.36367678
	-0.1279446	-0.0146149		-0.3835658	-0.0717709		0.72976955	0.35646341		0.77731836	0.32734961
	0.79248288	0.05639727		-0.2731359	-0.0446614		0.84948422	0.37488474		0.8619313	0.3097517
	0.3638385	0.02880587		0.85883436	0.41490505		0.95195204	0.39842556		0.82760207	0.23591539
	0.21074267	0.02336172		0.66170722	0.4253636		0.92605365	0.36661832		0.7256885	0.23175561
	0.17618423	0.02749066		0.90250406	0.43673226		0.88624739	0.3284186		0.66649938	0.20485344
	0.2915556	0.04383904		0.96486302	0.44992224		1.01878338	0.30563942		0.73500207	0.23469146
	1.08007798	0.48481239		0.99405209	0.45908158		0.94680148	0.25502887		0.79323958	0.22681284
	1.07772144	0.47341197		1.036401	0.43446853		0.83709035	0.24447403		0.98446767	0.26379439
	1.0285138	0.45743193		0.96137167	0.39441795		0.75639754	0.20357274		1.02617835	0.27079319
	1.08276711	0.45792118		0.99498704	0.3489742		0.7389599	0.21354449		0.90510101	0.24883584
	0.99194979	0.43785077		0.74477521	0.26500732		0.57626523	0.16428063		0.8454628	0.24648539
	0.89446996	0.39241336		0.5072373	0.20701761		0.54079691	0.15967282		0.6646998	0.20502383
	0.82186833	0.35318071		0.4668674	0.17897922		0.46242444	0.13143609		0.59519199	0.19706877
	0.91664433	0.34570207		0.51568082	0.21225593		0.50057049	0.13639537		0.60618149	0.19803599
	0.748379	0.27812471		0.37616304	0.1528715		0.43756742	0.12759422		0.42260926	0.14577142
	0.57610695	0.23215142		0.42100258	0.17116154		0.33964548	0.09594516		0.41899861	0.14293042
	0.51494784	0.1831548		0.39635357	0.15289361		0.21021076	0.06122292		0.36721647	0.13680817
	0.56058351	0.21298612		0.32194462	0.12831481		0.17123712	0.04965531		0.34863491	0.12048227
	0.45681316	0.16213792		0.31676806	0.12568802		0.07894576	0.02255038		0.32641008	0.11743479
	0.38212068	0.1380631		0.24040099	0.09546822		0.00311881	0.00088568		0.2883506	0.11079489
				0.13385141	0.05578179		-0.0816891	-0.0260159		0.12812295	0.04717966
				0.16525472	0.06612007		-0.0600124	-0.0164192		0.29491478	0.10646852
				0.03790864	0.01570012		-0.1915692	-0.0585424		0.19788231	0.07897073
				0.10038941	0.04084957		-0.1356804	-0.0422927		0.34931641	0.14252602
							-0.3967635	-0.1119098		0.27026734	0.11681091
							-0.4106324	-0.134663		0.09930017	0.04567887
							-0.228291	-0.073405		0.17884338	0.08368811
							-0.0062734	-0.0019727		0.22154738	0.09776801
										0.22887387	0.1216195
										0.17729058	0.09346585
										0.18533887	0.09960714
										0.21919541	0.12111256

APPENDIX E

T VALUES & ACAER DIFFERENCES FOR 10 STOCKS

period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.	period	t values	ACAER DIF.
42	1.0209676	0.4467102	44	-0.494033	-0.027144	45	0.391054	0.0206529	46	0.2411267	0.0082115
	0.9421844	0.4212653		-0.907255	-0.103839		-1.119253	-0.050458		1.7026025	0.0431775
	0.979377	0.436841		-1.041217	-0.177678		-0.162931	-0.010392		1.5046198	0.0723082
	1.0404873	0.4506157		-0.940096	-0.145583		-0.388372	-0.015388		1.603134	0.0954816
	1.0575234	0.4506514		-1.045641	-0.218887		0.0197112	0.0008488		1.5548214	0.0957573
	1.0897665	0.4318611		-1.018959	-0.19836		1.268442	0.029588		1.382658	0.1048671
	1.0634172	0.3831299		-1.001414	-0.202745		8.123547	0.0881776		1.262251	0.1184458
	1.0910048	0.3599607		-0.781347	-0.165916		2.033517	0.0919534		1.2941424	0.1336327
	1.1006357	0.2833338		-0.527101	-0.112081		1.4995561	0.090912		1.2439608	0.1395069
	1.1247619	0.3030015		-0.532195	-0.120368		1.1554015	0.082078		1.4622586	0.1674474
	1.3041699	0.2927317		-0.509082	-0.122129		1.1348638	0.0957951		1.7177476	0.1872535
	1.2988099	0.3082609		-0.480748	-0.124748		1.0407474	0.1026963		1.5601139	0.2032469
	1.4982834	0.3158405		-0.42187	-0.110788		1.1043759	0.1335056		1.6973155	0.1991824
	1.6522198	0.3561885		-0.268372	-0.075479		1.2168382	0.1343579		1.9664165	0.1890892
	1.7696857	0.3562408		-0.287174	-0.077059		1.1861066	0.108499		1.7268785	0.1653732
	2.1040217	0.3926484		-0.40763	-0.100072		1.2244577	0.0800877		1.6852003	0.148618
	2.1338196	0.3946407		-0.465272	-0.0949		3.0998286	0.0883473		1.9659343	0.1754717
	1.8964738	0.3498209		-0.645467	-0.127361		2.8500764	0.0554478		2.9425319	0.2384261
	1.4661485	0.3151452		-0.797984	-0.172111		3.114404	0.0960387		2.09904	0.1971701
	1.1811487	0.2793863		-0.502467	-0.123		4.4406509	0.0877736		1.8557746	0.1948369
	1.1328099	0.2633755		-0.952757	-0.185111		3.3221445	0.0911478		1.8293972	0.1574093
	1.1789694	0.2843657		-0.851002	-0.154687		2.1484498	0.0675246		3.2606795	0.1168432
	0.8911037	0.2503789		-0.892974	-0.13416		2.4447611	0.0707039		2.6272006	0.133797
	0.954256	0.2582978		-0.834157	-0.108963		2.3660446	0.0366358		2.0354991	0.1030409
	0.8539076	0.2315223		-0.985955	-0.133779		-0.252943	-0.021781		1.0101431	0.0640161
	0.8115947	0.2461524		-1.129556	-0.142042		-0.156521	-0.025495		1.4031205	0.1087693
	0.7399601	0.2026333		-1.811579	-0.185658		-0.232441	-0.034633		0.6437816	0.078637
	0.7359378	0.2179936		-1.179792	-0.206431		-0.430238	-0.076971		1.0160951	0.0889939
	0.5511998	0.1856363		-1.008162	-0.206764		-0.189916	-0.033035		0.4583991	0.0541946
	0.7782034	0.2688476		-0.966116	-0.206085		-0.291897	-0.054597		0.1536465	0.0220848
	0.6202564	0.2340565		-1.239409	-0.268433		-0.613077	-0.114066		0.3578227	0.043989
	0.7023328	0.2548432		-1.224535	-0.253874		-0.366316	-0.075369		2.3221397	0.1282635
	0.5543042	0.225946		-1.168225	-0.238846		-0.126434	-0.019014		1.3320197	0.1032633
	0.3077382	0.1468629		-1.019149	-0.200831		-0.293071	-0.052178		1.3337608	0.1174588
	0.397264	0.2188864		-0.926751	-0.209793		-0.309677	-0.054835		1.1293858	0.0979221
	0.4795142	0.2375797		-1.041131	-0.229707		-0.346934	-0.064734		1.7580016	0.1176816
	0.5068379	0.2674809		-1.020249	-0.230014		-0.271693	-0.044171		1.356372	0.0994634
	0.5314802	0.3048209		-1.027784	-0.225706		-0.205026	-0.033193		0.7514647	0.0807599
	0.5247971	0.2968442		-0.873684	-0.200724		-0.419889	-0.081297		0.6815179	0.0603611
	0.5455069	0.292032		-1.032568	-0.229996		-0.456542	-0.09066		0.6068523	0.0584063
	0.5702092	0.3155602		-1.060856	-0.221391		-0.424468	-0.095697		0.7738699	0.0644155
	0.4689717	0.2713895		-1.018274	-0.23709		-0.64712	-0.12758		0.6376391	0.0359156
				-1.091163	-0.245404		-0.699778	-0.138772		0.2602735	0.0199062
43	-0.539601	-0.024661		-1.080198	-0.24076		-0.777526	-0.165555		-0.025102	-0.002282
	-0.357706	-0.017335					-0.924652	-0.22174		-0.34912	-0.041422
	-0.938418	-0.063607								-0.195664	-0.019163
	-1.093364	-0.102276									
	-0.992193	-0.136972									
	-1.081648	-0.200471									
	-1.217665	-0.184519									
	-1.172619	-0.237221									
	-0.936064	-0.202135									
	-0.730087	-0.178989									
	-0.669058	-0.158471									
	-0.525809	-0.122588									
	-0.455703	-0.109764									
	-0.423934	-0.108021									
	-0.328296	-0.094514									
	-0.356173	-0.098111									
	-0.464551	-0.119372									
	-0.530605	-0.125701									
	-0.679773	-0.143799									
	-0.684062	-0.128531									
	-0.575865	-0.116514									
	-0.982995	-0.194982									
	-1.001985	-0.173028									
	-1.108296	-0.206886									
	-1.12576	-0.190274									
	-1.364443	-0.191048									
	-1.492645	-0.16967									
	-2.360165	-0.211014									
	-1.541975	-0.168896									
	-3.383316	-0.202654									
	-2.401257	-0.200374									
	-1.938968	-0.195441									
	-2.115755	-0.259755									
	-1.620498	-0.232687									
	-0.902892	-0.114047									
	-1.046215	-0.143017									
	-1.112702	-0.138862									
	-0.99709	-0.146083									
	-1.173625	-0.150742									
	-0.805987	-0.115309									
	-0.989404	-0.149188									
	-0.939771	-0.136151									
	-0.670608	-0.118549									

APPENDIX E

T VALUES & ACAER DIFFERENCES FOR 10 STOCKS

	t values	ACAER DIF.		t values	ACAER DIF.		t values	ACAER DIF.		t values	ACAER DI
period			period			period			period		
47	3.341516	0.064336	48	-1.10141	-0.0116	49	0.493547	0.002873	50	0.01293	0.000425
	5.228078	0.053482		-1.48468	-0.01694		17.71821	0.049945		1.667812	0.054922
	2.209172	0.037615		-0.40062	-0.01169		1.284696	0.049453		0.905703	0.052701
	1.289092	0.033829		0.386325	0.017285		1.065273	0.062873		1.888858	0.087025
	1.113891	0.054214		1.296472	0.067479		2.727515	0.103638		5.672027	0.13185
	1.039616	0.081951		0.770267	0.053381		0.946959	0.072629		7.488198	0.174831
	1.017577	0.085002		0.669376	0.04517		1.671644	0.114942		6.683581	0.178428
	1.513429	0.107657		1.641244	0.086373		3.657019	0.165609		5.060317	0.222832
	1.044886	0.099698		0.669131	0.064582		4.777666	0.218701		3.528517	0.175158
	1.309274	0.115404		1.200014	0.129869		4.398732	0.202426		1.953743	0.120366
	1.799595	0.178641		2.112312	0.156335		6.722171	0.197359		1.019856	0.166802
	1.300406	0.152069		4.626371	0.159767		3.93292	0.141135		0.512445	0.094563
	1.755392	0.153274		33.78489	0.127929		0.779769	0.07459		0.20973	0.044865
	3.584423	0.159305		4.171879	0.112739		0.688908	0.129915		0.328102	0.07376
	4.808545	0.16723		2.121561	0.072012		0.660828	0.123908		0.119056	0.031256
	4.850565	0.149246		0.615848	0.066111		0.314098	0.066829		0.126755	0.032268
	9.973219	0.171483		0.33432	0.07362		0.428269	0.08737		0.132556	0.036933
	2.465767	0.086722		0.209293	0.0426		0.448548	0.089289		0.107928	0.030779
	0.299524	0.028862		0.026629	0.005293		0.401118	0.084216		0.118157	0.033475
	0.394362	0.067055		0.203965	0.046784		0.453947	0.108908		0.118361	0.032599
	0.240584	0.043444		0.234936	0.053892		0.390338	0.091828		0.02449	0.006574
	0.11144	0.020017		0.194634	0.043861		0.243583	0.058043		0.056604	0.014933
	0.136687	0.023778		0.129272	0.033207		0.334446	0.076438		-0.07305	-0.01928
	0.085726	0.015469		0.128558	0.032467		0.162556	0.040988		0.007985	0.002089
	0.029651	0.005383		0.007214	0.002005		0.310259	0.07095		-0.10986	-0.02964
	-0.06789	-0.0152		0.09648	0.025245		0.149843	0.033423		-0.24939	-0.07567
	-0.02249	-0.00469		-0.0022	-0.00059		-0.01043	-0.00261		-0.33024	-0.08586
	-0.19874	-0.04343		-0.16922	-0.0485		0.04347	0.010306		-0.01177	-0.00243
	-0.34193	-0.08167		-0.11094	-0.02832		0.544942	0.100077		-0.0458	-0.01035
	-0.25537	-0.05783		0.299206	0.058065		0.167323	0.030889		-0.08997	-0.02045
	0.241555	0.038103		0.186396	0.038285		0.076902	0.015284		-0.12733	-0.03256
	0.216444	0.032542		0.177445	0.038818		0.013739	0.003055		-0.12009	-0.02963
	0.137373	0.023346		-0.03066	-0.00656		0.050882	0.010515		-0.05879	-0.01246
	-0.01616	-0.00291		-0.06711	-0.01421		0.077138	0.018202		-0.23113	-0.05165
	0.029849	0.005655		0.014582	0.003267		-0.05698	-0.01439		-0.10796	-0.02666
	-0.07675	-0.01448		-0.15134	-0.03707		-0.10698	-0.024		-0.10188	-0.02505
	-0.27726	-0.05734		-0.15966	-0.04197		-0.11296	-0.02544		0.003818	0.000834
	-0.26464	-0.0589		-0.18593	-0.05153		0.033529	0.007349		0.001623	0.000302
	-0.40648	-0.09718		-0.24455	-0.0549		0.12281	0.023483		-0.0276	-0.00441
	-0.35732	-0.08289		-0.26589	-0.05527		0.121885	0.023546		-0.08335	-0.01592
	-0.40113	-0.08998		-0.20089	-0.04593		0.039129	0.007888		-0.22003	-0.05463
	-0.57259	-0.11492		-0.19201	-0.04711		-0.15324	-0.03523		0.034873	0.008184
	-0.6065	-0.13295		-0.24899	-0.07224		-0.03675	-0.00864		0.025951	0.005628
	-0.61497	-0.164		-0.14011	-0.03548		-0.02101	-0.00489		0.047804	0.008916
	-0.46494	-0.11285		-0.04137	-0.00924		0.095592	0.019555		-0.23984	-0.04851
	-0.39833	-0.08974		-0.00564	-0.0011		-0.16604	-0.03674		-0.10894	-0.02392
	-0.46224	-0.08568		-0.24587	-0.0546		-0.09333	-0.01917		0.0054	0.001265
				-0.17014	-0.03871		-0.08135	-0.01553		-0.06472	-0.01375
							0.01973	0.004134		0.015796	0.003547
										-0.0165	-0.00404

T VALUES & ACAER DIFFERENCES FOR 10 STOCKS

F.		t values	ACAER DIF.			
	perlod			perlod		
	51	2.109334	0.044714	52	0.429918	0.014617
		3.338108	0.095345		1.572654	0.036317
		4.562641	0.148644		1.091075	0.030889
		4.033418	0.146397		1.631169	0.053459
		3.413142	0.153255		1.094797	0.12572
		2.252996	0.138191		0.860156	0.100703
		1.66586	0.142787		0.264373	0.042345
		1.997436	0.196501		0.410163	0.061696
		1.048244	0.124854		0.155686	0.028665
		0.409883	0.07126		0.010378	0.001861
		0.354453	0.063121		-0.02222	-0.00487
		0.314248	0.058734		0.016587	0.003291
		0.454149	0.081841		-0.1343	-0.03059
		0.161977	0.036604		-0.16293	-0.0346
		0.196922	0.042177		-0.25756	-0.05112
		0.131998	0.026659		-0.31508	-0.06189
		0.141249	0.028842		-0.29392	-0.05099
		0.170317	0.033742		-0.43674	-0.08034
		0.133586	0.025718		-0.6318	-0.11903
		-0.10732	-0.01873		-0.62747	-0.12146
		0.040057	0.007107		-0.90526	-0.17435
		-0.19626	-0.03838		-0.89496	-0.16002
		-0.06994	-0.01402		-0.90427	-0.18553
		-0.34897	-0.06531		-1.02393	-0.2534
		-0.53844	-0.11999		-0.90052	-0.21782
		-0.32112	-0.0744		-0.71447	-0.13879
		-0.10693	-0.01824		-0.85718	-0.14835
		-0.13578	-0.02684		-0.96531	-0.16253
		-0.18971	-0.03779		-0.65123	-0.12446
		-0.2881	-0.05058		-0.72089	-0.12062
		-0.34663	-0.05289		-0.67957	-0.10788
		-0.08124	-0.01382		-0.84751	-0.1363
		-0.24316	-0.04176		-0.99006	-0.1309
		-0.13964	-0.02067		-0.96232	-0.13448
		-0.28562	-0.03501		-1.05398	-0.1326
		-0.07269	-0.0057		-0.80615	-0.10554
		-0.14665	-0.01024		-0.85156	-0.11255
		-0.0677	-0.00555		-0.74758	-0.12622
		-0.17301	-0.01906		-0.82604	-0.16783
		-0.29551	-0.04955		-0.54343	-0.10702
		-0.11726	-0.01565		-0.53601	-0.11055
		-0.12738	-0.0155		-0.88416	-0.14268
		0.071049	0.008422		-1.10594	-0.20586
		-0.29062	-0.04404		-0.87362	-0.16733
		-0.38484	-0.05372		-0.76773	-0.14132
		-0.38039	-0.05937		-1.14558	-0.17143
		-0.12556	-0.01644		-1.38229	-0.16921
		0.20625	0.02124		-1.08704	-0.17808
		-0.27835	-0.03413		-0.85112	-0.16043
		-0.57237	-0.0699		-0.86929	-0.18304
		-0.65721	-0.0884		-0.97563	-0.17668
					-0.83156	-0.16721