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TEST OF THE CAPITAL ASSET PRICING MODEL IN TURKEY

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PREFACE

Nowadays it is not easy for individual investors and portfolio managers to achieve a best decision in invetsments and portfolio analysis. Therefore, the role of the Capital Asset Pricing Model in investment decision-making is indeed very important. This study does not only makes a contribution to the investment management in Turkish capital market but also has widen my personal knowledge horizon with regard to the understanding of market behaviour.

I would like to express my appreciation to the stuff of the Institute of Social Sciences of Dogus University for giving me the background for writing this thesis. Particularly, I would like to thank my thesis advisor Prof. Dr. Cudi Tuncer Gürsoy for his great help, Assoc.Prof. Dr. Alövsat Müslümov and Dr. Fuat Beyazıt for their valuable advices, the institute secretary Kesper Diler for her help, my husband, my family and my friends for their continued support.

Istanbul, December, 2005 Gulnara Rejepova

ÖZET

Sermaye piyasasında denge koşulları açıklamaya çalışan Finansal Varlık Fiyatlandırma Modeli, sermaye piyasalarındaki risk-getiri ilişkilerini tanımlamak amacıyla araştırmacılar tarafından daha önce de test edilmiştir. Deneysel test sonuçları, modeli kuvvetle destekleyen yönde olduğu kadar aynı ölçüde yadsıyan nitelikte olmuştur. Finansal Varlık Fiyatlandırma Modeli, uygulanabilir portföy yönetiminde geniş kullanım alanı bulduğundan beri, akademik araştırmaların temel tartışma konularından biri haline gelmiştir.

Bu çalışmanın amacı, Finansal Varlık Fiyatlandırma Modeli'ni Türk sermaye piyasasındaki beta-getir ilişkisini tanımlamak, betanın menkul değerlerin riskini ölçmede ne orada başarılı olduğunu göstermektir. Finansal Varlık Fiyatlandırma Modeli testi, İstanbul Menkul Kıymetler Borsasına kayıtlı menkul kıymetlerin getirileri kullanılarak, geleneksel yöntem ve koşullu analiz yöntemi olmak üzere iki şekilde yapılmıştır. Fama ve MacBeth (1973)'in üç basamaklı geleneksel yaklaşımı, beta-getiri ilişkilerini ve risk priminin pozitif olduğunun testini amaçlamış, ancak elde edilen sonuçlar istatistiksel olarak anlamlı olmamıştır. Gelenkesel test yönteminin bu sonucu vermesinin temel nedeni pazar risk priminin pozitif ve negatif olduğu dönemleri birbirinden ayırmamasıdır. Bundan dolayı, Pettengill vd'in (1995) koşullu analiz tekniği kullanılarak analiz dönemi pazar risk priminin pozitif ve negatif olduğu haftalardan oluşan iki gruba ayrılmıştır. Böylece istatistiksel olarak, beta ve getiri arasında önemli ve sağlam sonuçlara ulaşılmıştır. Ayrıca, sonuçlar, pazar risk priminin negatif olduğu dönemlerde, risk ile getiri arasında negatif ilişki olduğunu da göstermiştir. Yüksek betalı portföylerin, pazar primi pozitif olduğu dönemlerde yüksek getiri, pazar primi düşük olduğu dönemlerde düşük getiri olduğunu bulunmuştur. Türk sermaye piyasasında, beta ve getiri arasında sistematik koşula bağlı bir ilişki olduğu sonucuna varılmıştır.

Bu çalışmanın sonunda, elde edilen tüm bulgular, betanın, yatırımcılar ve portföy yöneticileri için halen kullanışlı bir risk ölçüm aracı olarak kullanılabileceğini ancak bu yapılırken pazar risk priminin pozitif ya da negatif olmasına dikkat edilmesi gerektiğini göstermektedir.

Anahtar Kelimeler:
Finansal varlık fiyatlandırma modeli; Pazar risk primi; Beta ve getiri

SUMMARY

The Capital Asset Pricing Model, as the dominating capital market equilibrium model, has been previously tested by various researches in order to define the relationship between risk and return in different capital markets. The empirical test results show the strong support as well as the evidences against the CAPM. The CAPM is the actual issue of many debates in academic research since it continues to be widely used in practical portfolio management.

This study has its aim to test the CAPM in order to determine the relationship between beta and returns in the Turkish capital market and the usefullness of beta as a single measure of a security risk. The test of the CAPM in this thesis has been conducted in both traditional and conditional way using the returns on securities listed on Istanbul Stock Exchange. Using the Fama and MacBeth (1973) three-step traditional approach which aims at testing the relationship between beta and return and whether the market risk premium is positive, has given us the result which shows the insignificant relationship between risk (measured by beta) and return. We believe that the traditional test results have been biased due to the fact that the traditional test does not take into account the condition of positive and negative market excess returns. Therefore, we have splitted the up-market weeks and down-market weeks to conduct the conditional test according to the Pettengill et al. (1995) method. The statistically significant and consistent relationships between beta and returns have been found. The results also indicate that there is an inverse relationship between risk and returns in the periods when the market excess returns are negative. It has been found that the portfolios with higher betas have higher returns when the market risk premium is positive and lower returns when the market risk premium is negative.

We have concluded that the systematic conditional relationship exists between beta and returns in the Turkish capital market. The overall evidence in this study indicates that beta is still a useful measure for risk for investors and portfolio managers to make investment decisions but the analysis should be made by means of the conditional model.

Keywords:
Capital asset pricing model; Market risk premium; Beta and return

CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1 PURPOSE OF THE THESIS

The purpose of this study is to test the validity of the CAPM, which is widely used in portfolio management to predict the securities returns according to the relationship between risk and return, in Turkish capital market. The study is also aimed to determine the type of relationship between risk and return with regard to the market conditions.

1.2 SCOPE OF THE THESIS

The scope of this thesis covers the tesing of the CAPM using data from the Istanbul Stock Exchange (ISE), particularly all stock returns available on ISE meeting the data requirements of the test, for the period of 1995-2005.

1.3 METHODOLOGY OF THE THESIS

There are various methodologies of testing the CAPM. However, most of them use main principles of the three-step approach of Fama and MacBeth (1973), which is one of the earliest and basic CAPM test methodologies. The basis of this method is the portfolio formation procedure according to the ranked beta estimates. Betas are estimated by running time-series regressions. The final step includes the cross-sectional regression of estimated betas and returns.

One of the recent test approaches is the Pettengill et al. (1995) methodology. This approach also based on the implications of the Fama and MacBeth method but the final step is adjusted by adding into the regression of dummy variable which allows to separate the periods of negative and positive market excess returns. This conditional approach, generally, brings to the different test results.

We have used both above-mentioned methods to test the CAPM in Turkish capital market adjusting some data according to the Turkish market conditions.

1.4 LIMITATIONS

The scope of this thesis is limited to the main assumptions of the CAPM. Our test has been conducted without relaxing of any model assumptions. The study is focused on the beta as the measure of risk and the single main variable affecting the security returns. However, the model might be broaden in the future to test the other market variables that can influence the security returns in the Turkish capital market.

2. THEORY OF THE CAPITAL ASSET PRICING MODEL

2.1 Main Implications and Assumptions of the CAPM

The Capital Asset Pricing Model (CAPM) was developed from the modern portfolio theory created by Markowitz in 1952. He proposed a portfolio selection technique that maximizes expected utility to a combination of portfolio return and risk. More precisely, the CAPM comes out of two developments: Markowitz portfolio theory, which is showing how to create an efficient frontier, and the theory of James Tobin, who in a 1958 paper suggested that if investors hold risky securities and are able to borrow - buying stocks on magrin, or lend - buying risk-free assets, and investors do so at the same rate, then the efficient frontier is a single portfolio of risky securities plus borrowing and lending, and that dominates any other combination. Tobin's Separation Theorem suggests that investors can separate the problem into first finding that optimal combination of risky securities and then deciding whether to lend or borrow, depending on their attitude toward risk. He then showed that if there is only one portfolio plus borrowing and lending options at the same risk-free rate, efficient frontier converts to a linear relationship between risk and return called the capital market line.

These theories were later expanded independently by Treynor (1961), Sharpe (1964), Lintner (1965) and Mossin (1966) who introduce a single index model known as the CAPM. Since then, the CAPM has been the dominating capital market equilibrium model. It continues to be the most widely used model in practical portfolio management and in academic research. Its central implication is that the contribution of an asset to the variance of the market portfolio – the asset's systematic risk, or beta risk – is the correct measure of the asset's risk and the only systematic determinant of the asset's return. The model examines the type of risk-return relationship, the determination of the expected rates of return, as well as the security prices behavior. Being the most basic asset-pricing theory, CAPM tries to explain the difference between expected returns of different capital assets in term of their market risk.

As every theoretical model the CAPM has its assumptions. Being based on the Markowitz portfolio theory, the CAPM includes all its assumptions. The CAPM's basic assumptions are as follows:

1) *All investors are risk-averse and rational expected-utility maximizers.* It means that all investors use the Markowitz portfolio selection model, i.e. for holding a higher risk investors want to be compensated with higher return. Hence, for instance, between two assets with equal rate of return an investor will select the asset with lower risk. If it was not true and investors were not risk-averse then logically all investors would hold the single security with the highest return in order to maximise their utility preferring more return to less return. However, investors are typically risk-averse and hold diversified portfolios investing in many types of assets with different levels of risk. Every investor will choose the portfolio that best fits or maximises his or her expected utility, meaning that an investor will have the highest possible indifference curve.
2) *All investors select from alternative portfolios on the basis of expected return and risk.* Rational investors prefer to hold portfolios that are placed on the efficient frontier. Investor's portfolio choice depends on the investor's level of risk-aversion that is characterized by the shape of investor's risk-return utility function. A highly risk-averse investor will choose a portfolio somewhere from the lower left part of the efficient frontier with the lower risk and therefore with lower return, whereas an investor with low degree of risk-aversion will hold a portfolio from the right upper part of efiicient frontier with higher return and higher risk. So, every investor will choose his or her optimal portfolio from the efficient set of portfolios.
3) *All investors operate on an identical single-period time horizon.* It means that this behavior includes only one investment horizon (which is the same for all investors) ignoring everything that might happen beyond it, since the shape of the return distribution generally differs for different investment horizons.
4) *All investors have the opportunity of unlimited borrowing and lending at a common risk-free rate.* The variance and covariance of the risk-free asset with other assets equals zero. Generally, treasury bills are taken as a proxy for the risk-free asset. However this assumption ignores the fact that zero variance does not mean that the

risk-free asset is free of all risk such as inflation. It accepts the nominal value of treasury bills.

5) *All investors have homogeneuos expectations with regard to means, variances and covariances of asset returns.* This assumption suggests that all investors have the same economic view of the world, particularly the prospects of each asset. All investors use the same expected returns and covariances of asset returns to create the efficient frontier and the optimal portfolio. Therefore, every investor faces the same mean-variance efficient set. This assumption also requires that all investors make their decision according to the same information.

6) *There are no transaction costs on trade in securities and no taxes (or capital gains and dividends are taxed at the same rates).* It is assumed that there are no market imperfections such as transaction costs. This assumption makes it possible to arbitrage assets, which are mispriced by transaction costs in reality, and therefore leading prices to equilibrium. The assumption with regard to taxes is made due to the fact that investors have different tax brackets, which making them to choose different assets to invest in. Tax rates differ according to the type of income such as dividends, capital gains or interest.

7) *All investors are price-takers* meaning that the portfolio choices and transaction scales of individual investors do not noticeably affect the asset prices. So, it is assumed that the market is perfectly competitive as there is a large number of investors, each with wealth that is small compared to the total market value of capital assets.

Certainly, these assumptions ignore many market imperfections and world comlexities. There are many empirical tests of the CAPM made by researchers by relaxing one or more of these assumptions, which have become a subject of considerable theoretical debates.

The implications of these assumptions provide the basis of the CAPM theory. The most important CAPM implications are as follows:

- In equilibrium, all investors will choose to hold the market portfolio of risky assets irrespective of their risk preferences. Notice, that the *market portfolio* includes all risky assets traded. Obviously, different investors hold different portfolios, combinations of which in total form the market protfolio plus the risk-free assets. This issue is called as the *separation principle.*

- The risk of every individual security is defined by its covariance with market portfolio, as all investors hold the market portfolio. So, the remaining non-systematic risk is diversified away. The only systematic or market risk is taken into account. A standardised measure of covariance with the market portfolio is known as *beta coefficient* of the asset. Beta measures the extent to which asset return and market return move together. Beta is the proper measure of risk for individual assets and portfolios regardless of whether these portfolio are efficient or not. Yet, the risk of efficient portfolios can be measured by beta or variance (or standard deviation). The inefficient portfolios risk can be measured only by beta, which is defined as:

$$\beta_i = \frac{\text{Cov}(R_i R_m)}{\text{Var}\,(R_m)} \qquad (2.1)$$

- Since non-systematik risk is diversified away, the return on investor's portfolios is affected only by systematic risk (as measured by beta), which must be compensated to investors. The security market line (SML) explains this issue by showing the relationship between expected return and beta of the asset or portfolio.

2.2 The Capital Market Line (CML)

One of the properties of CML is the availability of risk-free asset and assumption that the investors can borrow and lend unlimited amount at a risk free rate R_f. Thus, investors have the opportunity to construct their portfolios using risky assets and risk-free assets. The weights of risky and risk-free assets in the portfolio depend on the investor's risk-aversion level. The expected return on a portfolio R_p thus:

$$E(R_p) = WR_f \;+ (1\text{-}W)\, E(R_m) \qquad (2.2)$$

where R_m is the market return (return on the market portfolio of risky assets) and W is the weight of risk-free assets in the portfolio, therefore (1-W) is the proportion of risky assets in the portfolio. Using lending and borrowing at the risk-free rate, investors face the low return when lending, the high return when borrowing, and the middle return when investing only in risky assets (Sharpe, Alexander and Bailey, 1999). In other words, lending decreases expected return on a portfolio while borrowing increases expected return, as it is clearly seen on the Figure 1 representing the CML.

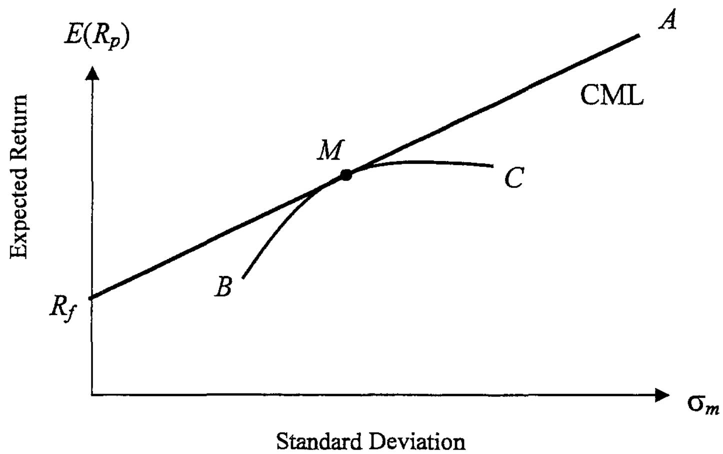


Figure 2.1 The Capital Market Line
Source: Farrell, J., (1997), Portfolio Management

The $R_f M$ part of the CML represents all portfolios consisting from market portfolio *M* and risk-free lending. The *MA* part of the CML shows combinations of risky assets and borrowed funds at risk-free rate. Obviously, portfolios located on the *MA* line, earn a higher return than those portfolios located on the $R_f M$ fragment. So, the CML perpesents all possible alternative portfolios constructed from risky assets of portfolio *M* and risk-free lending and borrowing.

The *BMC* curve represents the frontier for inefficient portfolios except portfolio *M*. Portfolios allocated on the *BMC* curve become inefficient due to the fact that portfolios plotted on the CML offer higher return than those on the *BMC* line at the same level of risk. Any combination along the CML (except portfolio *M*) is superior to any combination of risky assets alone. The investors will, therefore, prefer to invest in portfolios allocated on the CML constructing them from risk-free assets or loans and the portfolio *M*.

The portfolio containing all risky assets represented by the market portfolio *M*, which is the tangency point of efficient frontier to the CML on the figure, consists of all investors' portfolios, i.e. all investors share the market portfolio. It is a result of the CAPM assumption of homogeneous expectations of investors. Since, all investors attemt to optimize their personal portfolios, each investor will choose the same market portfolio, which has the optimal weights of all risky assets (Ross, Westerfield and Jaffe, 2001). If one security was not included in the market portfolio, it would mean that there is no demand on that security, thus, it's price would be zero or the price would be declinig until it reaches the price which will be attractive for investors to hold that security in their portfolios. So, this price adjustment leads to the fact that all securities are included in the market portfolio.

The market portfolio is the only portfolio on the CML consisting from risky assets. All other portfolios on the CML include risk-free assets or risk-free loans. Therefore, the CML equation is presented by the risk-free rate and the return on market porfolio:

$$E(R_p) - R_f = \frac{E(R_m) - R_f}{\sigma_m} \sigma_p \tag{2.3}$$

The CML formula shows that for a portfolio to be located on the CML, the expected return in excess of the risk-free rate must be proportional to the standard deviation of that portfolio, σ_p. The slope of the CAPM is the *market price of risk* and signifies the rate, at which investors will be compensated fo

To summarize, the CML provides the required risk premium for any porfolio plotted on the CML comprising the risk-free asset and the market portfolio. In other words, the CML shows the risk-return relationship and the appropriate measure of risk for an efficient portfolio, which is the standard deviation of portfolio's return (Farrell, 1997). The CML aslo indicates that the risk-return relationship is linear. So, the CML gives the explantation of risk premius of the portfolios. However, there exists another issue. It is the relationship between the expected return of a particiler security and the expected return on the portfolio. This explanation is provided by the characteristic line.

2.3 The Characteristic Line

Since the specific (non-systematic) risk can be diversified away by constructing of a portfolio, investors require to be rewarded only for bearing a systematic (market) risk. The systematic risk provides the extent to which the expected return on individual security varies with expected return on the market. The extent of this co-movement is provided by the characteristic line.

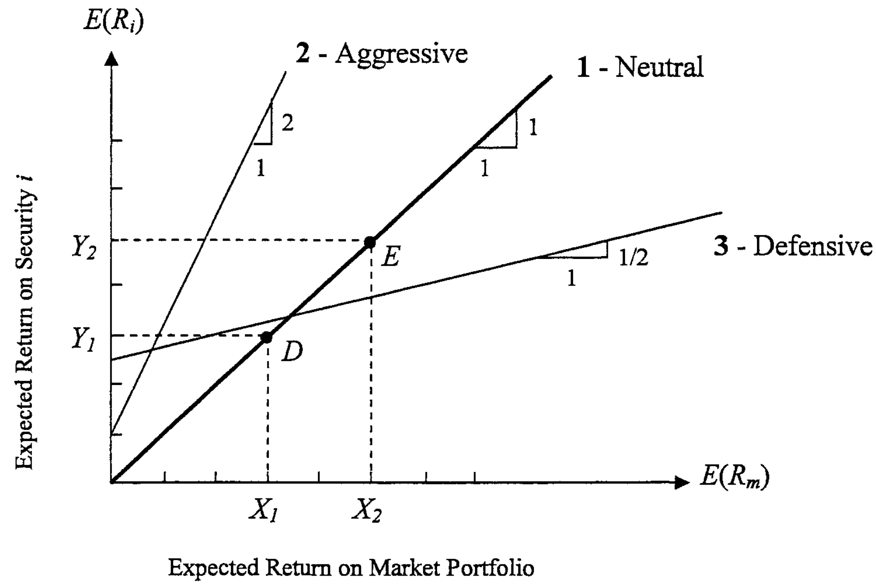


Figure 2.2 The Characteristic Line
Source: Levy and Post, (2005), Investments

As it is shown on the Figure 2 the characteristic line's slope relates the expected return on the security $E(R_i)$ to the expected return on the market portfolio $E(R_m)$. The line 1 shows that for every percentage point increase in the expected return on the market portfolio, for example from X_1 to X_2, the expected return on the security i rises by the same percentage form Y_1 to Y_2, meaning that the slope of the line equals 1, which represents the *beta coefficient* β_i. Beta indicates how the return on the security i responds to a given variation in the market return. It measures the systematic risk of an asset with regard to the market portfolio. Beta coefficient is defined as the ratio of the security's covariance of return with the market $\mathrm{Cov}(R_i R_m)$ to the variance of the market $\mathrm{Var}(R_m)$ and is calculated as follows:

$$\beta_i = \frac{\mathrm{Cov}(R_i R_m)}{\mathrm{Var}\,(R_m)} = \frac{\rho_{im}\sigma_i\sigma_m}{\sigma_m\sigma_m} = \frac{\rho_{im}\sigma_i}{\sigma_m} \qquad (2.4)$$

Beta coefficient depends on the correlation coefficient between security i and market, and the standard deviations of the security and market. So, if beta equals 1 the characteristic line will be neutral, as it is seen form the Figure 2. The line 2 represents an aggressive security since its beta equals 2, meaning that securities with a beta greater than 1 have more risk than the market. The line 3 has a beta lower than 1, thus it has less risk than market and referred to as defensive securities (Levy and Post, 2005).

However, in reality, it is not possible to know or calculate correct betas and expected returns, since nobody knows what will be the return on assets. Thus, beta measurement cannot be done ex-ante. Therefore, beta is generally calculated using historical returns on securities, i.e. ex-post observations. The ex-post returns on assets considered to be the indicator of the future asset returns. Using the past data of asset returns for the long period it is possible to calculate the average return on security, market return and beta, which will be the approximate measures in defining future outcomes. A regression line (characteristic line) represents a set of past relationships. It is defined as follows:

$$R_i = \alpha_i + \beta_i R_m + e_i \qquad (2.4)$$

where the *alpha parameter* α_i is the intercept of the regressoin line, which indicates the return on the security *i* in the case of market return equals zero. It shows the return on the security with regard to the market or systematic risk. Consequently, it indicates what return the security offers for unsystematic risk. The positive alpha represents the excess return on the security and the negative alpha – the negative return. Sometimes alpha is called the abnormal return because it has an economic meaning as the measure of return in excess of the risk-adjusted return. The e_i parameter is the deviation from the line, called *random or residual return*. It represents the unexpected return arising from influences not determined by the model. According the the type and scale of influence the residual return may take any value. It depends on the number of observations. The bigger the number of observations, the smaller the residual return value. Thus this random return has the mean $E(e_i) = 0$ and variance $\sigma^2_{e_i}$. Variance $\sigma^2_{e_i}$ represents the unsystematic risk or non-market risk of the security. Since the CAPM considers the `general market effect ` as the `systematic effect` only, which influences return on securities, then if market effect will be removed from the security, there should be no significant correlation between securities (Farrel, 1997). Therefore, the residual returns are uncorrelated between securities.

The additional point in the explanation of risk premium is how the securities in portfolios are valued. It is given by the Security Market Line.

2.4 The Security Market Line (SML)

The CAPM suggests that only market risk is relevant in assessing the requred risk premiums for individual securities and portfolios, which is measured by beta coefficient reflecting the sensitivity of the return on securities to movements in the market return (Pike and Neale, 1999). On the other hand, the volume of the risk premium on individual securities or portfolios depends on the correlation of security or portfolio with the market. If a security is prefectly correlated with the market, the risk premium for the market would be appropriate for that security, otherwise the required return depends on beta, which is explaned by the SML. The CAPM supposes that when the efficient capital market is in equilibrium, i.e. all secutities are accurately priced, the relationship between risk and return is given by the SML. The SML is commonly used as a means of testing the CAPM. It is the direct analog of the single-index model, which is the statistical model for representing a return-generating process.

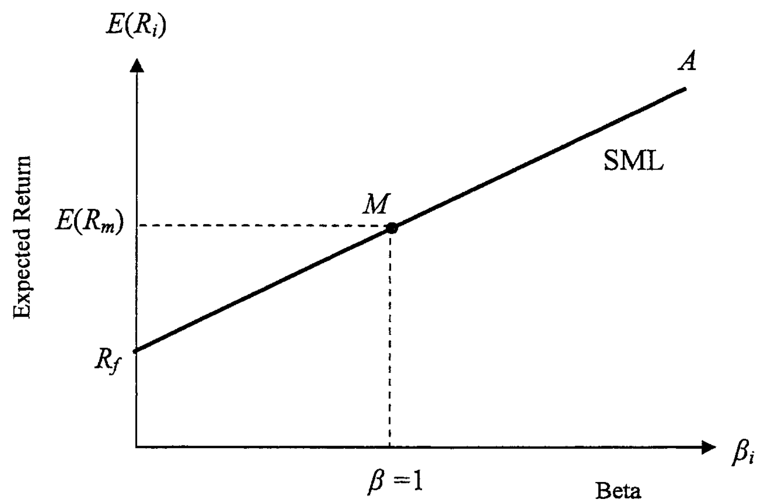


Figure 2.3 The Security Market Line
Source: Farrell, J., (1997), Portfolio Management

The SML equation shows that the required return on securities consists of the return on a risk-free asset and a premium for risk related to the market's own risk premium, which varies with regard to the beta of the security:

$$E(R_i) = R_f + \beta_i [E(R_m) - R_f] \quad (2.5)$$

The risk premium $[E(R_i) - R_f]$ is equal to the market risk premium $[E(R_m) - R_f]$ multiplied by the beta of security. Since $[E(R_m) - R_f]$ is greater than zero because investors require a positive risk premium, the greater the beta the higher the risk and thus the required risk premium. For example, if beta equals 1, the requred return will then equal the average return for all securities (the return on the market portfolio), otherwise, the higher the beta, the higher the risk premium and the total requred return. However, a relatively high beta does not guaratnee a relatively high return. The actual return depends partly on the behaviour of the market, which operates as a proxy for general economic factors, the same way as the expected returns for the individual security depends on the expected return for the market (Myers, 2003). In rising market it is worth to hold a high beta securities or aggressive securities, which are allocated on the *MA* segment of the SML of the Figure 3, while defensive securities, which are allocated on the R_fM segment of the SML, offer some protection against falling market. Nevetheless, holding a single high beta security is risky, even on a rising market. Undiversified portfoilos of investments, whatever their beta values, are subject of specific risk factors. Therefore, portfolio construction is very important to eliminate the unique risks of individual securities.

The SML follows from the fact that the market portfolio is allocated on the efficient frontier. In order for the market portfolio to be mean-variance efficient, the securities should be positioned on the SML. If at least one asset lies above or below the SML, then the market considered to be inefficient. In other words, the SML provides a necessary and sufficient condition for mean-variance efficiency of the market portfolio (Pike and Neale, 1999). It shows whether the security is overpriced or underpriced according to its beta. For example, if security has beta, which equals zero, then $E(R_i) = R_f$, which means that the return of the security with no systematic risk equals the risk-free rate. If beta equals 1, then $E(R_i) = E(R_m)$ meaning than the price of security varies in tandem with the market and thus the security has the same market risk as the market yielding the same rate of return as the market portfolio. Securities with beta higher than 1 (aggressive securities) have more systematic risk that the market portfolio. It means that, in equilibrium, the aggressive securities will have a higher expected return than the market. The defensive securities with beta lower than 1, have smaller expected return than the market. There are also assets with negative beta. Since the most assets have a positive betas, the assets with negative betas are very uncommon. However, the negative beta can be obtained by short-selling and using derivative securities. According to the SML, the assets with negative beta have the expected return lower than riskless asset R_f. These securities can only be used as the part of portfolio to reduce the risk of portfolio and stabilise its return. So, the SML can also be used for assets with negative betas.

2.5 The Relationship between the CML and the SML

The SML represents the relationship between expected return and beta and the CML in turn provides the relationship between expected return and standard deviation. Both, beta and standard deviation are measures of risk. However, the SML differs from CML, as the SML applies to all individual assets or portfolios, regardless of whether they are efficient. On the contrary, the CML applies only for efficient portfolios. Since investors do not require a compensation for non-systematic risk, the CML does not apply to individual assets or portfolios which are inefficient (Levy and Post, 2005). The variance of the asset, which consists of the market risk and non-market risk, can be explained as:

$$\sigma^2_i = \beta^2_i \sigma^2_m + \sigma^2_{e_i} \quad (2.6)$$

where the first component $\beta^2_i \sigma^2_m$ is the company's systematic risk (market risk), which provides the asset's variance that is relevant to overall market volatility, and the second component $\sigma^2_{e_i}$ is the company's non-market risk, which provides the asset's variance that is not relevant to the market. According to this equation beta will be equal:

$$\beta^2_i = \sqrt{(\sigma^2_i - \sigma^2_{e_i})/\sigma^2_m} \quad (2.7)$$

Replacing beta in the SML equation gives the following:

$$E(R_i) = R_f + [E(R_m) - R_f] \times \sqrt{(\sigma^2_i - \sigma^2_{e_i})/\sigma^2_m}$$

Since efficient portfolios do not have non-market risk then $\sigma^2_{e_i} = 0$, and therefore the above equation reduces to the CML:

$$E(R_i) = R_f + \frac{E(R_m) - R_f}{\sigma_m} \sigma_i \quad (2.8)$$

So, the efficient portfolio includes only systematic risk $\sigma^2_p = \beta^2_p \sigma^2_m$, as $\sigma^2_{e_i} = 0$. Thus the risk can be measured by beta (SML) or by variance or standard deviation (CML). However, it is not applicable for inefficient portfolios since $\sigma^2_{e_i} > 0$. In this case only the SML applies.

Inefficient portfolios, which lie below the CML, have non-systematic risk that is measured by the distance between those inefficient portfolios and CML. Certainly, such deviations from the CML do not imply that the market is in disquilebrium. It only means that the assets are inefficient and the investor should not hold them in isolation. The equilibrium status of the market can be determined by checking whether all assets lie on the SML rather than the CML. In equilibrium all assets lie on the SML and below CML.

2.6 Testing the CAPM

To summarize all above-mentioned theoretical issues, the CAPM can be defined as the financial theory that describes the relationship between an asset's market risk and its expected return. To test this definition many empirical tests of the CAPM have been conducted by researchers. Majority of those empirical tests on the CAPM follow the methodology pioneered by Black, Jensen and Scholes (1972) and Fama and MacBeth (1973), referred to as the "traditional approach". Under this method, the data set is divided into two: the estimation and the testing periods. In the estimation period, the beta is estimated by running a regression of realized returns of an asset against market returns, which is also called as time series test or the first-pass regression. Then the resulting beta of the first regression is used to proxy for the true beta of the asset and is regressed against the excess return of the asset in the testing period. This second stage is also reffered to as cross-sectional test or second-pass regression.

Generally, this regression takes the following form:

$$\dot{R}_{it} - \dot{R}_{ft} = \dot{\gamma}_{0t} + \dot{\gamma}_{1t}\dot{\beta}_i + \dot{\mu}_{it} \qquad (2.9)$$

where the left-hand side is the return of the asset in excess of the risk-free rate and β_i is the estimated beta from the first regression. The most crucial feature of this method is its test of hypothesis whereby it specifies that if γ_1 is insignificantly different from zero, then the CAPM is taken to be rejected. This simplicity explains its popularity among researchers.

Althought substantial criticism has already been raised in the early years of the CAPM and the Arbitrage Pricing Theory has been developed as an alternative equlibrium model (Roll, 1977), the CAPM remains popular. This may at least partially be due to the fact that early empirical tests (Black et.al., 1972, Fama and McBeth 1973) found support for the model in its original form or in the zero beta version of the model developed by Black and Fischer (1972). Roll's critique, however, indicates the significant objectional points with regard to the CAMP. Firstly, he argues that the only test of the CAPM is whether the market portfolio is mean-variance efficient. He says that the CAPM will always hold if the market proxy that is used is mean-variance efficient. If the proxy is not mean-variance efficient, the relationship between expected return and risk will not hold. Secondly, Roll points out that, since the market portfolio is not identifiable, the CAPM cannot be really tested as the market proxies that are used do not include all assets such as real estate, human capital e.t.c, which are not possible to measure. In addition, it was indicated that if asset's performance is measured relative to an index that is ex-post efficient, then from the mathematics of efficient sets, no security will have abnormal performance when measured as a departure from the SML. Conversely, if performance is measured relative to an ex-post inefficient index, then any ranking of portfolio performance is possible, depending on which inefficient index has been chosen. So, Roll concludes that the CAPM is useless because it is not feasible. Roll instead advocates the use of the Arbitrage Pricing Theory. However, perhaps the usefulness of the Roll's critique is reminding us that if we find that the CAPM tests do not hold, then the so-called "market" (or really market proxy) is not mean-variance efficient.

Regardless Roll's critique many empirical tests have been done since then, resulting in rejection of the CAPM as well as supporting it. Among studies rejecting the model, Fama and French (1992) gained the most prominence since it was able to cast the strongest doubt on the model's ability to predict the relationship between beta risk and return. Rather than attributing asset returns to beta as specified in the CAPM, their study found that firm size and the book-to-market equity ratio are far superior in explaining asset returns. This result is against the CAPM hypothesis. This study also produces a controversial finding on the validity of CAPM: first, as the main model in investigating the relationship beta-return; and second, the beta role in explaining financial asset return. This was widely reported in the financial press as the death of beta. (The detailed overview of this paper is presented below). Other studies related to static CAPM are reported in Banz (1981), Reinganum (1981), Gibbons (1982), Basu (1983), Chan, Chen and Hsieh (1985), Shaken (1985), Bhandari (1988) and Jagannathan and Wang ZhengYu (1996). They have found that the static CAPM is unable to explain the cross-sectional variation of average returns. Tinic and West (1984) found that January has a larger risk premium than the other months and further that the significant risk-return relation only exists in January. When data for the January months are excluded, the estimates of risk premiums are not significantly different from zero, casting serious doubt on the validity of CAPM. Lakonishok and Shapiro (1984) examined the monthly returns of all stocks traded on the New York Stock Exchange for at least four years between 1962 and 1980. They have found that return on individual security is not specifically related to its beta, but is significantly related to the market capitalization values. Lakonishok and Shapiro (1986) updated their analysis to 1981 and included firm size to help explain average portfolio returns. They have concluded that the traditional (beta) as well as the alternative (residual Standard deviation) risk measure still cannot explain the cross-sectional variation in returns, only size can significantly explain it.

Nevertheless, Pettengill, Sundaram and Mathur (1995) make a successful attempt to explain the weaknesses of flat relationship between beta and return. They employ the conditional CAPM between beta and return in up-market and down market. The result finds that the positive relationship between beta and return during up-market and negative relationship during down market. This result supports the continued importance of beta as a measure of market risk. It is followed by Jagannathan and Wang (1996) and Fletcher (2000) who examine the relationship between beta and returns in international stock returns using the model of Pettengill et al (1995). The aim of these studies is to determine whether beta has a role to play in explaining cross-sectional differences in country index returns. These studies support the model proposed by Pettengill et al (1995). In up market months, there is a significant positive relationship between beta and return. In down market months, there is a significant negative relationship between beta and return. In addition, the relationship is symmetric between up market and down market months. A related study on the conditional CAPM has also been done by Hodoshima, Gomez and Kunimura (2000) that investigate the relationship between beta and return in Nikkei stock market. The result shows the significant conditional relationship between beta and return. (The detailed overview of these papers are presented below).

3. EARLIER EMPIRICAL STUDIES IN TESTING THE CAPM

One of the earliest empirical studies of the CAPM is that of Black, Jensen, and Scholes (1972). They have found that the data are consistent with the predictions of the CAPM, given the fact that the CAPM is an approximation to reality just like any other model. Black, Jensen, and Scholes (1972) have used all NYSE stocks during 1931–65 to form 10 portfolios with different historical beta estimates. They have used the time-series method with the realized returns to test the following equation $\check{R}_{jt} = a_j + \beta_j\check{R}_{Mt} + \check{e}_{jt.}$ If the CAPM is valid then the intercept a_j should equal zero. They argue that cross-sectional test can be misleading because of the process structure which appears to be generating the data. They belive that time series test is more powerfull since it is free of the difficutlies associated with cross-sectional methods. However, they have conducted the cross-sectional test too. So, the time series test starts with regression of average monthly excess returns on beta. The 30-day T-bill rate has been used as the risk-free asset. To avoid an aggregation problem the tests have been run on grouped data. That is, they have formed portfolios of securities and estimated the average return and average beta for these portfolios. In order to avoid the selection bias problem in the ranking procedure, the data from subsequent time period have been used to estimate the porfolio risk. This ranking process is independent of the measurement errors in beta of individual securities. The coefficient beta has been estimated for the five-year periods and then grouped into 10 portfolios in accordance with the beta rakning from high to low (first portfolio contains high betas, last portfolio – low betas). The average monthly excess return on the market proxy used in the study is 1.42 percent. The estimated slope for the resulting regression line is 1.08 percent instead of 1.42 percent as predicted by the CAPM. The estimated intercept is 0.519 percent instead of zero as predicted by the CAPM. The t-statistics that Black, Jensen, and Scholes report indicate that the slope and the intercept of their regression line are significantly different from their theoretical values. Test results show that high-beta securities had negative intercepts and low-beta securities had positive intercepts. Thus the high-risk securities earned less and low-risk securities earned more on-average over 35-year period than the amount predicted by CAPM. The second cross-sectional test indicates that the relation between mean returns and beta of portfolios is linear. However, the intercept and slope of the cross-sectional relation varied over subperiods. This does not necessarily mean that the data do not support the CAPM. As Black (1972, 1993) has pointed out, these results can be explained in two plausible ways. One is measurement and model specification error that arises due to the use of a proxy instead of the actual market portfolio. This error biases the regression line's estimated slope toward zero and its estimated intercept away from zero. The other plausible explanation is simpler: if no risk-free asset exists, then the CAPM does not predict an intercept of zero. In fact, Black, Jensen, and Scholes have concluded that the data are consistent with Black's (1972) version of the model $ER_i = ER_z + (ER_m\text{-}ER_z)\,\beta_i$.

Another classic empirical study of the CAPM is by Fama and MacBeth (1973). They examine whether there is a positive linear relation between the average return and beta and whether the squared value of beta and the volatility of the return on an asset can explain the residual variation in average returns across assets that is not explained by beta alone. The test has been conducted using monthly return data (including dividends and capital gains) for all common stocks traded on the New York Stock Exchange for the period from 1926 to 1968. As a proxy for the market index, "Fisher's Arithmethic Index", i.e. an equally weighted average of the returns on all stocks listed on the NYSE has been used. Since using portfolios rather than individual securities in the CAPM tests causes the loss of information, in order to avoid it a wide range of values of estimated portfolio betas have been obtained by forming portfolios on the basis of ranked beta values for individual securities. Then to minimize the regression phenomenon, when in a cross-section of betas, high observed estimated betas are above the true betas and the low observed estimated betas are below the true ones, the betas for formed portfolios have been estimated using the subsequent period data. So, using the first 4 years (1926-29) of monthly returns 20 portfolios have been formed. The following 5 year-period data (1930-34) has been used to recalculate stock's betas and portfolio betas to start the test. Portfolio betas has been calculated as a simple average of individual securities included in the portfolio for the following 4 years (1935-38). This process has been repeated monthly to adjust portfolio betas to allow for delisting of securities. So, using the returns on the 20 portfolios for that 4-year subperiod (1935-38) the following cross-sectional regression has been run for each month of the subperiod: $R_{pt} = \hat{y}_{0t} + \hat{y}_{1t}\,\beta_{p,t-1} + \hat{y}_{2t}\,\beta^2_{p,t-1} + \hat{y}_{3t}\,s_{p,t-1}(\varepsilon_i) + \eta_{p,t}$,
where $\hat{y}_{0t}$, $\hat{y}_{1t}$, $\hat{y}_{2t}$, $\hat{y}_{3t}$ are the stochastic coefficients, $s(\varepsilon_i)$ is the standard deviation of the least-squares residuals ε_i. The results from this regression, i.e. the time series month by

month values of regression coefficients are the inputs for the 4-year subperiod (1935-38) test. The regressions have been run for every subperiod. More precisely, there are nine overlapping portfolio formation periods. After every portfolio formation period there is a initial estimation period and then testing period. The t-statistics for testing the hypothesis that $\hat{y}_{it} = 0$ has also been done. The test results show that the values support the conclusion that on average there is a positive relationship between risk and return.

The work of Pettengill, Sundaram and Mathur (1995) tests the conditional relationship between beta and returns. They argue that the validity of Sharpe-Lintner-Black model has not been directly tested since the previous tests made by other researchers use realised returns instead of expected returns, and the model does not show a direct relationship between portfolio betas and portfolio returns when the realized market return is less than the risk-free return reasoning in the fact that returns for high beta portfolios are less than return for low beta portfolios. Pettengill, Sundaram and Mathur consider these as the main reason of finding negative results or weak and inconsistent relationship between beta and returns in the previous tests. They say that testing results of Fama and MacBeth are positive because of relationship between beta and returns of tested period are positive on average. Pettengill, Sundaram and Mathur have analyzed months with positive and negative market risk premiums separately A monthly comparison of the CRSP index (as the market proxy) and the 90-day T-bill rates (as a measure of the risk-free rate) over the period 1936 throught 1990 has been made by Pettengill et al.. The resutls show that the T-bill rate ecxeeds the market return in 280 out of 660 total observations. It has been concluded that the existence of a large number of negative market return periods show that previous tests for unconditional positive relationship between beta and returns are biased against finding a systematic relationship. So, they have conducted two tests: 1) test of a systematic, conditional relationship between betas and realized returns; 2) test of a positive long-run tradeoff relationship between beta and return. The period from 1926 to 1990 has been taken as the sample period of the test. The CRSP equally-weighted index has been taken as a proxy for the market index. Monthly returns for securities and CRSP index returns data have been collected from the CRSP monthly databases. The three-month Treasury bill rates have been taken as the measure of the risk-free rate. Firstly, to test a systematic, conditional relationship between betas and returns Pettengill, Sundaram and

Mathur have used a modified version of the three-step portfolio method of Fama and Macbeth (1973). The sample period has been divided into 15-year subperiods, which then has been divided into a portfolio formation period, a portfolio beta estimation period, and a test peroid of a five years each. Betas have been estimated for each security by regressing the security`s return against the market return. Securities have been equally divided into 20 portfolios according to the estimated beta rankings (securities with lowest betas have been placed in the first portfolio, securities with the highest betas – in the last portfolio). Portfolio betas have been estimated by regressing portfolio returns against the market returns. The third step has been modified taking into consideration the conditional nature of the relationship between beta and returns. The regression coefficients from the following equation have been examined: $R_{it} = \hat{y}_{0t} + \hat{y}_{1t} * \delta * \beta_i + \hat{y}_{2t} * (1- \delta) * \beta_i + \varepsilon_t$. where $\delta = 1$, if $(R_{mt} - R_{ft}) > 0$ (when market excess returns are positive) and $\delta = 0$, if $(R_{mt} - R_{ft}) < 0$ (when market excess returns are negative). This equation has been tested for each month of the test period by calculating y_1 or y_2 depending on the sign of market returns. Secondly, to test a positive long-run tradeoff relationship between beta and return a standart t-test has been used in order to determine if the market returns are, on average, positive. For symmetry test the risk premiums $\hat{y}_1$ (for up market – market with positive return) and $\hat{y}_2$ (for down market – market with negative return) have been compared with some sign and mean value adjustmens. The empirical results of the above-mentioned tests provide strong support for a systematic but conditional relationship between beta and realized returns. The results of traditional (unconditional test) shows the significant relationship between beta and returns for the total sample period 1936-1990, but not for the subperiods 1951-1970 and 1971-1990. The results of conditional test shows that there is a positive relationship between beta and returns during periods with a positive market returns and an inverse (negative) relationship during periods with a negative market returns. That is for periods with negative market return high beta portfolios have lower returns than low beta portfolios. These findings are hold for each subperiod and across all months in a year. The results of positive long-run tradeoff test indicate a significant positive reward for holding market risk during the overall sample period, which has been found having on average a positive excess return. Also the strong consistency in the relation between beta and return and symmetry in the risk premium in up and down markets have been found during the observations.

Jagannathan and Wang (1996) tested the static CAPM assuming that betas do not remain constant over time and including the human capital when measuring the return on aggregate wealth. They argued that two assumptions of the CAPM that betas of assets remain constant over time and that the return on stocks measures the return on the aggregate wealth portfolio, are unreasonable. Jagannathan and Wang have conducted the conditional test of the CAPM relaxing the assumption that betas remain constant over time allowing betas vary over time. In order to use the better proxy for return on market portfolio they have constructed the model with three betas. They have used the returns on US stocks listed on the NYSE and AMEX for the period of 1962-1990. Using Fama and French (1992) approach 100 portfolios have been created. For every calendar year, starting from 1963, all firms have been sorted into size deciles according to their market values. Then for each size decile betas for each firm have been estimated using past return data and CRSP value-weighted index as the market proxy. The next step was sorting firms within each sixe decile into beta deciles according to their beta estimates. Then the return on each of 100 portfolios has been calculated for the next 12-month period. This procedure has been repeated fot the each calendar year to obtain a time-series of monthly returns for 1963-1990 years for 100 portfolios. Using this return data, the traditional CAPM specification has been examined, resulting in the fact, that the strong size effect suggests that the conventional specification of the CAPM is inconsistent with the data. With regard to the human capital, the authors have argued that there is an important difference between human capital and other physycal assets owned by firms, paying attention that the entire cash flow coming from the use of the physical assets used by firms is promised away by issuing financial securities. However, for the human capital only a portion of the labor income is secured by issuing mortgages. Thus, it has been concluded that the factors affecting the return on human capital cannot be identifeid by examining returns on mortgages and other finacial assets. Therefore, the return on human capital has been assumed to be an exact linear function of the growth rate in per capita labor income. So, the main model has been developed including the return on the market porfolio and the growth rate per capita labor income. In order to visually compare the performance of the different specifications, the fitted expected return, which has been computed by using the estimated parameter values in a model specification, has been plotted against the realized average return. Then it has been shown that when the CAPM holds in a conditional sense (i.e. expected returns and betas vary over time in systematic manner), unconditional expected returns on assets are linear in the average beta and a measure of beta instability over time. It is also has been noticed that when betas remain constant over time, the model collapses to the familiar static CAPM. Jagannathan and Wang have demonstrated that the empirical support for their conditional CAPM specification is strong, and when betas and expected returns are allowed to vary over time by assuming that the CAPM holds period by period. The size effect and the statistical rejections of the model specifications become much weaker. Although the conditional model performed better than the static model, the authors advocated causion in interpreting these results as strong support for the conditional CAPM, explaining it by the inherent word dinamism, which might need another missing explanatory variables in the static model. So, due to the fact that the model might be inaccurate it has been concluded that the CAPM, like any other model, is only an approximation of reality.

The paper of Fletcher (1997) tests the conditional cross-sectional relationship between beta and return using Pettengill et al. (1995) approach and the role of size in UK stock market. The test covers the period of 1975-1994. The 30-day UK Treasury Bill monthly returns have been used as a risk-free rate. The return on the FTA Index (Financial Times All Share Index) and EWI (equally-weighted index) have been used as the market proxy. First, the relationship between portfolio beta and size and the monthly returns of the 100 size-beta portfolios have been tested without separationg up markets and down markets. The betas of the portfolios have been estimated for the full period of 1975-1994 with respect to the FTA and EWI proxies. Betas have been estimated from the regression model of Fama and MacBeth (1973). Then cross-sectional regression, estimated by Ordinary Least Squares has been run each month. That regression equation has also been used to test the size effect by including the additional size variable. For the conditonal CAPM test the sample period has been divided into up market months and down market months. The sample period has been divided into two ten-year sub-periods. All securities have been ranked on the basis of market value and grouped into 10 portfolios in ascending order. Within each size decile, the beta of the security has been estimated from the regression of the security return on a constant and the return on the FTA Index using past data over the previous 36 to 60 months. Equally-weighted returns have been calculated each month on the 100 portfolios over the subsequent year. This procedure has been repeated for each year. The monthly risk premiums have been splitted the into two subsamples: with positive market return and with negative market return. The test results show that there are a substantial number of down market months over the sample period, and in periods of up market months, there is a significant positive relationship between beta and return, where high beta portfolios received higher returns than low beta portfolios. In periods of down-markets, the results show that there is a significant negative relationship between beta and return where, high beta portfolios earned a lower return than low beta portfolios. In fact, it has been found that in a majority of the size deciles, the low beta portfolios had a higher mean returns than the high beta portfolios and that there is no significant positive risk premium on beta in UK stock market. The test results indicate that the relationship is stronger in down market months than up market months. As for the symmetry of the relationship between beta and returns in up market and down market months, it has been found that this relationship is unsymmetrical. It has also been found that there is little support for size effect on returns in UK stock market. In general, the evidence within the paper shoes that there is a conditional relationship between beta and returns in UK stock market. Fletcher has concluded that beta may still play a useful role for portfolio managers.

The aim of the Hodoshima, Garza–Go´mez, and Kunimura's work (2000) is to examine the relationship between beta and returns in the Japaneee stock market. They have supported the idea of Pettengill et al. (1995) and found that data are better explained by making a distinction between positive and negative market excess returns. In addition to the Pettengill et al. (1995) approach they have also analyzed a model including as explanatory variables, size, and book to market equity ratio, which Fama and French (1992) examined. They have compared different relationships based on summary statistics of goodness of fit and tested results obtained from the cross-sectional regression method. The test results show a positive conditional relationship between beta and returns in up market, which is offsetting a negative conditional relationship between return and beta in down market, resulting in the absence of any unconditional relation between beta and returns. Monthly stock returns listed on the first section of the Tokyo Stock Exchange (TSE) for the period of January 1956–December 1995 have been used in the study. Monthly average of the next day call money rates with collateral, taken from the Nikkei database have been used as the risk free rate. As the Proxy of market return Hodoshima, Garza–Go´mez, and Kunimura have used two indexes: a value weighted index (VWI), provided by the Japanese Securities Research Institute (JSRI) for all the firms listed on the first section of the TSE, and an equally weighted index (EWI) of all the firms in the sample. The EWI has been used for small stocks and the VWI – for nonmanufacturing sector and financial sector. This has been explained by the fact that EWI gives a better description for small stocks and VWI is more influenced by nonmanufacturing sector and financial sector. 20 portfolios of stocks based on the ranking of the betas have been constructed. Then they have been re-estimated, using the next two years data and beta for each portfolio by the average of re-estimated betas of the stocks for that portfolio. In the next step the stocks have been assigned to the portfolios formed in the beginning and the portfolio return have been obtained by averaging returns of the stocks for each portfolio. They have used two years data to construct portfolios and two years data to estimate betas of the portfolios. To test the conditional CAPM the cross-sectional regression has been used and cross-sectional regression method of Fama and MacBeth (1973) has been used to test the unconditional CAPM. Hodoshima, Garza–Go´mez, and Kunimura have obtained the following test results: about 40% of monthly observations of the Japanese stock market excess return consist of negative returns; there exist positive and negative linear relationships between beta and returns in up market and down market; the conditional relationship is in general better fit in the down market than in the up market in terms of the goodness of fit measures given by given by the R^2 and standard error; beta and book to market equity ratio is not significant, while the size is significant with a negative coefficient in the unconditional CAPM test and conversely – in conditional CAPM test. It has been concluded that it is appropriate to differentiate the returns into up and down markets for the relevance of beta, although the same does not apply to other explanatory variables as the size and book to market equity ratio, and that beta is a suitable measure of risk to explain return in the conditional relationship.

Shakrani and Ismail (2001) have tested the conditional CAPM for Islamic unit trusts in Malaysia. They have found a flat unconditional relationship between beta and returns as a result of test conducted without separating positive and negative market excess return. The results with significant positive relationship between beta and returns have been found using the conditional CAPM test. The results of cross-sectional regression analysis show a positive relationship between beta and returns in up market and a negative – in down market. Moreover, it has been found that the relationship between beta and returns is higher in down market. The test has been conducted adopting the Pettengill et al. (1995) approach using the same cross-sectional regression method but with returns on Islamic unit trusts and taking the inter bank rate for 1 month as a risk free rate, and syariah index – as a proxy of market index. To evaluate the difference in the relationship between beta and returns the statistics as t-test, adjusted R-squared and standard error have been used. The conditional and unconditional tests have been conducted. First, the beta has been calculated for each individual Islamic unit trust by estimating the unit trusts return as a function of risk free rate and market excess return. Then, this estimated beta has been used for the whole sample (Sample A), and two sub samples, i.e. Sample B (1 May 1999 – 23 June 2000) and Sample C (24 June 2000 – 31 July 2001). Second, the estimated beta has been re-estimated for each Islamic unit trust using the average return of Islamic unit trusts. Then, this average beta and average return has been estimated using the unconditional and conditional relationship of the cross-sectional data. Summary statistics of syariah index has showed 60 positive values and 58 negative values and the market excess return with syariah index - 96 negative values and 22 positive values. The summary statistics of the time series average and standard deviation of beta and return for Islamic unit trusts shows the small positive average returns of below 1 for the market return. Standard deviations of the market return and the market excess return also become smaller after separating up markets from down markets. The cross-sectional regression (using the average return and average beta) results show the weak relationship between beta and return for unconditional test. On the contrary, the conditional test shows the positive results. So, the work of Shakrani and Ismail support the conditional CAPM and it has been concluded that the beta can be used as a measure of market risk to explain the cross-sectional differences in Islamic unit trust returns.

The paper of Brennan, Wang and Xia (2002) presents the estimation and test of a simple model of Intertemporal Capital Asset Pricing (ICAPM) and evaluation of the model ability to account for the returns on portfolios sorted according to size and book-to-market ratio, as well as according to industry. The ICAPM suggests the pricing of risk, related to the variation in investment opportunity set, limiting the number of state variables to be considered to the two that are required to describe that set, i.e. ICAPM allows for time-variation in the real interest rate and slope of the capital market line. Authors of this paper refer to the ICAPM suggested by Merton (1973) and Fama and French (1995). The model parameters and time series of the state variables have been estimated using data on eight synthetic constant maturity zero coupon US Treasury bond yields and inflation rate calculated from the CPI for the period of 1952- 2000. For cross sectional pricing tests the returns on 25 size and book-to-market sorted value weighted portfolios, the CRSP value weighted market portfolio and the nominal short interest rate for the same period have been used. The time series of the state variables have been estimated by using the model of nominal bond yields in a Kalman filter, to extract the time series of the unobservable state variables from data on bond yields and inflation. In the simple ICAPM that has been estimated, time variation in the instantaneous investment opportunity set is described by the dynamics of the real interest rate and the maximum Sharpe ratio. It has been assumed that "these two variables follow correlated Ornstein-Uhlenbeck processes; consequently, the current values of these variables are sufficient statistics for all future investment opportunities and are the only state variables that are priced in an ICAPM setting". Firsly, valuation model allowing for a stochastic interest rate and Sharpe ratio has been constructed. Equation of the expected return on the asset and then Sharpe ratio have been estimated. Then the stochastic process equation for real cash flow expectation has been set. In order to value nominal bonds the stochastic process for the price level has been specified. Second, by specializing the estimateed pricing model (so that the innovation in the pricing kernel is an linear function of the market return and the innovations in stochastic interest rate and Sharpe ratio), a specific version of the ICAPM has been obtained. It has been indicated that the returns on Fama-French hedge portfolios are correlated with the innovations in state variables. In order to estimate the risk premia on the Fama-French hedge portfolios that are implied by simple ICAPM two separate approaches heve been used: a pricing kernel based approach, which uses the pricing kernel coefficients that have been estimated from the bond yield data and a tracking portfolio approach, which uses portfolios of equities that have maximum correlation with the estimated innovations. Finally, the ability of the Fama-French hedge portfolios and the tracking portfolios to explain the returns on 25 size and booktomarket sorted portfolios over the sample period has been compared. The tests using 30 industrial portfolios instead of the size and booktomarket sorted portfolios have also been conducted. The overall results of ICAPM test show that zero-coupon nominal bond yields are linearly related to the state variables, the real interest rate, the Sharpe ratio and expected rate of inflation. The estimated real interest rate and Sharpe ratio show strong business cycle related variation. The Sharpe ratio has found to be related to the return on market portfolio and the level of stock prices (measured by the market dividend yield) – to both the Sharpe ratio and real interest rate estimates. These findings are consistent with the model predictions. The results of formation of the size and book-to-market sorted portfolios, tracking the innovations in the state variables show that risk premia on the Fama-French hedge portfolios are explained by the ICAPM. The ICAPM is rejected only when the risk-free interest rate is allowed to differ from the Treasury Bill rate. The results of tests using 30 industrial portfolios show that the model is not rejected using these returns, although both the simple CAPM and the Fama-French model are rejected.

The studies of Elsas, El-Shaer and Theissen on beta and returns of German stock market (2003) also provide a significant relationship between beta and returns. Their observations are based on the Pettengill et al. (1995) method. In order to show how the resutls of Fama and McBeth test change according to the conditional nature of the relationship between beta and returns Elsas, El-Shaer and Theissen have conducted Monte Carlo simulations. In order to empirically test the relationship between beta and returns they have used data from the German stock market (1960-1995 years period). The results show the strong support of relationship between beta and returns taking into account its conditional nature. Compared to the unconditional test conducted by them, which result shows weak relation between beta and returns, the adjusted (conditional) test provides totally positive results. As in the test performed by Pettengill et al. (1995), the positive results have been also found in all subperiod and in the total sample period by Elsas, El-Shaer and Theissen when testing the German stock market. They argue that the previous tests made by other researchers on the German stock market have the result of weak relationship between beta and returns because of the periods with negative market returns. However, it has been mentioned that modifying the test for conditional nature of the relationship between beta and returns does not resolve all problems (partually of econometric nature) with regard to the CAPM tests. It has been also stressed that the advantage of conditional test is that the hypothesis of relationship between beta and returns can be tested independently of the hypothesis of a positive market returns. So, before the empirical test Elsas, El-Shaer and Theissen have conducted Monte Carlo simulations. An artificial market, where the CAPM holds with known parameters and the market portfolio is determined and is ex-ante efficient, has been constructed. The results of two test procedure over the 1000 simulation runs indicate that the traditional two-stage approach has a weak support of the relationship between beta and returns rejecting the null hypothesis only in 177 out of 1000 cases, whereas the conditional test rejects the null hypothesis in 985 out of 1000 cases. The methodology of empirical analysis of Elsas, El-Shaer and Theissen is the same as Pettengill et al. The cross-sectional regression separately made for up market and down market and the above-mentioned equation of Pettengill et al. (1995) have been used in tests. The DAFOX index has been used as a proxy of maket portfolio. The average rate for three months term deposits (Deutsche Bundesnabk) has been used as a risk-free rate. Betas for each stock have been estimated by regressing the time series of stock returns against the time series of the index returns. As it is mentioned above the singnificant relationship between beta and returns has been found when conducting the conditional test.

Pedro B. de Ocampo (2003) have tested in his work the CAPM in the Philippine stock market using two methods: traditional approach of Fama and Macbeth (1972) and Pettengill et al. (1995) method. The strong risk return trade-off has been found under the conditional test of the CAPM. The modified three-step approach of Fama and Macbeth with cross-sectional regression has been used to conduct the unconditional CAPM test and the Pettengill et al. (1995) method has been used to conduct the conditional CAPM test. The monthly share prices for 103 stocks listed in the Philippine Stock Exchange for the period January 1992 to December 2002 have been used in the test. The 91-day Treasury-Bill rate has been used as a risk-free rate and the Phisix index – as a proxy of market index. The results of the traditional test, which show that the beta coefficient is insignificantly different from zero having the incorrect sign and the intercept is significantly different from zero, do not support the unconditional CAPM. However, as predicted by traditional CAPM, the relationship between risk and return has been found to be linear. The results aslo show that factors other than beta do no affect returns. As for the conditional CAPM test results, it has been found that there is a positive relationship between risk and return where high beta stocks earn higher returns in up market and a negative relationship between risk and return where high beta stocks earn lower return in down market. The conditional CAPM test results also confirm the linear relationship between beta and returns and that factors other than beta do not affect returns. The risk-return relationship between periods of positive and negative excess market returns has been found to be symmetrical as it was found by Pettengill et al. Hovewer, it has not been found a positive reward for holding risk as predicted by Pettengill et al. method. It is explained by the fact that the stock prices for the period of January 1998 - December 2002 have been affected by the Asian economy crisis, where the 65% of risk free rates was higher than the market returns.

The recent work of Zhang and Wihlborg (2004) intended to study the conditional and unconditional CAPM in six European emerging markets making, provides a significant conditional relationship between beta and returns in domestic markets and positive results of CAPM test in two international markets. Zhang and Wihlborg have used Pettengill et al. (1995) method to test risk-return relationship and estimate cost of equity capital of firms in six emerging markets, i.e. Cyprus, Czech Republic, Greece, Hungary, Poland, Russia, and Turkey. The distinction between domestic and international CAPM has been made in order to examine whether the domestic CAPM will outperfom the international one as a result of high degree of the market segmentation. Two tests of CAPM: conditional and unconditional have been conducted. Fama and McBeth (1973) two-step regression approach has been used for unconditional test and Pettengill et al. (1995) method has been used for conditional test. The monthly time series share prices of 753 firms from six emerging markets for the period of 1995 – 2002 have been used in tests. As the market proxy for each country, they have used the returns of market indexes of that country and as the risk-free rate for each country, they have used short-term Treasury-bills of that country. The Morgan Stanley world index returns have been used as the world market portfolio returns. The CPI has been used for high inflation countries to calculate the real returns. The empirical results show that the betas and returns are much higher in the above-mentioned six emerging markets than those of the world market. For four countries with the high inflation periods the real returns are much lower. The returns for six countries are not highly correlated with each other and with the world market. It has been found that more than 50% of realized returns are negative in the most countries and the null hypothesis with mean equals zero cannot be rejected. The existence of conditional rather than unconditional relationship between risk and returns has been proved during the tests. Zhang and Wihlborg have found the positive risk-return trade-off. As for international and domestic CAPM tests, it has been found that the international CAPM performs well, especially into two countries (Czech Republic and Russia), which are more intergated in the world markets. Zhang and Wihlborg have concluded that beta is still a useful measure of risk in emerging domestic markets taking into account its conditional nature.

The aim of Sandoval and Saens study (2004) is to test the conditional and unconditional CAPM in Latin America using the data from the Argentinean, Brazilian, Chilean, and Mexican stock markets, to examine the effect on return of other risk factors as size, book-to-market ratio and momentum and to test the market integration hypothesis in the Latin American stock markets. Sandoval and Saens have noticed that since the Latin American emerging stock markets have their high industrial concentration (especially Argentinean and Mexican), the variables as size and market concentration might be an important factor in explaining the firm-specific cross-sectional return variations. The study covers the period between January 1995 and December 2002 using the weekly returns in U.S. dollars of the stocks for each country. The U.S. Treasury bill rate has been used as a risk free rate and the MSCI-LATAM stock market index has been used as proxy for the market portfolio. Fama and MacBeth (1973) approach using three steps of econometric tests has been used to analyse the unconditional CAPM. First, since Latin American's stocks are traded infrequently, Sandoval and Seans have used the aggregated coefficients method proposed by Dimson (1979) to estimate the individual betas; that is they have regressed individual security returns against five lagged, matching and five leading market return terms using both the Latin American Stock Market Index and S&P 500 Index as a proxies for the market portfolio. Then they have formed portfolios, where securities with the lowest estimated betas have been assigned to the first portfolio and securities with the highest betas - to the last portfolio. In the second stage, the portfolio betas have been estimated for each two-year period (totaling in eight portfolio beta estimation periods) and used as explanatory variables in the further next year. The last stage includes cross-sectional regressions based on Black (1972) CAPM definition, which has been estimated by a pooled cross-sectional OLS giving estimates of the average values of weekly coefficients $\gamma_0 t$ and $\gamma_1 t$ in the testing period. Then average values of weekly coefficients have been tested to find whether they are significantly different from zero. When testing the conditional CAPM, testing periods have been devided into up and down market weeks. Tests results show the inconsistency with a positive and significant relationship between portfolio betas and returns, with the exception of the Mexican stock market. The low R-squares show that the model might be either misspecified or additional risk factors other than beta might be required to explain the relationship between risk and return. The results of conditional CAPM show that in four Latin American countries the stock markets present a significant and positive beta risk premium during up markets and a significant but negative beta risk premium during down markets, providing a strong support for a systematic but conditional relationship between portfolio betas and realized returns in each of the Latin American stock markets. It has been found that in 417 weeks over the period 1995 through 2002, the risk free rate exceeds the market return by 50%, 48%, 53% and 46% for the Argentinean, Brazilian, Chilean and Mexican stock market, respectively. Sandoval and Saens have also found that the null hypothesis of a symmetrical relationship between risk and return during periods of positive and negative market returns is rejected at the 5% level for the Latin American stock markets with exception of Mexico. It shows that Latin American stock markets react more to down than to up market. As for the test of the effect on return of other risk factors as size, book-to-market ratio and momentum, its results show that these extra risk factors is not commonly priced across the Latin American stock markets and do not contribute to explain significantly the cross sectional stock return variations in Latin American stock markets.

The paper of Tang and Shum (2004) presents the test of the risk-return relationship in the Singapore stock market for the period of 1986 – 1998 years, having the fokkowing purposes: test for a conditional relation between beta and returns; test for a positive long-run risk-return tradeoff; test whether other measures of risk in addition to beta affect asset pricing when up and down markets are split. The data collected from the Pacific-Basin Capital Markets (PACAP) Databases consist of monthly returns of 144 listed stocks and equally weighted as well as value-weighted market returns (to determine whether the results of using these two market proxies are different). The one-month Singapore interbank offer rate (SIBOR) has been used as the risk-free rate. The 13-year period has been divided into three non- overlapping subperiods: the construction period (1986 – 1989), the estimation period (1989 – 1992), and the testing period (1992 – 1998). Betas of individual stocks have been estimated and 20 equally weighted portfolios have been formed according to the estimated betas ranking in the construction period. In the estimation period, betas and other risk measures of each portfolios formed in the construction period have been estimated. The final stage includes the regressions of portfolios returns against betas and other risk measures from the testing period. The whole process has been re-done by dropping the first month's data in the estimation period and adding the second month's data in the testing period and has been repeated up to the last month of the testing period. To compare the goodness of fit across different models of risk measures adjusted coefficient of determination has been used. The test results of unconditional CAPM show the weak positive relation between beta and returns. The strong systematic but conditional relationship between beta and realized returns has been found as a result of conditional CAPM test using Pettengill et al. (1995) approach. It has been also found that high-beta portfolios receive a larger positive risk premium than low-beta portfolios in up market and high-beta portfolios receive higher losses than low-beta portfolios in down market. The findings reject the symmetrical risk premiums in up and down markets due to the fact that the market risk premium in up market doubles that in down market. Tang and Shum have found that unsystematic risk plays an even more significant role than beta in pricing the Singapore securities in up market and not only compensates the systematic risk but also the unsystematic risk. In fact, they have suggested for investors in the Singapore stock market do not hold diversified portfolios when the market excess returns are positive. They have also concluded that beta is still a good measure of risk and the other risk measures are also useful in explaining cross-sectional variations in stock returns.

Medvedev (2004) tested the CAPM under ambiguity. He has used Zhang (2002) model of individual choice under ambiguity in the context of Kwon (1985) market model of asset returns. The implications of the ambiguity for equilibrium asset prices have been studied, assuming uncertain volatility setup used in the quantitative finance and proposed by Avellaneda et al (1995) under the assumption that the volatility process is not known but the volatility always lies within known bounds. The theoretical CAPM under the market model with unknown volatilities of asset returns has been derived as follows: first, the equation of individual project that generate random return has been estimated, then under some assumptions the random variable has been estimated. Then including into account multiple assets and introducing ambiguity into the market model of Kwon (1985), which allows to derive the CAPM without restrictive assumptions on the utility function or asset return distribution, the classical version of CAPM has been modified with regard of including the second factor that measures the degree of the ambiguity in returns. Some assumptions have been made to reduce the problem of choice under ambiguity to the standard problem of choice under probabilistic uncertainty. The estimated two- factor CAPM has been tested for US stocks using 48 industry portfolios constructed by Fama and French for the period of 30 years 1973 – 2003. Then the residual returns of these industry portfolios have been estimated and their volatility standard deviations have been calculated. The modified CAPM has been then tested running cross-sectional Fama-McBeth regression. The test results show that the ambiguity factor is statistically significant and the effect of market beta is insignificant. It has been concluded that these results are economically meaningful.

The studies of Lewellen and Nagel (2004) present the test whether the conditional CAPM can really explain asset-pricing anomalies. They argue that unconditional CAPM does not describe the cross section of average stock returns because the CAPM does not explain why small stocks outperform large stocks, why firms with high book-to-market ratios outperform firms with low B/M ratios. So, Lewellen and Nagel perform the test of conditional CAPM in order to learn whether it can explain these patterns. They say that if the conditional CAPM holds, only the small deviations from the unconditional CAPM shoud be expected to be found – much smaller than those observed empirically. For the tests the time-series CAPM regressions for stock portfolios have been used. The unconditional test has been conducted using the full time series of returns for each portfolio, restricting alpha and beta to be constant. The conditional test has been conducted using a common approach where beta is a function of observed macroeconomic variables.

In order to solve the problem of availability of the full set of state variables, the conditional alphas and betas have been estimated using short-window regressions. The CAPM regressions have been estimated separately every month, quarter, half-year and year using daily, weekly, or monthly returns. So the estimates of each quarter's conditional alpha and beta have been made without using any state variables or making any assumptions about quarter-to-quarter variation in beta, except one assumption that beta is relatively stable within the quarter and each regression can simply treat it as constant. The conditional CAPM has been tested in two ways. First, it has been directly tested whether the conditional alphas are zero. Second, it has been tested whether betas vary over time in a way that might explain stocks unconditional alphas by calculating the volatility of betas and their correlation with business conditions and the market risk premium. Since the regressions have been estimated over short intervals instead of monthly returns daily or weekly returns have been used. The estimations have been made using overlapping returns (observations overlap by four days). The tests focus on size, B/M, and momentum portfolios from 1964 to 2001 using NYSE and Amex common stock returns. The CRSP value-weighted index has been used as a market proxy and the T-bill rate has been used as a risk-free rate. The size and B/M portfolios has been constructed as those of Fama and French (1993). Twenty five size-B/M portfolios based on the intersection of five size and five B/M portfolios have been formed. So, the tests have been based on six combinations of the twenty five size-B/M portfolios. The momentum portfolios have been formed separately. The stocks have been sorted every month into deciles based on the past six-month returns. The portfolios have been hold for overlapping six-month periods. The tests use returns compounded over three horizons: daily, weekly and monthly. The test results of the conditional alphas provide strong evidence against the conditional CAPM. B/M and momentum portfolios alphas remain large, statistically significant, and close to their unconditional estimates. The test results of conditional CAPM also show that the size effect is weak, as in unconditional tests, but small stocks now show a hint of abnormal returns. It has also been found that beta vary considerably over time due to the changes in true conditional betas (not estimation error) but it is not enough to explain large unconditional pricing errors. Therefore, it has been concluded that the conditional CAPM performs about as poorly as the unconditional CAPM and does not explain the B/M and momentum effects.

The recent study of Ang and Chen (2005) is aimed to estimate and develop the conditional CAPM with time-varying betas, time-varying market risk premia, stochastic systematic volatility to test the book-to-market effect over the long run using returns of all stocks listed on the NYSE, AMEX, and NASDAQ. Ang and Chen argue that although alphas and betas are generally estimated by OLS (Ordinary Least Squares) and a large OLS of alpha is considered as an anomalous return relative to the CAPM, beta variations over time, which are correlated with time-varying market return, result in misspecified standard OLS inference, and therefore it is not possible to use it to asses the fit of the conditional CAPM. They have showed that OLS alphas and betas are biased and not a proper estimate of conditional alphas and betas. The main stress in the study has been done on the time-variation of conditional betas in estimating conditional alphas. Their estimation technique provides direct, consistent estimates of conditional alphas and of the time-series of conditional betas. The conditional CAPM has been used to portfolios sorted by book-to-market ratios, which have a spread in average returns that cannot be explained by an unconditional CAPM using an OLS regression. They argue that this can be explained by the one-factor conditional model with time-varying betas. They have also noticed the advantages of their modelling method: 1 - the time-varying betas have been considered as implicit state variables and infered directly from stock returns; 2 – the betas have been considered as endogenous variables that vary slowly and continuously over time (rather than to assume discrete changes in betas across subsamples and constant betas within subsamples); 3 - they have included predictable time-variations in aggregate market conditions in both the conditional mean and the conditional volatility. Markov Chain Monte Carlo (MCMC) and Gibbs sampling estimation approach, which incorporates the effect of parameter uncertainty, estimates conditional alphas and betas and measures the effect of small sample bias, has been used. They have exanimed the sample period from July 1926 to December 2001. To test the unconditional CAPM, alphas and betas have been estimated using unconditional one-factor regression. Its result shows that the alphas from the unconditional one-factor model are insignificant for book-to-market sorted portfolios over the long run. As for the conditional one-factor model, it has been found that the model is sufficient to explain the average returns of book-to-market portfolios. Nevertheless, Ang and Chen do not posit that the conditional CAPM is the complete model for the cross-section of stock returns and that the conditional CAPM can explain all anomalies. They argue just that the conditional one-factor model is able to explain a wider range of returns than previously thought. Their results also emphasize the importance of taking into account time-varying factor inputs before asserting the cross-sectional return pattern anomalous relative to a conditional CAPM.

4. TEST OF THE CAPM IN TURKISH CAPITAL MARKET

4.1 Data and Methodology

In this study two tests of the CAPM have been conducted: traditional and conditional. We use Fama and MacBeth (1973) three-step approach to conduct traditional (or unconditional) CAPM test and Pettengill et al. (1995) method for conditional test.

The sample period for this study extends from January 1995 though December 2004. Weekly returns for all securities listed on the Istanbul Stock Exchange (ISE) and ISE100 equally-weighted index, which has been used as a proxy for the market portfolio, have been obtained from the ISE database. Since there is no available data on returns adjusted for dividends and equity offerings we have used returns calculated directly from the weekly closing prises for securities. The equity offering and dividend payment days of particular securities have been dropped from the related week. In other words, security returns assumed to be zero in the equity offering and dividend payment days due to the fact that security price falls down for a big percentage depending on the equity offering or dividends payment value. As the risk-free rate we have used the three-month US Treasury bill rate adjusted for the inflation in USA and Turkey, and converted into the weekly rates (see Appendix XIII). Since Turkish Treasury bill rates were abnormally high in the period of 1990-2003, that would cause a meaningless results of the test, it has been decided to use the US Treasury bill rates, which in turn, have been adjusted for the USA inflation deducting the inflation rate from the treasury bill rate for the same period. Then using Fisher equation for nominal and real return calculation, US Treasury bill rates have been adjusted for inflation in Turkey using inflation rates for the same period as treasury bill returns. The US Treasury bill rates have been obtained from the US Federal Reserve Bulletin. The US and Turkish inflation rates have been collected from the US Bureau of Labor Statistics database and the State Institute of Statistics of Turkey respectively.

4.1.1 Traditional Approach

According to the Fama and MacBeth (1973) approach the sample period should be divided into subperiods, which in turn divided into three periods: portfolio formation period, estimation period and test period. In the portfolio formation period portfolios are constructed on the basis of ranked beta values for individual securities. Fama and MacBeth argued that portfolio betas can be more precise estimates of true betas than the betas for individual securities since beta estimations cause an unavoidable "errors-in-variables" problem. Also the procedure of portfolio formation, according to the ranked beta values, reduces the loss of information in the risk-return tests caused by using portfolios rather than individual securities. However, Fama and MacBeth asserted that such a procedure could result in a serious regression phenomenon, when constructing portfolios on the basis of ranked betas causes bunching of positive and negative sampling errors between portfolios since in a cross-section of individual betas, high observed betas tend to be above the corresponding true betas and low observed individual betas tend to below the true betas. Thus, a large portfolio betas would tend to overstate the true portfolio betas and a low portfolio betas would tend to be an underestimate. Therefore, in order to avoid a regression phenomenon, Fama and MacBeth formed portfolios from ranked individual betas calculated from the data for one time period and then used a subsequent period (estimation period) to obtain the portfolio betas. Actually in the estimation period betas of individual securities are re-estimated to compute portfolio betas.[1] So, it is hoped that the regression phenomenon is minimized in portfolio betas since using fresh data randomizes errors in the betas of individual securities within portfolios.[2] In the third time period (test period) portfolio betas, which have been estimated in the second time period (estimation period) are regressed against porfolio returns, which are calculated using the test period data.

[1] Note that the number of portfolios and their contents do not change in the estimation period.

[2] Fama and MacBeth (1973) pointed out that: "the errors-in-variables" problem and its solving method using portfolios were first mentioned by Blume (1970); portfolio approach has also been used by Friend and Blume (1970) and Black, Jensen and Scholes (1972); the regression phenomenon was first recognized by Blume (1970) and Black, Jensen and Scholes (1972), who offered the similar problem solution as Fama and MacBeth (1973).

Our sample period of 1995-2004 has been divided into five 6-year subperiods such that the test periods overlap with the 1-year interval in order to minimize the errors in beta estimates, which arises from the beta volatility, and hence, get more precise estimates and results. Each subperiod then has been separated into three 2-year periods: portfolio formation period, beta re-estimation period and test period. Each of them consists from 104 weekly observations. In each 6-year subperiod we use securities that are available within that period and meet the data requirements. The five different portfolio formation periods, five estimation periods and testing periods with the numbers of securities available on ISE shown in Table 1.

Table 4.1 Sample periods and number of stocks

	Periods				
	1	2	3	4	5
Portfolio Formation Period	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
Estimation Period	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Testing Period	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
No.of securities at the beginning of formation period	211	235	266	283	297
No.of securities meeting data requirement	167	187	197	206	225

In the portfolio formation period using 2-year period data we estimate the beta for each individual security by regressing the time series of the securities' excess returns, calculated from the natural logarithm of security prices, on the time-series of the index excess returns where excess returns have been obtained by substructing the risk-free rate from the returns (see Appendix XII). The equation of time-series regression, also often called as the first-pass regression, is as follows:

$$R_{i,t} - R_{f,t} = \alpha_i + \beta_i (R_{m,t} - R_{f,t}) + \epsilon_{i,t} \qquad (4.1)$$

where $R_{i,t}$ is the individual security's return for the t period , $R_{f,t}$ is the risk-free rate, $R_{m,t}$ is the index return, β_i is the beta of security and $\epsilon_{i,t}$ is the regression residual. Based on ranked beta estimates we have sorted the securities into 20 equally weighted portfolios. Porfolio 1 contains the securities with the highest betas, portfolio 20 - the securities with the lowest betas. Using the Fama and MacBeth (1973) approach the number of securities in the each porfolio have been calculated as int (N/20) for the middle 18 portfolios and int

($N/20$ + ½ [$N - 20$ int ($N/20$)] for the first and last portfolios if N is even, where N is the total number of securities to be allocated to portfolios and int ($N/20$) is the largest integer equal to or less than $N/20$. The last portfolio includes an additional security if N is odd. In the following two-year period (estimation period) the portfolio betas have been estimated by recomputing the individual security betas and calculating unweighted averages of the security betas included in each portfolio constructed in the formation period. In the test period the portfolio returns have been calculated by averaging individual security returns in a portfolio using the 2-year data of the test period. Then we run the cross-sectional regression in the following form:

$$R_{p,t} - R_{f,t} = \hat{y}_{0,t} + \hat{y}_{1,t}\beta_p + \epsilon_{i,t} \qquad (4.2)$$

where $\hat{y}_{0t}$, $\hat{y}_{1t}$ are the regression coefficients, $R_{p,t}$ is the portfolio return, β_p is the portfolio beta and $\epsilon_{i,t}$ is the regression residual. The weekly portfolio returns have been regressed against portfolio betas, which have been computed in the estimation period.

4.1.2 Conditional Approach

In the test period we have estimated the regressions both using the traditional test procedure and using the conditional approach of Pettengill et al. (1995). As Pettengill et al. (1995) argued, the test of the CAPM model needed to be modified due to the model's requirements that a part of the market return distribution is below the risk-free rate. Pettengill et al. said that since the test of relationship between beta and returns based on the assumption of a positive risk-return tradeoff, the expected market return then must be higher than the risk-free return, otherwise all investors would hold the risk-free security. Therefore, the expected return on any risky portfolio is a positive function of beta. However, Pettengill et al. argued that due the fact that CAPM test uses realized returns instead of expected returns the validity of the model would not be directly examined. According to Pettengill et al. there must be conditions under which high beta portfolios earn lower returns than low beta portfolios in order for high beta portfolios to have more risk. The CAPM equation $(R_{i,t} - R_{f,t}) = \beta_i (R_{m,t} - R_{f,t}) + \epsilon_{i,t}$ shows an exact condition under which the realized returns for high beta portfolios are expected to be lower than the realized returns for low beta portfolios. It shows that the relationsheep between beta and returns for high and low beta protfolios is actually conditional on the realtionsheep between realized market returns and the risk-free return. If $R_m < R_f$, then $\beta_p(R_{m,t} - R_{f,t})$ is < 0. In such cases, the predicted portfolio return incules a negative risk premium that is proportionate to beta. Hence, according to to Pettengill et al., if the realized market return is less than the risk-free return, an inverse relationship exists between beta and return, which means that high beta portfolios have predicted returns that are less than the predicted returns for low beta portfolios. Since the realized market returns occurs to be frequently less than risk-free rate of return, the conditional relationship will have a big effect on tests of the relationship between beta and returns. So, our first step in conducting the conditional test is to analyse the market returns over the sample periods. A week-by-week comparison of the ISE100 index and the risk-free rates over the period 1999 (first test period) through 2004 shows that the T-bill rate exceeds the market return in 155 out of total 311 observations. Therefore, the existence of a large number of negative market excess return periods suggests to modify the CAPM test to account of positive and negative market excess returns in order for test results not to be biased. The conditional test utilize the modified version of the three-step portfolio approach of Fama and MacBeth (1973). The procedure of the first two steps of portfolio formation and estimation periods are remains the same. The portfolios are constructed on the basis of ranked betas and then portfolio betas are estimated in the second period along with the portfolio returns. However, the third step (the test period), which tests the relationship between portfolio beta and returns, is modified to account for the conditional relationship between beta and *realized* returns. As it has been mentioned above, if the realized market return is above the risk-free return, portfolio betas and returns should be positively related, and if the realized market return is below the risk-free return, portfolio betas and returns should be inversely related. Consequently, to conduct the conditional CAPM test, the regression coefficients from the following equation have been examined:

$$R_{p,t} = \hat{y}_{0t} + \hat{y}_{1t} * \delta * \beta_{p,t} + \hat{y}_{2t} * (1- \delta) * \beta_{p,t} + \varepsilon_t \qquad (4.3)$$

where $\delta = 1$, if $(R_{mt} - R_{ft}) > 0$ (when market excess return is positive in week t) and $\delta = 0$, if $(R_{mt} - R_{ft}) < 0$ (when market excess return is negative in week t). Due to the fact that $\hat{y}_1$ is estimated in periods with positive market excess returns, the expected sign of this coefficient is positive. Therefore, the following hypothesis are tested:

Ho: $\hat{y}_1 = 0$,

Ha: $\hat{y}_1 > 0$.

Since $\hat{y}_2$ is estimated in periods with negative market excess returns, the expected sigh of this coefficient is negative. Hence, the following hypothesis are tested:

Ho: $\hat{y}_2 = 0$,

Ha: $\hat{y}_2 > 0$.

The systematic conditional relationship between beta and realized returns is supported if the null hypothesis is rejected in favor of the alternate in both cases.

5. EMPIRICAL RESULTS

5.1 The results of the traditional (unconditional) test

Table 2 shows the values of the 20 portfolios betas $\beta_{p,t}$ used in test procedure and their determination coefficients.

Table 5.1 Portfolio betas

	Test Period									
	1999-2000		2000-2001		2001-2002		2002-2003		2003-2004	
Portfolio	$\beta p,t$	R^2	$\beta p,t$	R^2	$\beta p,t$	R^2	$\beta p,t$	R^2	$\beta p,t$	R^2
1	0,866	0,381	1,037	0,565	1,040	0,237	1,012	0,953	1,175	0,669
2	0,913	0,395	0,913	0,387	0,951	0,212	1,003	0,966	1,068	0,610
3	0,767	0,421	0,820	0,461	0,846	0,175	0,998	0,936	1,070	0,607
4	0,812	0,396	0,841	0,374	0,814	0,187	0,972	0,931	1,032	0,577
5	0,810	0,445	0,893	0,452	0,747	0,159	0,999	0,946	1,003	0,544
6	0,834	0,500	0,748	0,308	0,696	0,140	0,992	0,927	0,830	0,473
7	0,795	0,361	0,703	0,342	0,740	0,143	0,984	0,936	0,837	0,545
8	0,768	0,339	0,819	0,416	0,694	0,129	0,984	0,948	0,896	0,468
9	0,950	0,506	0,737	0,369	0,762	0,156	0,996	0,924	0,907	0,424
10	0,814	0,416	0,765	0,349	0,647	0,114	0,992	0,939	0,813	0,428
11	0,801	0,386	0,731	0,424	0,679	0,127	0,988	0,904	0,849	0,445
12	0,842	0,488	0,730	0,358	0,515	0,069	0,991	0,909	0,840	0,422
13	0,814	0,408	0,736	0,317	0,640	0,106	0,992	0,918	0,902	0,361
14	0,813	0,488	0,685	0,296	0,613	0,105	0,991	0,923	0,790	0,420
15	0,792	0,350	0,729	0,343	0,551	0,082	0,972	0,917	0,843	0,380
16	0,683	0,310	0,651	0,278	0,695	0,129	1,001	0,928	0,695	0,306
17	0,759	0,378	0,699	0,265	0,562	0,078	0,987	0,924	0,722	0,290
18	0,744	0,344	0,702	0,364	0,572	0,093	0,984	0,905	0,765	0,352
19	0,805	0,447	0,495	0,205	0,362	0,048	0,981	0,924	0,771	0,255
20	0,578	0,253	0,470	0,123	0,347	0,034	0,971	0,901	0,545	0,227

The major test results of the implications of the CAPM for the total sample period are in Table 3. The results are presented for all the sample subperiods. For each period and model, the table shows: $\hat{\gamma}_{0,t}$, $\hat{\gamma}_{i,t}$ - regression coefficient estimates (regression intercept and slope); se(γ_0), se(γ_0) – standard errors of the regression coefficients; se(Rp-Rf) - standard error of the portfolio premium; R^2 – the determination coefficient; ssreg – the regression sum of squares; ssresid - the residual sum of squares; *Rm-Rf* market premium. The table also presents the standard t-statistics T(γ_0) and T (γ_1) for testing hypothesis that $\hat{y}_{i,t} = 0$. As predicted by the CAPM the estimated regression coefficients should be equal to:

$\hat{y}_0 = 0$

$\hat{y}_1 = R_m - R_f$

In the four of five periods $\hat{y}_0$ is very close to zero and all of them are negative. With regard of $\hat{y}_1$, it has the result close to predicted by model in only the period (2001-2002). The results also show that R-squared in three periods of five are nearly zero. However, the t-statistics for the second (2000-2001) and third (2001-2002) periods are higher (-1,5690 and -2,7056) than in the other periods. For the same two periods the standard errors of coefficients are quite small and $\hat{y}_1$ is very close to the market premium $R_m - R_f$ as predicted by the model. Nevetheless, the $\hat{y}_1$ in those two periods are negative, which indicates that the risk-return tradeoff not positively related as predicted by the model but inversely. The Figures 5.2, 5.3 clearly show that in the periods 2000-2001 and 2001-2002 there is strong negative inversely related relationship between beta and returns. The other periods do not show any consistent strong results in favor of the CAPM. As it is seen from the Table 3 and Figures 5.1, 5.4, 5.5 in the other three periods 1999-2000, 2002-2003, 2003-2004 the relationship between beta and return is weak although the $\hat{y}_1$ is positive. In the first period (1999-2000) 14 portfolios, which have almost the same beta value, get the return ranging in big interval from 0 to -0,007 (see Appendix). The t-statistics shows that the value of the slope coefficient is insignificant. The t-statistics of the forth period (2002-2003) indicate the significance of the slope coefficient on the level close to zero 0,014. The last period (2003-2004) also has the small t-statistics for $\hat{y}_1$, which shows negligible positive relationship between beta and return and equals 0,004. In general, the overall results of the traditional CAPM test are inconsistent across subperiods and show the weak support of the model predictions. This results, however, do not mean that there is no systematic relationship between risk and return. The results, to a greater extent, might be biased due to the aggregation of positive and negative market excess return periods.

Table 5.2 Summary results for the traditional test

$R_{p,t} - R_{f,t} = \hat{y}_{0,t} + \hat{y}_{1,t}\beta_p + \epsilon_{i,t}$

	Statistic										
Test Period	γ_0	γ_1	se (γ_0)	se (γ_1)	se (*Rp-Rf*)	R^2	ssreg	ssresid	T (γ_0)	T (γ_1)	*Rm-Rf*
1999-2000	-0,0044	0,0021	0,0042	0,0053	0,0018	0,0090	0,000001	0,000057	-1,0300	0,4046	-0,00003
2000-2001	-0,0041	-0,0106	0,0026	0,0035	0,0019	0,3425	0,000035	0,000068	-1,5690	-3,0621	-0,0126
2001-2002	-0,0040	-0,0060	0,0015	0,0021	0,0016	0,3028	0,000020	0,000046	-2,7056	-2,8185	0,0015
2002-2003	-0,0197	0,0147	0,0362	0,0365	0,0017	0,0089	0,000000	0,000051	-0,1776	0,0146	-0,3794
2003-2004	0,0023	0,0007	0,0020	0,0023	0,0015	0,0053	0,000000	0,000040	1,1069	0,3087	0,0049

Figure 5.1 Traditional test results for the period of 1999-2000

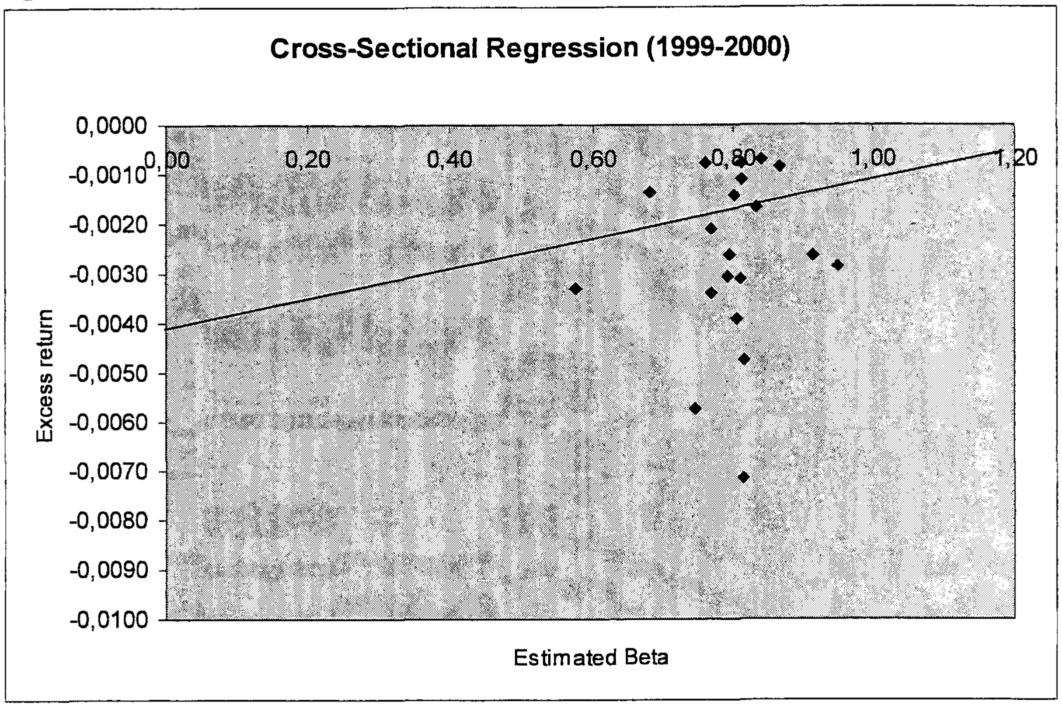


Figure 5.2 Traditional test results for the period of 2000-2001

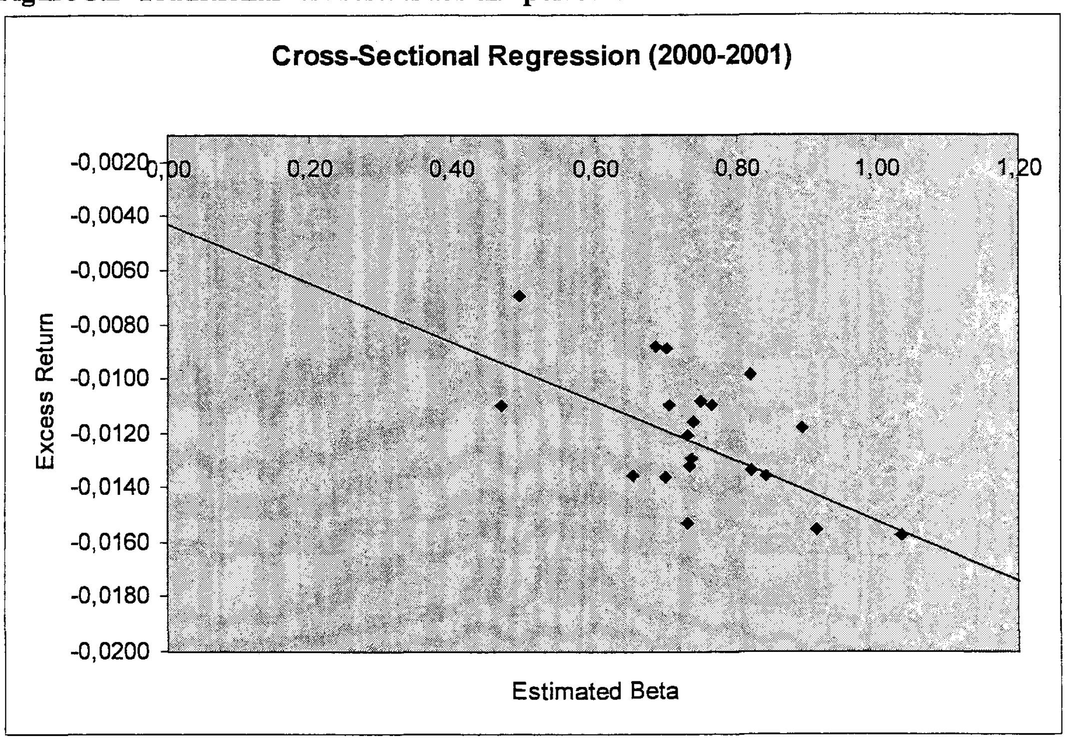


Figure 5.3 Traditional test results for the period of 2001-2002

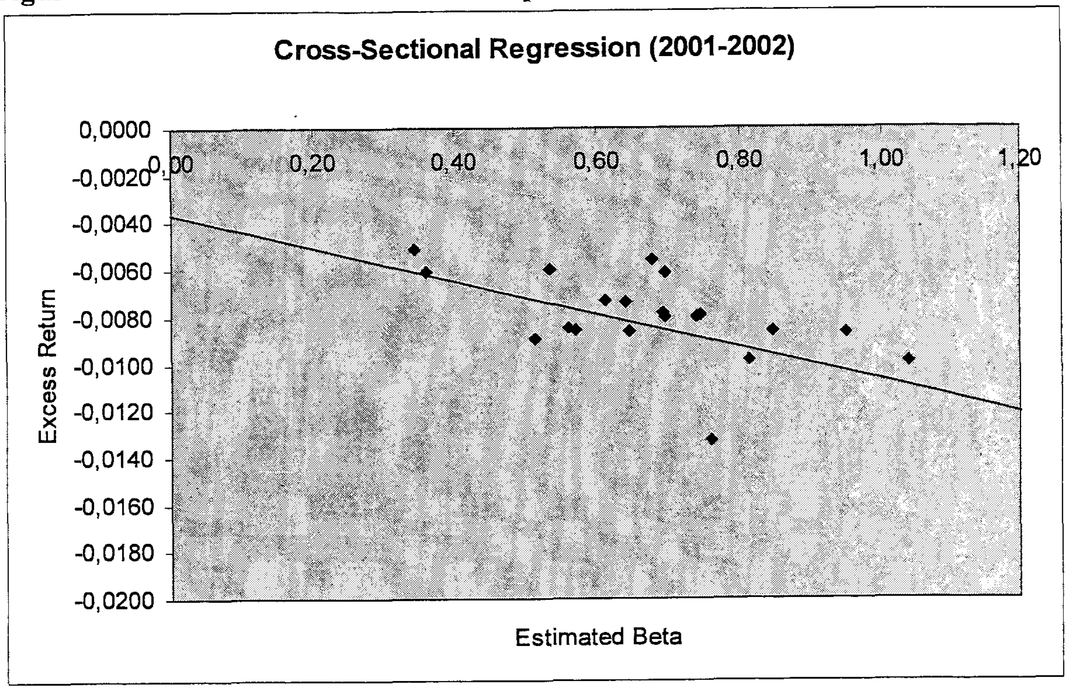


Figure 5.4 Traditional test results for the period of 2002-2003

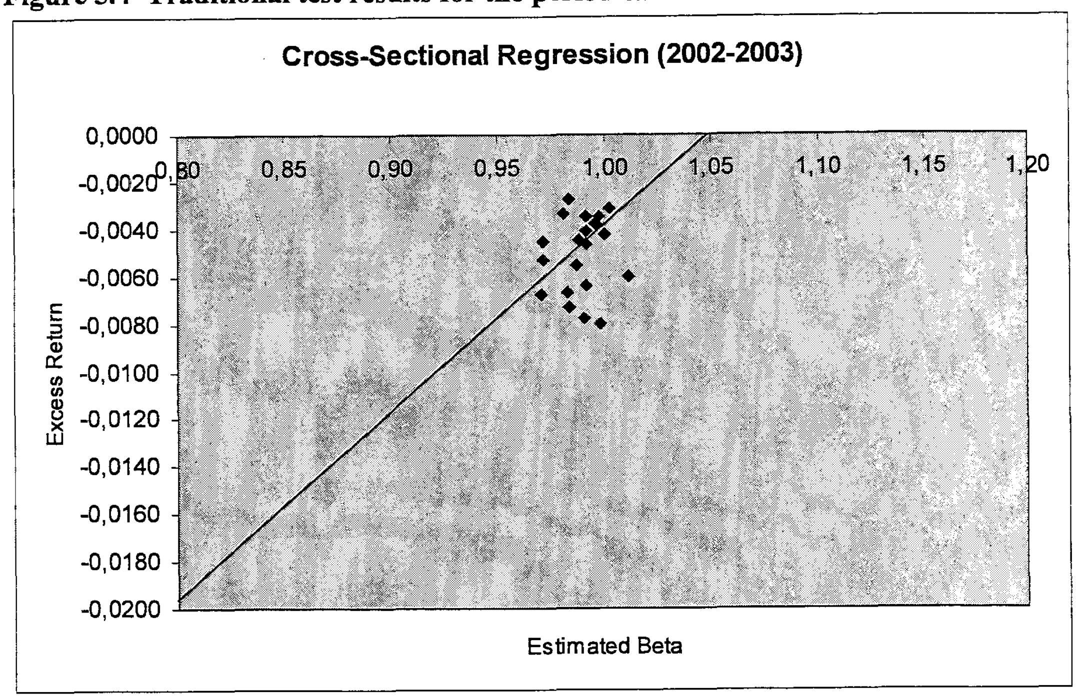
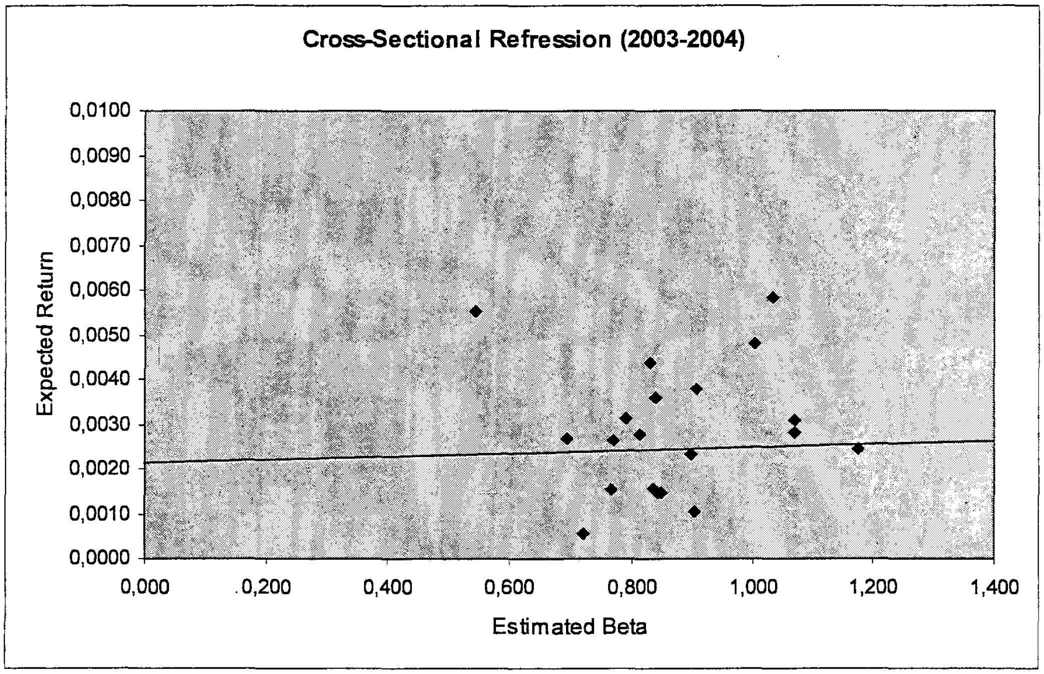


Figure 5.5 Traditional test results for the period of 2003-2004



5.2 The results of the condititional test

Given the conditional relation between beta and realized returns, we have tested the dual hypothesis of a positive relation between beta and returns during periods of positive market excess returns and a negative relation during the periods of negative excess returns. For the conditonal CAPM test the sample period has been divided into up-market weeks and down-market weeks. The portfolio betas remain the same as reported in Table 2. The statistics of the conditional test for market with positive risk premium is presented in Tables 4. The statistics of the conditional test for market with negative risk premium is presented in Tables 5. The results of Tables 4 and 5 show that the relation between beta and return is statistically significant both in up-market and down-market, and in each subperiod. The slope coefficients $\hat{y}_1$ have the expected sign. Portfolios with higher betas have higher returns when the market risk premium is positive and lower returns when the market risk premium is negative, which are confirmed by the Figures 5.6 – 5.15. The t-statistics of $\hat{y}_0$ and $\hat{y}_1$ are significantly high in all subperiods both in up-market and down-market. Comparing this t-statistics with the t-statistics of the traditional test it can be noticed that the values of t-statistics in conditional test are considerably higher. The standard errors of the coefficients are low as in the traditional test, except the one period 2002-2003 with standard errors se($\hat{y}_{0t}$) = 0,1215 and se($\hat{y}_{1t}$) = 0,1228 for the up-market, and se($\hat{y}_{0t}$) = 0,1195 and se($\hat{y}_{1t}$) = 0,1208 for the down market. The R-squred of the regressions are high, starting from the lowest 0,4155 to the highest 0,8161. So, it has been found a highly significant relationship between beta and returns in each subperiod. For every subperiod the hypothesis of no relationship between risk and returns during periods of positive excess market returns is rejected in favor of an expected positive relationship at the 0,01 level. Likewise, for every subperiod, the hypothesis of no relationship between risk and returns during periods of negative excess market returns is rejected in favor of an expected negative relationship at the 0,01 level. Figures 5.6 – 5.15 show the realized returns for the 20 portfolios separately for months with positive and negative risk premium. Figures 5.6 – 5.15 also demonstrate the effect of neglecting the conditional nature of the relation between beta and return. Since, as mentioned earlier, the number of month with positive and negative market risk premia are almost equal in our sample, the unconditional average return of each beta portfolio is approximately equal to the unweighted average of the two conditional return shown in the Figures 5.6 – 5.15. It is obvious that there is no relationship between the porfolio betas and these unconditional returns. So, the overall results of the conditional test support the conclusion that the betas are related to realised returns in the way predicted by the model.

Table 5.3 Summary results for the conditional test for the up-market

$R_{p,t} = \hat{y}_{0t} + \hat{y}_{1t} * \delta * \beta_{p,t} + \hat{y}_{2t} * (1-\delta) * \beta_{p,t} + \varepsilon_t$

	Statistic										
Test Period	γ_0	γ_1	se (γ_0)	se (γ_1)	se (*Rp-Rf*)	R^2	ssreg	ssresid	T (γ_0)	T (γ_1)	*Rm-Rf*
1999-2000	-0,0029	0,0541	0,0110	0,0137	0,0046	0,4644	0,0003	0,0004	-0,2600	3,9509	-0,00003
2000-2001	0,0121	0,0442	0,0053	0,0070	0,0039	0,6889	0,0006	0,0003	2,2896	6,3140	-0,0126
2001-2002	0,0133	0,0362	0,0032	0,0046	0,0034	0,7729	0,0007	0,0002	4,1791	7,7553	0,0032
2002-2003	-0,4606	0,4883	0,1215	0,1228	0,0056	0,4676	0,0005	0,0006	-3,7905	3,9761	-0,3794
2003-2004	-0,0053	0,0306	0,0042	0,0047	0,0030	0,6982	0,0004	0,0002	-1,2626	6,4536	0,0049

Table 5.4 Summary results for the conditional test for the down-market

$R_{p,t} = \hat{y}_{0t} + \hat{y}_{1t} * \delta * \beta_{p,t} + \hat{y}_{2t} * (1-\delta) * \beta_{p,t} + \varepsilon_t$

	Statistic										
Test Period	γ_0	γ_1	se (γ_0)	se (γ_1)	se (*Rp-Rf*)	R^2	ssreg	ssresid	T (γ_0)	T (γ_1)	*Rm-Rf*
1999-2000	-0,0052	-0,0476	0,0097	0,0121	0,0041	0,4630	0,0003	0,0003	-0,5385	-3,9399	-0,00003
2000-2001	-0,0153	-0,0484	0,0057	0,0076	0,0042	0,6939	0,0007	0,0003	-2,6712	-6,3872	-0,0126
2001-2002	-0,0180	-0,0401	0,0033	0,0047	0,0035	0,7999	0,0009	0,0002	-5,5401	-8,4805	0,0033
2002-2003	0,3964	-0,4321	0,1195	0,1208	0,0055	0,4155	0,0004	0,0006	3,3161	-3,5771	-0,3794
2003-2004	0,0121	-0,0378	0,0037	0,0042	0,0027	0,8161	0,0006	0,0001	3,2490	-8,9388	0,0049

Figure 5.6 Conditional test results for the up-market period of 1999-2000

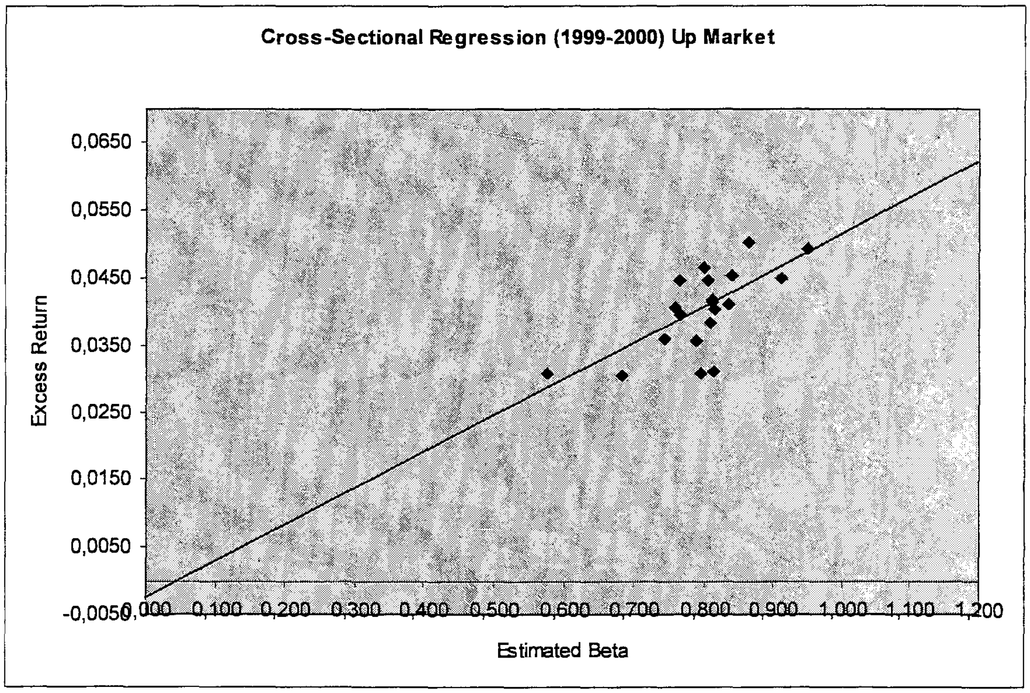


Figure 5.7 Conditional test results for the down-market period of 1999-2000

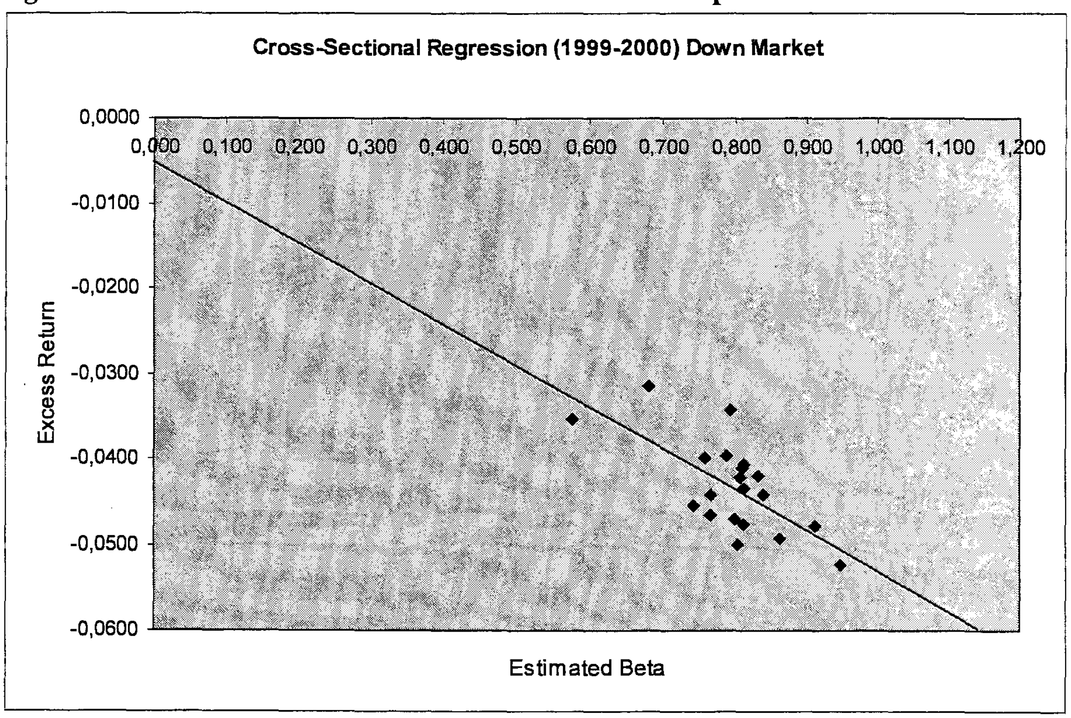


Figure 5.8 Conditional test results for the up-market period of 2000-2001

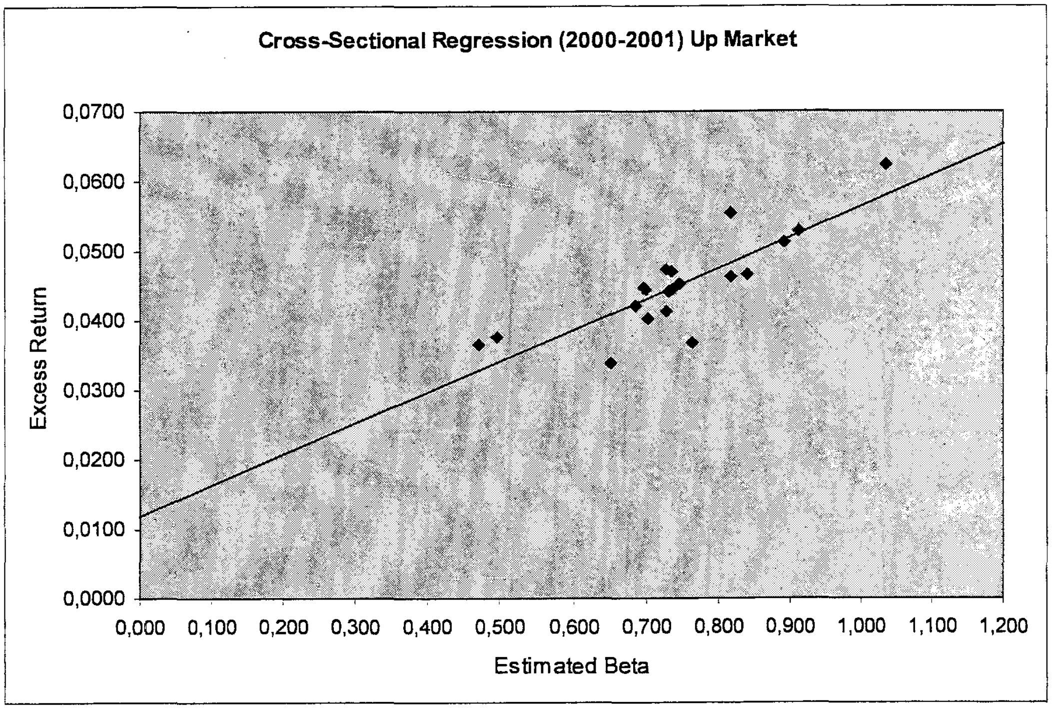


Figure 5.9 Conditional test results for the down-market period of 2000-2001

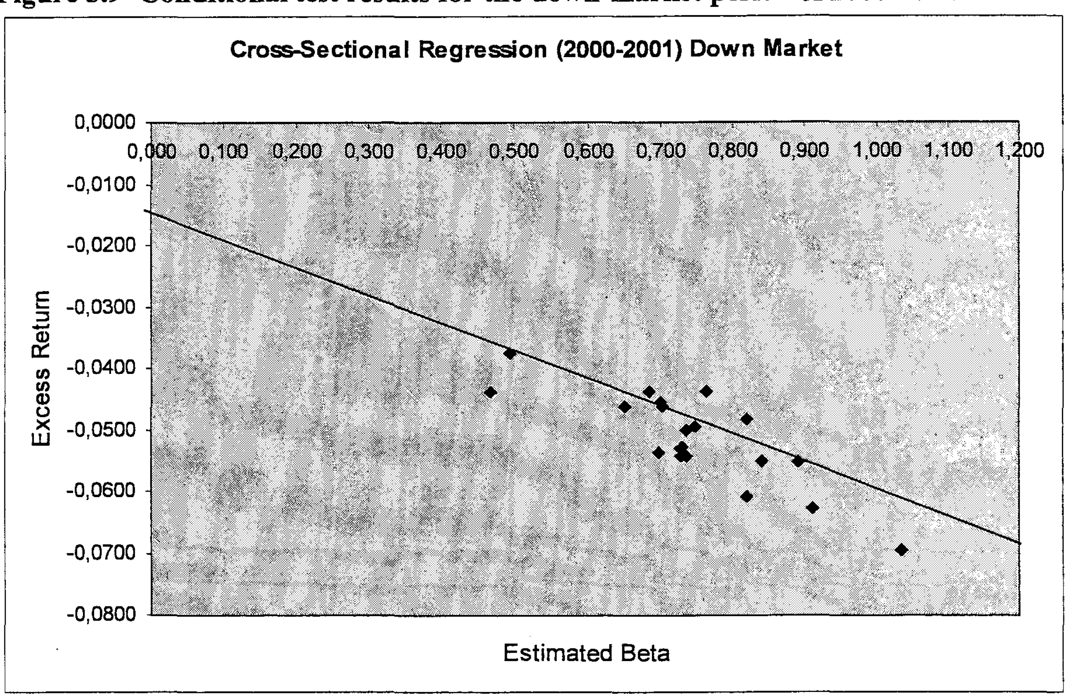


Figure 5.10 Conditional test results for the up-market period of 2001-2002

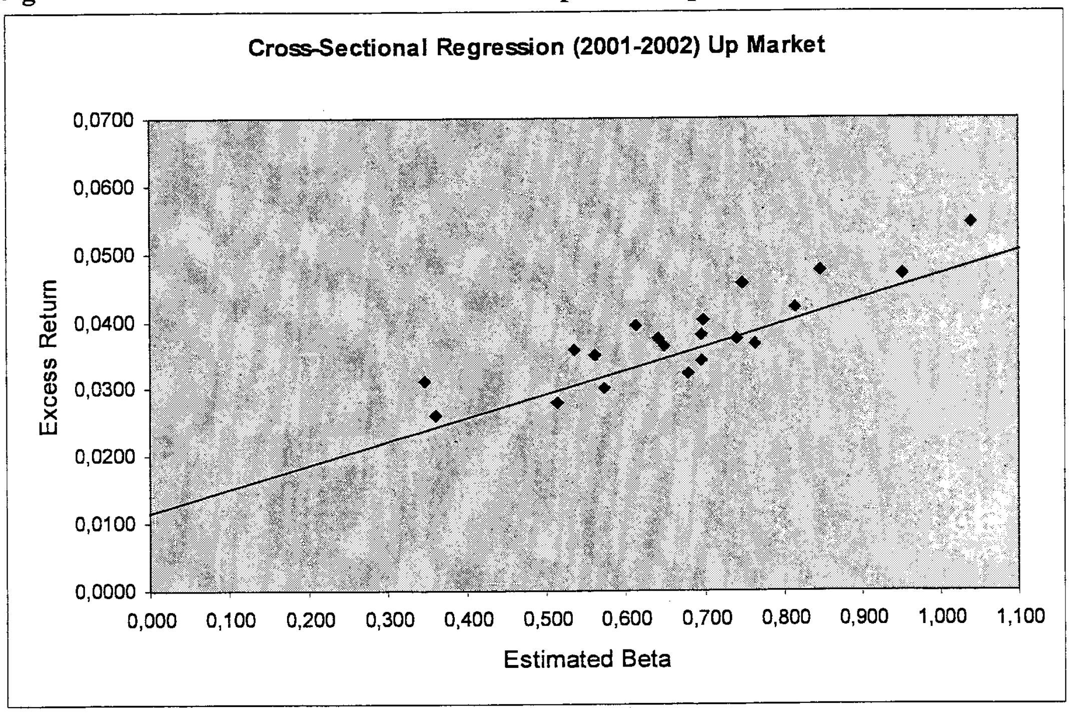


Figure 5.11 Conditional test results for the down-market period of 2001-2002

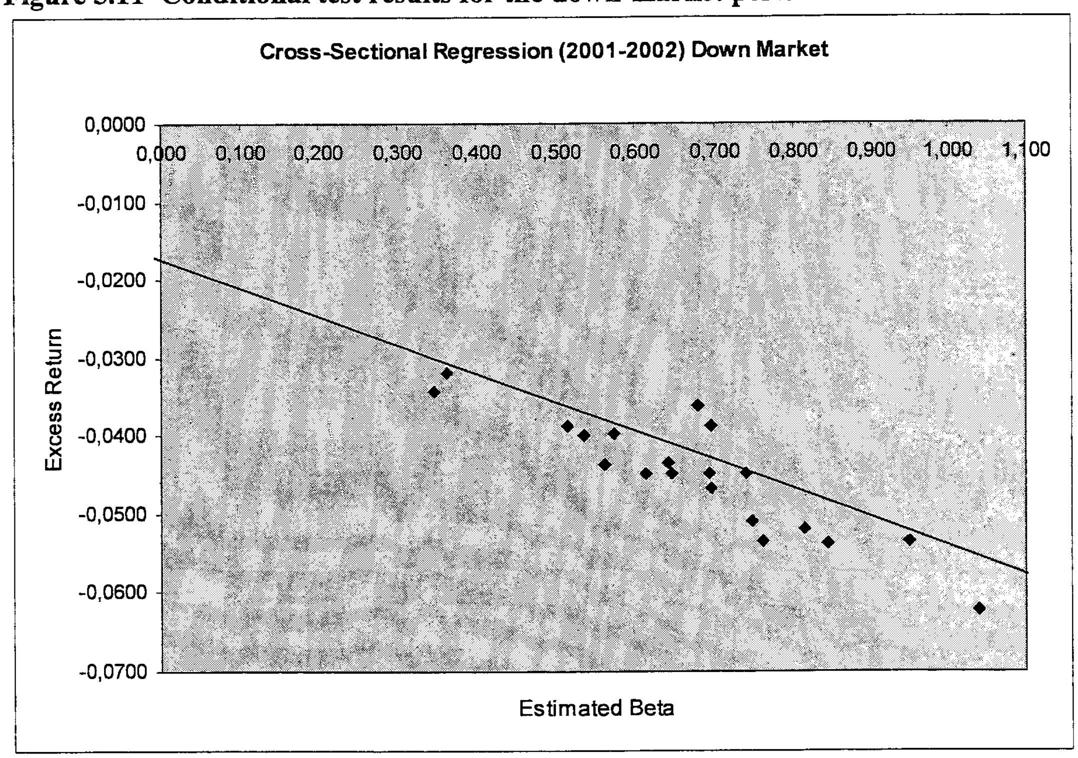


Figure 5.12 Conditional test results for the up-market period of 2002-2003

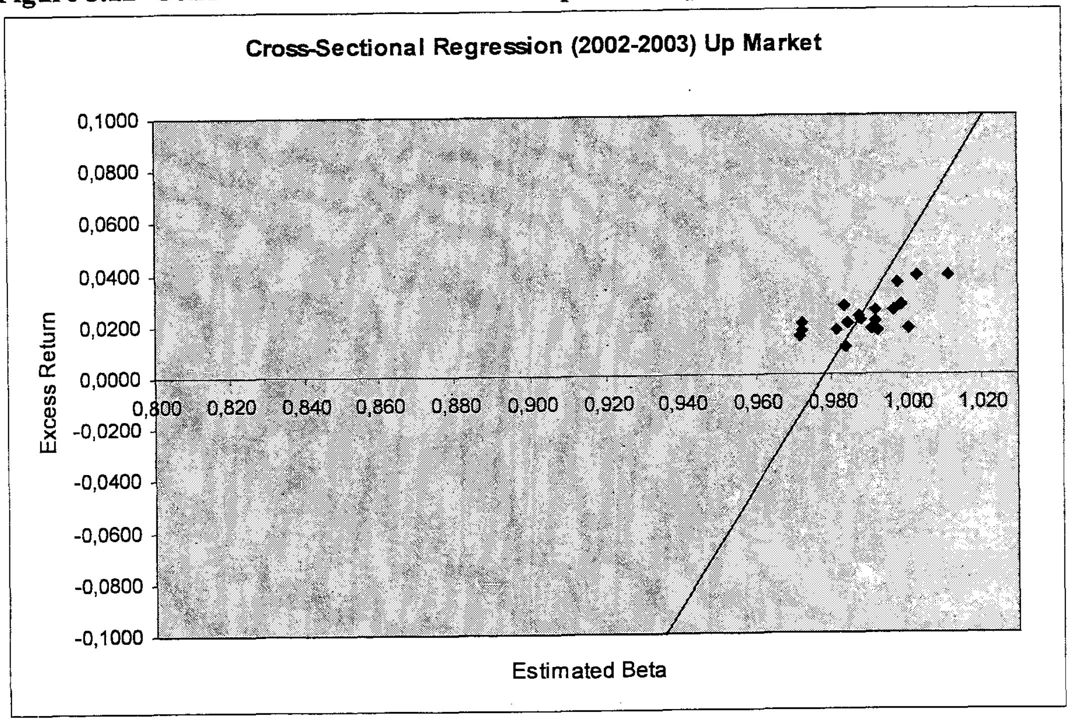


Figure 5.13 Conditional test results for the down-market period of 2002-2003

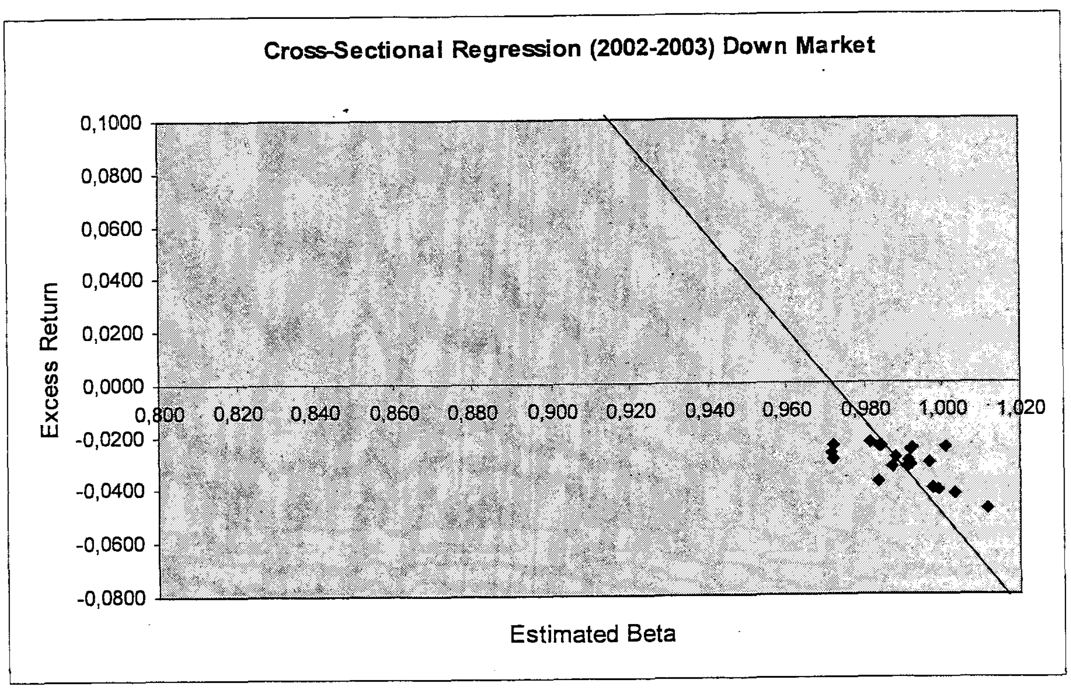


Figure 5.14 Conditional test results for the up-market period of 2003-2004

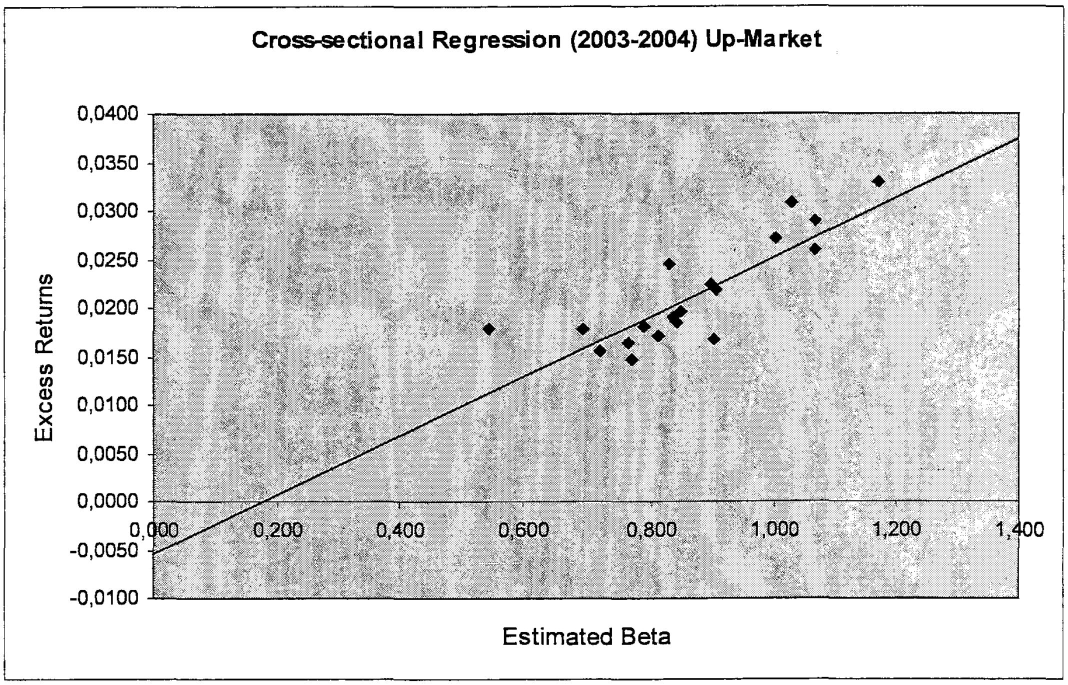
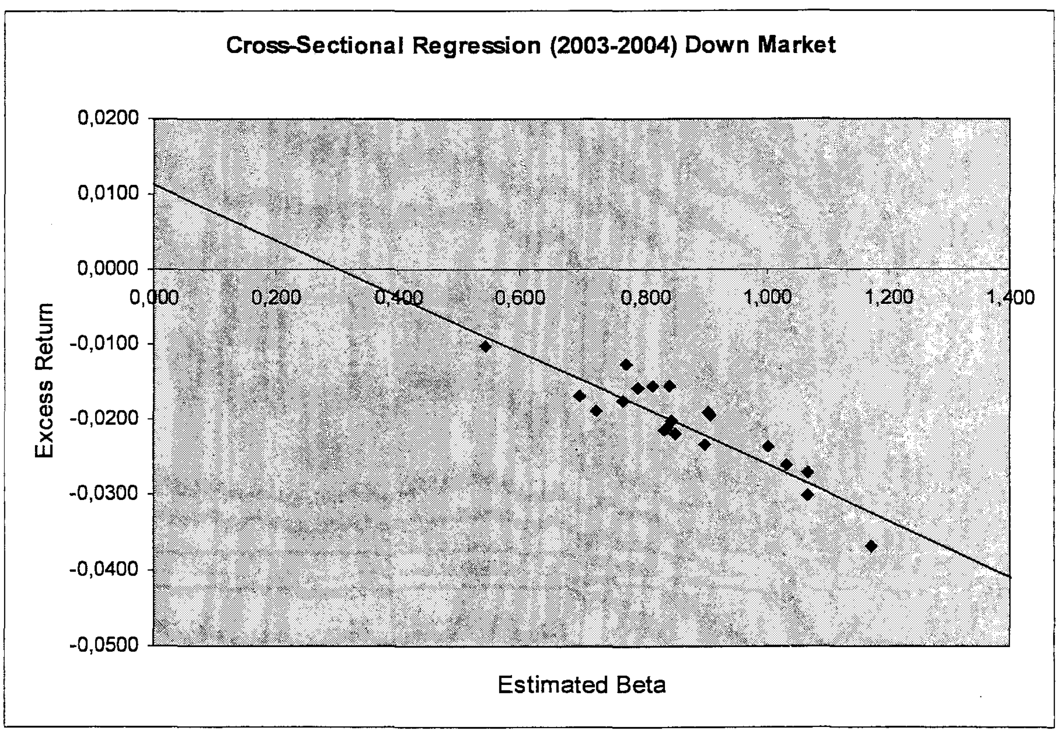


Figure 5.15 Conditional test results for the down-market period of 2003-2004



6. CONCLUSION

A number of previous studies testing systematic relationship between risk and return found weak and inconsistent results. However, the traditional test procedure based on the Fama amd MacBeth (1973) approach includes a joint test of two hypotheses. The hypothesis of a relationship between beta and return and the hypothesis of a positive market risk premium are tested simultaneously. Pettegill et al. (1995) proposed a conditional test procedure, which allows to separately test the hypothesis of a relationship between beta and return. The conditional CAPM test, which is conducted using the ex-post data has the results that predict a conditional relationship between beta and return such that securities with higher beta have higher (lower) returns when the market risk premium is positive (negative).

In this study we have conducted two CAPM tests: traditional and conditional. It has been found that the CAPM can not be proven under the traditional test approach. The results show that in two of five subperiods the relationship between beta and return is inversely related, which does not support the hypothesis of positive market risk premium predicted by the CAPM. In other subperiods the results show positive but insignificant relationship between beta and return. However, when the conditional test has been applied, the statistically significant relationship between beta and return has been found in all subperiods. The market excess return analysis shows that in almost a half observations the market excess return is negative. We argue that the traditional test results have been biased due to the fact that the traditional test does not take into account the condition of positive and negative market excess returns. So, we have separated the up-market weeks and down-market week to conduct the conditional test. The results indicate that the portfolios with higher betas have higher returns when the market risk premium is positive and lower returns when the market risk premium is negative. It has been found that the relationship between beta and return is consistent across all subperiods in the sample. Therefore, we have arrived at the conclusion that the systematic conditional relationship exists between beta and returns.

Our test results support the hypothesis that the systematic risk of a security measured by its beta is indeed a relevant measure of risk and is one of the main explanatory powers on security returns in Turkish capital market. Beta is reliably related to the security's return depending on the sign of the market risk premium. Hence the use of market beta esimated from the historical price data by portfolio managers hence seems to be justified. The contribution of this study to the investments management is the evidence provided for the role of beta in explaining returns in the Turkish capital market. Moreover, in the practical sense, the study also suggests that a portfolio of stocks may perform better when its funds are invested in high beta stocks during up market and in low beta stocks during down market.

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APPENDIX I

Portfolio Formation and Estimation for Test Period 1 (1999-2000)

PORTFOLIO FORMATION (1995-1996) including 167 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5		Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
DOHOL	1,727	MERKO	1,344	DISBA	1,287	EGPRO	1,190	MAKTK	1,161	KERVT	1,140	PNET	1,121	EGGUB	1,093	GUNEY	1,071	FROTO	1,034
ANBRA	1,650	GUBRF	1,329	ASELS	1,283	KONYA	1,185	IZOCM	1,160	MRDIN	1,139	EMEK	1,121	MEDYA	1,087	EREGL	1,069	PKENT	1,033
INTEM	1,517	ECZYT	1,309	MMART	1,278	VESTL	1,183	GENTS	1,156	SAPAZ	1,136	OLMKS	1,114	ABANA	1,086	TRKCM	1,064	NTTUR	1,030
MILYT	1,453	SNPAM	1,307	MAALT	1,276	OKANT	1,180	AKIPD	1,153	BRISA	1,136	FACF	1,106	KRTEK	1,083	YKBNK	1,061	YASAS	1,029
ECILC	1,425	SONME	1,299	DITAS	1,255	TOFAS	1,177	MUTLU	1,152	MYZYO	1,132	IZMDC	1,105	FINBN	1,082	PARSN	1,058	RANTL	1,027
MIPAZ	1,415	TUPRS	1,294	KORDS	1,254	THYAO	1,172	DENCM	1,147	AYGAZ	1,129	DUROF	1,104	HURGZ	1,078	PETKM	1,056	TKBNK	1,024
PINSU	1,393	NTHOL	1,294	ALTIN	1,218	DEVA	1,168	VKFYT	1,142	BEKO	1,126	KUTPO	1,098	ADNAC	1,076	EGEEN	1,055	FFKRL	1,023
ATLAS	1,385	IKTFN	1,289	ARCLK	1,212	TIRE	1,165	USAK	1,140	UNYEC	1,124	FMIZP	1,095	VAKFN	1,071	EPLAS	1,035	PTOFS	1,019
GLBYO	1,375	EVREN	1,288	KARTN	1,198	CELHA	1,162												

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15		Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
BSPRO	1,019	TRNSK	0,987	ANACM	0,947	AKFIN	0,926	PNSUT	0,886	MIGRS	0,841	FENIS	0,777	ERCYS	0,721	KEPEZ	0,657	TBORG	0,503
DOKTS	1,012	SARKY	0,982	RAKSE	0,943	HEKTS	0,926	EMPAS	0,881	GUSGR	0,840	EMSAN	0,773	TATKS	0,713	CIMSA	0,647	ISBTR	0,501
CEMTS	1,011	PRKAB	0,977	BOLUC	0,936	KAVPA	0,920	LUKSK	0,871	SKTAS	0,832	UCAK	0,772	KOTKS	0,705	GARAN	0,647	KENT	0,495
BAGFS	1,011	SABAH	0,975	DARDL	0,935	EGSER	0,920	EDIP	0,861	NIGDE	0,824	EGBRA	0,758	BURCE	0,702	AKBNK	0,640	TSKB	0,452
GOODY	1,011	BRSAN	0,974	RKSEV	0,929	KLBMO	0,917	ENKA	0,861	PNUN	0,822	OZFIN	0,751	TOASO	0,698	AYCES	0,639	ASLAN	0,437
DEMIR	1,009	TUDDF	0,971	TUKAS	0,928	MARET	0,909	BTCIM	0,847	VKING	0,812	ISCTR	0,750	AFYON	0,697	GOLTS	0,631	CMENT	0,341
AKALT	1,008	ERBOS	0,969	ALCAR	0,927	KCHOL	0,903	TEKST	0,844	YUNSA	0,797	MRSHL	0,744	FRIGO	0,692	ALARK	0,595	BUCIM	0,332
IHLAS	0,991	SISE	0,953	DERIM	0,927	ADANA	0,891	GLMDE	0,843	METAS	0,788	NETAS	0,734	CUKEL	0,660	YKFIN	0,554	GIMMA	0,325
														PIMAS	0,659	AKSA	0,534	HLKSG	0,187

PORTFOLIO BETA RE-ESTIMATION (1997-1998) including 167 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5		Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
DOHOL	1,124	MERKO	0,477	DISBA	0,911	EGPRO	0,862	MAKTK	0,927	KERVT	0,657	PNET	0,842	EGGUB	0,671	GUNEY	0,909	FROTO	0,948
ANBRA	0,726	GUBRF	0,911	ASELS	1,015	KONYA	0,517	IZOCM	0,715	MRDIN	0,851	EMEK	0,780	MEDYA	0,848	EREGL	1,156	PKENT	0,454
INTEM	0,747	ECZYT	1,093	MMART	0,685	VESTL	1,078	GENTS	0,644	SAPAZ	0,976	OLMKS	0,756	ABANA	0,572	TRKCM	0,940	NTTUR	1,002
MILYT	0,975	SNPAM	0,708	MAALT	0,409	OKANT	0,618	AKIPD	0,933	BRISA	0,867	FACF	0,666	KRTEK	0,733	YKBNK	1,268	YASAS	0,812
ECILC	0,992	SONME	0,689	DITAS	0,582	TOFAS	0,883	MUTLU	0,729	MYZYO	0,733	IZMDC	1,055	FINBN	0,875	PARSN	0,617	RANTL	0,849
MIPAZ	1,055	TUPRS	1,288	KORDS	0,900	THYAO	1,007	DENCM	0,804	AYGAZ	0,885	DUROF	0,693	HURGZ	0,906	PETKM	1,089	TKBNK	0,854
PINSU	0,695	NTHOL	1,143	ALTIN	0,643	DEVA	0,916	VKFYT	0,877	BEKO	0,986	KUTPO	0,842	ADNAC	0,676	EGEEN	0,871	FFKRL	0,594
ATLAS	0,836	IKTFN	1,052	ARCLK	1,102	TIRE	0,558	USAK	0,848	UNYEC	0,719	FMIZP	0,724	VAKFN	0,859	EPLAS	0,751	PTOFS	1,001
GLBYO	0,644	EVREN	0,854	KARTN	0,652	CELHA	0,869												
Portfolio Beta	0,866		0,913		0,767		0,812		0,810		0,834		0,795		0,768		0,950		0,814

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15		Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
BSPRO	0,749	TRNSK	0,977	ANACM	0,835	AKFIN	0,710	PNSUT	0,962	MIGRS	0,764	FENIS	0,856	ERCYS	0,769	KEPEZ	0,950	TBORG	0,762
DOKTS	0,898	SARKY	0,906	RAKSE	0,999	HEKTS	0,782	EMPAS	0,478	GUSGR	0,695	EMSAN	0,560	TATKS	0,846	CIMSA	0,759	ISBTR	0,552
CEMTS	0,850	PRKAB	0,723	BOLUC	0,592	KAVPA	0,803	LUKSK	0,679	SKTAS	0,522	UCAK	0,585	KOTKS	0,470	GARAN	1,217	KENT	0,672
BAGFS	1,031	SABAH	0,972	DARDL	0,794	EGSER	0,785	EDIP	0,378	NIGDE	0,652	EGBRA	0,872	BURCE	0,496	AKBNK	0,988	TSKB	0,744
GOODY	0,574	BRSAN	0,661	RKSEV	0,963	KLBMO	0,807	ENKA	1,117	PNUN	0,553	OZFIN	0,679	TOASO	0,987	AYCES	0,407	ASLAN	0,533
DEMIR	0,692	TUDDF	0,791	TUKAS	0,616	MARET	0,723	BTCIM	0,671	VKING	0,615	ISCTR	1,011	AFYON	0,635	GOLTS	0,856	CMENT	0,404
AKALT	0,714	ERBOS	0,694	ALCAR	0,889	KCHOL	1,098	TEKST	0,753	YUNSA	0,771	MRSHL	0,721	FRIGO	0,568	ALARK	0,974	BUCIM	0,468
IHLAS	0,902	SISE	1,011	DERIM	0,820	ADANA	0,794	GLMDE	1,294	METAS	0,894	NETAS	0,789	CUKEL	1,056	YKFIN	0,336	GIMMA	0,903
														PIMAS	0,868	AKSA	0,760	HLKSG	0,167
	0,801		0,842		0,814		0,813		0,792		0,683		0,759		0,744		0,805		0,578

APPENDIX II

Portfolio Formation and Estimation for Test Period 2 (2000-2001)

PORTFOLIO FORMATION (1995-1996) including 187 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
TUPRS	1,469	ARCLK	1,149	AKBNK	1,063	KARTN	0,998	INTEM	0,941
IZMDC	1,332	TKBNK	1,139	ATSYO	1,058	PNSUT	0,995	AYGAZ	0,938
DOHOL	1,323	EVREN	1,130	VAKFN	1,054	TOASO	0,995	TRKCM	0,937
GLMDE	1,298	PETKM	1,129	KORDS	1,037	MILYT	0,983	USAK	0,930
THYAO	1,234	MIPAZ	1,125	ASELS	1,027	MAKTK	0,981	DEVA	0,920
EREGL	1,229	ISCTR	1,096	MYZYO	1,018	DISBA	0,980	ENKA	0,920
NTHOL	1,213	PTOFS	1,077	GLBYO	1,018	ECZYT	0,970	BEKO	0,920
YKBNK	1,208	ATLAS	1,075	TRNSK	1,015	SISE	0,969	VESTL	0,919
NTTUR	1,180	ECILC	1,070	GARAN	1,003	SNPAM	0,960	DOKTS	0,899

Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
AKIPD	0,895	UNYEC	0,835	FROTO	0,816	ESEMS	0,796	BAGFS	0,774
DMRYO	0,895	AGIDA	0,833	ERBOS	0,811	BRSAN	0,785	MERKO	0,773
EPLAS	0,882	KAVPA	0,832	BRISA	0,811	YATAS	0,784	ALCAR	0,771
OLMKS	0,879	MRDIN	0,826	AKALT	0,810	FINBN	0,783	TBORG	0,770
RAKSE	0,872	GEDIZ	0,826	COMUN	0,809	ECYAP	0,780	KUTPO	0,769
ALNTF	0,869	DERIM	0,824	BTCIM	0,804	YKRYO	0,779	CIMSA	0,765
TOFAS	0,867	BUMYO	0,822	FENIS	0,802	BSPRO	0,777	BOSSA	0,765
FMIZP	0,859	PRKAB	0,822	CELHA	0,798	MUTLU	0,776	TIRE	0,764
HURGZ	0,843	GRNYO	0,820	NETAS	0,797	DITAS	0,776	RKSEV	0,762

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
UCAK	0,761	MMART	0,732	EGSER	0,715	KNFRT	0,697	ADNAC	0,669
FFKRL	0,756	GOLTS	0,729	PINSU	0,714	MRSHL	0,691	GENTS	0,666
EGEEN	0,754	ALTIN	0,729	VKING	0,713	YUNSA	0,689	ADEL	0,660
ANACM	0,750	KLBMO	0,728	OKANT	0,705	KERVT	0,688	YASAS	0,659
DENCM	0,749	CEMTS	0,724	ADBGR	0,705	SONME	0,686	FRIGO	0,658
ADANA	0,748	KONYA	0,721	TATKS	0,700	GOODY	0,682	DARDL	0,655
FNSYO	0,740	BOLUC	0,719	PIMAS	0,699	GUSGR	0,675	HEKTS	0,655
GIMMA	0,739	RANTL	0,718	PARSN	0,698	BRYAT	0,674	EGPRO	0,650
IZOCM	0,736	AKCNS	0,716	TUDDF	0,697	KENT	0,671	CARSI	0,650

Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
BROVA	0,643	VKFYT	0,609	ARFYO	0,565	LUKSK	0,534	EMNIS	0,419
TUKAS	0,640	TEKST	0,608	AYCES	0,563	KAPLM	0,533	BUCIM	0,419
NIGDE	0,635	CBSBO	0,603	BURCE	0,561	ISYAT	0,514	EDIP	0,391
KRTEK	0,633	PKENT	0,602	AKSA	0,559	BRMEN	0,512	AVRSY	0,357
DUROF	0,633	ABANA	0,588	ALARK	0,555	BISAS	0,505	KOTKS	0,312
UKIM	0,632	TNSAS	0,586	MIGRS	0,555	AFYON	0,501	ASLAN	0,305
MARET	0,628	CLEBI	0,583	AKFIN	0,551	MAALT	0,492	YKFIN	0,260
ISBTR	0,627	OTKAR	0,579	TSKB	0,548	SKTAS	0,444	PRTAS	0,251
OZFIN	0,609	EGGUB	0,568	HZNDR	0,544	TEZSN	0,437	BANVT	0,216

PORTFOLIO BETA RE-ESTIMATION (1998-1999) including 187 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
TUPRS	0,975	ARCLK	1,038	AKBNK	1,008	KARTN	0,420	INTEM	0,849
IZMDC	0,791	TKBNK	0,834	ATSYO	0,792	PNSUT	0,677	AYGAZ	0,878
DOHOL	1,133	EVREN	0,857	VAKFN	0,690	TOASO	1,083	TRKCM	0,799
GLMDE	1,197	PETKM	1,055	KORDS	0,846	MILYT	0,926	USAK	0,730
THYAO	0,996	MIPAZ	0,946	ASELS	0,967	MAKTK	0,886	DEVA	0,827
EREGL	0,993	ISCTR	1,043	MYZYO	0,641	DISBA	0,772	ENKA	1,087
NTHOL	1,111	PTOFS	0,596	GLBYO	0,591	ECZYT	1,132	BEKO	0,918
YKBNK	1,218	ATLAS	0,866	TRNSK	0,850	SISE	0,981	VESTL	1,115
NTTUR	0,862	ECILC	0,997	GARAN	1,055	SNPAM	0,618	DOKTS	0,833
KCHOL	1,094	SASA	0,900	SARKY	0,757	GUBRF	0,915		
Portfolio Beta	1,037		0,913		0,820		0,841		0,893

Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
AKIPD	0,903	UNYEC	0,609	FROTO	1,032	ESEMS	0,656	BAGFS	1,044
DMRYO	0,518	AGIDA	0,602	ERBOS	0,654	BRSAN	0,716	MERKO	0,488
EPLAS	0,571	KAVPA	0,872	BRISA	0,890	YATAS	0,886	ALCAR	0,829
OLMKS	0,631	MRDIN	0,769	AKALT	0,728	FINBN	0,957	TBORG	0,639
RAKSE	0,857	GEDIZ	0,680	COMUN	0,711	ECYAP	0,771	KUTPO	0,808
ALNTF	0,801	DERIM	0,656	BTCIM	0,636	YKRYO	0,659	CIMSA	0,805
TOFAS	0,781	BUMYO	0,660	FENIS	0,833	BSPRO	0,776	BOSSA	0,801
FMIZP	0,651	PRKAB	0,712	CELHA	0,843	MUTLU	0,709	TIRE	0,611
HURGZ	1,022	GRNYO	0,768	NETAS	1,049	DITAS	0,500	RKSEV	0,856
	0,748		0,703		0,819		0,737		0,765

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
UCAK	0,543	MMART	0,645	EGSER	0,713	KNFRT	0,649	ADNAC	0,695
FFKRL	0,513	GOLTS	0,894	PINSU	0,616	MRSHL	0,602	GENTS	0,666
EGEEN	0,887	ALTIN	0,777	VKING	0,679	YUNSA	0,702	ADEL	0,710
ANACM	0,848	KLBMO	0,762	OKANT	0,726	KERVT	0,713	YASAS	0,801
DENCM	0,681	CEMTS	0,851	ADBGR	0,637	SONME	0,734	FRIGO	0,577
ADANA	0,793	KONYA	0,461	TATKS	0,872	GOODY	0,635	DARDL	0,941
FNSYO	0,714	BOLUC	0,469	PIMAS	0,816	GUSGR	0,775	HEKTS	0,818
GIMMA	0,825	RANTL	0,866	PARSN	0,695	BRYAT	0,803	EGPRO	0,552
IZOCM	0,778	AKCNS	0,840	TUDDF	0,868	KENT	0,557	CARSI	0,801
	0,731		0,730		0,736		0,685		0,729

Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
BROVA	0,754	VKFYT	0,833	ARFYO	0,695	LUKSK	0,727	EMNIS	0,528
TUKAS	0,583	TEKST	0,718	AYCES	0,384	KAPLM	0,602	BUCIM	0,265
NIGDE	0,548	CBSBO	0,550	BURCE	0,624	ISYAT	0,630	EDIP	0,470
KRTEK	0,789	PKENT	0,336	AKSA	0,820	BRMEN	0,315	AVRSY	0,531
DUROF	0,584	ABANA	0,586	ALARK	1,059	BISAS	0,430	KOTKS	0,537
UKIM	0,492	TNSAS	0,878	MIGRS	0,765	AFYON	0,536	ASLAN	0,526
MARET	0,690	CLEBI	0,711	AKFIN	0,717	MAALT	0,500	YKFIN	0,292
ISBTR	0,730	OTKAR	0,893	TSKB	0,741	SKTAS	0,565	PRTAS	0,579
OZFIN	0,693	EGGUB	0,788	HZNDR	0,532	TEZSN	0,424	BANVT	0,698
				ATEKS	0,678	CMENT	0,224	GORBN	0,271
	0,651		0,699		0,702		0,495		0,470

APPENDIX III

Portfolio Formation and Estimation for Test Period 3 (2001-2002)

PORTFOLIO FORMATION (1997-1998) including 197 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5		Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
GLMDE	1,294	KCHOL	1,098	THYAO	1,007	MILYT	0,975	MAKTK	0,927	AYGAZ	0,885	GOLTS	0,856	TATKS	0,846	AGIDA	0,804	HEKTS	0,782
TUPRS	1,288	ECZYT	1,093	NTTUR	1,002	ALARK	0,974	DEVA	0,916	VKGYO	0,881	FENIS	0,856	KUTPO	0,842	DENCM	0,804	BROVA	0,781
YKBNK	1,268	PETKM	1,089	PTOFS	1,001	ALCTL	0,970	ALNTF	0,913	AKCNS	0,877	TKBNK	0,854	ATLAS	0,836	KAVPA	0,803	YUNSA	0,771
AKGRT	1,252	VESTL	1,078	RAKSE	0,999	RKSEV	0,963	DISBA	0,911	FINBN	0,875	EVREN	0,854	ANACM	0,835	DMSAS	0,798	MIGRS	0,764
ASUZU	1,221	IZMDC	1,059	ECILC	0,992	PNSUT	0,962	GUBRF	0,911	EGEEN	0,871	YATAS	0,853	ATSYO	0,832	ADANA	0,794	TBORG	0,762
GARAN	1,217	MIPAZ	1,055	AKBNK	0,988	DOKTS	0,951	SARKY	0,906	CELHA	0,869	MRDIN	0,851	ADEL	0,825	TNSAS	0,792	AKSA	0,760
EREGL	1,156	BAGFS	1,031	TOASO	0,987	FROTO	0,948	HURGZ	0,906	PIMAS	0,868	RAYSG	0,849	GRNYO	0,821	TUDDF	0,791	CIMSA	0,759
NTHOL	1,143	ASELS	1,015	BEKO	0,986	TRKCM	0,940	KORDS	0,900	VAKFN	0,859	RANTL	0,849	DERIM	0,820	NETAS	0,789	OLMKS	0,756
DOHOL	1,124	ISCTR	1,011	SASA	0,985	SAHOL	0,940	GIMA	0,893	BRISA	0,859	USAK	0,848	YASAS	0,812	EGSER	0,785	EMKEL	0,753
ARCLK	1,102	SISE	1,011	TRNSK	0,977	AKIPD	0,933	ALCAR	0,889			CEYLN	0,848	KLBMO	0,807			TEKST	0,753

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15		Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
ECYAP	0,752	EPLAS	0,732	ALGYO	0,719	GUSGR	0,695	LUKSK	0,679	KNFRT	0,654	AFYON	0,636	ATEKS	0,579	ASLAN	0,533	MAALT	0,409
BERDN	0,751	ESEMS	0,730	UNYEC	0,719	PINSU	0,695	ADNAC	0,676	KARTN	0,652	OKANT	0,618	GOODY	0,574	SKTAS	0,522	AYCES	0,407
BSPRO	0,749	ANSGR	0,730	IZOCM	0,715	ERBOS	0,694	EMNIS	0,673	NIGDE	0,652	PARSN	0,617	ABANA	0,572	KONYA	0,517	AVRSY	0,407
INTEM	0,747	EGPRO	0,730	AKALT	0,714	DUROF	0,693	KENT	0,672	DMRYO	0,651	TUKAS	0,616	FRIGO	0,568	SKBNK	0,512	CMENT	0,404
COMUN	0,745	MUTLU	0,729	AKFIN	0,711	FNSYO	0,690	BTCIM	0,671	CARSI	0,650	VKING	0,615	CBSBO	0,562	BURCE	0,512	EDIP	0,378
TSKB	0,744	FMIZP	0,724	BRYAT	0,709	SONME	0,689	EGGUB	0,671	YKRYO	0,647	FFKRL	0,594	UKIM	0,558	BISAS	0,508	BRMEN	0,367
BFREN	0,734	MARET	0,723	KAPLM	0,708	ADBGR	0,686	CLEBI	0,668	GENTS	0,644	BOLUC	0,592	TIRE	0,558	MERKO	0,477	YKFIN	0,336
KRTEK	0,733	PRKAB	0,723	SNPAM	0,708	GEDIZ	0,686	HZNDR	0,666	GLBYO	0,644	UCAK	0,585	BANVT	0,556	KOTKS	0,470	TACYO	0,318
MYZYO	0,733	MRSHL	0,721	ARFYO	0,706	MMART	0,685	BRSAN	0,661	ALTIN	0,643	DITAS	0,582	ISBTR	0,552	BUCIM	0,468	GORBN	0,298
BOSSA	0,732			OTKAR	0,704	OZFIN	0,679	KERVT	0,657	BUMYO	0,640	ISYAT	0,581	PRTAS	0,537	PKENT	0,454	MEGES	0,244

PORTFOLIO BETA RE-ESTIMATION (1999-2000) including 197 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5		Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
GLMDE	1,147	KCHOL	1,171	THYAO	0,953	MILYT	0,847	MAKTK	0,780	AYGAZ	0,884	GOLTS	0,853	TATKS	0,831	AGIDA	0,423	HEKTS	0,769
TUPRS	0,847	ECZYT	0,863	NTTUR	0,971	ALARK	0,927	DEVA	0,534	VKGYO	0,359	FENIS	0,567	KUTPO	0,630	DENCM	0,311	BROVA	0,527
YKBNK	1,141	PETKM	1,068	PTOFS	0,184	ALCTL	1,256	ALNTF	0,566	AKCNS	0,639	TKBNK	0,974	ATLAS	1,050	KAVPA	0,889	YUNSA	0,560
AKGRT	0,946	VESTL	1,016	RAKSE	0,430	RKSEV	0,412	DISBA	0,692	FINBN	0,954	EVREN	0,988	ANACM	0,758	DMSAS	0,802	MIGRS	0,651
ASUZU	0,991	IZMDC	0,736	ECILC	1,028	PNSUT	0,356	GUBRF	0,771	EGEEN	0,782	YATAS	0,884	ATSYO	0,822	ADANA	0,831	TBORG	0,670
GARAN	0,906	MIPAZ	0,814	AKBNK	1,147	DOKTS	0,725	SARKY	0,595	CELHA	0,710	MRDIN	0,580	ADEL	0,489	TNSAS	0,866	AKSA	0,790
EREGL	0,902	BAGFS	0,888	TOASO	1,371	FROTO	1,055	HURGZ	1,149	PIMAS	0,613	RAYSG	0,697	GRNYO	0,729	TUDDF	0,872	CIMSA	0,748
NTHOL	1,164	ASELS	0,902	BEKO	0,745	TRKCM	0,632	KORDS	0,846	VAKFN	0,484	RANTL	0,697	DERIM	0,306	NETAS	1,456	OLMKS	0,498
DOHOL	1,329	ISCTR	1,184	SASA	0,830	SAHOL	1,226	GIMA	0,980	BRISA	0,835	USAK	0,535	YASAS	0,699	EGSER	0,405	EMKEL	0,680
ARCLK	1,028	SISE	0,869	TRNSK	0,798	AKIPD	0,706	ALCAR	0,554			CEYLN	0,622	KLBMO	0,622			TEKST	0,575
Portfolio Beta	1,040		0,951		0,846		0,814		0,747		0,696		0,740		0,694		0,762		0,647

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15		Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
ECYAP	0,811	EPLAS	0,354	ALGYO	0,664	GUSGR	0,818	LUKSK	0,640	KNFRT	0,616	AFYON	0,263	ATEKS	0,811	ASLAN	0,166	MAALT	0,625
BERDN	0,609	ESEMS	0,497	UNYEC	0,468	PINSU	0,413	ADNAC	0,667	KARTN	0,290	OKANT	0,873	GOODY	0,666	SKTAS	0,436	AYCES	0,397
BSPRO	0,708	ANSGR	1,024	IZOCM	0,870	ERBOS	0,689	EMNIS	0,192	NIGDE	0,398	PARSN	0,629	ABANA	0,437	KONYA	0,388	AVRSY	0,537
INTEM	0,935	EGPRO	0,075	AKALT	0,766	DUROF	0,246	KENT	0,274	DMRYO	0,686	TUKAS	0,499	FRIGO	0,470	SKBNK	0,154	CMENT	0,117
COMUN	0,569	MUTLU	0,464	AKFIN	0,446	FNSYO	0,871	BTCIM	0,681	CARSI	1,113	VKING	0,743	CBSBO	0,411	BURCE	0,784	EDIP	0,517
TSKB	0,525	FMIZP	0,475	BRYAT	0,873	SONME	0,418	EGGUB	0,699	YKRYO	0,647	FFKRL	0,509	UKIM	0,469	BISAS	0,262	BRMEN	0,351
BFREN	0,451	MARET	0,457	KAPLM	0,203	ADBGR	0,574	CLEBI	0,707	GENTS	0,634	BOLUC	0,318	TIRE	0,555	MERKO	0,647	YKFIN	0,130
KRTEK	0,609	PRKAB	0,755	SNPAM	0,594	GEDIZ	0,759	HZNDR	0,204	GLBYO	0,856	UCAK	0,633	BANVT	0,533	KOTKS	0,543	TACYO	0,601
MYZYO	0,734	MRSHL	0,532	ARFYO	0,424	MMART	0,643	BRSAN	0,760	ALTIN	0,985	DITAS	0,527	ISBTR	0,950	BUCIM	0,005	GORBN	0,061
BOSSA	0,837			OTKAR	1,096	OZFIN	0,699	KERVT	0,686	BUMYO	0,728	ISYAT	0,625	PRTAS	0,422	PKENT	0,237	MEGES	0,130
	0,679		0,515		0,640		0,613		0,536		0,695		0,562		0,572		0,362		0,347

APPENDIX IV

Portfolio Formation and Estimation for Test Period 4 (2002-2003)

PORTFOLIO FORMATION (1998-1999) including 206 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5		Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
YKBNK	1,218	ALARK	1,059	THYAO	0,996	GUBRF	0,915	TNSAS	0,878	EVREN	0,857	FENIS	0,833	KLMSN	0,806	IZMDC	0,791	ECYAP	0,771
GLMDE	1,197	GARAN	1,055	EREGL	0,993	AKIPD	0,903	AYGAZ	0,878	RKSEV	0,856	DOKTS	0,833	CIMSA	0,805	KRTEK	0,789	MRDIN	0,769
AKGRT	1,136	PETKM	1,055	PRKTE	0,982	SASA	0,900	RAYSG	0,876	CEMTS	0,851	ALCAR	0,829	BRYAT	0,803	EGGUB	0,788	GRNYO	0,768
DOHOL	1,133	NETAS	1,049	SISE	0,981	UZEL	0,896	KAVPA	0,872	TRNSK	0,850	DEVA	0,827	BOSSA	0,801	KRSTL	0,784	MIGRS	0,765
ECZYT	1,132	BAGFS	1,044	TUPRS	0,975	GOLTS	0,894	TATKS	0,872	INTEM	0,849	DMSAS	0,822	ALNTF	0,801	VKGYO	0,780	KLBMO	0,762
VESTL	1,115	ISCTR	1,043	ASELS	0,967	OTKAR	0,893	GIMA	0,872	ANACM	0,848	AKSA	0,820	CARSI	0,801	IZOCM	0,778	SARKY	0,757
NTHOL	1,111	ARCLK	1,038	SAHOL	0,958	BRISA	0,890	TUDDF	0,868	KORDS	0,846	HEKTS	0,818	TRKCM	0,799	ALTIN	0,777	BROVA	0,754
ALCTL	1,102	FROTO	1,032	FINBN	0,957	EGEEN	0,887	ATLAS	0,866	CELHA	0,843	PIMAS	0,816	ALGYO	0,796	BSPRO	0,776	TSKB	0,741
KCHOL	1,094	HURGZ	1,022	MIPAZ	0,946	YATAS	0,886	NTTUR	0,862	AKCNS	0,840	KIPA	0,811	ADANA	0,793	GUSGR	0,775	ANSGR	0,740
TOASO	1,083	AKBNK	1,008	MILYT	0,926	MAKTK	0,886	RAKSE	0,857	TKBNK	0,834	KUTPO	0,808	ATSYO	0,792	DISBA	0,772	TOPFN	0,740
ASUZU	1,072	ECILC	0,997	BEKO	0,918														

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15		Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
VKFYT	0,738	TEKST	0,718	MUTLU	0,709	MARET	0,690	ESEMS	0,656	EMNIS	0,634	AGIDA	0,602	EPLAS	0,571	ASLAN	0,526	UNTAR	0,413
BFREN	0,735	BRSAN	0,716	BERDN	0,706	DENCM	0,681	ERBOS	0,654	OLMKS	0,631	MRSHL	0,602	SKTAS	0,565	FFKRL	0,513	AYCES	0,384
SONME	0,734	FNSYO	0,714	YUNSA	0,702	GEDIZ	0,680	FMIZP	0,651	ISYAT	0,630	PTOFS	0,596	KENT	0,557	MAALT	0,500	CEYLN	0,374
ISBTR	0,730	MZHLD	0,713	BANVT	0,698	VKING	0,679	KNFRT	0,649	BURCE	0,624	GLBYO	0,591	EGPRO	0,552	DITAS	0,500	PKENT	0,336
USAK	0,730	KERVT	0,713	ARFYO	0,695	ATEKS	0,678	MMART	0,645	SNPAM	0,618	ABANA	0,586	CBSBO	0,550	UKIM	0,492	ATAYO	0,335
AKALT	0,728	EGSER	0,713	ADNAC	0,695	PNSUT	0,677	MYZYO	0,641	PINSU	0,616	DUROF	0,584	NIGDE	0,548	MERKO	0,488	BRMEN	0,315
LUKSK	0,727	PRKAB	0,712	CMBTN	0,695	GENTS	0,666	TBORG	0,639	TIRE	0,611	TUKAS	0,583	UCAK	0,543	EDIP	0,470	YKFIN	0,292
OKANT	0,726	CLEBI	0,711	PARSN	0,695	BUMYO	0,660	ADBGR	0,637	UNYEC	0,609	MEMSA	0,580	KOTKS	0,537	BOLUC	0,469	BUCIM	0,265
TPFAC	0,725	COMUN	0,711	OZFIN	0,693	YKRYO	0,659	BTCIM	0,636	TACYO	0,606	PRTAS	0,579	AFYON	0,536	KONYA	0,461	SKBNK	0,248
ARAT	0,719	ADEL	0,710	VAKFN	0,690	DERIM	0,656	GOODY	0,635	KAPLM	0,602	FRIGO	0,577	HZNDR	0,532	BISAS	0,430	CMENT	0,224
														AVRSY	0,531	KARTN	0,420	MEGES	0,154

PORTFOLIO BETA RE-ESTIMATION (2000-2001) including 206 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5		Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
YKBNK	1,027	ALARK	1,010	THYAO	1,021	GUBRF	0,963	TNSAS	1,027	EVREN	1,014	FENIS	0,978	KLMSN	0,988	IZMDC	1,002	ECYAP	0,978
GLMDE	1,026	GARAN	0,971	EREGL	0,993	AKIPD	0,980	AYGAZ	1,002	RKSEV	0,977	DOKTS	0,976	CIMSA	0,975	KRTEK	0,989	MRDIN	0,963
AKGRT	1,029	PETKM	0,983	PRKTE	1,086	SASA	0,982	RAYSG	0,997	CEMTS	1,002	ALCAR	0,982	BRYAT	1,024	EGGUB	1,011	GRNYO	0,978
DOHOL	1,003	NETAS	1,042	SISE	1,004	UZEL	0,988	KAVPA	0,990	TRNSK	0,977	DEVA	1,007	BOSSA	0,950	KRSTL	0,956	MIGRS	0,991
ECZYT	1,014	BAGFS	0,989	TUPRS	0,961	GOLTS	0,955	TATKS	0,972	INTEM	0,992	DMSAS	0,967	ALNTF	0,992	VKGYO	1,004	KLBMO	0,991
VESTL	1,006	ISCTR	1,030	ASELS	0,985	OTKAR	0,983	GIMA	0,989	ANACM	1,009	AKSA	0,977	CARSI	0,974	IZOCM	0,982	SARKY	0,980
NTHOL	1,024	ARCLK	0,979	SAHOL	0,985	BRISA	0,987	TUDDF	0,981	KORDS	1,002	HEKTS	1,001	TRKCM	1,001	ALTIN	1,008	BROVA	1,039
ALCTL	0,999	FROTO	1,024	FINBN	0,999	EGEEN	0,951	ATLAS	1,014	CELHA	0,972	PIMAS	1,014	ALGYO	0,985	BSPRO	1,045	TSKB	1,001
KCHOL	1,000	HURGZ	0,996	MIPAZ	1,003	YATAS	0,967	NTTUR	1,033	AKCNS	0,986	KIPA	0,948	ADANA	0,973	GUSGR	0,999	ANSGR	1,008
TOASO	0,990	AKBNK	0,993	MILYT	0,975	MAKTK	0,966	RAKSE	0,982	TKBNK	0,986	KUTPO	0,992	ATSYO	0,972	DISBA	0,967	TOPFN	0,994
ASUZU	1,009	ECILC	1,012	BEKO	0,963														
Portfolio Beta	1,012		1,003		0,998		0,972		0,999		0,992		0,984		0,984		0,996		0,992

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15		Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
VKFYT	0,976	TEKST	1,009	MUTLU	1,045	MARET	1,000	ESEMS	0,972	EMNIS	1,024	AGIDA	1,013	EPLAS	0,979	ASLAN	0,999	UNTAR	0,984
BFREN	0,972	BRSAN	1,009	BERDN	0,953	DENCM	0,983	ERBOS	0,972	OLMKS	1,025	MRSHL	1,010	SKTAS	0,986	FFKRL	0,995	AYCES	0,941
SONME	1,014	FNSYO	0,941	YUNSA	0,971	GEDIZ	0,996	FMIZP	0,957	ISYAT	1,004	PTOFS	0,969	KENT	0,967	MAALT	1,009	CEYLN	0,900
ISBTR	0,994	MZHLD	0,999	BANVT	1,008	VKING	1,056	KNFRT	0,945	BURCE	0,980	GLBYO	1,011	EGPRO	0,978	DITAS	0,981	PKENT	0,991
USAK	1,008	KERVT	0,961	ARFYO	1,000	ATEKS	0,942	MMART	0,996	SNPAM	1,008	ABANA	0,964	CBSBO	1,024	UKIM	0,969	ATAYO	0,990
AKALT	0,962	EGSER	1,027	ADNAC	0,987	PNSUT	0,976	MYZYO	0,964	PINSU	0,981	DUROF	0,979	NIGDE	0,991	MERKO	0,994	BRMEN	0,969
LUKSK	0,994	PRKAB	0,971	CMBTN	1,003	GENTS	0,990	TBORG	0,958	TIRE	1,011	TUKAS	0,947	UCAK	0,964	EDIP	0,970	YKFIN	0,984
OKANT	1,024	CLEBI	0,987	PARSN	1,038	BUMYO	0,956	ADBGR	0,978	UNYEC	0,967	MEMSA	0,995	KOTKS	0,910	BOLUC	0,968	BUCIM	0,945
TPFAC	0,956	COMUN	0,975	OZFIN	0,934	YKRYO	0,983	BTCIM	0,981	TACYO	0,954	PRTAS	1,015	AFYON	0,989	KONYA	0,974	SKBNK	0,992
ARAT	0,980	ADEL	1,036	VAKFN	0,979	DERIM	1,027	GOODY	0,997	KAPLM	1,051	FRIGO	0,969	HZNDR	1,003	BISAS	0,964	CMENT	0,951
														AVRSY	1,032	KARTN	0,971	MEGES	1,040
	0,988		0,991		0,992		0,991		0,972		1,001		0,987		0,984		0,981		0,971

APPENDIX V

Portfolio Formation and Estimation for Test Period 5 (2003-2004)

PORTFOLIO FORMATION (1999-2000) including 225 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5		Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
NETAS	1,248	NTTUR	1,073	BOSSA	1,007	KRDMB	0,974	TATKS	0,931	KRDMA	0,902	KLMSN	0,861	CELHA	0,828	GOLTS	0,805	FFKRL	0,768
DOHOL	1,212	ATLAS	1,072	ARCLK	1,004	VESTL	0,969	GLBYO	0,931	EGGUB	0,898	KORDS	0,860	DEVA	0,827	MILYT	0,804	MMART	0,767
NTHOL	1,192	AKGRT	1,069	MTEKS	1,004	TKBNK	0,965	VKGYO	0,925	IZOCM	0,890	ALGYO	0,858	DOKTS	0,819	ARAT	0,802	ISBTR	0,762
KCHOL	1,187	GARAN	1,046	EVREN	1,000	KAVPA	0,962	IZMDC	0,924	ATEKS	0,890	BRISA	0,856	AKCNS	0,818	ADNAC	0,793	SARKY	0,758
TOASO	1,187	ASUZU	1,046	FINBN	0,997	HURGZ	0,953	ANSGR	0,921	MUTLU	0,884	GEDIZ	0,851	ADANA	0,814	MAALT	0,792	EGEEN	0,752
YKBNK	1,164	OTKAR	1,044	GIMA	0,989	THYAO	0,949	ALARK	0,921	ALTIN	0,884	MIGRS	0,849	AKALT	0,814	TRNSK	0,792	VANET	0,750
GLMDE	1,132	CARSI	1,039	TNSAS	0,987	BAGFS	0,949	LUKSK	0,917	AKYO	0,883	TRKCM	0,846	VARYO	0,814	ATSYO	0,787	ADEL	0,750
ALCTL	1,116	AKBNK	1,037	ECILC	0,982	MIPAZ	0,944	AKSA	0,915	VAKKO	0,881	UZEL	0,846	TSKB	0,810	DMSAS	0,783	DISBA	0,749
ASELS	1,113	ISCTR	1,036	EFES	0,981	INTEM	0,940	EREGL	0,913	CEMTS	0,876	BEKO	0,838	HEKTS	0,809	OLMKS	0,782	GENTS	0,748
FROTO	1,109	SISE	1,028	PARSN	0,979	KRDMD	0,933	TUDDF	0,911	AYGAZ	0,875	CIMSA	0,836	BRYAT	0,809	YATAS	0,780	SERVE	0,746
DYHOL	1,089	OKANT	1,019	YKGYO	0,978	ANACM	0,933	BRSAN	0,909	ECYAP	0,870	PRTAS	0,835	CBSBO	0,807	YKRYO	0,778	VKFYT	0,746
ECZYT	1,076	SAHOL	1,010	PETKM	0,977														

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15		Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
TUPRS	0,743	MEMSA	0,727	BURCE	0,696	FNSYO	0,680	AVRSY	0,655	UKIM	0,639	KNFRT	0,610	ISAMB	0,563	BRMEN	0,521	KONYA	0,432
RAYSG	0,743	TIRE	0,727	AKIPD	0,693	ERBOS	0,678	TEKST	0,654	GUSGR	0,635	SELGD	0,609	AFYON	0,562	MEGES	0,517	FMIZP	0,401
GOODY	0,742	VKING	0,724	KAPLM	0,693	EMKEL	0,677	BSPRO	0,652	KUTPO	0,633	KLBMO	0,606	PRKAB	0,559	KENT	0,516	HZNDR	0,392
DITAS	0,742	GRNYO	0,722	SNPAM	0,692	MRSHL	0,677	PTOFS	0,652	EGSER	0,621	DERIM	0,600	BROVA	0,555	AYCES	0,504	PKENT	0,372
SASA	0,736	TACYO	0,720	ALCAR	0,688	UCAK	0,674	PIMAS	0,651	TBORG	0,621	ARSAN	0,598	SKTAS	0,552	CMBTN	0,499	BUCIM	0,351
MERKO	0,731	DENCM	0,719	ALNTF	0,685	KRTEK	0,667	ASLAN	0,651	YUNSA	0,620	TPFAC	0,596	PENGD	0,548	DOGUB	0,492	KARTN	0,348
CLEBI	0,730	TUKAS	0,711	KERVT	0,685	FRIGO	0,667	UNTAR	0,650	ESEMS	0,617	COMUN	0,589	MYZYO	0,543	PRKTE	0,490	CYTAS	0,346
KRSTL	0,729	MZHLD	0,705	RAKSE	0,685	EDIP	0,665	ARFYO	0,645	OZFIN	0,617	ATAYO	0,588	BANVT	0,540	TOPFN	0,478	EGPRO	0,332
ECBYO	0,728	GUBRF	0,704	MAKTK	0,684	EPLAS	0,665	PNSUT	0,641	BFREN	0,616	FENIS	0,585	BOLUC	0,528	CEYLN	0,474	GDKYO	0,299
EMNIS	0,728	SONME	0,703	KOTKS	0,684	MRDIN	0,659	BTCIM	0,640	ADBGR	0,612	UNYEC	0,566	IDAS	0,528	BAKAB	0,471	ABANA	0,289
VAKFN	0,728	KIPA	0,697	BERDN	0,683	ISYAT	0,656	SKBNK	0,640	RKSEV	0,611	BUMYO	0,566	USAK	0,523	PINSU	0,471	CMENT	0,254
																YKFIN	0,441	DUROF	0,183

PORTFOLIO BETA RE-ESTIMATION (2001-2002) including 225 securities

Portfolio 1		Portfolio 2		Portfolio 3		Portfolio 4		Portfolio 5		Portfolio 6		Portfolio 7		Portfolio 8		Portfolio 9		Portfolio 10	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
NETAS	1,132	NTTUR	1,447	BOSSA	0,823	KRDMB	1,227	TATKS	0,749	KRDMA	1,141	KLMSN	0,879	CELHA	1,052	GOLTS	0,666	FFKRL	0,731
DOHOL	1,280	ATLAS	1,228	ARCLK	1,115	VESTL	1,048	GLBYO	1,546	EGGUB	0,608	KORDS	0,892	DEVA	0,875	MILYT	1,103	MMART	1,093
NTHOL	1,369	AKGRT	0,961	MTEKS	1,094	TKBNK	0,994	VKGYO	1,083	IZOCM	0,770	ALGYO	0,642	DOKTS	0,897	ARAT	1,174	ISBTR	0,831
KCHOL	0,957	GARAN	1,079	EVREN	1,157	KAVPA	0,937	IZMDC	1,124	ATEKS	0,722	BRISA	0,770	AKCNS	1,038	ADNAC	0,792	SARKY	0,697
TOASO	0,984	ASUZU	0,984	FINBN	1,212	HURGZ	1,217	ANSGR	0,960	MUTLU	0,910	GEDIZ	0,965	ADANA	0,795	MAALT	0,970	EGEEN	0,786
YKBNK	1,576	OTKAR	0,863	GIMA	1,034	THYAO	1,035	ALARK	0,872	ALTIN	0,907	MIGRS	0,661	AKALT	0,725	TRNSK	1,238	VANET	0,758
GLMDE	1,394	CARSI	1,120	TNSAS	1,237	BAGFS	0,808	LUKSK	1,008	AKYO	0,994	TRKCM	0,785	VARYO	0,864	ATSYO	0,841	ADEL	0,674
ALCTL	1,274	AKBNK	1,018	ECILC	0,977	MIPAZ	1,183	AKSA	0,891	VAKKO	0,666	UZEL	1,002	TSKB	0,898	DMSAS	0,657	DISBA	1,026
ASELS	0,848	ISCTR	1,081	EFES	1,149	INTEM	0,776	EREGL	0,913	CEMTS	0,797	BEKO	0,960	HEKTS	1,014	OLMKS	0,754	GENTS	0,696
FROTO	0,944	SISE	1,045	PARSN	0,937	KRDMD	1,289	TUDDF	0,974	AYGAZ	0,752	CIMSA	0,758	BRYAT	1,102	YATAS	0,802	SERVE	0,910
DYHOL	1,445	OKANT	1,074	YKGYO	1,145	ANACM	0,837	BRSAN	0,910	ECYAP	0,866	PRTAS	0,894	CBSBO	0,596	YKRYO	0,979	VKFYT	0,741
ECZYT	0,895	SAHOL	0,921	PETKM	0,956														
Portfolio Beta	1,175		1,068		1,070		1,032		1,003		0,830		0,837		0,896		0,907		0,813

Portfolio 11		Portfolio 12		Portfolio 13		Portfolio 14		Portfolio 15		Portfolio 16		Portfolio 17		Portfolio 18		Portfolio 19		Portfolio 20	
Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta	Company	Beta
TUPRS	0,747	MEMSA	0,780	BURCE	0,664	FNSYO	0,927	AVRSY	0,768	UKIM	0,590	KNFRT	0,406	ISAMB	1,001	BRMEN	0,310	KONYA	0,568
RAYSG	0,933	TIRE	0,748	AKIPD	0,777	ERBOS	0,513	TEKST	1,062	GUSGR	1,070	SELGD	0,926	AFYON	0,480	MEGES	0,664	FMIZP	0,384
GOODY	0,696	VKING	1,177	KAPLM	1,018	EMKEL	0,963	BSPRO	0,461	KUTPO	0,628	KLBMO	0,704	PRKAB	0,723	KENT	0,528	HZNDR	0,683
DITAS	0,837	GRNYO	0,820	SNPAM	0,866	MRSHL	0,685	PTOFS	0,794	EGSER	0,744	DERIM	1,197	BROVA	0,947	AYCES	0,882	PKENT	0,619
SASA	0,852	TACYO	0,849	ALCAR	0,744	UCAK	0,651	PIMAS	0,807	TBORG	0,528	ARSAN	0,835	SKTAS	0,518	CMBTN	0,800	BUCIM	0,346
MERKO	0,831	DENCM	0,690	ALNTF	1,296	KRTEK	0,796	ASLAN	0,820	YUNSA	0,663	TPFAC	0,818	PENGD	0,645	DOGUB	0,813	KARTN	0,280
CLEBI	1,065	TUKAS	0,688	KERVT	1,003	FRIGO	0,737	UNTAR	0,967	ESEMS	0,749	COMUN	0,525	MYZYO	0,735	PRKTE	1,280	CYTAS	1,347
KRSTL	0,770	MZHLD	1,068	RAKSE	0,795	EDIP	0,951	ARFYO	1,025	OZFIN	0,745	ATAYO	0,734	BANVT	0,802	TOPFN	0,868	EGPRO	0,310
ECBYO	0,949	GUBRF	0,860	MAKTK	1,098	EPLAS	0,842	PNSUT	0,947	BFREN	0,566	FENIS	0,673	BOLUC	0,769	CEYLN	0,583	GDKYO	0,452
EMNIS	0,700	SONME	0,815	KOTKS	0,745	MRDIN	0,573	BTCIM	0,828	ADBGR	0,727	UNYEC	0,610	IDAS	0,887	BAKAB	0,746	ABANA	0,569
VAKFN	0,960	KIPA	0,749	BERDN	0,919	ISYAT	1,050	SKBNK	0,791	RKSEV	0,637	BUMYO	0,510	USAK	0,915	PINSU	1,053	CMENT	0,231
																YKFIN	0,723	DUROF	0,755
	0,849		0,840		0,902		0,790		0,843		0,695		0,722		0,765		0,771		0,545

Appendix VI: Weekly Portfolio Returns and Market Risk Premium (Test Period 1999-2000)

Date	01.01.99	01.08.99	01.15.99	01.22.99	01.29.99	02.05.99	02.12.99	02.19.99	02.26.99	03.05.99	03.12.99	03.19.99	03.26.99	04.02.99	04.09.99	04.16.99	04.23.99	04.30.99	05.07.99
T-bill (Infl.Adj)	0,01341358	0,01336891	0,0133721	0,000000	0,01334658	0,01298721	0,01299351	0,01299982	0,01302819	0,01382218	0,0138028	0,01378989	0,01376083	0,000000	0,01292615	0,01290095	0,01291355	0,01294821	0,01276609
ISE100 Return		0,046480	-0,092001	0,000000	0,034004	0,067618	0,116991	0,185452	0,045372	-0,008448	0,066675	0,043821	0,055350	0,000000	0,011547	-0,005400	0,117644	0,038038	0,046072
Rm - Rf		0,033111	-0,105373	0,000000	0,020658	0,054631	0,103997	0,172452	0,032344	-0,022270	0,052873	0,030031	0,041589	0,000000	-0,001379	-0,018301	0,104730	0,025089	0,033306
Portfolio																			
1		-0,095486	-0,064627	0,000000	-0,064518	0,034125	0,069599	0,179180	0,140609	0,011687	0,059626	0,073417	0,055075	0,000000	0,033432	-0,040680	0,106944	0,042312	0,060226
2		-0,034688	-0,066078	0,000000	-0,015761	0,001776	0,074902	0,094688	0,086862	0,033260	0,051687	0,032710	0,050147	0,000000	-0,017493	-0,056716	0,065623	0,020558	0,003479
3		0,007226	-0,012667	0,000000	0,041460	0,017279	0,044831	0,135189	0,112647	0,046395	0,050242	0,015982	0,055517	0,000000	0,003048	0,005777	0,099209	0,004939	0,015272
4		-0,021283	-0,091535	0,000000	-0,007180	0,033249	0,020272	0,146755	0,062715	0,093433	0,012386	0,020442	0,045051	0,000000	0,014254	-0,037831	0,085396	0,032735	0,027817
5		0,006046	-0,072055	0,000000	-0,005327	-0,000510	0,028545	0,150277	0,075322	0,067455	0,030692	0,056254	0,068462	0,000000	-0,038090	-0,056771	0,081825	0,007313	0,043323
6		-0,022023	-0,080096	0,000000	0,008145	0,058721	0,082472	0,091988	0,068150	0,022230	0,017309	0,045730	0,140528	0,000000	-0,057485	-0,046822	0,066461	0,089515	0,005155
7		-0,063368	-0,067787	0,000000	-0,050374	0,018203	0,077973	0,131862	0,052524	0,033144	0,037849	-0,009068	0,043762	0,000000	-0,026027	-0,089070	0,044399	0,057622	0,033339
8		0,019990	-0,044942	0,000000	0,022767	0,005548	0,052217	0,119400	-0,028623	0,047712	0,049801	0,008505	0,068349	0,000000	0,013888	-0,052352	0,064008	0,035888	0,005624
9		0,034318	-0,077514	0,000000	0,022479	-0,030463	0,103502	0,113919	0,140619	0,028450	-0,018494	0,010839	0,049298	0,000000	0,002156	-0,033983	0,079511	0,037679	-0,011853
10		0,100147	-0,039905	0,000000	0,049480	0,015366	0,020862	0,102055	0,114700	0,072177	0,051888	-0,025513	-0,002723	0,000000	-0,010755	-0,038233	0,045508	0,057035	0,061347
11		-0,026979	-0,048180	0,000000	-0,005017	0,015743	0,034034	0,154440	0,073742	0,078630	0,081572	0,049916	0,096077	0,000000	-0,029043	0,008427	0,026869	0,030319	0,056652
12		-0,045128	-0,043269	0,000000	0,005891	0,013228	0,021877	0,138993	0,065897	0,018042	0,052525	0,007534	0,049004	0,000000	-0,028613	-0,074458	0,089121	0,057395	0,013925
13		0,023609	-0,101297	0,000000	-0,023637	0,094988	0,044508	0,082922	0,044820	0,058423	0,041415	0,027889	0,039205	0,000000	-0,038927	-0,059497	0,063461	-0,028223	0,032503
14		0,078404	-0,054557	0,000000	0,016921	0,027028	0,036626	0,129840	0,070926	0,044729	-0,010284	0,061355	0,066433	0,000000	0,059984	0,000150	0,039753	0,075778	-0,000359
15		-0,016496	-0,033968	0,000000	-0,035785	-0,021315	0,039778	0,117421	0,044350	0,078487	0,020216	0,067202	0,051968	0,000000	-0,007304	-0,029062	0,058846	-0,000106	0,089266
16		0,072421	-0,057345	0,000000	-0,009939	-0,022968	0,022591	0,059873	0,071221	0,155775	0,045152	0,047584	0,039836	0,000000	0,020254	-0,020548	0,035890	0,086016	-0,018368
17		0,019176	-0,076782	0,000000	0,008361	0,007838	0,032426	0,177363	0,015469	0,026143	0,016105	0,072977	-0,000599	0,000000	0,008067	-0,006575	0,062131	0,011991	0,068202
18		0,031415	-0,045391	0,000000	-0,010553	-0,015061	0,028236	0,110111	0,071745	0,066464	0,028764	0,033069	0,052579	0,000000	-0,019942	-0,040206	0,071848	0,018967	-0,065511
19		0,001176	-0,059130	0,000000	0,029991	0,005454	0,089209	0,121548	0,068900	0,005966	0,047925	0,060305	0,040876	0,000000	0,001014	0,000873	0,090484	0,033871	0,039888
20		0,008874	-0,013864	0,000000	0,021365	0,088512	0,041274	0,066813	0,046117	0,083168	0,055306	0,062781	0,043239	0,000000	-0,051885	-0,041001	0,037129	0,012312	0,042186

Date	05.14.99	05.21.99	05.28.99	06.04.99	06.11.99	06.18.99	06.25.99	07.02.99	07.09.99	07.16.99	07.23.99	07.30.99	08.06.99	08.13.99	08.20.99	08.27.99	09.03.99	09.10.99	09.17.99
T-bill (Infl.Adj)	0,01276609	0,01279424	0,01277234	0,01312403	0,01308928	0,01312403	0,01312087	0,01330982	0,01325905	0,01326222	0,01323684	0,01324319	0,01337302	0,01340165	0,01336666	0,01342073	0,01320624	0,0131557	0,01313674
ISE100 Return	0,008836	-0,028646	-0,046385	0,022533	0,030257	-0,038747	-0,074089	-0,016462	0,053650	0,101423	0,018614	0,003890	-0,035365	0,032104	0,003547	-0,095667	0,015294	0,142331	-0,002017
Rm - Rf	-0,003930	-0,041440	-0,059157	0,009409	0,017168	-0,051871	-0,087210	-0,029771	0,040391	0,088161	0,005378	-0,009353	-0,048738	0,018702	-0,009820	-0,109087	0,002087	0,129176	-0,015154
Portfolio																			
1	0,085308	0,003421	-0,036179	-0,018775	0,047668	-0,038082	-0,122618	-0,088944	0,035846	0,093977	-0,026876	0,027953	-0,012053	0,064593	0,015456	-0,156052	0,065384	0,122914	0,020972
2	0,065907	-0,003913	-0,023131	-0,015893	0,044711	-0,042118	-0,035654	-0,071683	0,034895	0,030348	0,010639	0,022890	-0,065209	-0,031943	0,000263	-0,112515	-0,002002	0,122143	0,019802
3	0,046621	-0,040966	-0,002713	-0,026394	0,007486	-0,017548	-0,056086	-0,021948	0,022213	0,057544	0,015521	0,010125	0,013144	0,018518	-0,004941	-0,104490	0,043427	0,076833	0,011732
4	0,088528	0,007384	-0,055770	-0,013276	0,026529	0,001459	-0,046228	-0,068863	0,031687	0,027981	0,015820	0,008183	-0,008425	0,043649	-0,013964	-0,085042	0,080830	0,064327	0,071812
5	-0,016345	-0,026748	-0,003799	-0,051366	0,012286	-0,008476	-0,083467	-0,058147	0,020283	0,069124	0,003721	-0,008103	0,005804	0,010173	-0,002444	-0,106025	0,087068	0,084667	0,014780
6	0,024028	0,004399	-0,044540	-0,020109	0,015602	-0,025020	-0,094765	-0,043126	0,003352	0,048185	0,000372	0,048907	-0,025639	0,044667	0,018595	-0,098175	0,089966	0,053055	0,026770
7	0,048648	0,008032	0,052773	-0,038451	0,015551	-0,024699	-0,058482	-0,051528	-0,012756	0,022757	-0,046851	-0,020791	0,008134	0,005064	-0,004130	-0,004526	0,081448	0,097843	-0,003777
8	-0,001258	0,008142	-0,049491	-0,047200	0,005398	-0,023319	-0,054362	-0,100601	0,001373	0,051617	-0,006497	0,021213	0,015737	0,063480	-0,004971	-0,105847	0,063640	0,057603	0,047771
9	-0,027370	-0,003628	-0,019119	-0,018913	0,042195	-0,034627	-0,078925	-0,031668	0,045029	0,044925	-0,017142	-0,010960	-0,048279	0,060892	-0,019411	-0,061862	0,043372	0,107493	0,073989
10	0,014231	-0,017162	-0,010896	-0,026267	0,026840	-0,047951	-0,070286	-0,052695	0,019300	0,082266	-0,025026	0,006574	-0,026033	0,027197	-0,003536	-0,096081	0,007326	0,077421	0,024582
11	0,045375	0,023785	-0,076814	0,008983	-0,001671	-0,038526	-0,090007	-0,042056	0,009578	0,049859	-0,003490	0,055234	-0,033633	0,026454	-0,002225	-0,137610	0,012989	0,129750	0,044784
12	0,073162	0,004945	0,015718	-0,062173	0,046639	-0,031657	-0,104687	-0,090590	0,023637	0,042267	-0,031127	0,026455	0,006127	0,089043	0,016499	-0,101646	0,070720	0,103903	-0,025625
13	0,047730	-0,026006	0,000495	-0,025012	0,026976	-0,070781	-0,086977	-0,091829	0,003817	0,049697	-0,039966	0,018300	-0,008079	-0,041852	-0,025415	-0,045370	0,111704	0,034387	0,030789
14	0,029478	-0,039465	0,005792	-0,027566	0,029019	-0,036873	-0,079268	-0,027902	-0,003842	0,046058	0,012232	0,019609	-0,018912	0,030988	0,004551	-0,092487	0,079628	0,077458	0,031248
15	0,045005	0,000131	0,002889	-0,048212	0,024580	-0,062789	-0,065315	-0,043438	0,046216	0,043517	-0,033019	-0,005864	-0,014744	0,041688	0,013782	-0,070757	0,085224	0,080148	0,040500
16	0,078356	-0,045440	-0,060781	-0,024762	0,000083	-0,073955	-0,045333	-0,014542	0,000340	0,025651	0,003539	0,002645	-0,023688	0,009265	0,007194	-0,084516	0,058858	0,087315	0,003245
17	0,006569	-0,033109	-0,072508	0,000156	0,022522	-0,040041	-0,065473	-0,044390	0,013043	0,062008	0,009423	0,019574	-0,064495	0,089423	0,002728	-0,032655	0,020816	0,099386	0,034394
18	0,052524	-0,025245	-0,026762	0,003042	0,013811	-0,029551	-0,036659	-0,043735	0,033563	0,074198	0,035148	0,050048	-0,033373	0,054609	-0,034144	-0,119577	0,094925	0,114942	0,024301
19	0,025788	-0,012735	-0,051505	-0,000762	-0,006599	-0,041539	-0,075774	-0,047429	0,046393	0,056688	0,011741	0,076556	-0,023742	0,058566	-0,020071	-0,073052	0,040433	0,064095	-0,032100
20	0,047597	-0,052270	-0,024541	0,013060	0,087156	0,011691	-0,037885	-0,011017	0,028566	0,003819	-0,007465	-0,002205	0,014808	0,024291	-0,004131	0,014682	0,022767	0,024269	0,028338

Date	09.24.99	10.01.99	10.08.99	10.15.99	10.22.99	10.29.99	11.05.99	11.12.99	11.19.99	11.26.99	12.03.99	12.10.99	12.17.99	12.24.99	12.31.99	01.07.00	01.14.00	01.21.00	01.28.00
T-bill (Infl.Adj)	0,01313674	0,01323957	0,01324274	0,01325857	0,01332508	0,01332825	0,01329986	0,01330936	0,01333784	0,01333467	0,01420305	0,01415436	0,01420629	0,01426797	0,01423551	0,01388236	0,01384339	0,01387911	0,0138921
ISE100 Return	0,002176	-0,035873	-0,028363	0,023198	0,037999	0,055166	0,091340	0,151422	0,025079	-0,062368	0,162782	0,197965	0,141131	0,086813	0,054383	0,063140	0,165215	-0,101954	0,051626
Rm - Rf	-0,010961	-0,049113	-0,041605	0,009939	0,024674	0,041838	0,078040	0,138112	0,011741	-0,075702	0,148579	0,183811	0,126924	0,072545	0,040147	0,049257	0,151372	-0,115833	0,037734
Portfolio																			
1	0,006538	-0,033201	0,009090	0,032184	0,034384	0,026247	0,081690	0,095093	0,024155	0,051530	0,201806	0,095638	0,283214	0,050271	0,006276	0,161402	0,188668	-0,082348	0,067393
2	0,032791	-0,033754	0,009799	0,045363	0,035813	0,021851	0,080530	0,121659	0,034984	0,024156	0,106996	0,108579	0,306969	0,179745	0,068154	0,137896	0,184054	-0,083407	0,062070
3	0,003243	-0,043122	-0,026322	0,035691	0,041875	-0,009981	0,117524	0,058097	0,083104	0,022504	0,131518	0,145920	0,230656	0,086493	0,015439	0,189192	0,159875	-0,137157	0,042102
4	0,033636	0,002161	-0,012527	0,072666	-0,001264	0,007530	-0,009520	0,071257	0,047959	-0,001886	0,096571	0,097186	0,286913	0,074954	0,027972	0,182216	0,259444	-0,188621	0,044158
5	0,089248	0,035509	0,055032	0,049556	0,044315	-0,007643	0,004134	0,017338	0,049115	0,044746	0,047829	0,082874	0,275281	0,083625	0,003569	0,201205	0,214309	-0,117386	0,033667
6	-0,000043	-0,001566	0,043371	0,059978	0,004968	0,019210	0,057408	0,065073	0,045512	0,017772	0,128423	0,096574	0,242508	0,114830	0,015218	0,145316	0,182676	-0,066172	0,035275
7	0,034192	-0,009655	0,050830	0,055157	0,057460	-0,007032	0,009512	0,035311	0,068939	-0,002239	0,113691	0,071209	0,282508	0,049300	0,036436	0,126043	0,256098	-0,077176	0,036478
8	0,001352	-0,003575	-0,028857	0,059847	0,031385	0,032618	0,078417	0,081535	0,029419	-0,007338	0,165978	0,158137	0,299514	0,052610	0,041592	0,145913	0,212409	-0,086347	0,076878
9	0,015671	-0,025199	0,022806	0,028186	0,022610	0,032875	0,052741	0,134904	0,009512	-0,023482	0,117164	0,153903	0,247435	0,033990	0,041447	0,108797	0,258410	-0,185767	0,070207
10	0,018331	-0,016254	0,009500	-0,018830	0,054725	-0,017180	-0,002682	0,128186	0,052185	0,031376	0,172916	0,094794	0,323923	0,043035	-0,021634	0,208863	0,245777	-0,221256	0,036316
11	0,010680	-0,012743	0,033021	0,042937	0,026518	-0,002218	0,043525	0,080304	0,093741	0,019146	0,124709	0,132994	0,295837	0,091487	-0,052805	0,212605	0,243897	-0,070288	0,011570
12	0,069317	0,005204	0,021869	0,068623	0,018448	0,013218	0,016782	0,100237	0,058366	0,047741	0,170024	0,119068	0,306928	0,173683	-0,009246	0,165342	0,199397	-0,126351	0,039780
13	-0,002172	0,026724	0,091936	0,167300	-0,033764	-0,015195	0,017984	-0,008941	0,029852	-0,024383	0,098302	0,016582	0,290562	0,132302	-0,029527	0,140871	0,319158	-0,107335	0,047706
14	0,026854	-0,002509	0,032499	0,009653	0,030595	0,008044	0,045949	0,086109	0,033381	-0,024352	0,140844	0,072010	0,314899	0,126168	-0,012308	0,136989	0,217406	-0,100779	0,031666
15	-0,026834	-0,023816	0,000324	0,022852	-0,010063	0,002063	0,004614	0,131573	0,012825	-0,003691	0,121953	0,103510	0,286776	0,146048	-0,012141	0,080958	0,337368	-0,090906	0,103013
16	0,058312	-0,027336	0,051401	0,031769	0,013152	0,008335	-0,012742	0,072947	0,035000	-0,018525	0,069852	0,072633	0,267970	0,107535	0,029742	0,111753	0,311984	-0,098964	0,057121
17	0,001351	-0,032911	0,033370	0,037580	0,014771	0,037350	0,115504	0,096316	0,027094	-0,027427	0,108547	0,118283	0,258620	0,149523	-0,001921	0,101131	0,168885	-0,026369	0,076080
18	-0,024150	-0,038743	0,001671	0,000774	-0,015728	-0,029302	0,073516	0,151127	0,019169	-0,028790	0,135206	0,108078	0,201716	0,116671	-0,004474	0,112380	0,232729	-0,145934	0,060577
19	0,017623	-0,037442	-0,039468	0,001598	0,041530	0,037520	0,124688	0,110364	0,030198	-0,026867	0,140869	0,119532	0,177832	0,088735	-0,008100	0,131458	0,165522	-0,026486	0,017280
20	0,006472	-0,025272	0,021917	-0,004924	0,043183	0,041852	0,037680	0,036255	-0,001155	-0,010048	0,071016	0,041744	0,191019	0,118088	0,021267	0,120628	0,248738	-0,059952	0,039637

Date	02.04.00	02.11.00	02.18.00	02.25.00	03.03.00	03.10.00	03.17.00	03.24.00	03.31.00	04.07.00	04.14.00	04.21.00	04.28.00	05.05.00	05.12.00	05.19.00	05.26.00	06.02.00	06.09.00
T-bill (Infl.Adj)	0,01411788	0,01411462	0,01410156	0,014144	0,01378989	0,01379635	0,000000	0,01382541	0,01380603	0,01300177	0,01299231	0,01298286	0,01297341	0,01279737	0,01287245	0,01288809	0,01280675	0,01198347	0,01200482
ISE100 Return	-0,074326	-0,078419	-0,015154	0,016435	0,071962	0,061115	0,000000	-0,009691	-0,104240	0,059781	0,083209	-0,078191	0,122826	-0,060063	-0,029666	-0,065198	-0,032562	0,036856	-0,003561
Rm - Rf	-0,088444	-0,092533	-0,029256	0,002291	0,058173	0,047319	0,000000	-0,023516	-0,118046	0,046779	0,070217	-0,091173	0,109852	-0,072860	-0,042538	-0,078086	-0,045369	0,024873	-0,015566
Portfolio																			
1	-0,069200	-0,108858	-0,009229	-0,022002	0,122632	0,030194	0,000000	0,035641	-0,067896	0,059554	0,000351	-0,045608	0,179242	-0,047020	-0,013332	-0,102173	-0,016082	-0,003112	-0,010394
2	-0,064646	-0,088614	-0,046820	-0,060209	0,100633	0,057408	0,000000	0,090783	-0,043854	0,045102	0,023991	-0,028234	0,171790	-0,015493	0,023651	-0,059363	-0,021429	-0,037649	0,006508
3	-0,056916	-0,073774	-0,041465	-0,035048	0,030938	0,081422	0,000000	0,074633	-0,086287	0,070798	0,032430	-0,008398	0,113143	0,003672	-0,013120	-0,089556	-0,034936	-0,006366	0,026697
4	-0,059433	-0,047026	-0,036142	-0,034763	0,026562	0,052683	0,000000	0,061966	-0,079144	0,056115	0,031114	0,023272	0,085079	-0,021707	-0,035865	-0,069557	-0,049356	0,034005	0,032561
5	-0,020388	-0,044316	-0,071544	-0,067418	-0,000914	0,055247	0,000000	0,036751	-0,051943	0,091155	0,021975	0,030384	0,136065	-0,037143	-0,006594	-0,059191	-0,004410	0,049101	0,034507
6	-0,050269	-0,071542	-0,034896	-0,035919	0,008822	0,039727	0,000000	0,059332	-0,099705	0,057208	0,058057	-0,031423	0,082726	-0,048394	-0,045014	-0,051793	-0,037016	0,009299	-0,031731
7	-0,086215	-0,105129	-0,002573	0,007813	-0,009904	0,054432	0,000000	0,024722	-0,091677	0,062981	-0,017783	0,002971	0,087822	0,048643	-0,011203	-0,045086	0,007797	-0,017348	-0,007262
8	0,010648	-0,102284	-0,028672	-0,045230	0,020800	0,039038	0,000000	0,027080	-0,073699	0,050502	0,046078	-0,055835	0,083109	-0,032725	0,005659	-0,034325	-0,011041	0,048819	-0,009039
9	-0,087717	-0,077341	-0,004655	-0,036869	0,081971	0,064704	0,000000	-0,003801	-0,078848	0,100869	0,080171	-0,016595	0,102517	-0,020524	-0,021755	-0,076873	-0,058237	0,024194	-0,001365
10	-0,047537	-0,025505	-0,073007	-0,015202	0,015695	-0,007367	0,000000	0,108083	-0,077946	0,035196	0,024704	-0,050185	0,119445	-0,014725	0,006785	-0,059454	-0,020898	-0,001240	0,018303
11	-0,034019	-0,080480	-0,086715	-0,018785	0,009970	0,052905	0,000000	0,029333	-0,060448	0,088807	0,056829	-0,009944	0,194439	-0,028803	-0,023353	-0,057882	-0,009835	-0,010892	0,009880
12	-0,046914	-0,094909	-0,024328	-0,009942	0,025166	0,069883	0,000000	0,004589	-0,030332	0,076764	0,034250	-0,032693	0,093174	-0,007324	0,010724	-0,071826	-0,040742	-0,005597	-0,008122
13	-0,066718	-0,045770	-0,017263	-0,051794	-0,005377	0,027806	0,000000	0,059517	-0,034019	0,031680	0,011843	0,033433	0,168278	-0,044394	-0,033510	-0,099419	0,035974	0,008571	-0,021880
14	-0,075906	-0,101064	-0,028888	-0,030638	0,044696	0,054590	0,000000	0,079711	-0,051493	0,065096	-0,002344	-0,052866	0,138464	0,044676	-0,005761	-0,073108	-0,011297	0,003557	-0,017176
15	-0,032641	-0,094555	0,010748	-0,054377	0,088262	-0,000117	0,000000	-0,009269	-0,065237	0,031484	0,033228	-0,006776	0,050643	0,033399	0,021524	-0,074371	-0,018167	-0,017379	0,028130
16	-0,038016	-0,075235	-0,081068	-0,013004	0,010695	0,007373	0,000000	0,010499	-0,065722	0,038076	0,006115	0,029597	0,066173	0,004156	0,014585	-0,057265	-0,006238	-0,003334	-0,012997
17	-0,076197	-0,020658	-0,013645	0,007728	0,004703	0,022755	0,000000	0,043025	-0,086172	0,012602	0,067571	-0,016646	0,088311	-0,027469	0,010321	-0,032903	0,002654	-0,019106	-0,032136
18	-0,074799	-0,093907	-0,051848	-0,049511	0,041747	0,058014	0,000000	0,026705	-0,060759	0,066934	0,091485	-0,022455	0,092076	-0,014254	-0,047795	-0,079299	-0,026518	-0,002641	0,016407
19	-0,082543	-0,126436	0,014747	-0,035119	0,032748	0,042602	0,000000	0,044393	-0,117363	0,063783	0,041330	-0,024015	0,103319	-0,009999	-0,057966	-0,077978	-0,033318	0,013768	0,032137
20	-0,094274	-0,053547	-0,027642	-0,017286	0,033804	-0,001348	0,000000	0,016918	-0,022384	0,011868	-0,000199	-0,028378	0,092124	0,006891	-0,024053	-0,075873	-0,011100	-0,016854	0,014917

Date	06.16.00	06.23.00	06.30.00	07.07.00	07.14.00	07.21.00	07.28.00	08.04.00	08.11.00	08.18.00	08.25.00	09.01.00	09.08.00	09.15.00	09.22.00	09.29.00	10.06.00	10.13.00	10.20.00
T-bill (Infl.Adj)	0,01199872	0,01197127	0,01196822	0,01154039	0,01156142	0,01156142	0,01159447	0,01101641	0,01101788	0,01101641	0,0110223	0,01019996	0,01017704	0,01014267	0,0101484	0,01015986	0,00928849	0,00928849	0,00928988
ISE100 Return	-0,137166	0,039584	-0,031622	-0,008487	-0,059019	0,005873	0,038138	-0,024444	-0,035806	-0,008082	-0,011078	0,001426	-0,071156	-0,059771	-0,032435	0,022275	0,093294	0,043591	0,042570
Rm - Rf	-0,149165	0,027613	-0,043590	-0,020027	-0,070580	-0,005688	0,026543	-0,035460	-0,046824	-0,019098	-0,022100	-0,008774	-0,081333	-0,069913	-0,042583	0,012115	0,084005	0,034303	0,033280
Portfolio																			
1	-0,099551	0,037072	-0,036202	-0,037281	-0,030496	0,004356	0,041603	-0,016144	-0,029233	0,019636	0,027421	0,025333	-0,057076	-0,056511	-0,055193	-0,018353	0,067884	0,026555	0,054939
2	-0,102787	0,019604	-0,004235	-0,034895	-0,061672	-0,001459	0,041358	-0,012845	-0,028241	0,017213	0,017996	-0,003107	0,009797	-0,061261	-0,088662	0,003926	0,058960	0,059114	0,034432
3	-0,092231	0,036097	-0,043153	-0,010203	-0,085483	0,004470	0,030219	-0,013310	-0,025061	-0,014371	-0,001983	0,003513	-0,046077	-0,068963	-0,071859	0,004462	0,094874	0,008145	0,033523
4	-0,097777	0,016100	-0,040248	-0,026643	-0,047763	-0,014449	0,024972	0,028466	-0,018552	-0,006562	-0,003167	0,012456	-0,010779	-0,010123	-0,040624	0,004785	0,078385	0,011511	0,069177
5	-0,131637	0,024208	-0,065644	-0,009418	0,000501	0,006347	0,034436	0,029762	-0,006311	-0,003969	0,057700	0,056832	-0,063603	-0,085121	-0,056854	-0,001348	0,050907	0,015998	0,050829
6	-0,083829	0,013560	-0,012474	0,003142	-0,055055	-0,001418	0,061186	0,026258	-0,029997	0,006695	0,004075	-0,000347	-0,010792	-0,073910	-0,057847	-0,018763	0,085283	0,029936	0,048051
7	-0,096947	0,040765	-0,022698	-0,030100	-0,043418	0,020964	0,030643	0,010411	0,002837	0,010973	0,051550	0,048212	0,021272	-0,025140	0,000462	0,028183	0,073207	0,000381	0,089146
8	-0,083901	0,018108	-0,020148	-0,025080	-0,032051	-0,021639	0,039430	-0,036098	-0,011950	-0,018657	0,028525	0,040094	-0,056817	-0,054597	-0,031858	0,015256	0,061502	-0,021167	0,028974
9	-0,131320	0,033056	-0,025090	-0,013048	-0,058370	0,039511	0,046308	-0,045726	-0,011118	0,025803	-0,008234	0,011305	-0,069133	-0,044577	-0,020835	0,001481	0,066577	0,026244	0,039108
10	-0,125140	0,018949	-0,045412	0,009504	-0,051041	0,006431	0,040683	0,008480	-0,031383	0,061117	0,032969	0,015458	-0,060726	-0,095422	-0,045802	-0,004497	0,071095	0,022010	0,064925
11	-0,118476	-0,008743	-0,013140	-0,031253	-0,059118	0,022850	0,042466	-0,022896	-0,003749	-0,018306	-0,006425	0,038045	-0,072128	-0,053206	-0,062739	0,007109	0,076037	0,014761	0,043407
12	-0,098513	0,026141	-0,014172	-0,025060	-0,048893	0,033927	0,061817	-0,003283	0,006665	-0,033852	-0,029164	0,030472	-0,034577	-0,048857	-0,085734	-0,003957	0,022012	0,045587	0,049094
13	-0,157867	0,010365	-0,060070	-0,011922	-0,039888	-0,012908	0,010018	0,011414	-0,060991	-0,003137	0,067179	0,149698	-0,055646	-0,048560	-0,111573	0,002734	0,059253	0,000676	0,039688
14	-0,128840	0,032848	-0,032976	-0,005714	-0,045903	-0,006904	0,037804	0,004223	-0,015051	0,033621	-0,006954	-0,002572	-0,036898	-0,035292	-0,056543	-0,007831	0,055556	0,003692	0,071388
15	-0,076845	0,016221	-0,007246	-0,005602	-0,038182	0,032683	0,021620	0,006548	-0,036922	-0,030163	0,005055	-0,005130	0,024756	-0,090195	-0,066584	0,013376	0,063590	0,002285	0,023473
16	-0,056042	0,024632	-0,039322	-0,007456	-0,037957	0,041464	0,033351	0,001854	-0,009506	-0,016425	0,033887	-0,006973	0,030170	-0,045283	-0,023866	0,040860	0,102917	0,041512	0,022145
17	-0,073294	0,013004	-0,022982	0,005961	-0,029892	-0,020715	0,033675	-0,001576	-0,018534	-0,014528	0,020100	0,008096	-0,027656	-0,050304	-0,042086	0,015847	0,043341	0,006723	0,044554
18	-0,054312	0,019266	-0,021698	-0,026199	-0,039777	0,035506	0,028434	0,024810	-0,007962	-0,023853	0,047062	0,003483	0,005237	-0,046203	-0,022967	0,005402	0,039713	0,029937	-0,010911
19	-0,109733	0,018775	-0,028361	-0,034866	-0,052140	0,000215	0,022429	-0,033324	-0,002320	-0,018531	0,001351	-0,007662	-0,072831	-0,067959	-0,039233	0,029284	0,044239	0,024243	0,076991
20	-0,103478	0,019634	-0,025172	-0,015529	-0,032648	-0,001446	0,032639	-0,018220	-0,015410	-0,036511	-0,001974	0,022756	-0,028042	-0,062123	-0,081115	0,037026	0,031977	0,026414	0,031765

Date	10.27.00	11.03.00	11.10.00	11.17.00	11.24.00	12.01.00	12.08.00	12.15.00	12.22.00	12.29.00
T-bill (Infl.Adj)	0,0093121	0,00918341	0,00919447	0,00918479	0,00918203	0,00824441	0,00819094	0,0081749	0,00814014	0,000000
ISE100 Return	-0,026376	0,112503	-0,070082	-0,072838	-0,171570	-0,303670	0,205663	-0,039207	0,001538	0,000000
Rm - Rf	-0,035688	0,103319	-0,079276	-0,082022	-0,180752	-0,311915	0,197472	-0,047381	-0,006602	0,000000
Portfolio										
1	-0,028428	0,053101	-0,046790	-0,113770	-0,171103	-0,291034	0,058528	-0,044346	0,021899	0,000000
2	-0,052489	0,033001	-0,033346	-0,086034	-0,216898	-0,337643	0,145973	-0,068341	0,000641	0,000000
3	-0,013671	0,074324	-0,020227	-0,074381	-0,189585	-0,309106	0,092036	-0,082348	0,027971	0,000000
4	-0,031518	0,060385	-0,027972	-0,057278	-0,197496	-0,261885	0,131711	-0,052812	0,009139	0,000000
5	-0,025740	0,023326	-0,027293	-0,091568	-0,206988	-0,346976	0,129435	-0,090908	0,019553	0,000000
6	0,097719	0,023676	-0,007792	-0,071241	-0,126699	-0,211764	0,063136	-0,075327	-0,005925	0,000000
7	-0,035381	-0,008382	-0,010724	-0,057941	-0,155566	-0,259853	0,015367	-0,059179	-0,007018	0,000000
8	-0,018244	0,060747	-0,001206	-0,088487	-0,128082	-0,293769	0,028053	-0,047730	0,000527	0,000000
9	-0,045900	0,063409	-0,042706	-0,084597	-0,172381	-0,232255	0,116621	-0,091951	-0,019228	0,000000
10	-0,005763	0,040611	-0,072191	-0,103822	-0,223334	-0,311923	0,089880	-0,053592	0,009580	0,000000
11	-0,042903	0,058502	-0,007183	-0,084345	-0,242801	-0,276969	0,126130	-0,052528	-0,031604	0,000000
12	0,015580	0,036246	-0,020888	-0,080564	-0,165017	-0,262592	0,125975	-0,076774	-0,013574	0,000000
13	-0,004880	-0,002430	-0,017763	-0,069771	-0,178629	-0,283742	0,087340	-0,051026	0,002244	0,000000
14	0,019804	0,023800	-0,013333	-0,061464	-0,191097	-0,268182	0,088655	-0,078831	0,000861	0,000000
15	-0,002457	0,015610	-0,060953	-0,079661	-0,168392	-0,267420	0,087084	-0,017896	0,001515	0,000000
16	0,015332	0,023199	-0,025914	-0,009402	-0,111298	-0,217286	-0,054464	0,008106	-0,014267	0,000000
17	-0,010133	0,041813	-0,030278	-0,074840	-0,146282	-0,178707	0,105887	-0,048594	0,002088	0,000000
18	0,007960	0,007175	-0,071815	-0,056075	-0,178203	-0,237196	0,018940	-0,082846	-0,010016	0,000000
19	-0,033618	0,072269	-0,040412	-0,039161	-0,189090	-0,217980	0,164908	-0,067657	0,021540	0,000000
20	-0,011368	0,021683	-0,021896	-0,054019	-0,131228	-0,253060	0,089912	0,007114	0,098128	0,000000

Appendix VII: Weekly Portfolio Returns and Market Risk Premium (Test Period 2000-2001)

Date	01.07.00	01.14.00	01.21.00	01.28.00	02.04.00	02.11.00	02.18.00	02.25.00	03.03.00	03.10.00	03.17.00	03.24.00	03.31.00	04.07.00	04.14.00	04.21.00	04.28.00	05.05.00	05.12.00
T-bill (Infl.Adj)	0,01388236	0,01384339	0,01387911	0,0138921	0,01411788	0,01411462	0,01410156	0,014144	0,01378989	0,01379635	0,000000	0,01382541	0,01380603	0,01300177	0,01299231	0,01298286	0,01297341	0,01279737	0,01287245
ISE100 Return		0,165215	-0,101954	0,051626	-0,074326	-0,078419	-0,015154	0,016435	0,071962	0,061115	0,000000	-0,009691	-0,104240	0,059781	0,083209	-0,078191	0,122826	-0,060063	-0,029666
Rm - Rf		0,151372	-0,115833	0,037734	-0,088444	-0,092533	-0,029256	0,002291	0,058173	0,047319	0,000000	-0,023516	-0,118046	0,046779	0,070217	-0,091173	0,109852	-0,072860	-0,042538
Portfolio																			
1		0,220363	-0,124960	0,055260	-0,064708	-0,102545	-0,012620	-0,021709	0,099098	0,059806	0,000000	0,008337	-0,107618	0,063101	0,046737	-0,058962	0,086492	-0,029595	-0,017582
2		0,102640	-0,124895	0,075948	-0,061946	-0,077256	0,011003	0,004954	0,126103	-0,007500	0,000000	-0,002912	-0,079351	0,075900	0,021855	-0,046354	0,166712	-0,045258	-0,016888
3		0,187203	-0,049172	0,089790	-0,079504	-0,135629	-0,030694	-0,035616	0,054855	0,020490	0,000000	-0,027146	-0,076819	0,049659	0,073040	-0,020708	0,165941	-0,027198	-0,002378
4		0,195738	-0,131396	0,046026	-0,072360	-0,089867	-0,039973	-0,058717	0,059263	0,059853	0,000000	0,037063	-0,035672	0,027843	0,036339	-0,063895	0,135321	-0,039188	-0,014931
5		0,228055	-0,071197	0,051492	-0,065008	-0,105904	-0,041345	0,023353	0,057847	0,073287	0,000000	0,031675	-0,124728	0,095713	0,050090	-0,025387	0,100288	-0,030899	-0,013722
6		0,324051	-0,168910	0,052824	-0,016661	-0,068204	-0,009893	0,010032	0,004932	0,061078	0,000000	0,079542	-0,072496	0,056749	0,018257	0,018612	0,134503	-0,034292	-0,033810
7		0,166256	-0,006517	0,050608	-0,016070	-0,080448	-0,038844	-0,019841	-0,010584	0,079312	0,000000	0,063286	-0,030406	0,050244	0,005359	-0,025062	0,146385	-0,003619	0,004811
8		0,199634	-0,154619	0,046146	-0,048930	0,043039	0,001509	-0,025596	-0,014969	0,066312	0,000000	0,070835	-0,077432	0,070073	0,068900	-0,031455	0,101169	-0,040436	-0,042060
9		0,259879	-0,158911	0,057650	0,000631	-0,068168	-0,005764	-0,025702	0,007551	0,069960	0,000000	0,021048	-0,093890	0,059119	0,025580	0,017129	0,123490	-0,017250	-0,027489
10		0,284657	-0,069819	0,026200	-0,089288	-0,085556	-0,006900	-0,050513	-0,006446	0,030667	0,000000	0,041154	-0,039808	0,034819	0,017211	0,029890	0,168737	-0,023573	-0,055104
11		0,267736	-0,120951	0,094024	-0,076129	-0,091529	-0,036417	-0,055130	0,030489	0,049013	0,000000	0,057591	-0,073352	0,048417	-0,007327	-0,032249	0,086911	-0,034386	-0,038290
12		0,270021	-0,114141	-0,001814	-0,044758	-0,093916	-0,046394	-0,009926	-0,009203	0,037265	0,000000	0,087344	-0,090320	0,072183	0,009247	0,003404	0,063378	-0,001841	0,003931
13		0,323643	-0,184938	0,073279	-0,069461	-0,102200	-0,061851	-0,034822	0,047734	0,023578	0,000000	0,057611	-0,100828	0,106023	0,067840	0,048033	0,086579	0,018038	-0,004926
14		0,249245	-0,062515	0,013161	-0,066160	-0,097612	-0,060901	0,032036	-0,013116	0,058789	0,000000	0,057463	-0,006419	0,034803	0,052816	0,004757	0,096055	0,010746	0,061017
15		0,250278	-0,184269	0,047956	-0,037742	-0,040953	-0,068719	-0,051729	-0,007471	0,023870	0,000000	0,038522	-0,081615	0,035028	0,033974	-0,009390	0,142111	0,028546	-0,058217
16		0,162929	-0,083995	0,075536	-0,036803	-0,028811	-0,072563	-0,027059	0,001823	0,017446	0,000000	0,032783	-0,031458	0,025760	-0,008004	-0,007876	0,065900	0,020300	-0,010815
17		0,249186	-0,069750	0,058514	-0,019331	-0,079727	-0,067444	-0,052732	0,004328	0,042074	0,000000	0,005973	-0,062208	0,066816	-0,016607	-0,029334	0,117826	-0,008839	0,011744
18		0,207573	-0,015169	0,013023	-0,056808	-0,075864	0,002554	-0,105015	0,026811	0,057350	0,000000	0,071032	-0,108035	0,053887	0,035099	0,008309	0,157065	0,029731	-0,037055
19		0,276935	-0,057725	0,043301	0,022312	-0,077126	-0,019491	-0,030682	0,018595	0,046078	0,000000	0,022900	-0,058392	0,059731	0,034058	0,019403	0,042096	0,058125	0,021742
20		0,280663	-0,112621	0,123354	-0,078484	-0,051638	-0,024427	-0,088805	0,086719	0,038192	0,000000	0,006538	-0,045412	0,005518	-0,003697	-0,019814	0,106942	0,051408	0,013558

Date	05.19.00	05.26.00	06.02.00	06.09.00	06.16.00	06.23.00	06.30.00	07.07.00	07.14.00	07.21.00	07.28.00	08.04.00	08.11.00	08.18.00	08.25.00	09.01.00	09.08.00	09.15.00	09.22.00
T-bill (Infl.Adj)	0,01288809	0,01280675	0,01198347	0,01200482	0,01199872	0,01197127	0,01196822	0,01154039	0,01156142	0,01156142	0,01159447	0,01101641	0,01101788	0,01101641	0,0110223	0,01019996	0,01017704	0,01014267	0,0101484
ISE100 Return	-0,065198	-0,032562	0,036856	-0,003561	-0,137166	0,039584	-0,031622	-0,008487	-0,059019	0,005873	0,038138	-0,024444	-0,035806	-0,008082	-0,011078	0,001426	-0,071156	-0,059771	-0,032435
Rm - Rf	-0,078086	-0,045369	0,024873	-0,015566	-0,149165	0,027613	-0,043590	-0,020027	-0,070580	-0,005688	0,026543	-0,035460	-0,046824	-0,019098	-0,022100	-0,008774	-0,081333	-0,069913	-0,042583
Portfolio																			
1	-0,098657	-0,024400	0,012724	0,011589	-0,128089	0,013801	0,006491	-0,019690	-0,052558	0,017714	0,004015	-0,026416	-0,039413	0,000073	0,006623	-0,019830	-0,041054	-0,093797	-0,059938
2	-0,083934	-0,024278	-0,010606	-0,002308	-0,158083	0,020016	-0,024771	-0,003686	-0,049598	0,008477	0,035806	-0,011684	-0,024272	-0,001996	0,002753	-0,002027	-0,079295	-0,074212	-0,079919
3	-0,094941	-0,026485	0,011150	-0,048616	-0,104225	0,030130	-0,012328	-0,035180	-0,013203	-0,016017	0,026609	-0,035251	-0,023225	-0,034287	0,007114	0,007523	-0,061243	-0,074400	-0,050772
4	-0,069542	-0,060472	-0,007976	0,012903	-0,092113	0,016638	-0,034531	-0,037888	-0,051788	-0,001063	0,050702	-0,021784	-0,021547	0,005344	0,012122	0,046160	0,004253	-0,084689	-0,078705
5	-0,061143	-0,041489	0,006170	-0,014855	-0,092853	0,004588	-0,001718	0,001777	-0,019331	-0,018171	0,058860	0,021593	-0,040007	0,025914	-0,003578	-0,011918	-0,058402	-0,057154	-0,080772
6	-0,061690	-0,054962	-0,018571	0,046047	-0,092992	0,012048	-0,032544	-0,031030	-0,061788	0,004608	0,027416	-0,001669	-0,006625	-0,032214	0,030948	0,045352	-0,075182	-0,038464	-0,039237
7	-0,076297	-0,026750	0,009387	-0,018531	-0,066928	0,017159	-0,048217	-0,022573	-0,055907	-0,011550	0,057983	-0,004423	-0,014700	-0,001629	-0,010780	0,080390	0,032689	-0,053001	-0,104356
8	-0,047127	-0,038849	0,016578	0,024523	-0,097460	0,034251	-0,035258	-0,020566	-0,025914	0,007395	0,041450	0,001247	-0,029934	-0,028465	0,003603	0,031505	-0,023576	-0,029897	-0,060906
9	-0,074336	0,013316	-0,016345	-0,023306	-0,120710	0,053962	-0,011164	-0,009289	-0,034753	0,018458	0,043605	0,019160	-0,005054	-0,008499	0,049382	0,018579	-0,065020	-0,066103	-0,027574
10	-0,088941	0,015502	-0,026882	0,010188	-0,109508	0,026550	-0,040021	-0,023413	-0,031882	0,009735	0,022773	-0,013064	-0,046328	-0,010211	0,007010	0,036578	-0,045661	-0,050301	-0,054727
11	-0,061066	-0,023447	0,022519	-0,021794	-0,121360	-0,004713	-0,047550	-0,007121	-0,020874	0,004323	0,038116	-0,025064	-0,055174	0,031425	0,005800	0,021132	-0,035723	-0,071941	-0,072900
12	-0,079476	-0,040992	0,023775	0,012618	-0,091360	0,018609	-0,036983	-0,020733	-0,084503	-0,007669	0,060970	-0,026591	-0,003997	0,027716	0,054102	-0,009612	-0,043105	-0,040545	-0,077532
13	-0,066340	0,028703	0,032205	0,010120	-0,122673	0,059261	-0,026703	-0,009994	-0,047135	0,041354	0,065083	0,004421	-0,016907	-0,006794	-0,010796	0,033870	-0,030894	-0,007571	-0,034758
14	-0,075874	0,012837	-0,025166	0,013509	-0,088399	0,019944	-0,030273	-0,000444	-0,058388	0,036785	0,029603	-0,005897	-0,007402	-0,026413	-0,002109	0,009057	0,040036	-0,078612	-0,066831
15	-0,092337	-0,006870	0,019150	0,014873	-0,128053	0,031833	-0,046004	0,004309	-0,008503	0,012269	0,024888	-0,000595	0,002682	0,039910	-0,007456	0,015596	-0,023320	-0,086644	-0,035706
16	-0,075283	0,028076	-0,015776	-0,022234	-0,086011	0,046516	0,006906	-0,022415	-0,028116	0,009192	0,040149	0,000493	-0,000879	-0,019556	0,015763	0,028829	-0,012971	-0,047785	-0,043775
17	-0,052862	-0,014664	0,008985	0,015227	-0,089248	0,011933	-0,054861	0,011767	-0,071932	-0,009614	0,051600	-0,006869	-0,035378	0,022883	0,012332	0,038350	-0,000866	-0,055006	-0,054774
18	-0,044099	-0,032957	-0,001240	0,066139	-0,062688	0,032393	-0,010615	0,013393	-0,033983	0,012040	0,021507	0,002251	0,006445	-0,033716	0,036115	0,006115	-0,018992	-0,043430	-0,018476
19	-0,066745	-0,022089	-0,029892	-0,010066	-0,058603	0,048927	-0,048976	-0,026714	-0,048856	0,024645	0,049038	0,004498	-0,029923	-0,009656	0,041607	0,028344	0,011794	-0,032284	-0,035714
20	-0,050135	-0,009096	-0,019635	0,030092	-0,078795	0,022161	-0,004651	-0,002896	-0,039738	-0,012454	0,033483	0,033277	-0,030046	-0,009598	-0,002757	-0,002655	0,002064	-0,030681	-0,062226

Date	09.29.00	10.06.00	10.13.00	10.20.00	10.27.00	11.03.00	11.10.00	11.17.00	11.24.00	12.01.00	12.08.00	12.15.00	12.22.00	12.29.00	01.05.01	01.12.01	01.19.01	01.26.01	02.02.01
T-bill (Infl.Adj)	0,01015986	0,00928849	0,00928849	0,00928988	0,0093121	0,00918341	0,00919447	0,00918479	0,00918203	0,00824441	0,00819094	0,0081749	0,00814014	0,000000	0,00766522	0,00749532	0,00753976	0,00750578	0,00698664
ISE100 Return	0,022275	0,093294	0,043591	0,042570	-0,026376	0,112503	-0,070082	-0,072838	-0,171570	-0,303670	0,205663	-0,039207	0,001538	0,000000	0,058654	0,091384	0,038976	-0,059440	-0,018426
Rm - Rf	0,012115	0,084005	0,034303	0,033280	-0,035688	0,103319	-0,079276	-0,082022	-0,180752	-0,311915	0,197472	-0,047381	-0,006602	0,000000	0,050989	0,083888	0,031437	-0,066946	-0,025412
Portfolio																			
1	0,007058	0,100016	0,073492	0,028252	-0,036602	0,098722	-0,087883	-0,097699	-0,199504	-0,333715	0,231473	-0,074092	0,002415	0,000000	0,059051	0,105343	0,034769	-0,093240	-0,059610
2	0,011838	0,089254	0,078635	0,076772	-0,027962	0,068670	-0,042155	-0,102097	-0,184580	-0,292589	0,168875	-0,052751	0,001860	0,000000	0,055730	0,111713	0,048678	-0,064394	-0,034514
3	0,001382	0,061024	0,072313	0,067555	-0,040594	0,079465	-0,018023	-0,058525	-0,181487	-0,308100	0,099393	-0,066708	-0,015229	0,000000	0,053813	0,078884	-0,010993	-0,068435	-0,064922
4	0,011010	0,077080	0,011853	0,046213	-0,015735	0,046914	-0,037674	-0,104745	-0,209111	-0,231285	0,108321	-0,054745	0,005515	0,000000	0,026039	0,096301	0,027730	-0,077790	-0,031534
5	0,016568	0,101812	0,016991	0,051221	0,005206	0,069255	-0,024458	-0,087930	-0,187176	-0,285519	0,093029	-0,065447	-0,015723	0,000000	0,045171	0,084453	0,030392	-0,072980	-0,058766
6	-0,006591	0,054686	0,014393	0,072368	-0,020584	0,033572	-0,041129	-0,087405	-0,174263	-0,295395	-0,058813	-0,011072	0,009640	0,000000	0,054582	0,079306	-0,015530	-0,038870	-0,015472
7	-0,018552	0,035474	0,020256	0,042917	-0,009742	0,025880	-0,008603	-0,081529	-0,176540	-0,283995	0,123917	-0,094419	-0,008893	0,000000	0,084517	0,100665	0,027789	-0,045373	-0,023892
8	0,005315	0,083191	-0,001582	0,068200	-0,016085	0,048777	-0,021540	-0,078039	-0,197419	-0,269639	0,127294	-0,105938	-0,003655	0,000000	0,069169	0,075191	0,005104	-0,073540	-0,042778
9	0,001758	0,069122	-0,003496	0,042526	-0,001859	0,065975	-0,057497	-0,055065	-0,194184	-0,296415	0,118421	-0,063912	0,031866	0,000000	0,035842	0,074934	-0,028518	-0,075815	-0,038620
10	-0,002772	0,066744	-0,000842	0,050808	-0,011906	0,035586	0,001651	-0,074099	-0,189986	-0,281292	0,107916	-0,041597	0,043732	0,000000	0,042552	0,079260	-0,004622	-0,067502	-0,044951
11	-0,004279	0,052137	0,023450	0,081190	-0,001083	0,061110	-0,028558	-0,107837	-0,169958	-0,300368	0,055501	-0,030357	0,011834	0,000000	0,051243	0,141345	0,033319	-0,068123	-0,048961
12	0,003277	0,051101	-0,009733	0,053329	-0,005680	0,039194	-0,053736	-0,040349	-0,183340	-0,242712	0,085409	-0,103668	0,014884	0,000000	0,067108	0,102346	0,015635	-0,093620	-0,038177
13	-0,023791	0,030957	-0,019162	0,043734	0,004102	0,018913	-0,026237	-0,096714	-0,216709	-0,246676	0,062186	-0,056062	0,023520	0,000000	0,075123	0,089612	-0,025369	-0,066796	-0,043954
14	0,031036	0,079979	0,046966	0,047631	-0,029905	0,028734	-0,006206	-0,061258	-0,168392	-0,298979	0,003471	-0,048587	0,006371	0,000000	0,088290	0,098225	0,005783	-0,047187	-0,012078
15	-0,007622	0,078130	0,010862	0,044752	0,007263	0,020509	-0,001167	-0,085271	-0,174162	-0,303027	0,101601	-0,054389	-0,009353	0,000000	0,098509	0,110624	-0,012253	-0,043979	-0,062098
16	0,033161	0,062902	0,005246	0,050491	-0,003117	0,001913	-0,036791	-0,073305	-0,189723	-0,261561	0,052154	-0,074472	0,011471	0,000000	0,072043	0,114974	-0,013246	-0,082908	-0,069815
17	0,043774	0,035157	0,010348	0,047397	-0,009226	0,019139	-0,016415	-0,098927	-0,172893	-0,302778	0,133429	-0,084269	0,038304	0,000000	0,046619	0,083941	0,004590	-0,043067	-0,042030
18	-0,006776	0,046771	-0,025049	0,031886	-0,025410	-0,002788	-0,063721	-0,044728	-0,219952	-0,298828	0,118987	-0,066396	0,004109	0,000000	0,034728	0,100578	0,051864	-0,042235	-0,055545
19	-0,002850	0,028153	0,019767	0,020269	0,009927	-0,011542	-0,023969	-0,044220	-0,164548	-0,249193	0,109018	-0,073490	-0,011757	0,000000	0,080296	0,144743	-0,035833	0,018240	-0,058382
20	0,114989	0,027445	0,032469	-0,011158	-0,017725	0,013157	-0,033585	-0,063939	-0,163428	-0,326261	0,053238	-0,062887	0,012733	0,000000	0,029694	0,103291	-0,019322	-0,042522	-0,023658

Date	02.09.01	02.16.01	02.23.01	03.02.01	03.09.01	03.16.01	03.23.01	03.30.01	04.06.01	04.13.01	04.20.01	04.27.01	05.04.01	05.11.01	05.18.01	05.25.01	06.01.01	06.08.01	06.15.01
T-bill (Infl.Adj)	0,00697125	0,00696611	0,0069674	0,0077181	0,000000	0,00766786	0,00762819	0,00758324	0,00966097	0,009574	0,00963958	0,00952695	0,01039211	0,01032617	0,01031738	0,01029101	0,01103044	0,01102594	0,01100193
ISE100 Return	-0,099702	0,063285	-0,197738	0,131085	0,000000	-0,082154	-0,046453	-0,041855	0,026334	0,081952	0,077259	0,246886	0,013392	-0,061756	0,078288	-0,062400	-0,060002	0,074131	-0,024900
Rm - Rf	-0,106673	0,056319	-0,204705	0,123367	0,000000	-0,089822	-0,054082	-0,049439	0,016673	0,072378	0,067620	0,237359	0,003000	-0,072083	0,067971	-0,072691	-0,071032	0,063105	-0,035902
Portfolio																			
1	-0,124696	0,049463	-0,204310	0,175467	0,000000	-0,007464	-0,009841	-0,037148	0,024723	0,058391	0,089523	0,313545	-0,000851	-0,047726	0,057865	-0,054917	-0,125011	0,089646	-0,034341
2	-0,118779	0,053015	-0,285703	0,119938	0,000000	-0,068569	0,010905	-0,058071	0,011034	0,060935	0,110035	0,206779	0,015318	-0,057896	0,063803	-0,031498	-0,057796	0,032339	-0,013662
3	-0,109812	0,014012	-0,279235	0,209536	0,000000	-0,048867	-0,003945	-0,048677	-0,014535	0,078991	0,172819	0,180184	0,003892	-0,053008	0,089496	-0,034290	-0,120908	0,035459	-0,037239
4	-0,102684	0,017674	-0,271625	0,223604	0,000000	-0,031148	-0,004697	-0,013933	0,006184	0,093200	0,116921	0,171098	-0,009468	-0,049444	0,106804	-0,007885	-0,118729	0,045043	-0,015116
5	-0,124980	0,059902	-0,160832	0,138481	0,000000	0,023335	-0,014500	-0,038104	0,000385	0,068220	0,102434	0,178056	0,004426	-0,061036	0,080156	-0,050064	-0,087206	0,027978	-0,002557
6	-0,112327	0,020411	-0,303078	0,099833	0,000000	-0,045365	0,072158	-0,031437	0,018169	0,071465	0,116588	0,201110	-0,033967	-0,027001	0,070034	0,026282	-0,050658	0,035628	0,034232
7	-0,101348	-0,004865	-0,261288	0,143974	0,000000	0,039275	0,006042	-0,035943	0,035926	0,051169	0,143073	0,130105	-0,035153	-0,031107	0,042784	0,012897	-0,069043	0,023795	-0,027106
8	-0,100492	0,047854	-0,261868	0,171800	0,000000	-0,051594	0,034365	0,000534	0,030976	0,063133	0,144874	0,187586	0,016365	-0,038176	0,056636	-0,019206	-0,012697	0,042986	0,020828
9	-0,097066	0,013573	-0,317003	0,221818	0,000000	0,001024	0,005591	-0,020065	0,022851	0,074300	0,145136	0,094038	0,072288	-0,062295	0,060674	0,010001	-0,054367	0,022022	0,004567
10	-0,101562	-0,005501	-0,172862	0,071233	0,000000	-0,023272	0,044963	-0,019441	0,044785	0,073689	0,100658	0,198887	-0,023676	-0,029506	0,086476	0,018544	-0,075190	0,053008	0,045000
11	-0,106955	0,035623	-0,230335	0,159464	0,000000	0,024455	-0,015311	-0,007493	0,040681	0,052096	0,106971	0,127788	-0,021014	-0,052743	0,080182	-0,026627	-0,068514	0,061374	-0,002511
12	-0,097257	0,015264	-0,228007	0,137458	0,000000	-0,057629	-0,052167	-0,035945	-0,048748	0,082896	0,144604	0,195121	-0,020880	-0,058819	0,074995	0,022571	-0,107506	0,042048	-0,015675
13	-0,148156	0,028381	-0,317602	0,171110	0,000000	0,028514	0,040071	-0,027890	0,026636	0,065628	0,126830	0,140013	0,080862	-0,015866	0,093748	-0,049179	-0,150656	0,013995	0,046992
14	-0,065379	0,040016	-0,181608	0,152544	0,000000	0,071033	0,001721	-0,027884	0,013049	0,024543	0,075038	0,131170	-0,024880	-0,033756	0,091336	0,047400	-0,084555	0,036503	0,008991
15	-0,099404	-0,012164	-0,272567	0,173319	0,000000	0,019420	0,017174	-0,086495	0,043070	0,074698	0,165127	0,097274	-0,012723	0,002306	0,171194	0,058508	-0,125024	0,058659	0,024403
16	-0,106135	-0,005787	-0,196302	0,165533	0,000000	-0,062744	0,007208	-0,031360	0,024269	0,060022	0,107797	0,161880	0,003370	0,022924	0,041217	-0,017221	-0,072590	0,044493	0,004865
17	-0,113092	0,005145	-0,336432	0,211712	0,000000	0,009555	-0,002553	-0,044041	0,018826	0,060959	0,126938	0,150736	-0,040043	-0,026741	0,079450	0,027399	-0,096843	0,047178	-0,039525
18	-0,105629	0,042835	-0,186479	0,151895	0,000000	-0,053364	-0,005859	-0,091958	0,042588	0,103747	0,169677	0,168601	0,002851	-0,033076	0,056383	0,006306	-0,069112	0,025570	-0,008933
19	-0,059698	-0,036808	-0,233441	0,131102	0,000000	-0,027805	0,049146	-0,004317	0,005087	0,084612	0,074997	0,175093	-0,058226	0,001605	0,137939	-0,011596	-0,040315	0,112954	0,039738
20	-0,105571	0,024047	-0,302647	0,133979	0,000000	-0,024705	0,005452	-0,014158	0,043728	0,032039	0,062990	0,181335	-0,076675	-0,024857	0,078587	0,111154	-0,073318	0,001639	-0,018814

Date	06.22.01	06.29.01	07.06.01	07.13.01	07.20.01	07.27.01	08.03.01	08.10.01	08.17.01	08.24.01	08.31.01	09.07.01	09.14.01	09.21.01	09.28.01	10.05.01	10.12.01	10.19.01	10.26.01
T-bill (Infl.Adj)	0,01097941	0,0109614	0,01106703	0,01106102	0,01105801	0,01103696	0,0112641	0,01124896	0,01122473	0,01121867	0,01122473	0,01205915	0,01200314	0,01181023	0,01175422	0,01262875	0,01258394	0,01259034	0,01258074
ISE100 Return	-0,062740	0,007569	-0,096968	-0,128695	0,079902	0,008283	0,033877	-0,071915	0,035151	0,031611	-0,017140	-0,025717	-0,193037	-0,082897	0,042798	-0,003542	0,103969	0,045347	0,116781
Rm - Rf	-0,073719	-0,003392	-0,108035	-0,139756	0,068844	-0,002754	0,022613	-0,083164	0,023926	0,020392	-0,028364	-0,037777	-0,205040	-0,094707	0,031044	-0,016170	0,091385	0,032756	0,104200
Portfolio																			
1	-0,060500	0,010950	-0,099959	-0,133037	0,050802	0,037309	0,015215	-0,091415	0,022969	0,039585	-0,029751	-0,037449	-0,291150	-0,146349	0,025369	-0,014917	0,089093	0,089269	0,163874
2	-0,071715	0,011223	-0,084782	-0,108168	0,021083	-0,005642	0,019725	-0,092139	0,016569	0,038233	0,006688	-0,043517	-0,248683	-0,072427	0,022113	-0,010442	0,094001	0,088048	0,119554
3	-0,051335	0,027863	-0,090267	-0,105782	0,077215	0,025086	0,053241	-0,064756	0,038184	0,004885	-0,002902	-0,013294	-0,213285	-0,036333	0,029738	0,018675	0,117271	0,013256	0,108424
4	-0,072200	0,036084	-0,063610	-0,108532	0,036034	0,057806	0,026958	-0,058726	0,018976	0,013653	-0,017391	-0,010912	-0,228277	-0,103271	0,034919	0,021107	0,070810	0,078497	0,094748
5	-0,015627	0,026311	-0,059903	-0,122022	0,070259	0,028032	0,008213	-0,071733	-0,002493	0,036776	0,009380	-0,030192	-0,253337	-0,077630	0,032282	0,020067	0,129433	0,091847	0,113960
6	0,000562	0,067692	-0,102346	-0,075396	0,090800	-0,000346	0,052172	-0,078505	0,118700	0,031033	-0,025254	-0,040553	-0,257949	-0,061765	0,019873	-0,063991	0,055130	0,112138	0,096707
7	-0,089864	0,023025	-0,029904	-0,068866	-0,002393	0,024046	0,027016	-0,028937	0,020401	0,020490	-0,008934	-0,026719	-0,226020	-0,088434	0,015637	0,022302	0,115124	0,081824	0,051871
8	-0,069315	0,041274	-0,044548	-0,073309	0,065170	-0,009041	0,044666	-0,019959	0,002511	0,028537	-0,008575	-0,009687	-0,212591	-0,034594	0,016731	0,011495	0,077382	0,063466	0,076078
9	-0,054445	0,036985	-0,050081	-0,123726	0,041226	0,028508	0,019657	-0,031453	0,005393	0,012536	-0,009452	-0,017064	-0,279065	-0,076328	0,010321	0,042865	0,057733	0,098622	0,094104
10	-0,040540	0,074310	-0,036319	-0,131635	0,052911	0,049867	0,004268	-0,040397	0,074818	0,006349	-0,012054	-0,043451	-0,201034	-0,090977	-0,024865	0,096183	0,098965	0,062145	0,054543
11	-0,060778	-0,005483	-0,062116	-0,046725	0,027355	0,022930	0,021091	-0,028212	0,043814	0,038701	0,003049	-0,008470	-0,212753	-0,066017	0,002133	-0,005367	0,097438	0,081862	0,074057
12	-0,048193	0,020162	-0,034489	-0,148597	0,014853	0,028034	0,083722	-0,045852	0,015183	0,022080	-0,008934	-0,019585	-0,271256	-0,089317	0,061085	0,002915	0,078326	0,103191	0,055959
13	-0,024954	0,015415	-0,097801	-0,160553	0,051206	-0,005248	0,020112	-0,060990	0,020090	0,003669	-0,036005	-0,040269	-0,296684	-0,112967	0,004578	0,054784	0,142498	0,119665	0,015349
14	-0,059712	0,010034	-0,068956	-0,116256	0,049516	0,026654	0,010480	-0,058162	0,020338	-0,005908	0,006277	-0,006855	-0,235712	-0,103383	0,019881	0,040247	0,100294	0,080404	0,123334
15	-0,029199	-0,021654	-0,072176	-0,098017	0,067184	-0,037143	0,032066	-0,040180	-0,013192	0,032565	-0,039799	-0,026601	-0,276797	-0,068743	-0,016262	0,006827	0,115372	0,062006	0,132741
16	-0,010636	0,024475	-0,037023	-0,080338	0,026257	-0,006171	0,044467	-0,007019	0,000355	0,001496	-0,017488	-0,035751	-0,235936	-0,076249	0,008321	0,017472	0,106857	0,087579	0,098356
17	-0,040004	0,036472	-0,090572	-0,092857	0,083097	-0,025618	-0,003947	-0,051507	0,032279	0,063663	0,015275	0,009809	-0,237028	-0,134305	0,059548	-0,034238	0,118040	0,101095	0,084391
18	-0,032908	0,036396	-0,062781	-0,091335	0,039559	0,019641	0,018123	-0,028546	0,000682	0,054344	0,050363	-0,067372	-0,253576	-0,062510	0,058784	0,029436	0,114230	0,085441	0,082224
19	-0,014089	0,056031	-0,047997	-0,097827	0,050737	-0,017789	0,026494	-0,011426	-0,038443	0,027682	-0,020779	-0,029740	-0,196863	-0,062367	0,031184	0,073160	0,115778	0,062443	0,023004
20	-0,032694	-0,005184	-0,044999	-0,090874	0,040040	-0,020599	0,041102	-0,081017	-0,020453	0,013023	0,033364	0,025078	-0,219858	-0,065604	0,048169	0,123635	0,087713	0,056960	0,080200

Date	11.02.01	11.09.01	11.16.01	11.23.01	11.30.01	12.07.01	12.14.01	12.21.01	12.28.01
T-bill (Infl.Adj)	0,0126998	0,01267567	0,0126242	0,01265154	0,01265798	0,01283401	0,01281456	0,01283239	0,01282914
ISE100 Return	0,015432	0,001112	0,120412	0,030189	-0,007320	0,084746	0,007789	-0,003191	0,080149
Rm - Rf	0,002732	-0,011564	0,107788	0,017537	-0,019978	0,071912	-0,005025	-0,016024	0,067319
Portfolio									
1	-0,015056	0,016283	0,123539	0,059964	-0,006944	0,081856	-0,009073	-0,012285	0,096819
2	0,008513	0,057639	0,100251	0,033579	0,007857	0,059319	0,034930	-0,001330	0,069212
3	0,032095	0,014675	0,081652	0,053313	0,005340	0,060734	0,032419	0,035528	0,182556
4	0,004868	0,077154	0,081561	0,027099	0,021147	0,083227	0,049250	0,006247	0,067353
5	0,027774	0,024194	0,076480	0,016391	0,011921	0,087872	0,008630	0,007127	0,010041
6	0,029727	0,071808	0,091260	0,043648	0,025292	0,066490	0,041659	-0,033148	0,046045
7	0,052391	0,017792	0,072757	0,047964	-0,002697	0,052653	0,066816	-0,001672	0,073108
8	0,013062	0,054762	0,079290	-0,014425	-0,002925	0,059266	0,008667	-0,032412	0,048160
9	-0,012269	0,066613	0,086924	0,036449	-0,003567	0,046134	0,020359	-0,003721	0,070153
10	0,030682	0,046897	0,042497	-0,001052	0,037802	0,063462	0,021832	-0,026133	0,042570
11	0,029348	0,057210	0,076564	0,036879	0,023332	0,048150	0,027628	-0,012731	0,033910
12	0,004898	0,061164	0,048136	0,061665	0,012788	0,060560	0,039133	-0,002178	0,027231
13	0,004221	0,075025	0,056482	0,063635	-0,002995	0,042350	0,034720	0,000683	0,041933
14	0,044744	0,038948	0,049465	0,056108	-0,057393	0,075041	0,005460	-0,010623	0,088447
15	0,003178	0,099541	0,064733	0,101632	-0,041506	0,058711	0,004216	0,024424	0,056204
16	0,008167	0,024289	0,042339	-0,004409	-0,008008	0,049721	0,022299	-0,003682	0,051319
17	-0,010366	0,056616	0,022307	0,048453	-0,012740	0,048796	0,020228	-0,010002	0,061651
18	0,030482	0,031990	0,029399	0,059096	-0,023280	0,086836	0,033574	0,004926	0,060355
19	0,022224	0,013543	0,030070	0,016762	-0,029804	0,085778	-0,010387	0,003293	0,048801
20	0,018577	0,050119	0,044123	0,047850	0,005174	0,042491	-0,018029	0,044512	0,088131

Appendix VIII: Weekly Portfolio Returns and Market Risk Premium (Test Period 2001-2002)

Date	01.05.01	01.12.01	01.19.01	01.26.01	02.02.01	02.09.01	02.16.01	02.23.01	03.02.01	03.09.01	03.16.01	03.23.01	03.30.01	04.06.01	04.13.01	04.20.01	04.27.01	05.04.01	05.11.01
T-bill (Infl.Adj)	0,00766522	0,00749532	0,00753976	0,00750578	0,00698664	0,00697125	0,00696611	0,0069674	0,0077181	0,000000	0,00766786	0,00762819	0,00758324	0,00966097	0,009574	0,00963958	0,00952695	0,01039211	0,01032617
ISE 100 Return		0,091384	0,038976	-0,059440	-0,018426	-0,099702	0,063285	-0,197738	0,131085	0,000000	-0,082154	-0,046453	-0,041855	0,026334	0,081952	0,077259	0,246886	0,013392	-0,061756
Rm - Rf		0,083888	0,031437	-0,066946	-0,025412	-0,106673	0,056319	-0,204705	0,123367	0,000000	-0,089822	-0,054082	-0,049439	0,016673	0,072378	0,067620	0,237359	0,003000	-0,072083
Portfolio																			
1		0,107929	0,035944	-0,097898	-0,049082	-0,108458	0,074118	-0,263864	0,154481	0,000000	-0,043553	-0,024189	-0,033116	0,029089	0,065030	0,091587	0,261103	0,029669	-0,052562
2		0,122195	0,046800	-0,075406	-0,028177	-0,117647	0,064566	-0,216935	0,116015	0,000000	-0,037311	-0,011546	-0,040922	0,004027	0,066651	0,082473	0,213615	0,041893	-0,053921
3		0,054393	0,019625	-0,073555	-0,063263	-0,117909	-0,000750	-0,210007	0,217719	0,000000	-0,036129	-0,031616	-0,019083	0,020182	0,054078	0,098252	0,230289	-0,019030	-0,078309
4		0,065623	0,001754	-0,072222	-0,051346	-0,147096	0,043066	-0,209908	0,091988	0,000000	-0,030581	-0,000433	-0,044362	0,023133	0,123371	0,095679	0,201827	0,035294	-0,088336
5		0,087657	0,019526	-0,073991	-0,055082	-0,130660	0,021395	-0,251761	0,254150	0,000000	-0,062427	-0,030621	-0,048556	0,038700	0,063946	0,123598	0,204962	-0,033320	-0,050120
6		0,155311	0,001427	-0,061435	-0,012464	-0,081858	-0,012268	-0,312040	0,167337	0,000000	-0,043994	0,040459	-0,051300	0,012249	0,066646	0,116673	0,159920	-0,050017	0,007888
7		0,104530	0,038162	-0,096794	-0,044677	-0,120446	0,026583	-0,291798	0,165978	0,000000	-0,043377	0,026780	-0,066095	-0,006317	0,068897	0,166792	0,175686	0,035493	-0,013508
8		0,092696	-0,002051	-0,041080	-0,037521	-0,082092	-0,049271	-0,284220	0,117408	0,000000	0,017732	0,018314	-0,051243	-0,004631	0,032166	0,152618	0,156388	-0,070994	-0,026947
9		0,063155	0,022803	-0,087658	-0,048400	-0,139993	0,034992	-0,281242	0,206606	0,000000	0,001657	-0,024499	-0,053994	0,013754	0,073093	0,118510	0,105878	0,027248	0,016683
10		0,084628	-0,051932	-0,071013	-0,044367	-0,125620	0,045754	-0,263047	0,178963	0,000000	-0,025876	0,020566	-0,035170	0,040222	0,013561	0,164793	0,156655	0,011194	-0,050183
11		0,068066	-0,029161	-0,048265	-0,061980	-0,089875	0,025747	-0,291578	0,154672	0,000000	-0,017967	0,009779	-0,019319	-0,004313	0,041869	0,164707	0,146383	-0,009637	-0,059838
12		0,082813	-0,037203	-0,064553	-0,020275	-0,100662	0,045863	-0,258025	0,142068	0,000000	-0,053133	0,032266	-0,030959	0,022173	0,109806	0,136549	0,074576	0,006465	-0,054316
13		0,139689	0,008736	-0,058645	-0,036660	-0,121537	0,038832	-0,282472	0,171802	0,000000	-0,001228	0,018208	-0,055432	0,004850	0,092648	0,132959	0,132721	-0,022281	-0,081127
14		0,108609	0,033563	-0,033214	-0,004825	-0,080905	0,042310	-0,218840	0,100490	0,000000	-0,017090	0,016962	-0,036584	-0,004552	0,053872	0,126805	0,180672	-0,010804	0,018278
15		0,062476	-0,013404	-0,057186	-0,078149	-0,095213	0,009169	-0,260915	0,213446	0,000000	0,099109	-0,027656	-0,017453	0,024449	0,087721	0,105292	0,175565	-0,019187	0,007611
16		0,080135	0,019799	-0,047296	-0,065494	-0,091638	-0,005887	-0,193115	0,080996	0,000000	0,013000	0,047278	-0,023046	-0,013070	0,101106	0,134857	0,170154	-0,013710	-0,022546
17		0,117074	0,011006	-0,063958	-0,064616	-0,116154	0,015249	-0,288863	0,175904	0,000000	0,009304	0,026069	-0,016554	0,029068	0,071839	0,111774	0,138787	0,099497	-0,087578
18		0,110737	0,012763	-0,037497	-0,021487	-0,110035	-0,018957	-0,246167	0,142406	0,000000	-0,024388	0,009825	-0,030214	0,057189	0,055017	0,093035	0,157391	-0,052581	0,023927
19		0,128164	-0,006940	-0,061989	-0,050928	-0,065184	-0,014736	-0,207081	0,096033	0,000000	-0,056578	0,015251	-0,031524	-0,000191	0,038355	0,121906	0,179122	-0,007994	0,019494
20		0,102324	0,002416	-0,021085	-0,048133	-0,055751	0,061616	-0,167921	0,153743	0,000000	-0,002265	0,044518	0,045959	0,076090	0,058006	0,048396	0,164640	-0,052550	-0,048217

Date	05.18.01	05.25.01	06.01.01	06.08.01	06.15.01	06.22.01	06.29.01	07.06.01	07.13.01	07.20.01	07.27.01	08.03.01	08.10.01	08.17.01	08.24.01	08.31.01	09.07.01	09.14.01	09.21.01
T-bill (Infl.Adj)	0,01031738	0,01029101	0,01103044	0,01102594	0,01100193	0,01097941	0,0109614	0,01106703	0,01106102	0,01105801	0,01103696	0,0112641	0,01124896	0,01122473	0,01121867	0,01122473	0,01205915	0,01200314	0,01181023
ISE 100 Return	0,078288	-0,062400	-0,060002	0,074131	-0,024900	-0,062740	0,007569	-0,096968	-0,128695	0,079902	0,008283	0,033877	-0,071915	0,035151	0,031611	-0,017140	-0,025717	-0,193037	-0,082897
Rm - Rf	0,067971	-0,072691	-0,071032	0,063105	-0,035902	-0,073719	-0,003392	-0,108035	-0,139756	0,068844	-0,002754	0,022613	-0,083164	0,023926	0,020392	-0,028364	-0,037777	-0,205040	-0,094707
Portfolio																			
1	0,075718	-0,029874	-0,098923	0,084303	-0,022230	-0,058664	0,001008	-0,095243	-0,148038	0,052936	0,017124	0,020711	-0,101425	0,042279	0,054464	-0,018065	-0,039185	-0,251111	-0,076757
2	0,048080	-0,067922	-0,087345	0,031594	-0,026410	-0,071765	0,006805	-0,076015	-0,115025	0,048648	0,018836	0,019067	-0,077545	0,007824	0,000699	-0,006944	-0,046277	-0,250292	-0,111746
3	0,089546	-0,043859	-0,098487	0,043925	0,028038	-0,044142	0,056993	-0,048029	-0,121855	0,115460	0,004372	0,061709	-0,082977	0,064552	0,015432	-0,021910	-0,023963	-0,272350	-0,107847
4	0,097865	-0,056433	-0,099649	0,032415	0,034268	-0,037190	0,045942	-0,063729	-0,118774	0,063317	0,035840	0,001976	-0,069965	0,025842	0,011136	-0,023920	-0,012582	-0,235443	-0,097043
5	0,084394	0,011450	-0,114339	0,062306	-0,013724	-0,045411	0,031798	-0,074373	-0,133077	0,059958	0,043227	0,045100	-0,081460	0,020310	0,022409	-0,004662	-0,029653	-0,245615	-0,096163
6	0,094269	-0,001853	-0,067152	0,048779	-0,010861	-0,065503	0,070204	-0,090796	-0,089636	0,083272	0,016722	0,028865	-0,074989	0,091498	0,083814	0,017980	0,019757	-0,207495	-0,041412
7	0,066553	0,044820	-0,081799	0,030914	-0,001033	-0,058057	0,023234	-0,047806	-0,102066	0,032265	0,006971	0,035297	-0,034246	-0,021728	0,025049	0,008794	-0,032625	-0,262081	-0,083950
8	0,153017	0,038914	-0,139216	0,041176	0,011054	-0,071133	0,019917	-0,083999	-0,107463	0,065326	0,026943	0,076128	-0,081651	0,043444	0,036522	-0,022765	-0,045611	-0,264510	-0,070346
9	0,073486	-0,040902	-0,104293	0,057436	-0,017996	-0,056489	0,013303	-0,082597	-0,106238	0,035503	-0,007438	-0,002269	-0,027879	-0,027716	0,016694	0,006326	-0,020203	-0,238220	-0,097559
10	0,122778	-0,010251	-0,060574	0,037224	0,020603	-0,045263	0,013739	-0,026101	-0,109758	0,070221	-0,056083	0,031020	-0,035811	0,020468	-0,000015	-0,009734	-0,021859	-0,229682	-0,078211
11	0,098079	0,004020	-0,036296	0,009580	0,012598	-0,037075	0,047381	-0,038429	-0,099663	0,050947	0,010772	0,026531	0,005890	0,020757	0,016931	-0,011727	-0,035261	-0,215223	-0,031674
12	0,013600	0,026515	-0,078621	0,003537	-0,017024	-0,002619	-0,005972	-0,048331	-0,123978	0,031738	0,013027	0,023540	-0,027281	0,020425	0,039807	0,003309	-0,030791	-0,207143	-0,083543
13	0,058608	0,020065	-0,073795	0,044716	-0,030931	-0,054517	0,014838	-0,055550	-0,076077	0,065299	0,044955	0,017103	-0,028043	-0,002622	0,019667	0,026129	-0,053773	-0,249181	-0,042501
14	0,077671	-0,013682	-0,091831	0,039581	0,006777	-0,048906	0,028378	-0,090283	-0,121506	0,023035	0,004972	0,050670	-0,055636	0,011679	-0,005712	0,000113	-0,034798	-0,287375	-0,108856
15	0,123929	0,036358	-0,055144	0,106183	0,024719	-0,048720	0,041206	-0,053846	-0,101878	0,067809	-0,040434	-0,004943	-0,068715	0,007351	0,026982	-0,018702	-0,032435	-0,253289	-0,105903
16	0,063926	0,013455	-0,077249	0,028472	0,001961	-0,050931	0,047015	-0,066115	-0,068584	0,067722	0,027992	0,026570	-0,045911	0,021779	0,035990	-0,015388	-0,033463	-0,215466	-0,033600
17	0,057585	-0,043749	-0,098570	0,038259	0,023574	-0,015695	0,003776	-0,057782	-0,083499	0,014625	0,032015	0,010476	-0,028741	0,017735	0,023594	-0,014904	-0,045584	-0,282062	-0,089582
18	0,050723	0,078699	-0,078973	0,009354	-0,034540	-0,030241	-0,012337	-0,039929	-0,112289	0,035323	-0,018809	0,027926	-0,035876	0,020899	0,025816	0,010441	-0,027624	-0,208028	-0,094994
19	0,062952	0,031665	-0,078266	0,021205	-0,003024	-0,033066	0,045325	-0,050465	-0,084505	-0,014309	0,012047	0,011665	-0,014513	-0,031954	0,041417	0,029825	0,021205	-0,257760	-0,053467
20	0,118317	0,100854	-0,100498	0,061474	-0,008420	-0,020404	-0,007590	-0,082696	-0,092391	0,052468	-0,023304	0,062475	-0,026128	-0,031622	-0,012304	-0,003844	-0,001388	-0,173001	-0,120476

Date	09.28.01	10.05.01	10.12.01	10.19.01	10.26.01	11.02.01	11.09.01	11.16.01	11.23.01	11.30.01	12.07.01	12.14.01	12.21.01	12.28.01	01.04.02	01.11.02	01.18.02	01.25.02	02.01.02
T-bill (Infl.Adj)	0,01175422	0,01262875	0,01258394	0,01259034	0,01258074	0,0126998	0,01267567	0,0126242	0,01265154	0,01265798	0,01283401	0,01281456	0,01283239	0,01282914	0,014105	0,014087	0,014045	0,014092	0,014092
ISE 100 Return	0,042798	-0,003542	0,103969	0,045347	0,116781	0,015432	0,001112	0,120412	0,030189	-0,007320	0,084746	0,007789	-0,003191	0,080149	0,034928	-0,047086	-0,045374	-0,010903	0,038430
Rm - Rf	0,031044	-0,016170	0,091385	0,032756	0,104200	0,002732	-0,011564	0,107788	0,017537	-0,019978	0,071912	-0,005025	-0,016024	0,067319	0,020823	-0,061172	-0,059419	-0,024995	0,024338
Portfolio																			
1	0,003927	-0,003032	0,089010	0,084467	0,129833	0,023918	0,012820	0,145929	0,047837	0,025683	0,094198	-0,001184	0,010404	0,099392	0,040577	-0,044327	-0,022071	-0,001319	0,027184
2	0,038266	0,021279	0,158735	0,056488	0,125267	-0,008395	0,068997	0,108575	0,027690	0,037240	0,058507	0,030880	-0,023194	0,064654	0,049043	-0,025006	-0,035036	-0,017733	0,031025
3	0,026202	-0,006346	0,094518	0,065653	0,126906	0,017021	0,032601	0,085270	0,022851	0,035322	0,093823	0,032994	-0,012720	0,094010	0,038804	-0,065227	-0,024379	-0,034075	0,020035
4	0,042272	-0,010261	0,098404	0,081422	0,107217	0,040796	0,056129	0,078319	0,017045	0,040242	0,070798	0,017708	-0,008510	0,047918	0,044821	-0,080453	-0,008101	-0,053570	0,045516
5	0,042078	0,018932	0,045683	0,106711	0,093706	0,021882	0,073771	0,068651	0,049213	0,005298	0,074465	0,038108	-0,010390	0,109418	0,054092	-0,001887	-0,031340	0,008317	0,022917
6	-0,011717	-0,016453	0,056553	0,040962	0,061335	-0,014470	0,039996	0,079071	0,035293	-0,017419	0,075684	-0,018729	-0,006904	0,048816	0,043742	0,013437	-0,040677	-0,004399	0,028758
7	0,045762	0,012528	0,096923	0,092454	0,093507	0,018872	0,072704	0,064778	0,023354	-0,002497	0,037211	0,010726	-0,008019	0,092521	0,111500	-0,046817	-0,031176	0,003835	0,014602
8	0,013306	0,022029	0,113062	0,072633	0,081005	0,011372	0,054085	0,109632	0,115633	-0,035783	0,036789	0,045189	0,020569	0,028426	0,058558	-0,016329	-0,035966	0,000644	0,016848
9	-0,009425	0,024121	0,108759	0,054570	0,077369	0,078384	0,018886	0,061293	0,030872	0,028494	0,065527	0,026084	-0,022509	0,064306	0,060643	-0,052637	-0,020991	-0,023067	0,022985
10	0,007659	0,034458	0,091820	0,075542	0,090030	0,025656	0,098136	0,031898	0,027193	-0,010247	0,059731	-0,001243	-0,023911	0,085411	0,073202	-0,063811	-0,026906	-0,022601	0,025411
11	0,052793	0,007758	0,095146	0,070979	0,027343	0,011472	0,041879	0,052196	0,047526	0,008257	0,039855	0,060767	-0,037105	0,037460	0,079377	-0,037029	-0,028934	0,003569	0,029575
12	0,003015	0,042569	0,066717	0,052881	0,080587	0,020601	0,103449	0,062258	0,036388	0,023819	0,062048	0,008742	-0,020075	0,051157	0,041016	-0,041467	-0,014695	0,001409	-0,002596
13	0,041285	0,029994	0,144145	0,075863	0,043668	0,021799	0,045954	0,039820	0,039097	-0,043412	0,071663	0,019329	0,010639	0,112302	0,047090	-0,009845	-0,017715	-0,007601	0,019987
14	0,030831	0,029800	0,127494	0,127605	0,074141	-0,004239	0,040973	0,076665	0,060269	-0,004226	0,074676	0,034033	-0,008261	0,056903	0,079358	-0,064140	-0,012527	-0,005511	0,029314
15	0,018263	0,068472	0,130125	0,085088	0,122020	0,043532	0,048003	0,036145	0,036120	-0,053511	0,035211	0,009926	-0,009228	0,041550	0,068362	-0,034754	-0,018183	0,025243	0,020521
16	-0,025111	-0,022820	0,119010	0,084965	0,119427	-0,002721	0,016112	0,067924	0,089362	0,002719	0,026180	0,015625	0,026377	0,102075	0,070500	-0,014356	-0,058851	0,014593	-0,026255
17	0,021487	0,008315	0,124422	0,121152	0,054208	-0,005352	0,085152	0,032948	0,011998	-0,007711	0,048562	0,070971	0,031233	0,042337	0,054411	0,013271	-0,057304	0,005232	-0,003116
18	0,032852	0,014269	0,102315	0,099839	0,070605	-0,006542	0,043715	0,010608	0,017247	-0,007887	0,064360	0,012635	-0,015844	0,054238	0,050768	-0,026754	-0,008330	-0,039274	0,019165
19	0,080251	0,076447	0,053897	0,061782	0,060045	0,008131	0,022552	0,038370	0,070408	-0,009850	0,064704	0,026584	0,003620	0,084761	0,084516	0,060489	-0,029175	0,001245	-0,027391
20	0,078695	0,101494	0,114652	0,070712	0,066847	0,034880	0,031494	0,020065	0,001142	-0,003821	0,074522	-0,005578	0,050939	0,033668	0,039906	-0,012167	-0,047183	0,002087	0,018193

Date	02.08.02	02.15.02	02.22.02	03.01.02	03.08.02	03.15.02	03.22.02	03.29.02	04.05.02	04.12.02	04.19.02	04.26.02	05.03.02	05.10.02	05.17.02	05.24.02	05.31.02	06.07.02	06.14.02
T-bill (Infl.Adj)	0,014099	0,014092	0,014097	0,012565	0,012573	0,012593	0,012598	0,012592	0,010195	0,010171	0,010163	0,010166	0,008925	0,008928	0,008930	0,008925	0,008925	0,008226	0,008226
ISE 100 Return	-0,172578	0,019647	-0,034268	0,033594	0,020200	-0,083073	0,090449	-0,009557	0,015637	0,031262	-0,022246	0,005851	-0,048682	0,014702	-0,092566	0,026450	-0,045115	-0,025548	-0,070024
Rm - Rf	-0,186676	0,005555	-0,048364	0,021029	0,007628	-0,095666	0,077851	-0,022149	0,005442	0,021090	-0,032409	-0,004314	-0,057607	0,005774	-0,101497	0,017526	-0,054039	-0,033774	-0,078250
Portfolio																			
1	-0,203627	0,030053	-0,030128	0,028772	0,012822	-0,094240	0,098332	-0,014844	0,019093	0,055529	-0,039338	0,005687	-0,037236	0,039179	-0,092390	0,074117	-0,045369	-0,029717	-0,036687
2	-0,159507	0,017047	-0,035239	0,024578	0,005785	-0,079691	0,069114	0,015278	0,008878	0,039801	-0,017107	-0,004130	-0,061355	0,015096	-0,112596	0,045615	-0,041395	-0,042847	-0,046950
3	-0,187852	0,038219	-0,017703	0,004666	0,013624	-0,092209	0,062211	-0,000729	0,026939	0,023703	0,002190	-0,002802	-0,032807	0,038981	-0,095843	0,069797	-0,027112	-0,041360	-0,040020
4	-0,170171	0,005006	-0,016742	0,027285	0,024413	-0,080060	0,084451	0,038606	0,005652	0,038787	-0,018914	-0,025381	-0,038818	0,021185	-0,081036	0,032540	-0,028585	-0,026500	-0,042848
5	-0,172530	0,058451	-0,029939	0,014274	-0,009512	-0,082361	0,077255	-0,001410	0,016396	0,012814	-0,014950	-0,027277	-0,028351	0,056826	-0,076441	0,053775	-0,043948	-0,034724	-0,025178
6	-0,184925	0,041030	-0,041408	-0,004245	-0,005760	-0,084316	0,074428	0,012472	0,016157	0,016856	-0,008985	0,008619	-0,024906	0,010364	-0,082262	0,053869	-0,065325	-0,020440	-0,011368
7	-0,170149	0,058600	-0,029995	0,004524	0,002083	-0,056727	0,014797	0,020191	0,000498	0,024094	0,000772	0,012845	-0,013407	0,002935	-0,068259	0,048521	-0,040721	-0,019118	-0,035004
8	-0,178703	0,025682	-0,033940	0,013739	0,008089	-0,036314	0,018592	-0,000813	-0,006978	0,020040	0,007694	-0,019092	0,022322	0,013960	-0,087553	0,070393	-0,029954	-0,017840	-0,059183
9	-0,163915	0,011462	-0,044198	0,035010	-0,011542	-0,096490	0,059219	0,005321	0,019327	0,027787	-0,026613	-0,012250	-0,052021	0,010760	-0,096613	0,041930	-0,075980	-0,044575	-0,029992
10	-0,145631	0,057741	-0,033592	0,014472	0,008561	-0,074349	0,053078	0,022443	-0,005564	0,010850	-0,027935	0,014572	0,003271	-0,015567	-0,089496	0,037887	-0,054935	-0,029743	-0,043981
11	-0,154878	0,064828	-0,027305	0,004513	-0,032884	-0,071065	0,006872	0,009815	0,008498	0,015607	-0,006599	0,016722	-0,038912	0,021069	-0,085240	0,052929	-0,013186	-0,010544	0,010716
12	-0,132947	0,012703	-0,027864	0,002185	0,012556	-0,091237	0,038385	-0,002660	0,011269	0,055257	-0,002523	0,020280	-0,033355	0,014658	-0,058460	0,045125	-0,012779	-0,044457	-0,021838
13	-0,163824	0,029441	-0,026329	0,024696	-0,012563	-0,057663	0,015605	-0,001251	0,010728	0,005538	-0,007392	-0,000962	-0,024738	0,014070	-0,075264	0,060396	-0,053587	-0,002606	-0,036906
14	-0,155262	0,049063	-0,042902	0,021430	-0,001167	-0,083815	0,059521	0,023578	0,015819	0,022418	0,013493	-0,013519	-0,037204	0,026374	-0,108609	0,061316	-0,035261	-0,063159	-0,039584
15	-0,150164	0,042137	-0,027109	0,039170	-0,023768	-0,080361	0,048488	-0,005722	-0,008582	0,007014	-0,016911	0,038068	0,022697	0,009533	-0,045816	0,047490	-0,066812	0,003155	0,012501
16	-0,138084	0,079595	-0,008779	0,008192	0,016082	-0,086230	0,035822	0,010422	0,005663	-0,013041	-0,015706	0,024602	-0,044412	-0,005213	-0,075864	0,048253	-0,015551	-0,009429	-0,058815
17	-0,144258	-0,006668	-0,022369	0,016574	0,004199	-0,059838	0,037751	0,020364	0,007213	0,016349	-0,001615	-0,006013	-0,003724	0,027252	-0,083549	0,048388	-0,048484	-0,039291	0,004501
18	-0,164544	0,029556	-0,027749	0,030663	0,001084	-0,093225	0,052841	-0,015106	-0,007823	0,000560	-0,012007	0,034625	0,035935	0,050337	-0,070456	0,076041	-0,045285	-0,017847	-0,031627
19	-0,187546	0,068032	-0,030791	0,031476	-0,017395	-0,062860	0,048356	-0,022552	0,000125	0,038508	-0,022734	0,034287	0,039091	0,008779	-0,067589	0,056413	-0,037462	-0,039954	0,012900
20	-0,121700	0,066290	-0,036906	0,009529	-0,005182	-0,037198	0,031804	0,011307	0,007054	-0,025303	-0,025720	0,021795	-0,037319	-0,021260	-0,106583	0,071428	-0,049514	-0,019371	-0,030213

Date	06.21.02	06.28.02	07.05.02	07.12.02	07.19.02	07.26.02	08.02.02	08.09.02	08.16.02	08.23.02	08.30.02	09.06.02	09.13.02	09.20.02	09.27.02	10.04.02	10.11.02	10.18.02	10.25.02
T-bill (Infl.Adj)	0,008220	0,008215	0,007962	0,007964	0,007960	0,007954	0,007760	0,007739	0,007747	0,007747	0,007747	0,007127	0,007136	0,007140	0,007127	0,006417	0,006429	0,006440	0,006449
ISE 100 Return	-0,026123	0,017144	-0,003071	0,015729	0,097569	-0,039325	0,068369	-0,034534	-0,048577	-0,059371	0,020899	0,011042	-0,042763	0,008174	-0,049125	0,006119	0,041066	0,062153	0,050012
Rm - Rf	-0,034343	0,008929	-0,011033	0,007766	0,089609	-0,047280	0,060608	-0,042273	-0,056324	-0,067118	0,013152	0,003915	-0,049899	0,001033	-0,056253	-0,000298	0,034637	0,055713	0,043563
Portfolio																			
1	-0,014124	0,023445	-0,016117	-0,041874	0,096781	-0,025850	0,071306	-0,035194	-0,070642	-0,060863	0,002104	-0,025557	-0,041214	0,003487	-0,063623	0,020631	0,035033	0,056480	0,044086
2	-0,012344	0,029489	0,000830	0,012857	0,133523	-0,035848	0,091975	-0,015662	-0,012352	-0,024869	0,015895	0,018927	-0,078412	0,021912	-0,045816	0,009707	0,037729	0,055078	0,044610
3	0,013069	0,047473	-0,023055	-0,027633	0,075808	-0,004658	0,040515	0,003418	-0,055496	-0,070379	-0,001347	0,002066	-0,087020	0,022647	-0,092116	0,014947	0,029771	0,062959	0,044246
4	-0,004816	0,062858	0,002191	0,041956	0,032966	-0,031798	0,063752	-0,026792	-0,037362	-0,060758	0,012157	0,006308	-0,056070	0,008416	-0,042919	0,023340	0,006264	0,055652	0,009622
5	-0,016873	0,012595	-0,027811	-0,031875	0,067762	0,039784	0,063116	-0,026399	0,007172	-0,052221	0,002393	-0,006992	-0,046068	0,044306	-0,030030	0,005667	0,030425	0,010738	0,033663
6	-0,041215	0,010170	-0,045273	0,000465	0,043094	-0,026241	0,078266	0,002982	-0,033759	-0,026277	-0,008519	0,035552	-0,060661	0,035263	-0,015921	0,008533	0,012630	0,066049	0,031673
7	0,000713	0,000180	0,003668	-0,005733	0,039545	-0,023540	0,053474	0,000852	-0,020871	-0,028985	0,011898	-0,004003	-0,053851	0,017115	-0,040400	0,007411	0,005924	0,031187	0,028531
8	-0,028106	-0,011100	-0,008779	-0,031431	0,071926	0,019881	0,059949	0,014966	-0,025588	-0,018642	-0,024231	0,002876	-0,017464	0,027524	-0,029859	-0,006554	0,050785	0,052495	0,035505
9	-0,000707	-0,004822	-0,041078	-0,029567	0,050266	0,032601	0,050960	-0,012432	-0,054555	-0,016518	0,011071	-0,028240	-0,031655	0,045694	-0,018574	-0,007001	0,034325	0,047887	0,084366
10	-0,005854	0,002916	-0,003395	0,028370	0,060968	-0,018726	0,064383	0,011862	-0,005634	-0,031149	0,003192	0,000088	-0,042872	0,029815	-0,003379	0,021256	0,007683	0,027664	0,040530
11	0,024839	0,058036	0,006914	0,032208	0,062821	0,024643	0,019043	0,002082	0,002369	-0,009522	0,008207	0,015519	-0,000831	-0,003838	-0,060019	0,028873	0,036563	0,030477	0,035309
12	-0,028929	0,034662	-0,028493	-0,003451	0,049939	-0,001484	0,038916	0,060426	-0,048689	-0,046007	-0,006057	-0,011172	-0,029710	0,023717	-0,012767	0,021855	-0,005820	0,024640	0,049088
13	-0,007102	-0,012586	0,027183	-0,006646	0,067155	0,049245	0,079464	-0,058812	-0,020057	-0,045830	0,022794	-0,017398	-0,040522	0,009582	-0,028827	0,026872	0,041693	0,032142	0,041286
14	-0,027051	0,008167	-0,045246	-0,011459	0,062988	0,010828	0,066933	0,003236	-0,027232	-0,035492	0,002502	0,018970	-0,025957	0,036514	-0,034372	0,036340	0,001497	0,012150	0,055547
15	0,010745	0,004627	0,005489	-0,025717	0,055208	-0,011177	0,042325	-0,019743	-0,024887	0,003963	0,014398	-0,016588	-0,049104	0,012847	-0,028005	0,013639	-0,001720	0,013824	0,067741
16	-0,004427	0,010772	-0,047113	-0,013038	0,062381	0,018710	0,043763	-0,018786	-0,015095	-0,031238	0,009581	0,014759	-0,044116	-0,001876	-0,029990	0,013534	0,002776	0,012981	0,050882
17	-0,006651	-0,026565	-0,009993	-0,008609	0,065155	-0,004721	0,087015	0,002261	-0,050465	-0,038420	-0,006242	0,024336	-0,040657	0,015524	-0,040535	-0,002188	0,018369	0,040663	0,051335
18	0,021456	-0,021660	0,025143	0,075942	0,053058	0,014864	0,096032	0,029389	0,031675	-0,035831	0,002193	-0,007662	-0,029967	0,020067	-0,016945	0,000377	0,023472	0,056013	-0,032008
19	-0,016835	0,006923	-0,013223	-0,016470	0,028826	0,058177	0,018143	0,027317	0,015734	0,004351	0,012657	-0,008415	-0,018970	0,011598	-0,019764	0,000491	0,016501	0,016694	0,011941
20	-0,004481	0,031363	-0,019407	-0,013979	0,036774	-0,018383	0,030879	0,007878	-0,012941	-0,034065	0,033132	0,029622	-0,061177	-0,047173	-0,057427	0,041447	0,040562	0,000542	0,006393

Date	11.01.02	11.08.02	11.15.02	11.22.02	11.29.02	12.06.02	12.13.02	12.20.02	12.27.02
T-bill (Infl.Adj)	0,006096	0,006061	0,006005	0,006009	0,006010	0,005624	0,005620	0,005621	0,005617
ISE 100 Return	-0,018876	0,257805	0,028025	-0,007099	-0,014998	-0,005581	-0,013622	-0,144988	-0,075667
Rm - Rf	-0,024972	0,251745	0,022020	-0,013108	-0,021008	-0,011204	-0,019242	-0,150609	-0,081284
Portfolio									
1	-0,028571	0,346359	0,028508	-0,023920	-0,035156	0,006788	-0,015588	-0,202526	-0,095341
2	-0,005709	0,267175	0,023523	0,021898	-0,013806	-0,001110	-0,018861	-0,145761	-0,097248
3	-0,024235	0,248972	0,055972	0,051694	-0,013235	0,002422	0,015067	-0,149411	-0,110794
4	-0,023276	0,223685	0,030777	0,027515	-0,019793	-0,006685	-0,017846	-0,152814	-0,090458
5	-0,031535	0,239677	0,032430	0,015609	-0,037041	0,006914	0,000954	-0,167362	-0,103436
6	-0,017226	0,267608	0,024674	-0,003985	-0,001515	0,016018	0,009088	-0,187099	-0,097443
7	0,013670	0,219887	-0,015033	0,008750	-0,023974	0,017870	0,008954	-0,106423	-0,100724
8	-0,001832	0,263355	0,035480	0,010964	0,004174	0,013500	0,008931	-0,184859	-0,094711
9	-0,000309	0,208074	0,033892	0,032142	-0,022012	0,007644	-0,032380	-0,183242	-0,096512
10	-0,006565	0,173067	0,002602	0,033783	-0,003630	-0,006279	0,000271	-0,133376	-0,091705
11	0,014653	0,155902	0,016071	-0,000404	-0,014288	0,012130	0,003917	-0,143034	-0,038561
12	-0,014331	0,141060	0,022836	0,056880	-0,001581	0,017531	0,007907	-0,101026	-0,073583
13	0,018142	0,192586	0,014059	0,034971	-0,007517	0,036888	-0,037070	-0,152250	-0,121330
14	0,004441	0,192143	-0,005574	0,017573	0,026674	0,019117	0,004187	-0,150948	-0,078686
15	0,008522	0,149522	0,011448	0,038388	-0,029369	0,010638	0,010076	-0,158292	-0,107858
16	0,015524	0,237602	-0,002508	0,019965	0,012554	0,010844	0,020935	-0,158589	-0,076494
17	0,016156	0,192533	0,018255	0,028294	-0,008888	0,024129	-0,001917	-0,155359	-0,099975
18	-0,038625	0,111749	-0,021750	0,012781	-0,056370	0,039808	-0,012252	-0,144317	-0,071977
19	0,010022	0,132870	-0,020275	0,016601	-0,008702	0,014312	-0,026971	-0,116584	-0,084292
20	0,003580	0,175920	0,001418	-0,035728	0,061456	0,001197	-0,008684	-0,119684	-0,017113

Appendix IX: Weekly Portfolio Returns and Market Risk Premium (Test Period 2002-2003)

Date	01.04.02	01.11.02	01.18.02	01.25.02	02.01.02	02.08.02	02.15.02	02.22.02	03.01.02	03.08.02	03.15.02	03.22.02	03.29.02	04.05.02	04.12.02	04.19.02	04.26.02	05.03.02	05.10.02
T-bill (Infl.Adj)	0,014105	0,014087	0,014045	0,014092	0,014092	0,014099	0,014092	0,014097	0,012565	0,012573	0,012593	0,012598	0,012592	0,010195	0,010171	0,010163	0,010166	0,008925	0,008928
ISE 100 Return		-0,047086	-0,045374	-0,010903	0,038430	-0,172578	0,019647	-0,034268	0,033594	0,020200	-0,083073	0,090449	-0,009557	0,015637	0,031262	-0,022246	0,005851	-0,048682	0,014702
Rm - Rf		-0,061172	-0,059419	-0,024995	0,024338	-0,186676	0,005555	-0,048364	0,021029	0,007628	-0,095666	0,077851	-0,022149	0,005442	0,021090	-0,032409	-0,004314	-0,057607	0,005774
Portfolio																			
1		-0,046116	-0,011353	-0,005151	0,015108	-0,196157	0,015143	-0,015106	0,026035	0,018152	-0,082358	0,088310	0,001090	0,017279	0,054060	-0,039023	-0,004019	-0,044338	0,019632
2		-0,044819	-0,030548	-0,020478	0,052823	-0,148528	0,037031	-0,032163	0,037112	0,002590	-0,082213	0,098482	-0,015587	0,025110	0,048967	-0,011877	0,000935	-0,071717	0,028714
3		-0,008790	-0,053300	-0,009441	0,044469	-0,160737	0,027350	-0,047445	0,016626	0,009365	-0,107582	0,091411	0,048096	0,019520	0,059714	-0,031148	-0,005436	-0,044289	-0,028255
4		-0,044342	0,029074	-0,014327	0,040009	-0,170336	0,044153	-0,036287	0,012202	-0,016473	-0,061091	0,026271	0,014281	-0,015140	0,008464	-0,021355	0,003438	-0,030884	0,063300
5		-0,055722	-0,033355	-0,023963	0,007043	-0,217536	0,015475	-0,058307	0,041586	0,023453	-0,087984	0,079988	0,000414	0,010956	0,024076	-0,005282	-0,025245	-0,022446	-0,005329
6		0,006249	-0,023586	-0,020379	0,024649	-0,192228	0,038405	-0,058633	-0,008939	0,005104	-0,073861	0,057677	0,004883	0,006525	0,000846	0,001138	-0,009589	-0,016694	0,076380
7		-0,045943	-0,012685	-0,009055	0,032025	-0,106051	0,017241	-0,028093	0,015851	0,011533	-0,089342	0,055962	0,008460	-0,010177	0,010143	-0,003422	-0,002163	0,022125	-0,015652
8		-0,040609	-0,043179	-0,003231	0,012592	-0,145771	0,049649	0,001062	0,016414	-0,008669	-0,086129	0,050498	-0,022861	0,010987	0,019533	-0,037554	0,000083	-0,025802	-0,002865
9		-0,057298	0,027086	-0,023237	0,042402	-0,165813	0,041880	-0,016980	-0,010259	0,002201	-0,076462	0,040505	-0,010081	0,007120	0,029995	0,006471	0,020101	-0,007536	0,066243
10		-0,039706	-0,003701	-0,009220	0,068906	-0,131967	0,039781	-0,035656	0,018893	-0,032061	-0,017503	0,020833	0,018218	-0,009482	-0,001538	-0,014480	0,014989	-0,048883	0,008337
11		0,049571	-0,066026	0,063566	0,021676	-0,156542	0,054487	-0,032786	0,027724	-0,026908	-0,046236	0,089813	-0,012730	-0,008852	0,015811	0,029664	0,001457	-0,076465	-0,000744
12		-0,059559	-0,025372	-0,003151	0,020504	-0,192073	0,052897	-0,028059	0,001730	-0,018114	-0,093821	0,043653	0,012800	0,039433	-0,002902	-0,040398	0,003722	-0,017415	0,023287
13		0,003748	-0,027594	-0,015452	0,015515	-0,143511	0,025159	-0,021394	0,028110	-0,004215	-0,096893	0,021322	0,000460	-0,000638	0,011069	-0,018685	0,023846	0,020039	0,053173
14		-0,064034	-0,054002	-0,013752	-0,016843	-0,185678	0,042002	-0,008006	0,006158	-0,004141	-0,086380	0,055063	0,012437	0,002899	0,014049	0,009807	-0,024690	-0,029030	0,022922
15		-0,010104	0,000419	-0,035203	-0,020422	-0,135843	0,060903	-0,032173	0,039315	0,019255	-0,068589	0,043744	-0,002210	0,011504	0,010005	-0,011026	-0,007320	-0,019409	0,017239
16		0,016528	-0,019189	0,032586	0,016798	-0,162744	0,051798	-0,023237	0,041858	-0,003098	-0,067383	0,047441	-0,008607	-0,009304	0,010867	0,006154	0,012787	-0,008386	0,003840
17		-0,054460	-0,026031	-0,020471	0,027093	-0,184919	0,040077	-0,031024	0,015535	-0,007136	-0,055223	0,009756	0,012704	-0,008757	0,014756	-0,016503	0,034189	-0,034153	0,025227
18		-0,003330	-0,001596	0,022572	-0,034981	-0,146706	0,025383	-0,025118	0,014942	-0,002821	-0,076683	0,031773	0,002958	0,001243	0,028978	-0,002634	0,037109	0,010966	-0,010466
19		-0,001050	-0,059585	-0,002448	0,006222	-0,162828	0,010510	-0,009847	0,012680	-0,010482	-0,059032	0,044600	0,001879	0,030407	0,003619	-0,011255	0,053403	-0,004912	0,012256
20		0,035110	-0,048886	-0,012672	0,004320	-0,183662	0,082508	-0,040462	0,022911	-0,022414	-0,025354	0,027651	0,017482	-0,002011	0,009874	-0,015103	-0,012028	-0,020673	-0,032324

Date	05.17.02	05.24.02	05.31.02	06.07.02	06.14.02	06.21.02	06.28.02	07.05.02	07.12.02	07.19.02	07.26.02	08.02.02	08.09.02	08.16.02	08.23.02	08.30.02	09.06.02	09.13.02	09.20.02
T-bill (Infl.Adj)	0,008930	0,008925	0,008925	0,008226	0,008226	0,008220	0,008215	0,007962	0,007964	0,007960	0,007954	0,007760	0,007739	0,007747	0,007747	0,007747	0,007127	0,007136	0,007140
ISE 100 Return	-0,092566	0,026450	-0,045115	-0,025548	-0,070024	-0,026123	0,017144	-0,003071	0,015729	0,097569	-0,039325	0,068369	-0,034534	-0,048577	-0,059371	0,020899	0,011042	-0,042763	0,008174
Rm - Rf	-0,101497	0,017526	-0,054039	-0,033774	-0,078250	-0,034343	0,008929	-0,011033	0,007766	0,089609	-0,047280	0,060608	-0,042273	-0,056324	-0,067118	0,013152	0,003915	-0,049899	0,001033
Portfolio																			
1	-0,100393	0,069026	-0,047503	-0,043584	-0,046891	-0,006671	0,035568	-0,031253	-0,018232	0,086230	-0,036812	0,078648	-0,033292	-0,050350	-0,053614	-0,003971	-0,029808	-0,041070	0,014050
2	-0,108056	0,057005	-0,050014	-0,038761	-0,030751	-0,001467	0,054771	-0,016102	-0,024869	0,094820	-0,037271	0,075683	-0,037213	-0,034914	-0,058805	0,024017	0,016950	-0,058702	0,029446
3	-0,116852	0,036558	-0,052512	-0,037328	-0,027013	-0,011414	0,032285	0,027192	0,045356	0,093379	-0,018506	0,077548	-0,017749	-0,028546	-0,028076	0,019538	0,013256	-0,079722	0,014865
4	-0,074741	0,065115	-0,062297	-0,021033	-0,028655	-0,005938	0,018088	-0,010884	-0,024337	0,038121	0,046992	0,086238	-0,002172	-0,041507	-0,016004	0,005857	0,015622	-0,066426	0,014985
5	-0,104324	0,066629	-0,037269	-0,046818	-0,054699	-0,020382	0,018399	-0,012863	-0,028002	0,058971	-0,002700	0,057701	-0,013591	-0,054419	-0,030895	-0,013405	-0,003060	-0,061508	0,040564
6	-0,062113	0,054131	-0,012618	-0,027212	-0,035871	-0,012256	0,013856	-0,012949	-0,009618	0,043211	0,023711	0,059367	-0,021587	-0,027053	-0,020491	0,014464	0,018685	-0,056075	-0,013288
7	-0,087654	0,044768	-0,062140	0,010214	0,000459	-0,002945	0,009822	0,025046	0,025111	0,049848	0,017710	0,062374	0,013319	0,036613	-0,052896	-0,012601	0,008558	-0,030728	0,050096
8	-0,060765	0,046943	-0,046553	-0,036408	-0,067065	-0,032214	0,016909	-0,018750	0,016379	0,083817	-0,011784	0,062282	0,004538	-0,012747	-0,014789	0,004263	-0,001213	-0,058430	0,035475
9	-0,088258	0,049539	-0,018814	-0,018377	0,045608	0,045176	0,058359	-0,017063	0,019791	0,086796	0,022659	0,068302	-0,016663	-0,045888	-0,037560	-0,005571	0,017327	-0,048821	0,024508
10	-0,079268	0,067544	-0,016118	-0,031951	-0,065322	0,014782	-0,011824	-0,024014	-0,003582	0,071364	0,018565	0,051076	-0,000635	0,008422	-0,014632	-0,010242	0,007379	0,013033	0,029085
11	-0,073647	0,072650	-0,027892	-0,038480	0,009788	0,021200	-0,024017	-0,067330	-0,040593	0,071422	-0,018217	0,050288	-0,000415	-0,002229	-0,010100	0,027037	0,009410	-0,033267	0,064713
12	-0,080386	0,045204	-0,060171	-0,016242	-0,034350	-0,007665	-0,018299	0,037582	0,005547	0,038717	-0,005193	0,040596	0,015972	-0,037383	-0,045667	-0,016764	-0,007280	-0,037797	0,051039
13	-0,109168	0,064363	-0,037837	-0,032025	-0,013717	0,001758	0,005959	-0,061851	-0,001060	0,069825	-0,002662	0,085920	0,022491	-0,025254	-0,055782	0,029843	-0,008172	-0,059845	-0,002698
14	-0,096134	0,057005	-0,038462	-0,039710	-0,057864	-0,017047	0,028291	-0,036113	-0,018094	0,073777	-0,004620	0,052615	0,024121	-0,036753	-0,039452	0,000404	0,007508	-0,032738	0,002749
15	-0,078867	0,058530	-0,024827	-0,050718	-0,046605	-0,013687	0,025279	-0,034871	-0,007429	0,027527	0,005112	0,023774	0,000177	-0,002359	-0,030452	0,017794	-0,011447	-0,025127	0,008028
16	-0,071706	0,076364	-0,062661	0,024776	-0,019274	0,004733	-0,027839	0,010160	-0,019825	0,033962	0,020611	0,057422	-0,035143	-0,024660	-0,014136	-0,016939	-0,000703	-0,038919	-0,005708
17	-0,081658	0,078509	-0,042396	-0,006244	-0,033585	0,012646	-0,015877	0,002575	0,031101	0,095865	0,023447	0,077168	0,032729	-0,060942	-0,071341	0,023275	0,003392	-0,024296	0,009217
18	-0,047915	0,020665	-0,058614	-0,027828	-0,029038	0,015231	0,009382	-0,008455	0,008049	0,066513	0,004547	0,044888	0,015981	-0,004812	-0,015434	-0,007907	0,008508	-0,022773	0,019526
19	-0,048284	0,067390	-0,045277	-0,049039	-0,003376	-0,004205	0,022188	-0,012721	0,005382	0,029718	0,005151	0,043372	0,012234	-0,004864	-0,037937	0,004742	0,012380	-0,037176	0,008959
20	-0,078999	0,048113	-0,020925	-0,023096	0,009285	-0,020912	0,014505	-0,018548	-0,025185	0,022438	0,055726	0,012806	0,009894	-0,010804	0,005779	0,018305	-0,006554	-0,047668	-0,013635

Date	09.27.02	10.04.02	10.11.02	10.18.02	10.25.02	11.01.02	11.08.02	11.15.02	11.22.02	11.29.02	12.06.02	12.13.02	12.20.02	12.27.02	01.03.03	01.10.03	01.17.03	01.24.03	01.31.03
T-bill (Infl.Adj)	0,007127	0,006417	0,006429	0,006440	0,006449	0,006096	0,006061	0,006005	0,006009	0,006010	0,005624	0,005620	0,005621	0,005617	0,00480284	0,00480284	0,00480162	0,00479676	0,0047919
ISE 100 Return	-0,049125	0,006119	0,041066	0,062153	0,050012	-0,018876	0,257805	0,028025	-0,007099	-0,014998	-0,005581	-0,013622	-0,144988	-0,075667	0,035079	-0,060230	0,014040	0,045113	0,018864
Rm - Rf	-0,056253	-0,000298	0,034637	0,055713	0,043563	-0,024972	0,251745	0,022020	-0,013108	-0,021008	-0,011204	-0,019242	-0,150609	-0,081284	0,030276	-0,065033	0,009239	0,040317	0,014072
Portfolio																			
1	-0,075860	0,001421	0,035586	0,052989	0,071490	-0,017609	0,325689	0,023476	-0,031459	-0,036665	0,004843	-0,014879	-0,213491	-0,101859	0,053201	-0,048784	0,007969	0,033749	0,021192
2	-0,052117	0,024042	0,058500	0,059476	0,017013	-0,028183	0,259902	0,069084	0,016788	-0,001684	-0,006626	-0,015854	-0,171780	-0,086260	0,028381	-0,058432	0,032267	0,045023	0,015459
3	-0,054565	0,034158	0,017320	0,049361	0,029234	0,002523	0,259674	0,038293	0,003108	0,003757	-0,004525	-0,011367	-0,145735	-0,101175	0,037663	-0,052581	0,018251	0,028472	0,029769
4	-0,045112	0,005535	0,003882	0,029044	0,032206	-0,024535	0,234891	0,010823	0,032605	-0,030264	0,003510	0,023973	-0,065323	-0,131116	0,033623	-0,070990	-0,020938	0,042120	0,038449
5	-0,041608	0,008433	0,018935	0,053799	0,067211	-0,020795	0,274752	0,014583	0,020093	-0,016815	0,013374	-0,022416	-0,152705	-0,118800	0,051803	-0,045858	0,000739	0,017538	0,014203
6	-0,034653	0,035460	0,005460	0,055495	0,012034	0,000811	0,239571	0,032135	0,010362	-0,025026	0,005893	0,010785	-0,160855	-0,110615	0,054404	-0,053494	0,005453	0,019861	0,034381
7	0,007601	-0,030219	0,024855	0,027752	0,019645	-0,015357	0,182508	0,018957	0,026376	-0,021835	-0,001587	-0,007229	-0,149272	-0,093594	0,037510	-0,051857	0,012186	0,048156	0,018533
8	-0,051257	0,013564	0,036808	0,044889	0,076235	-0,000946	0,238499	0,022604	-0,015483	-0,010934	0,008222	-0,008155	-0,162011	-0,104463	0,024960	-0,047612	-0,000049	0,022675	-0,009489
9	-0,038828	0,002124	0,020501	0,062768	0,052913	-0,022360	0,118632	0,014253	0,043180	0,003218	0,052395	0,022794	-0,165287	-0,114637	0,052778	-0,087223	-0,024852	0,015716	0,042328
10	-0,056034	-0,013824	0,019626	0,034657	0,027773	0,022295	0,194242	0,035112	0,042842	-0,024468	0,002168	0,010053	-0,130354	-0,041566	0,004919	-0,038516	-0,005683	0,028636	-0,020471
11	-0,081049	-0,004928	0,025229	0,036614	0,048267	-0,004618	0,214305	0,003719	0,011024	-0,048240	0,029254	0,002507	-0,181020	-0,070722	0,033897	-0,025237	-0,004017	0,035782	0,047533
12	-0,029593	-0,001867	0,015960	0,020384	0,067393	-0,002232	0,201497	0,006919	0,003425	-0,034014	0,007717	-0,011187	-0,155980	-0,102584	0,054659	-0,058424	-0,001437	0,012729	0,026645
13	-0,032828	0,039679	0,008709	0,030027	0,059542	0,014964	0,203548	-0,014270	0,014246	0,005899	0,033915	-0,016775	-0,138614	-0,044716	0,016629	-0,052846	0,016560	0,019288	0,010120
14	-0,012035	0,042776	-0,003323	0,043835	0,051617	-0,004584	0,190352	0,003158	0,017992	0,005495	0,032401	0,036546	-0,156514	-0,079845	0,017067	-0,043373	-0,001482	0,002634	0,034400
15	-0,006624	0,034620	0,007776	0,015431	0,040600	0,017224	0,159058	0,018711	0,018283	0,015705	-0,000862	-0,006158	-0,103627	-0,034666	0,040340	-0,064206	0,030926	0,028060	-0,001185
16	-0,035036	0,027661	0,030371	0,030366	0,024213	0,015685	0,216565	-0,006427	0,033680	-0,005961	0,025284	-0,033864	-0,138106	-0,116145	0,027542	-0,012214	0,043299	0,000641	0,004300
17	-0,052071	0,008173	0,003151	0,031992	0,008822	-0,044481	0,151561	-0,006271	0,045874	-0,027635	0,032407	-0,012431	-0,153955	-0,106741	0,072266	-0,024421	-0,025824	0,026931	0,001372
18	-0,034016	-0,004445	0,004438	0,036988	0,002119	0,011950	0,110800	0,003058	0,017151	-0,037401	-0,006347	-0,006099	-0,142067	-0,049047	0,024489	-0,062898	-0,001535	0,020316	0,029152
19	-0,023092	0,003235	0,026519	0,019160	0,029401	0,019998	0,131798	0,017788	0,035967	0,000120	0,019765	-0,002459	-0,160118	-0,074548	0,004609	-0,046790	0,008359	0,023056	0,019383
20	-0,035642	0,038533	0,034882	0,004382	0,038341	-0,007207	0,186402	-0,011476	-0,018000	0,041341	0,012133	-0,012010	-0,119482	-0,040043	0,017342	-0,054922	-0,001429	0,015796	0,047256

Date	02.07.03	02.14.03	02.21.03	02.28.03	03.07.03	03.14.03	03.21.03	03.28.03	04.04.03	04.11.03	04.18.03	04.25.03	05.02.03	05.09.03	05.16.03	05.23.03	05.30.03	06.06.03	06.13.03
T-bill (Infl.Adj)	0,00491467	0,000000	0,00491589	0,00491955	0,00537549	0,00534562	0,00536055	0,00536926	0,00537723	0,00536478	0,0053735	0,00538096	0,0056252	0,00561514	0,00560886	0,00560257	0,00559	0,0054235	0,005426
ISE 100 Return	-0,001651	0,000000	0,065042	-0,015394	-0,054429	-0,033110	-0,119852	0,023624	0,078217	0,014385	0,063093	0,007731	-0,003591	-0,060208	-0,031909	0,070245	0,028986	-0,036510	-0,023935
Rm - Rf	-0,006566	0,000000	0,060126	-0,020314	-0,059805	-0,038456	-0,125213	0,018255	0,072840	0,009020	0,057720	0,002350	-0,009216	-0,065823	-0,037517	0,064643	0,023396	-0,041933	-0,029361
Portfolio																			
1	-0,010792	0,000000	0,082862	-0,009051	-0,060365	-0,033752	-0,132458	0,024255	0,067143	0,062584	0,063203	0,013728	-0,009676	-0,043721	-0,050223	0,074516	0,020417	-0,065021	-0,023844
2	0,005454	0,000000	0,044633	-0,016763	-0,060966	-0,024174	-0,137626	0,032397	0,081950	0,022544	0,069777	-0,000521	-0,006740	-0,055874	-0,025246	0,069060	0,006646	-0,036261	-0,040243
3	0,011040	0,000000	0,048971	-0,031121	-0,053344	-0,042206	-0,129489	0,029934	0,064268	0,006938	0,097165	0,013583	-0,016731	-0,050630	-0,043974	0,089746	0,052844	-0,053703	-0,014721
4	0,013267	0,000000	0,057100	0,006709	-0,036358	-0,030502	-0,120895	-0,000774	0,075321	0,059670	0,071866	0,007753	0,009530	-0,047337	-0,001131	0,022393	-0,001047	-0,030447	-0,012335
5	-0,014408	0,000000	0,044370	-0,014869	-0,023707	-0,024215	-0,109682	0,029186	0,098861	0,101309	0,071715	0,003724	-0,038113	-0,013002	-0,039946	0,041270	0,017736	-0,044482	-0,032972
6	-0,009969	0,000000	0,087352	0,015712	-0,033995	-0,036013	-0,103764	0,040297	0,078668	0,044329	0,064310	0,007634	-0,009160	-0,069223	0,005445	0,045540	0,001364	-0,052152	0,005566
7	0,002014	0,000000	0,041749	0,017267	-0,031875	0,000743	-0,104958	0,008824	0,063076	0,074206	0,076841	0,009774	0,027770	-0,026904	-0,009918	0,021742	0,004114	-0,019351	-0,003571
8	0,011217	0,000000	0,039981	-0,001773	-0,034611	-0,000753	-0,123495	0,024929	0,095387	0,049019	0,042838	0,003861	-0,008707	-0,036868	-0,059782	0,052646	-0,008356	-0,039850	-0,001376
9	-0,003769	0,000000	0,034293	0,001459	-0,033860	-0,026282	-0,153662	0,026826	0,078915	0,060796	0,072068	0,002805	0,001800	-0,037028	-0,037658	0,048396	0,027465	-0,037486	-0,008536
10	0,001770	0,000000	0,039097	0,010772	-0,027108	-0,026893	-0,106036	0,020388	0,099290	0,101234	0,052754	-0,024826	0,051784	-0,018262	-0,038046	0,027510	-0,000709	0,004495	-0,026614
11	-0,028634	0,000000	0,058848	-0,021132	-0,040790	-0,018787	-0,108787	0,037873	0,078776	0,054724	0,097582	-0,022252	0,011932	-0,029235	0,015564	0,042580	0,022167	-0,050325	0,009536
12	0,011524	0,000000	0,015250	-0,002314	-0,002852	0,001440	-0,117481	0,024943	0,064279	0,055415	0,050087	0,003321	0,048261	-0,031233	0,010588	0,051054	-0,001049	-0,017006	-0,003978
13	-0,016259	0,000000	0,051110	0,021183	-0,016418	0,000274	-0,121728	0,020598	0,093697	0,070797	0,030865	-0,008813	0,037073	-0,020164	-0,036029	0,046923	0,006868	0,006527	-0,024215
14	-0,022247	0,000000	0,039078	0,012092	-0,046919	-0,005205	-0,157689	0,017293	0,088239	0,045628	0,075164	-0,023370	0,060338	-0,037077	-0,062334	0,056644	0,002639	-0,008692	-0,021723
15	-0,032346	0,000000	0,028608	-0,010010	-0,016572	0,002467	-0,073074	-0,012907	0,079005	0,096902	0,058580	0,005493	0,047783	-0,024286	-0,025259	0,032543	-0,006275	0,022647	-0,011558
16	-0,024250	0,000000	0,027265	0,006589	-0,028946	-0,016316	-0,152122	0,012998	0,103327	0,074378	0,027267	0,001181	0,026799	-0,037916	-0,017574	0,059955	-0,018705	0,010961	-0,007802
17	-0,042146	0,000000	0,065438	0,016209	-0,018078	0,008095	-0,102412	0,056845	0,065898	0,054302	0,086574	0,015895	-0,026450	-0,043456	-0,037061	0,071849	0,004575	-0,001907	-0,038881
18	-0,012238	0,000000	0,044846	-0,016269	-0,014761	0,004564	-0,113130	0,029835	0,041292	0,012388	0,044834	-0,004888	0,009174	-0,034947	-0,030364	0,026861	0,002365	0,000261	-0,003014
19	0,006496	0,000000	0,064990	0,023325	-0,011620	0,013844	-0,082653	0,026422	0,073686	0,077318	0,056519	0,018737	0,017272	-0,032420	-0,036806	0,025380	-0,002399	0,011490	-0,001905
20	-0,023647	0,000000	0,053624	0,013365	-0,049445	-0,017254	-0,107431	0,026803	0,061154	0,040732	0,043953	0,009883	-0,010754	0,006263	-0,024002	0,023237	0,010982	-0,026268	-0,048520

Date	06.20.03	06.27.03	07.04.03	07.11.03	07.18.03	07.25.03	08.01.03	08.08.03	08.15.03	08.22.03	08.29.03	09.05.03	09.12.03	09.19.03	09.26.03	10.03.03	10.10.03	10.17.03	10.24.03
T-bill (Infl.Adj)	0,0053998	0,00535863	0,00491264	0,0049298	0,00493102	0,00492857	0,00445235	0,00446437	0,00446437	0,00446316	0,00446437	0,00411079	0,00410842	0,00410014	0,00409896	0,00367918	0,0036757	0,00367221	0,0036757
ISE 100 Return	0,006518	0,018133	-0,044539	-0,004577	0,037724	-0,027597	0,005648	0,084569	0,027227	0,010353	-0,032971	0,001716	0,089056	0,071934	0,006947	0,032284	0,081743	-0,002511	-0,034096
Rm - Rf	0,001118	0,012775	-0,049452	-0,009507	0,032793	-0,032526	0,001196	0,080105	0,022762	0,005890	-0,037436	-0,002395	0,084947	0,067834	0,002848	0,028605	0,078067	-0,006183	-0,037772
Portfolio																			
1	-0,008141	0,011282	-0,085725	-0,016052	0,031052	-0,024133	-0,013228	0,083816	0,022080	0,009530	-0,043416	-0,001054	0,100560	0,075507	0,006510	0,038424	0,096751	-0,025255	-0,026057
2	0,007313	0,006531	-0,048713	0,000306	0,029246	-0,032615	0,011424	0,086611	0,021809	0,010095	-0,038029	0,009192	0,095668	0,077070	0,011348	0,013612	0,066232	0,003548	-0,031403
3	-0,010695	0,003939	-0,069666	-0,012942	0,018909	-0,019020	0,003827	0,074348	0,023399	0,018747	-0,033276	-0,002857	-0,069932	0,059764	0,005242	0,020379	0,119335	-0,006595	-0,026635
4	-0,026457	-0,002907	-0,048399	-0,021313	0,005699	-0,019977	-0,018901	0,067283	0,007159	-0,015652	0,005248	0,018474	0,027187	0,035246	0,007884	0,001934	0,024523	-0,011502	0,010633
5	-0,021984	-0,004974	-0,055475	-0,036790	0,022638	-0,023979	-0,016052	0,050114	0,012567	0,003956	-0,025361	0,006491	0,060218	0,033874	0,007887	0,022051	0,044737	-0,008024	-0,009510
6	-0,016581	0,017068	-0,035691	-0,022678	0,001632	-0,024193	0,007128	0,036674	0,010929	0,004836	-0,003033	-0,016594	0,053624	0,018804	0,003160	-0,004932	0,050937	-0,008248	0,010764
7	-0,004220	0,000854	-0,049784	-0,006988	0,034120	-0,013225	-0,012598	0,041363	0,019453	-0,000087	-0,009752	0,006687	0,014235	0,046163	0,008558	0,014295	0,026536	0,004892	0,006650
8	-0,014609	0,004680	-0,042083	-0,019220	0,010698	-0,028980	-0,008040	0,046176	0,027445	-0,006363	-0,028032	-0,002566	0,049255	0,035348	0,041462	-0,006170	0,083701	-0,014851	-0,019056
9	-0,021814	0,006032	-0,019626	-0,005250	0,012335	-0,022138	-0,000566	0,036957	-0,001261	0,003367	-0,047308	-0,001813	0,028932	0,025888	0,009379	0,021835	0,043123	-0,012493	-0,017577
10	-0,020562	-0,013776	-0,025250	-0,021333	0,023432	-0,036258	-0,022049	0,076396	-0,024562	-0,015893	-0,018942	0,012356	0,050127	0,035001	0,006186	-0,003463	0,051183	0,002738	-0,005752
11	-0,016851	0,009591	-0,002634	-0,042200	0,023431	0,003344	-0,048648	0,024302	-0,010887	-0,012613	-0,019829	0,015919	0,023108	0,030998	0,033876	-0,018513	0,020628	0,014649	0,002282
12	0,004384	-0,008927	-0,033671	-0,037697	0,011508	0,011361	-0,003111	0,045306	-0,000718	-0,013277	-0,021932	0,051342	0,019090	0,045374	0,006459	0,001593	0,033876	-0,009249	0,012359
13	0,007399	0,011869	-0,029145	-0,014342	0,015587	-0,025363	0,014408	0,029710	0,047475	-0,036138	0,019074	0,008240	0,029187	0,027589	0,000275	0,003131	0,053756	-0,002105	0,038289
14	0,001204	-0,001799	-0,051642	-0,017650	0,016917	-0,023245	-0,003283	0,025761	0,010255	0,002808	-0,005125	0,022088	0,015544	0,036710	0,015639	-0,011000	0,018202	0,005357	0,016121
15	0,006190	0,009546	-0,034373	-0,009224	0,015631	-0,036422	-0,009811	0,014085	-0,007460	-0,035981	-0,021684	-0,012605	0,012139	0,029755	0,036903	-0,009062	0,037147	0,005510	0,015518
16	0,007705	0,001007	-0,020403	-0,024126	0,016222	-0,019310	-0,012979	0,042106	-0,017317	0,000614	0,014474	0,002369	0,039145	0,039556	-0,003974	-0,014616	0,043063	-0,017970	0,003243
17	-0,008598	0,026756	-0,061686	0,004695	0,027339	-0,026532	-0,030307	0,034226	0,049938	0,012656	0,010482	-0,009910	0,041638	0,058375	-0,012600	0,002820	0,064577	-0,011849	0,015991
18	-0,014472	0,014251	-0,048420	-0,027583	0,044247	0,002395	-0,003612	0,013825	0,000427	-0,008268	-0,019557	0,020250	0,030591	0,000762	-0,000067	-0,005487	0,032261	-0,003286	0,004492
19	-0,011520	-0,005098	-0,050875	-0,031125	0,033808	-0,012095	0,024855	0,009229	0,001245	-0,009848	0,011366	-0,004533	0,014348	0,022500	0,017097	0,006318	0,072559	0,011419	-0,015568
20	0,048983	-0,008280	-0,030039	-0,007163	0,002274	-0,026099	-0,012734	0,024096	0,022939	0,026241	-0,059749	-0,014811	0,051766	0,060423	-0,015401	0,013721	0,034032	-0,012867	0,013576

Date	10.31.03	11.07.03	11.14.03	11.21.03	11.28.03	12.05.03	12.12.03	12.19.03	12.26.03
T-bill (Infl.Adj)	0,00368034	0,00339094	0,00338979	0,00338979	0,000000	0,00321695	0,00321126	0,00320784	0,00320443
ISE 100 Return	0,058018	-0,002941	0,023443	-0,018862	0,000000	0,044895	0,026923	0,071182	-0,011563
Rm - Rf	0,054338	-0,006332	0,020054	-0,022252	0,000000	0,041678	0,023712	0,067974	-0,014767
Portfolio									
1	0,045474	-0,005966	0,041887	-0,017385	0,000000	0,043039	0,056249	0,090619	-0,013866
2	0,070723	0,001072	0,019788	-0,015859	0,000000	0,073388	0,028571	0,054224	-0,014960
3	0,021128	-0,024177	0,058897	-0,021803	0,000000	0,059419	0,025627	0,060108	0,011476
4	0,005769	0,019632	0,023948	-0,003976	0,000000	0,059500	0,011488	0,048843	0,034502
5	0,020298	-0,012359	0,035470	0,014570	0,000000	0,031453	0,031687	0,049741	0,026694
6	0,017244	0,010550	0,009359	0,003764	0,000000	0,066614	0,041986	0,056735	0,036259
7	0,003306	0,021728	0,017234	-0,006203	0,000000	0,035938	0,011457	0,049705	-0,001565
8	0,023888	-0,015030	0,036440	-0,014570	0,000000	0,055353	0,038264	0,061089	-0,018328
9	0,039436	-0,019560	0,011042	-0,011448	0,000000	0,056706	0,020224	0,049429	0,007205
10	0,007702	-0,028852	0,018514	-0,002143	0,000000	0,032274	0,001960	0,056780	-0,011047
11	-0,004994	-0,027618	0,002773	-0,010539	0,000000	0,038812	0,055911	0,046071	0,019336
12	0,049706	-0,001149	0,038508	-0,002976	0,000000	0,024107	0,006589	0,044855	0,002797
13	0,015712	-0,012006	0,004437	-0,013129	0,000000	0,060205	-0,004042	0,029267	0,004739
14	0,024705	-0,030370	0,011169	-0,011445	0,000000	0,054127	-0,004257	0,048216	0,036166
15	0,006090	-0,007860	0,036376	-0,035274	0,000000	0,038121	0,024890	0,034461	0,064746
16	0,028483	-0,020939	0,019436	0,008186	0,000000	0,071546	0,024190	0,044070	0,004479
17	0,026582	-0,030678	0,005984	-0,013508	0,000000	0,032171	-0,003298	0,035056	0,036250
18	0,007571	0,013074	0,023591	-0,006725	0,000000	0,021043	0,014676	0,044001	0,034724
19	-0,005313	0,014122	0,026982	-0,014784	0,000000	0,038744	0,018719	0,030930	0,034699
20	-0,003329	-0,025361	0,026532	-0,000417	0,000000	0,017564	0,011075	0,009302	0,020440

Appendix X: Weekly Portfolio Returns and Market Risk Premium (Test Period 2003-2004)

Date	01.03.03	01.10.03	01.17.03	01.24.03	01.31.03	02.07.03	02.14.03	02.21.03	02.28.03	03.07.03	03.14.03	03.21.03	03.28.03	04.04.03	04.11.03	04.18.03	04.25.03	05.02.03	05.09.03
T-bill (Infl.Adj)	0,00480284	0,00480284	0,00480162	0,00479676	0,0047919	0,00491467	0,000000	0,00491589	0,00491955	0,00537549	0,00534562	0,00536055	0,00536926	0,00537723	0,00536478	0,0053735	0,00538096	0,0056252	0,00561514
ISE 100 Return		-0,060230	0,014040	0,045113	0,018864	-0,001651	0,000000	0,065042	-0,015394	-0,054429	-0,033110	-0,119852	0,023624	0,078217	0,014385	0,063093	0,007731	-0,003591	-0,060208
Rm - Rf		-0,065033	0,009239	0,040317	0,014072	-0,006566	0,000000	0,060126	-0,020314	-0,059805	-0,038456	-0,125213	0,018255	0,072840	0,009020	0,057720	0,002350	-0,009216	-0,065823
Portfolio																			
1		-0,066307	0,019794	0,036677	0,024917	0,003162	0,000000	0,062557	-0,007829	-0,058143	-0,029965	-0,134263	0,030872	0,066298	0,047322	0,079043	0,000474	-0,016591	-0,052404
2		-0,008768	-0,004040	0,036204	0,000221	-0,015725	0,000000	0,067640	-0,025902	-0,038341	-0,041449	-0,138907	0,015512	0,080619	0,073051	0,059010	-0,004127	-0,006532	-0,069121
3		-0,058528	0,005376	0,016009	0,022436	0,003631	0,000000	0,055142	-0,015064	-0,039833	-0,001659	-0,136956	0,043926	0,067663	0,015839	0,078278	0,009992	0,019625	-0,033907
4		-0,028398	0,018525	0,099657	0,104758	-0,041034	0,000000	0,087574	-0,017958	-0,036851	-0,032120	-0,135746	0,034143	0,061123	0,034121	0,079643	-0,013027	0,004543	-0,053805
5		-0,041841	0,013445	0,049107	-0,004847	0,011947	0,000000	0,053569	-0,029087	-0,020989	-0,023213	-0,098126	0,036250	0,071970	0,044387	0,073879	0,008674	-0,025065	-0,040850
6		-0,052808	-0,000805	0,068028	0,064267	-0,034420	0,000000	0,046581	0,017563	-0,022511	-0,022461	-0,149307	0,020361	0,085185	0,051171	0,066978	-0,009466	-0,015385	-0,037808
7		-0,070028	-0,018403	0,027534	0,002470	0,003324	0,000000	0,053453	0,002977	-0,040051	-0,005245	-0,123390	0,017038	0,064431	0,048515	0,039871	0,008665	0,005701	-0,028424
8		-0,064621	0,003156	0,022080	0,025197	-0,001365	0,000000	0,063929	0,013954	-0,017857	-0,006868	-0,141436	0,033446	0,060686	0,037171	0,081392	0,003402	0,022744	-0,060083
9		-0,072016	0,011316	0,028639	0,044971	-0,023084	0,000000	0,049981	0,012145	-0,053218	-0,022164	-0,119789	0,012640	0,094182	0,074922	0,068836	-0,005900	0,016631	-0,017802
10		-0,055172	-0,002889	0,025299	0,014789	-0,004737	0,000000	0,040996	0,031314	-0,041980	0,004608	-0,108084	0,005836	0,074983	0,063859	0,037717	0,005934	0,014302	-0,028048
11		-0,049563	-0,005071	0,019116	0,029590	-0,008062	0,000000	0,043475	-0,005581	-0,029952	0,035615	-0,089721	0,039682	0,093518	0,065243	0,050606	0,027711	-0,002504	-0,042300
12		-0,010732	-0,016541	0,023596	-0,009397	0,000542	0,000000	0,042025	0,014793	-0,010263	-0,014217	-0,109356	-0,000999	0,076373	0,079607	0,060131	0,018973	0,053590	-0,022717
13		-0,031033	0,020475	0,005678	0,006611	-0,026047	0,000000	0,037197	0,001252	-0,038687	-0,015386	-0,149597	0,020891	0,083946	0,044855	0,078513	-0,013178	0,021158	-0,045895
14		-0,037548	-0,004984	0,013048	0,022252	-0,016732	0,000000	0,043202	-0,003210	-0,000473	-0,004058	-0,109658	0,031804	0,081216	0,066141	0,049190	0,002134	0,047516	-0,060842
15		-0,080433	-0,009345	0,013132	0,019670	0,000961	0,000000	0,030656	-0,006604	-0,032080	-0,003568	-0,132182	0,051509	0,092653	0,031713	0,047074	0,019147	-0,012363	-0,043813
16		-0,065139	0,032470	0,008852	0,044115	-0,023078	0,000000	0,048972	0,001560	-0,025867	-0,013674	-0,105495	0,012353	0,100319	0,063881	0,067612	0,020400	0,014275	-0,014924
17		-0,059140	-0,014441	0,016361	0,021304	-0,041867	0,000000	0,087183	0,011558	-0,031025	-0,005986	-0,136083	0,033103	0,106164	0,070376	0,053524	-0,038715	0,015766	-0,036756
18		-0,055381	0,045181	0,054160	0,023915	-0,004095	0,000000	0,050767	-0,001622	-0,076970	-0,003510	-0,116020	0,018454	0,145759	0,093285	0,075424	-0,039707	-0,009363	-0,022065
19		-0,015031	-0,004221	0,023126	0,034398	0,000185	0,000000	0,037957	0,021392	-0,043831	-0,042199	-0,113263	0,031043	0,051751	0,088448	0,049995	-0,007721	0,014971	-0,003783
20		-0,038704	0,011993	0,022856	0,002532	-0,001216	0,000000	0,016795	-0,005832	-0,011251	-0,009953	-0,070673	0,030620	0,053696	0,056675	0,065469	0,006991	-0,013187	0,024582

Date	05.16.03	05.23.03	05.30.03	06.06.03	06.13.03	06.20.03	06.27.03	07.04.03	07.11.03	07.18.03	07.25.03	08.01.03	08.08.03	08.15.03	08.22.03	08.29.03	09.05.03	09.12.03	09.19.03
T-bill (Infl.Adj)	0,00560886	0,00560257	0,00559	0,0054235	0,005426	0,0053998	0,00535863	0,00491264	0,0049298	0,00493102	0,00492857	0,00445235	0,00446437	0,00446437	0,00446316	0,00446437	0,00411079	0,00410842	0,00410014
ISE 100 Return	-0,031909	0,070245	0,028986	-0,036510	-0,023935	0,006518	0,018133	-0,044539	-0,004577	0,037724	-0,027597	0,005648	0,084569	0,027227	0,010353	-0,032971	0,001716	0,089056	0,071934
Rm - Rf	-0,037517	0,064643	0,023396	-0,041933	-0,029361	0,001118	0,012775	-0,049452	-0,009507	0,032793	-0,032526	0,001196	0,080105	0,022762	0,005890	-0,037436	-0,002395	0,084947	0,067834
Portfolio																			
1	-0,056872	0,071265	0,027501	-0,068036	-0,024380	-0,009109	0,008502	-0,084567	-0,008521	0,036472	-0,025006	0,010786	0,098836	0,023450	0,009490	-0,040502	0,010780	0,094618	0,078168
2	-0,031676	0,064486	0,029491	-0,040307	-0,025705	0,003438	0,011439	-0,045596	-0,002112	0,029926	-0,021103	-0,030674	0,071552	0,036865	0,002658	-0,038967	0,015827	0,089319	0,063041
3	-0,046765	0,059631	0,009952	-0,028307	-0,034149	-0,006762	0,009268	-0,056249	-0,036453	0,025867	-0,032969	0,015045	0,059054	0,001023	-0,005722	-0,015070	-0,007827	0,069068	0,048266
4	-0,061501	0,076267	0,013869	-0,077092	-0,023296	0,006719	0,005931	-0,058642	-0,020661	0,015112	-0,012547	-0,002428	0,054535	0,020973	0,032428	-0,023638	-0,010323	0,088501	0,032280
5	-0,038943	0,053507	-0,012185	-0,036250	-0,020342	-0,013047	-0,009676	-0,036952	-0,023875	0,026117	-0,021127	0,000600	0,047637	0,015861	0,010078	-0,025968	-0,008528	0,072564	0,037740
6	-0,028919	0,051135	0,007228	-0,048837	-0,009084	-0,004639	0,008907	-0,042683	-0,024648	0,026807	-0,016564	0,013605	0,038886	0,007213	0,004654	-0,026925	-0,002112	0,053405	0,021548
7	-0,060530	0,066784	-0,005353	-0,029125	-0,009405	-0,010917	0,003831	-0,032715	-0,016740	0,019156	-0,021073	0,006046	0,047580	0,030948	-0,006401	-0,033085	0,009088	0,042631	0,038748
8	-0,044611	0,045674	0,027027	-0,020104	-0,011252	-0,012375	0,003694	-0,062007	-0,032210	-0,000168	-0,017683	0,007832	0,058394	0,025400	-0,002433	-0,025100	-0,003716	0,029318	0,029580
9	-0,011123	0,034627	0,026831	-0,027209	-0,011465	-0,016249	0,010056	-0,052060	-0,004222	0,017398	-0,022076	-0,034154	0,054583	0,028616	0,010445	-0,012478	-0,004684	0,050911	0,029863
10	-0,015147	0,043587	-0,006001	-0,009025	0,002336	-0,016977	0,003893	-0,032192	-0,041594	0,007109	0,011133	-0,014610	0,023828	-0,013001	-0,001113	-0,013945	-0,008308	0,020866	0,025355
11	-0,042447	0,047677	-0,005990	-0,003488	0,001291	-0,010456	0,001988	-0,011624	-0,041747	0,016769	-0,024407	0,007453	0,000051	0,017797	0,010200	-0,020703	0,011790	0,027101	0,031705
12	-0,017735	0,051975	0,047714	0,052761	-0,012958	-0,000043	-0,014543	-0,037797	-0,035183	0,019898	-0,026878	-0,012429	0,087491	-0,029614	-0,003529	0,029315	0,031192	0,018705	0,073377
13	0,013523	0,043575	0,024980	-0,029040	-0,003611	0,003818	-0,013218	-0,068537	-0,020250	0,035923	-0,027279	-0,015398	0,006696	0,006624	-0,008201	-0,026289	0,022150	0,021872	0,018726
14	-0,030102	0,027436	-0,026185	-0,029689	-0,007127	-0,020491	0,002859	-0,031655	-0,014724	0,020759	-0,027224	0,021264	0,040205	0,000490	-0,002950	-0,023830	0,013593	0,028636	0,046892
15	-0,031460	0,032157	0,001328	-0,020291	-0,043552	-0,005664	-0,007938	-0,063803	-0,010679	0,010692	-0,024723	0,001728	0,024215	0,011271	0,000539	-0,012211	0,025437	0,013516	0,030768
16	0,009931	0,042207	0,021591	0,013197	-0,002629	0,006494	-0,008002	-0,001391	-0,002221	0,022037	-0,040336	-0,032847	0,014269	0,004706	-0,025632	-0,015274	-0,013033	0,007991	0,007446
17	-0,030651	0,002169	-0,013460	-0,032592	-0,032857	-0,014248	0,036214	-0,033491	-0,022408	0,040762	-0,031089	0,003036	0,016733	0,001373	-0,002767	-0,008277	0,017081	0,026692	0,029661
18	-0,043915	0,039827	-0,014789	-0,036660	-0,010007	0,004924	-0,010469	-0,004437	-0,037962	0,003874	-0,025439	-0,008421	0,005465	0,020588	-0,037010	-0,019380	-0,001011	0,023872	0,031447
19	-0,020277	0,021359	-0,023162	-0,019234	-0,017917	0,042583	-0,016422	-0,045963	0,005431	0,025516	-0,004285	-0,027937	0,042315	0,002567	-0,007994	-0,030563	0,011940	0,052098	0,030223
20	-0,014503	0,041817	0,015129	0,008108	-0,001216	-0,018053	0,035430	-0,054911	-0,012104	0,013057	-0,010880	-0,003380	0,010625	-0,003839	-0,019847	-0,013161	-0,012918	0,017951	0,017139

Date	09.26.03	10.03.03	10.10.03	10.17.03	10.24.03	10.31.03	11.07.03	11.14.03	11.21.03	11.28.03	12.05.03	12.12.03	12.19.03	12.26.03	01.02.04	01.09.04	01.16.04	01.23.04	01.30.04
T-bill (Infl.Adj)	0,00409896	0,00367918	0,0036757	0,00367221	0,0036757	0,00368034	0,00339094	0,00338979	0,00338979	0,000000	0,00321695	0,00321126	0,00320784	0,00320443	0,00271368	0,0027215	0,00271032	0,00271144	0,00271479
ISE 100 Return	0,006947	0,032284	0,081743	-0,002511	-0,034096	0,058018	-0,002941	0,023443	-0,018862	0,000000	0,044895	0,026923	0,071182	-0,011563	0,061988	0,039867	-0,085085	0,011783	-0,070399
Rm - Rf	0,002848	0,028605	0,078067	-0,006183	-0,037772	0,054338	-0,006332	0,020054	-0,022252	0,000000	0,041678	0,023712	0,067974	-0,014767	0,059274	0,037146	-0,087795	0,009071	-0,073114
Portfolio																			
1	0,004908	0,029852	0,120010	-0,026359	-0,044434	0,049383	-0,009207	0,030557	-0,022481	0,000000	0,044657	0,051073	0,090307	0,002006	0,063596	0,058242	-0,079746	-0,005683	-0,089082
2	0,014974	0,027191	0,077440	-0,006622	-0,027304	0,044789	-0,010501	0,027743	0,004955	0,000000	0,028036	0,042680	0,053321	-0,016718	0,051167	0,036252	-0,062082	0,018164	-0,075985
3	0,011968	0,006821	0,071773	-0,006970	-0,010751	0,025528	-0,005125	0,020313	-0,026772	0,000000	0,089810	0,033498	0,054001	-0,027360	0,053440	0,032015	-0,035134	0,016378	-0,071685
4	0,002446	-0,006184	0,069873	-0,009408	0,008251	0,012355	0,016143	0,016154	0,011542	0,000000	0,067503	0,022165	0,070331	0,040691	0,063637	0,028922	-0,070818	-0,001093	-0,067458
5	0,025843	0,017199	0,059497	0,002382	-0,013890	0,021915	-0,025215	0,025087	-0,009135	0,000000	0,072829	0,030732	0,090110	-0,014702	0,048970	0,040613	-0,021179	0,024550	-0,072692
6	0,017538	0,004094	0,041295	0,002202	0,009458	0,028333	-0,029485	0,008367	-0,025925	0,000000	0,038328	0,030311	0,092091	0,023689	0,054067	0,048706	-0,021455	0,002883	-0,056894
7	0,010732	-0,005213	0,076099	-0,007029	0,011236	0,028857	0,018355	0,012493	-0,009702	0,000000	0,036893	0,006967	0,051357	-0,005345	0,086663	0,011068	-0,034388	0,018266	-0,035175
8	0,015652	0,025315	0,082007	-0,009876	0,010082	0,014086	-0,004420	0,030174	-0,022976	0,000000	0,063747	0,028970	0,063107	0,001959	0,033943	0,045907	-0,032798	-0,004727	-0,068008
9	0,027648	0,019950	0,043504	-0,000656	0,005364	0,002440	-0,008487	0,064502	-0,024092	0,000000	0,043714	0,060681	0,059537	0,047427	0,054072	0,024299	-0,044630	0,020370	-0,028812
10	0,003293	-0,012372	0,045282	-0,011801	0,016303	0,023772	-0,027257	0,044805	-0,001307	0,000000	0,052224	0,001480	0,048068	0,037066	0,045794	0,023631	-0,039597	0,004155	-0,045322
11	0,004879	-0,009903	0,035556	0,010772	0,008534	0,022374	-0,002398	0,005359	0,003563	0,000000	0,048779	0,019108	0,029892	-0,000632	0,036625	0,018001	-0,023569	-0,001221	-0,052208
12	0,009554	0,001369	0,016846	-0,000800	0,008202	0,020312	-0,018867	0,020192	-0,015617	0,000000	0,023425	0,017068	0,043135	0,010338	0,018572	0,024443	-0,038659	0,011355	-0,048745
13	0,011026	-0,012822	0,014685	-0,014582	0,012741	0,016980	0,001284	0,019174	-0,005812	0,000000	0,039135	0,015511	0,033888	0,033786	0,051640	0,050384	-0,024389	0,003612	-0,056103
14	0,006586	-0,004545	0,061712	-0,001459	-0,001482	0,012933	-0,005449	0,013978	-0,007862	0,000000	0,026973	-0,000252	0,061787	0,023767	0,033313	0,009395	-0,010119	0,006473	-0,052689
15	0,009950	-0,003999	0,035105	-0,009787	-0,003428	0,008171	0,006478	0,009904	-0,003454	0,000000	0,062977	0,011473	0,037848	0,033380	0,056410	0,054768	-0,040541	-0,002431	-0,057285
16	0,022833	0,011667	0,048139	-0,006534	0,005272	0,010011	-0,031508	0,002995	-0,019230	0,000000	0,053551	0,016019	0,052439	0,020983	0,027803	0,041861	-0,022745	0,000744	-0,030328
17	0,019049	-0,023778	0,007023	0,021900	0,021872	0,037475	-0,002955	0,045614	-0,017234	0,000000	0,041164	-0,020013	0,027071	0,030388	0,015640	0,079166	-0,016775	-0,011696	-0,061497
18	0,014781	-0,024808	0,023714	-0,006041	0,008939	-0,003145	-0,010812	0,034185	-0,022514	0,000000	0,043577	0,017189	0,021808	0,084130	0,053513	0,039834	-0,003886	0,018037	-0,033826
19	-0,030088	0,013724	0,045757	-0,002679	0,013494	0,001058	-0,021527	0,043275	0,011075	0,000000	0,030057	-0,005078	-0,008822	0,017523	0,024758	0,020678	-0,033494	-0,009788	-0,010491
20	0,021292	0,002658	0,025659	-0,017903	-0,001698	-0,005123	-0,003112	0,018029	0,015838	0,000000	0,032469	0,012574	0,022695	0,010776	0,033159	0,045861	-0,024973	0,023618	-0,002772

Date	02.06.04	02.13.04	02.20.04	02.27.04	03.05.04	03.12.04	03.19.04	03.26.04	04.02.04	04.09.04	04.16.04	04.23.04	04.30.04	05.07.04	05.14.04	05.21.04	05.28.04	06.04.04	06.11.04
T-bill (Infl.Adj)	0,00235539	0,00235539	0,00235429	0,00235759	0,00189626	0,00189411	0,00189733	0,00189411	0,00158631	0,00158313	0,00157995	0,00158419	0,0015916	0,00134865	0,00136435	0,00136016	0,00136226	0,00138847	0,00140942
ISE 100 Return	-0,017147	0,113262	-0,021096	0,015223	0,014532	0,010315	0,033483	0,039768	-0,016994	-0,049015	-0,012158	0,008374	-0,075264	-0,058302	-0,028076	0,005881	0,041182	0,021709	-0,002470
Rm - Rf	-0,019502	0,110906	-0,023450	0,012865	0,012636	0,008421	0,031586	0,037874	-0,018580	-0,050598	-0,013738	0,006790	-0,076856	-0,059651	-0,029440	0,004521	0,039820	0,020320	-0,003880
Portfolio																			
1	-0,019727	0,098151	-0,036753	0,015402	0,020405	0,025509	0,024569	0,052471	0,010319	-0,034231	-0,012205	0,002944	-0,092159	-0,100802	-0,020740	0,021763	0,042475	-0,005166	-0,002971
2	-0,012939	0,110406	-0,003001	0,029454	-0,004067	0,022658	0,024190	0,030980	-0,024379	-0,012326	-0,028916	0,020266	-0,058163	-0,087802	-0,038640	-0,002155	0,059491	-0,000065	-0,024396
3	-0,032306	0,057634	-0,027743	0,012709	0,024487	0,027597	0,050600	0,049888	0,001976	-0,030312	-0,003586	0,000561	-0,049366	-0,087868	-0,049162	0,026127	0,031377	-0,001694	0,003116
4	0,008310	0,063190	-0,018867	0,025780	0,061117	0,041933	0,011954	0,030434	0,009440	0,008488	0,013887	0,014412	-0,084778	-0,062834	-0,032658	-0,000789	0,045927	-0,016625	0,028618
5	-0,015326	0,048536	-0,003373	0,018823	0,014639	0,035528	0,025692	0,058912	-0,002350	-0,039444	-0,008375	-0,003743	-0,082988	-0,073149	-0,043012	0,017997	0,019270	-0,002054	0,000758
6	0,002273	0,047512	0,003763	0,019830	0,023865	0,020005	0,022047	0,055110	0,012499	-0,000713	-0,009314	0,014724	-0,041593	-0,053543	-0,022250	-0,012641	0,055896	-0,010508	0,012368
7	-0,007630	0,050771	0,021066	0,013289	0,045752	0,004417	0,026176	0,022980	0,029007	-0,028188	-0,026331	0,006693	-0,078898	-0,032758	-0,020972	-0,002166	0,031799	0,003289	-0,004299
8	-0,003976	0,043186	0,015094	0,005245	0,023631	0,024440	0,006232	0,028344	0,030422	0,006712	-0,024852	0,012562	-0,080474	-0,063942	-0,060709	0,007168	0,051262	-0,013907	-0,000385
9	0,012039	0,056060	-0,013390	0,007155	0,012365	0,007263	0,016463	0,048090	0,010430	-0,031839	-0,033941	0,004832	-0,069957	-0,052649	0,000293	0,005038	0,026024	-0,013887	0,018642
10	0,002492	0,040344	0,034637	0,036688	0,029484	0,027279	0,026452	0,009512	-0,002049	-0,000013	-0,031503	0,028964	-0,054689	-0,073682	-0,016151	0,012225	0,042855	-0,015414	0,015012
11	-0,004243	0,020605	-0,035975	0,005606	0,015577	0,026096	0,069555	0,039370	0,004849	0,010683	-0,012184	-0,005101	-0,069071	-0,075897	-0,018630	0,012990	0,042046	-0,016534	-0,006697
12	-0,016993	0,037923	-0,003375	0,024584	-0,012138	0,020162	0,065870	0,045104	0,056487	-0,026888	-0,026953	-0,001819	-0,056146	-0,062580	-0,006551	0,016645	-0,007791	-0,012048	-0,004226
13	-0,012308	0,003982	0,049711	0,051826	0,024949	0,030650	0,048791	0,025733	0,028988	-0,035673	-0,000918	0,044077	-0,057262	-0,100323	-0,008304	-0,020121	0,030901	0,001796	0,001877
14	-0,013543	0,038989	0,017856	0,030051	0,041799	0,036615	0,028886	0,052251	-0,008091	0,008582	0,010481	0,019899	-0,055195	-0,079710	0,008434	-0,001272	0,032474	-0,023284	-0,002025
15	-0,016854	0,033954	0,035991	0,026969	0,028354	0,028158	0,050627	0,052981	0,020745	-0,027200	-0,011968	0,015124	-0,043147	-0,113887	-0,014714	-0,000363	0,021284	-0,012884	-0,006088
16	-0,000526	0,082723	0,002806	-0,026759	0,053251	-0,005927	0,019250	0,026159	0,018622	0,016926	-0,018046	-0,004417	-0,046916	-0,032799	-0,035870	-0,061231	0,031499	-0,020910	-0,003753
17	-0,008985	0,087827	0,051322	-0,017636	0,004669	0,018319	0,009029	0,028282	0,046242	0,002995	-0,029445	0,024131	-0,029077	-0,071789	-0,020700	-0,005092	0,040137	-0,008154	-0,018855
18	0,033744	0,070352	0,011830	-0,021336	0,028787	0,010012	0,019809	0,008050	0,006029	0,014076	-0,027720	0,018934	-0,050596	-0,074827	-0,008687	0,016589	0,038374	-0,007016	-0,018469
19	-0,022095	-0,000044	-0,003336	0,023388	0,026508	0,048543	0,045893	0,034451	-0,027933	0,030736	0,036162	0,028832	-0,025064	-0,046807	-0,039783	0,019071	0,034695	-0,011405	0,043142
20	0,013962	0,074285	0,018327	0,033631	0,012358	0,028131	0,019393	0,037290	-0,001694	-0,008316	0,002977	-0,010359	-0,070105	-0,038303	-0,021086	-0,007032	0,033280	0,031246	0,011154

Date	06.18.04	06.25.04	07.02.04	07.09.04	07.16.04	07.23.04	07.30.04	08.06.04	08.13.04	08.20.04	08.27.04	09.03.04	09.10.04	09.17.04	09.24.04	10.01.04	10.08.04	10.15.04	10.22.04
T-bill (Infl.Adj)	0,00144293	0,00142722	0,00155763	0,00155025	0,0015492	0,00155236	0,00157238	0,00166881	0,00166987	0,00166987	0,0016794	0,00149682	0,00150835	0,0015094	0,00151883	0,00168769	0,00168241	0,00168135	0,00170037
ISE 100 Return	-0,040457	0,022792	0,059351	-0,004862	0,044304	-0,013295	0,024898	-0,010024	-0,019024	0,024159	0,029071	0,045282	0,010969	-0,008174	0,068374	-0,026572	0,055029	-0,020881	-0,010426
Rm - Rf	-0,041899	0,021364	0,057794	-0,006412	0,042755	-0,014847	0,023325	-0,011693	-0,020694	0,022489	0,027392	0,043785	0,009461	-0,009683	0,066855	-0,028259	0,053346	-0,022562	-0,012126
Portfolio																			
1	-0,052495	0,006210	0,059123	-0,001389	0,046378	-0,016378	0,016429	0,003359	-0,009079	0,004046	0,039946	0,016047	0,021388	-0,017771	0,062069	-0,033227	0,035397	-0,038354	-0,016857
2	-0,044068	0,013355	0,047309	0,002042	0,031507	-0,011632	0,026612	0,000024	-0,029928	0,036965	0,023113	0,034099	0,020842	-0,015254	0,061088	-0,012169	-0,002721	-0,021156	0,002923
3	-0,046513	0,007085	0,019924	0,005673	0,028804	-0,002157	0,016282	0,005739	-0,009772	0,004103	0,019567	0,041129	0,020526	0,003771	0,063009	-0,006828	0,043482	0,006517	0,003251
4	-0,044147	-0,003807	0,021237	-0,000635	0,090573	0,000913	0,088708	0,016465	-0,024249	0,012800	0,022308	0,049446	0,021041	0,005508	0,062958	-0,005933	0,032766	-0,001734	-0,014556
5	-0,027185	0,013225	0,029566	-0,001646	0,028584	-0,002391	0,024402	0,005146	0,033510	0,015617	0,033422	0,064443	0,016009	0,017806	0,049394	-0,006165	0,052117	0,016115	-0,024720
6	-0,039461	-0,005409	0,004622	-0,002437	0,064026	-0,000634	0,057295	-0,010376	-0,007377	0,013025	0,006554	0,040889	0,002257	-0,005907	0,046883	0,036302	0,053161	-0,009976	-0,003753
7	-0,033907	0,003906	0,006466	-0,002554	0,025901	-0,008748	0,007019	0,001055	-0,001623	0,016657	0,031303	0,048890	-0,005451	-0,007447	0,034305	-0,013002	0,032894	-0,001109	0,021037
8	-0,044358	0,013212	0,015234	-0,000193	0,036417	0,024249	0,024141	-0,006976	0,009180	-0,011063	0,030844	0,025720	0,037147	-0,014657	0,026521	-0,007980	0,028850	0,025568	-0,006105
9	-0,026202	-0,014735	0,015725	-0,013352	0,032969	-0,002747	-0,001566	0,003322	-0,003306	0,017422	0,020115	0,014078	0,024369	-0,001921	0,034398	0,002257	0,026346	-0,006671	0,005864
10	-0,027523	-0,013247	0,008895	-0,004705	0,037126	0,004470	0,017196	0,007980	0,009323	0,021459	0,021416	0,009565	0,018207	-0,013112	0,037368	0,015735	0,064816	-0,005425	0,012699
11	-0,032055	0,007469	0,006507	-0,005613	0,028117	-0,001232	0,007460	-0,006585	-0,009679	-0,006163	0,031062	0,031405	0,021178	-0,010792	0,055841	-0,038611	0,073879	0,046394	-0,014760
12	-0,049299	0,000849	0,018770	0,015971	0,023308	0,012730	0,015034	0,016270	-0,023282	0,004341	0,014004	0,014911	0,028109	-0,028593	0,034967	-0,013059	0,079547	0,008532	-0,006682
13	-0,026324	-0,002352	0,046809	0,042049	-0,051418	0,004960	0,001539	-0,008430	-0,012214	0,009219	0,006947	0,011892	0,061421	-0,026854	0,068243	0,017084	0,034078	0,008550	-0,016145
14	-0,015351	-0,009681	0,025427	0,015640	0,064809	0,000243	0,004204	-0,016149	0,000679	0,008644	0,005849	0,012774	0,029582	-0,007971	0,032277	-0,012187	0,035557	0,045764	0,005935
15	-0,033900	-0,018361	0,007325	0,015642	0,021140	0,011438	0,006079	0,006984	0,001185	0,015362	0,014292	0,009750	0,032023	-0,009701	0,091574	0,002235	0,055058	0,046140	0,000040
16	-0,043106	-0,008566	0,014789	0,001950	0,011708	-0,005290	-0,019876	-0,000239	0,014997	0,010468	0,028764	-0,000295	0,041488	0,070620	0,084236	-0,178131	0,092072	0,068499	-0,036308
17	-0,042644	-0,009823	0,009842	-0,003780	0,013951	0,012572	-0,003864	-0,003162	-0,011147	-0,001590	0,027206	0,021470	0,045528	0,013103	0,073691	0,030989	0,016021	-0,006045	-0,006739
18	-0,048577	-0,028016	0,005570	0,000259	0,001677	0,003346	-0,001442	0,008065	-0,003994	0,002657	0,006773	0,023857	-0,000161	0,039708	0,027374	0,021122	0,065857	0,046526	-0,009309
19	-0,005741	0,000191	0,068708	0,045934	0,025968	-0,000694	-0,013269	-0,014388	0,008644	-0,027668	-0,005771	-0,001956	0,022074	-0,010062	0,025429	0,011533	0,061248	-0,001033	-0,004439
20	-0,019473	-0,007758	0,029107	0,007014	0,028401	0,016349	-0,002259	-0,013759	-0,019416	-0,013984	0,021137	0,010738	-0,003007	0,018068	0,065514	0,015620	0,059427	0,087901	0,017268

Date	10.29.04	11.05.04	11.12.04	11.19.04	11.26.04	12.03.04	12.10.04	12.17.04	12.24.04	12.31.04
T-bill (Infl.Adj)	0,00171832	0,001724	0,00174405	0,00175039	0,00176728	0,00168605	0,0016892	0,0016871	0,0016829	0,00169236
ISE 100 Return	0,014363	0,028389	-0,049033	0,047358	0,005014	-0,012317	-0,002803	0,059926	0,007243	0,017531
Rm - Rf	0,012645	0,026665	-0,050777	0,045607	0,003247	-0,014003	-0,004492	0,058239	0,005560	0,015838
Portfolio										
1	0,000236	0,029204	-0,047101	0,037751	-0,008791	-0,046446	-0,003396	0,042996	0,025438	0,015993
2	0,012629	0,016517	-0,051821	0,035703	-0,006200	-0,016919	0,006587	0,062245	0,030613	0,012141
3	0,001867	0,004983	-0,008068	0,031321	-0,017636	-0,030433	-0,011560	0,046482	0,036078	0,032087
4	0,025219	0,004243	-0,042924	0,006652	0,009308	-0,054301	-0,040706	0,040933	-0,009321	0,026647
5	0,019906	0,042007	0,018655	0,021366	0,001044	-0,032351	-0,022442	0,035879	0,027141	0,017711
6	0,014235	0,036641	-0,008910	0,008633	-0,008191	-0,038050	-0,023466	0,035346	0,004735	0,011458
7	0,006963	0,028145	-0,032198	0,004147	-0,011095	-0,030201	-0,035077	0,000521	0,030718	0,018735
8	0,007597	0,051042	-0,020383	0,011633	-0,002297	-0,046255	-0,047885	0,012720	0,035994	0,016110
9	0,017486	0,034058	-0,008555	0,007099	0,008343	0,013261	-0,054294	0,016600	-0,000247	0,022140
10	-0,000955	0,001081	-0,022764	0,029356	0,007369	-0,027196	-0,017923	0,017176	0,024818	0,018748
11	0,022842	0,031383	-0,056132	0,011650	-0,004378	-0,048904	-0,075161	0,033195	0,042201	0,000940
12	-0,004904	0,054509	-0,044313	0,008975	0,007474	-0,045387	-0,035797	0,003565	0,048392	0,015708
13	0,002133	-0,003684	-0,011977	0,008180	0,028344	-0,025077	-0,050428	0,039270	-0,010440	0,008382
14	0,003036	0,026414	-0,007059	0,029391	-0,002162	-0,012074	-0,063899	-0,021732	0,046363	0,010949
15	-0,006640	0,021235	-0,038403	0,016685	0,001387	-0,016769	-0,012433	0,038227	0,017340	-0,002584
16	-0,004208	-0,000826	0,015362	0,028941	0,079917	-0,026907	-0,022971	0,039144	-0,012904	-0,006407
17	-0,005361	0,017907	-0,046363	0,025829	0,003114	-0,027796	-0,054307	-0,002474	-0,003171	0,008957
18	0,020835	0,026079	-0,022358	0,003538	-0,019150	-0,055101	-0,061087	0,009540	0,041529	0,006255
19	0,010870	0,035483	-0,014252	0,003606	-0,033122	-0,044107	-0,016462	0,004866	0,020557	0,015222
20	0,045550	0,102756	0,026189	0,004138	-0,015744	-0,057156	-0,043451	-0,008193	0,034064	0,017239

APPENDIX XI

Portfolio Returns and Betas (Test Period 1999-2000)

Rf = 0,01243

Portfolio	Rp	Rp-Rf	Beta
1	0,011581	-0,000854	0,865977
2	0,009792	-0,002643	0,912686
3	0,010313	-0,002122	0,766603
4	0,011307	-0,001128	0,811927
5	0,009325	-0,003110	0,809544
6	0,010768	-0,001667	0,834214
7	0,009820	-0,002615	0,794672
8	0,009041	-0,003394	0,767550
9	0,009581	-0,002854	0,950337
10	0,007713	-0,004722	0,814291
11	0,011006	-0,001429	0,801159
12	0,011749	-0,000686	0,841804
13	0,005284	-0,007151	0,813572
14	0,011670	-0,000765	0,812659
15	0,009367	-0,003068	0,791574
16	0,011069	-0,001366	0,683157
17	0,011643	-0,000792	0,759195
18	0,006707	-0,005728	0,743984
19	0,008511	-0,003924	0,805318
20	0,009148	-0,003287	0,578120

Portfolio Returns and Betas (Test Period 2000-2001)

Rf = 0,01100

Portfolio	Rp	Rp-Rf	Beta
1	-0,004722	-0,015725	1,037127
2	-0,004544	-0,015548	0,913098
3	-0,002356	-0,013359	0,819785
4	-0,002600	-0,013603	0,841048
5	-0,000822	-0,011825	0,892936
6	0,000124	-0,010880	0,748306
7	0,000007	-0,010997	0,703160
8	0,001163	-0,009841	0,819488
9	-0,000634	-0,011637	0,736878
10	0,000003	-0,011001	0,764706
11	-0,002247	-0,013251	0,731445
12	-0,004316	-0,015320	0,729554
13	-0,001982	-0,012986	0,735761
14	0,002156	-0,008848	0,685386
15	-0,001106	-0,012110	0,729028
16	-0,002542	-0,013546	0,651461
17	-0,002643	-0,013647	0,699272
18	0,002115	-0,008889	0,701576
19	0,004033	-0,006971	0,495358
20	0,000014	-0,010990	0,469694

Portfolio Returns and Betas (Test Period 2001-2002)

Rf = 0,00976

Portfolio	Rp	Rp-Rf	Beta
1	-0,000233	-0,009998	1,039979
2	0,001025	-0,008739	0,951202
3	0,001129	-0,008635	0,845569
4	-0,000156	-0,009920	0,814211
5	0,001827	-0,007937	0,746618
6	0,001725	-0,008040	0,695702
7	0,001745	-0,008020	0,739757
8	0,001884	-0,007881	0,693654
9	-0,003581	-0,013346	0,761567
10	0,001138	-0,008626	0,646790
11	0,004188	-0,005577	0,678704
12	0,000797	-0,008967	0,514682
13	0,002379	-0,007386	0,640276
14	0,002452	-0,007313	0,612963
15	0,003738	-0,006026	0,550951
16	0,003653	-0,006112	0,695316
17	0,001273	-0,008491	0,562035
18	0,001215	-0,008550	0,572442
19	0,003731	-0,006034	0,362297
20	0,004648	-0,005117	0,346676

Portfolio Returns and Betas (Test Period 2002-2003)

Rf = 0,00683

Portfolio	Rp	Rp-Rf	Beta
1	0,000821	-0,006014	1,011574
2	0,003678	-0,003157	1,002865
3	0,003392	-0,003443	0,997578
4	0,001544	-0,005291	0,972237
5	-0,001210	-0,008045	0,998831
6	0,002716	-0,004119	0,991606
7	0,004069	-0,002765	0,984201
8	0,000119	-0,006715	0,983529
9	0,003062	-0,003773	0,996438
10	0,002196	-0,004639	0,992138
11	0,002373	-0,004462	0,988024
12	0,000402	-0,006433	0,991471
13	0,003336	-0,003499	0,991694
14	-0,000986	-0,007821	0,990875
15	0,002315	-0,004520	0,971976
16	0,002587	-0,004248	1,000512
17	0,001309	-0,005526	0,987091
18	-0,000483	-0,007318	0,983990
19	0,003406	-0,003429	0,981329
20	0,000004	-0,006831	0,971452

Portfolio Returns and Betas (Test Period 2003-2004)

Rf = 0,003175

Portfolio	Rp	Rp-Rf	Beta
1	0,005635	0,002459	1,174786
2	0,006286	0,003110	1,068352
3	0,005994	0,002818	1,069546
4	0,009029	0,005853	1,031967
5	0,007998	0,004823	1,002752
6	0,007531	0,004355	0,830292
7	0,004714	0,001538	0,837292
8	0,005504	0,002328	0,896021
9	0,006981	0,003805	0,906960
10	0,005938	0,002762	0,813022
11	0,004642	0,001466	0,849007
12	0,006761	0,003585	0,840340
13	0,004222	0,001046	0,902145
14	0,006333	0,003158	0,789791
15	0,004639	0,001463	0,842745
16	0,005866	0,002691	0,695004
17	0,003757	0,000581	0,721553
18	0,004737	0,001562	0,765460
19	0,005820	0,002644	0,770852
20	0,008714	0,005539	0,545317

APPENDIX XII: Example of Beta Estimation

0,740 Beta of ABANA
0,770 R-squared of the regression

Date	ISE100	ABANA	T-bill	R (ISE 100)	R (ABANA)	ER (ISE 100)	ER (ABANA)
01.06.95	26949,82	2025	0,025504				
01.13.95	26548,19	1925	0,025544	-0,015015	-0,050644	-0,040559	-0,076187
01.20.95	25519,86	1400	0,025500	-0,039505	-0,318454	-0,065005	-0,343954
01.27.95	25246,08	1400	0,025513	-0,010786	0,000000	-0,036299	-0,025513
02.03.95	25463,39	1350	0,024820	0,008571	-0,036368	-0,016250	-0,061188
02.10.95	26918,00	1375	0,024838	0,055553	0,018349	0,030716	-0,006488
02.17.95	28214,19	1300	0,024833	0,047030	-0,056089	0,022197	-0,080923
02.24.95	29720,10	1450	0,024799	0,051999	0,109199	0,027199	0,084400
03.03.95	29781,63	1350	0,024251	0,002068	-0,071459	-0,022183	-0,095710
03.10.95	33232,88	1275	0,024268	0,109648	-0,057158	0,085380	-0,081427
03.17.95	33802,38	1275	0,024264	0,016991	0,000000	-0,007272	-0,024264
03.24.95	36693,19	1375	0,024264	0,082060	0,075508	0,057796	0,051244
03.31.95	39837,33	1350	0,024213	0,082213	-0,018349	0,058000	-0,042562
04.07.95	44622,88	1950	0,018074	0,113442	0,367725	0,095369	0,349651
04.14.95	48203,25	2275	0,018052	0,077180	0,154151	0,059128	0,136099
04.21.95	54653,93	2425	0,018001	0,125595	0,063851	0,107594	0,045850
04.28.95	46615,20	2250	0,018037	-0,159094	-0,074901	-0,177132	-0,092939
05.05.95	51227,44	2450	0,016366	0,094349	0,085158	0,077983	0,068792
05.12.95	51227,44	2450	0,016328	0,000000	0,000000	-0,016328	-0,016328
05.19.95	47181,80	2200	0,016355	-0,082267	-0,107631	-0,098622	-0,123986
05.26.95	46500,33	1975	0,016359	-0,014549	-0,107889	-0,030908	-0,124248
06.02.95	48653,10	2250	0,016511	0,045256	0,130362	0,028745	0,113850
06.09.95	53781,29	1300	0,016456	0,100210	-0,548566	0,083754	-0,565022
06.16.95	52489,34	1050	0,016487	-0,024316	-0,213574	-0,040803	-0,230061
06.23.95	53042,90	1175	0,016449	0,010491	0,112478	-0,005958	0,096029
06.30.95	48233,01	1050	0,016411	-0,095057	-0,112478	-0,111468	-0,128889
07.07.95	46357,35	1175	0,016453	-0,039664	0,112478	-0,056117	0,096025
07.14.95	47884,48	1175	0,016408	0,032412	0,000000	0,016003	-0,016408
07.21.95	47486,61	1450	0,016429	-0,008344	0,210295	-0,024773	0,193866
07.28.95	52777,52	1600	0,016432	0,105638	0,098440	0,089205	0,082008
08.04.95	49103,94	1775	0,016941	-0,072146	0,103797	-0,089087	0,086856
08.11.95	45888,04	1900	0,016930	-0,067735	0,068053	-0,084665	0,051123
08.18.95	45801,88	2025	0,016934	-0,001879	0,063716	-0,018813	0,046782
08.25.95	45542,98	1775	0,016937	-0,005669	-0,131769	-0,022606	-0,148707
09.01.95	45690,62	1700	0,017416	0,003237	-0,043172	-0,014179	-0,060588
09.08.95	46194,89	1850	0,017402	0,010976	0,084557	-0,006425	0,067156
09.15.95	44782,31	1875	0,017416	-0,031056	0,013423	-0,048472	-0,003993
09.22.95	41608,43	1775	0,017384	-0,073510	-0,054808	-0,090894	-0,072192
09.29.95	41707,62	1725	0,017344	0,002381	-0,028573	-0,014963	-0,045918
10.06.95	45767,72	2375	0,017094	0,092895	0,319770	0,075801	0,302676
10.13.95	43577,71	2575	0,017084	-0,049033	0,080852	-0,066117	0,063769
10.20.95	49029,62	3650	0,017087	0,117879	0,348878	0,100792	0,331791
10.27.95	47145,87	3450	0,017052	-0,039178	-0,056353	-0,056230	-0,073405
11.03.95	44928,30	2950	0,016547	-0,048179	-0,156569	-0,064726	-0,173116
11.10.95	42370,63	2450	0,016572	-0,058612	-0,185717	-0,075184	-0,202289
11.17.95	42833,18	2550	0,016596	0,010858	0,040005	-0,005738	0,023409
11.24.95	42159,46	3150	0,016565	-0,015854	0,211309	-0,032419	0,194744
12.01.95	39337,14	2450	0,015478	-0,069290	-0,251314	-0,084768	-0,266792
12.08.95	41846,42	2450	0,015467	0,061837	0,000000	0,046370	-0,015467
12.15.95	39669,01	2350	0,015471	-0,053436	-0,041673	-0,068907	-0,057144
12.22.95	42236,25	2225	0,015420	0,062709	-0,054658	0,047289	-0,070078
12.29.95	40024,58	2100	0,015339	-0,053785	-0,057820	-0,069124	-0,073158

APPENDIX XIII: Example of T-bill Rate Adjustment

Date	T-bill (USA)	Inflation Rate (USA)	USA Inflation Deducted T-bill Rate	Inflation (Turkey)	Turkish Inflation Added T-bill Rate	Weekly Adjusted T-bill Rate
01.06.95	0,0578	0,0280	0,0298	1,2589	1,3262	0,025504
01.13.95	0,0587	0,0280	0,0307	1,2589	1,3283	0,025544
01.20.95	0,0577	0,0280	0,0297	1,2589	1,3260	0,025500
01.27.95	0,0580	0,0280	0,0300	1,2589	1,3267	0,025513
02.03.95	0,0579	0,0280	0,0299	1,2242	1,2907	0,024820
02.10.95	0,0583	0,0280	0,0303	1,2242	1,2916	0,024838
02.17.95	0,0582	0,0280	0,0302	1,2242	1,2913	0,024833
02.24.95	0,0574	0,0280	0,0294	1,2242	1,2896	0,024799
03.03.95	0,0573	0,0280	0,0293	1,1967	1,2611	0,024251
03.10.95	0,0577	0,0280	0,0297	1,1967	1,2619	0,024268
03.17.95	0,0576	0,0280	0,0296	1,1967	1,2617	0,024264
03.24.95	0,0576	0,0280	0,0296	1,1967	1,2617	0,024264
03.31.95	0,0564	0,0280	0,0284	1,1967	1,2591	0,024213
04.07.95	0,0576	0,0280	0,0296	0,8841	0,9398	0,018074
04.14.95	0,0570	0,0280	0,0290	0,8841	0,9387	0,018052
04.21.95	0,0556	0,0280	0,0276	0,8841	0,9361	0,018001
04.28.95	0,0566	0,0280	0,0286	0,8841	0,9379	0,018037
05.05.95	0,0574	0,0280	0,0294	0,7981	0,8510	0,016366
05.12.95	0,0563	0,0280	0,0283	0,7981	0,8490	0,016328
05.19.95	0,0571	0,0280	0,0291	0,7981	0,8505	0,016355
05.26.95	0,0572	0,0280	0,0292	0,7981	0,8507	0,016359
06.02.95	0,0564	0,0280	0,0284	0,8073	0,8586	0,016511
06.09.95	0,0548	0,0280	0,0268	0,8073	0,8557	0,016456
06.16.95	0,0557	0,0280	0,0277	0,8073	0,8573	0,016487
06.23.95	0,0546	0,0280	0,0266	0,8073	0,8553	0,016449
06.30.95	0,0535	0,0280	0,0255	0,8073	0,8534	0,016411
07.07.95	0,0553	0,0280	0,0273	0,8063	0,8556	0,016453
07.14.95	0,0540	0,0280	0,0260	0,8063	0,8532	0,016408
07.21.95	0,0546	0,0280	0,0266	0,8063	0,8543	0,016429
07.28.95	0,0547	0,0280	0,0267	0,8063	0,8545	0,016432
08.04.95	0,0544	0,0280	0,0264	0,8325	0,8809	0,016941
08.11.95	0,0541	0,0280	0,0261	0,8325	0,8804	0,016930
08.18.95	0,0542	0,0280	0,0262	0,8325	0,8806	0,016934
08.25.95	0,0543	0,0280	0,0263	0,8325	0,8807	0,016937
09.01.95	0,0534	0,0280	0,0254	0,8584	0,9056	0,017416
09.08.95	0,0530	0,0280	0,0250	0,8584	0,9049	0,017402
09.15.95	0,0534	0,0280	0,0254	0,8584	0,9056	0,017416
09.22.95	0,0525	0,0280	0,0245	0,8584	0,9040	0,017384
09.29.95	0,0514	0,0280	0,0234	0,8584	0,9019	0,017344
10.06.95	0,0534	0,0280	0,0254	0,8421	0,8889	0,017094
10.13.95	0,0531	0,0280	0,0251	0,8421	0,8883	0,017084
10.20.95	0,0532	0,0280	0,0252	0,8421	0,8885	0,017087
10.27.95	0,0522	0,0280	0,0242	0,8421	0,8867	0,017052
11.03.95	0,0529	0,0280	0,0249	0,8153	0,8605	0,016547
11.10.95	0,0536	0,0280	0,0256	0,8153	0,8617	0,016572
11.17.95	0,0543	0,0280	0,0263	0,8153	0,8630	0,016596
11.24.95	0,0534	0,0280	0,0254	0,8153	0,8614	0,016565
12.01.95	0,0532	0,0280	0,0252	0,7605	0,8048	0,015478
12.08.95	0,0529	0,0280	0,0249	0,7605	0,8043	0,015467
12.15.95	0,0530	0,0280	0,0250	0,7605	0,8045	0,015471
12.22.95	0,0515	0,0280	0,0235	0,7605	0,8018	0,015420
12.29.95	0,0491	0,0280	0,0211	0,7605	0,7976	0,015339
01.05.96	0,0504	0,0300	0,0204	0,7811	0,8174	0,015719

CURRICULUM VITAE

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1983-1993: Secondary School, Ashgabat, Turkmenistan;
1986-1993: Musical School (piano class), Ashgabat, Turkmenistan;
1993-1997: Turkmen Institute of National Economy, Ashgabat, Turkmenistan, (Financial Economy Faculty, Banking);
2002 till present: Dogus University (Department of Social Siences, MS in Financial Economics), Istanbul, Turkey

Carrer:
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«Alem» Private Studio, Turkmenistan
Chief accountant:

October 2001 – March 2002
«International Trade and Projects» Company, Turkmenistan
Financial assistant manager

July 1999 – October 2001
The State Bank for Foreign Economic Affairs of Turkmenistan
Chief economist of Operation Department

July 1997 – July 1999
The State Bank for Foreign Economic Affairs of Turkmenistan
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