UNIVERSITY OF PIRAEUS
DEPARTMENT OF BANKING AND FINANCIAL MANAGEMENT

'Master of Science (MSc) in Financial Analysis for Executives'

Evaluation of mutual funds performance using multiple measures

Dissertation submitted in fulfillment of the requirements for the degree of

MSc in Financial Analysis for Executives

by

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-February 2014-

Abstract

The present work dealt with the study of evaluation of mutual funds performance using multiple performance measures. The measures employed were the classic Sharpe ratio, the Treynor ratio, the Information ratio, the Modigliani-Modigliani measure (RAP), the Jensen's alpha and the Treynor- Mazuy model coefficients. The markets under examination were Germany, Austria and France, on account of the big impact these markets have on the European Union economy as an entity. 204 open-end equity mutual funds were examined for every country for the period from 01/01/2002 to 31/12/2012. The examinations were repeated for two subperiods, from 01/01/2002 to 01/06/2007 and from 01/06/2007 to 31/12/2012 to obtain useful information about the robustness of the results. The two subperiods were chosen to characterize two phases of European Continent economies, the prior-crisis and after-crisis periods. After the mutual funds performance measures were calculated, rankings of the mutual funds based on these measures were formatted and the correlation of the measures was studied.

Keywords: Ranking, Sharpe ratio, Treynor ratio, Modigliani-Modigliani measure, Jensen's alpha, Treynor-Mazuy model, correlation.

Acknowledgements

I extend my deepest gratitude and appreciation to my advisor, Prof. Diacogiannis George. I am grateful to him for teaching me how to fulfill my potential and expand my horizons. His valuable insights, knowledge, patience and encouragement, aside from his meticulous guidance through the entire length of the project, have been a strong motivating force.

I thank my committee, Prof. Diacogiannis George, Associate Prof. Tsiritakis Emmanouil and Assistant Prof. Kyriazis Dimitrios who accepted to be examiners of this thesis.

I would especially like to thank my friends Dr Teodora Popescu, Dr. Akis Melissis and Christos Paraskeuas for ‘mental’ support and advice concerning intellectual and scientific matters. Special thanks to Prof. N. Philippas for practical support.

Thinking about the people who contributed to the fulfillment of this thesis, I could not leave out all those who shared my life over these last years. It has been a difficult yet rewarding period and I would like to thank all my friends for the special moments we had together.

Last but not least my thanks go to my family for their unlimited support.

February 2014, Piraeus

Marios Livanos

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1. PORTFOLIO THEORY

1.1. SECURITIES AND THE PORTFOLIO THEORY

1.1.1. SECURITIES (ASSETS), RETURN AND RISK

In financially developed countries, big investors used to call the shares of the companies they owned their houses, literally meaning they were growing with them and the companies behind, respectively. In modern portfolio theory, securities have been widely and internationally traded and numerous new types of them exist nowadays. Some examples are: mutual funds, hedge funds, ETFs, CDSs etc. An investor depends on the expected return of a security and on the calculated risk, in order to take an investment decision.

The return is disciplined in three different ways or categories:

a) The expected return, which is the predicted return of a security, calculated by probabilistic methods or on historical data;
b) The realized return, which is the real return after a defined time frame;
c) The required return represents the minimum return investors are willing to receive to purchase the asset.

The expected return is measured by the mean of the sample returns and the risk, usually by the standard deviation of the return's sample. The return of a security is given by the following equation:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} + \frac{D_t}{D_{t-1}} \approx \log\left(\frac{P_{it}}{P_{it-1}}\right) \qquad (1.1)$$

where R_{it} represents the return of the *i* security in time t,
P_{it} is the value of security *i* at time t and
P_{it-1} the value of security *i* at time t-1.
D_t is the dividend in time t.

The expected return of the security *i*, under return normal distribution hypothesis, is calculated as the mean of its returns, $E(R_i)$, and is the profit an investor expects to realize in a future period, based on historical data. Nonetheless, this return is not granted, but a rough estimation.

$$E(R_i) = \frac{1}{T}\sum_{t=1}^{T} R_{it} \qquad (1.2)$$

The risk of a security, on the other hand, is calculated as mentioned by the standard deviation of the security returns. It is considered, generally, to be the deviation between the realized and the expected return. It bears the endogenous characteristics of time and volatility. The risk increases with time and volatility and is the measure of how large the potential losses can be, also increasing with time. The risk is described by:

$$\sigma(R_i) = \frac{1}{T-1}\sqrt{\sum_{t=1}^{T}(R_{it} - E(R_{it}))^{2}} \qquad (1.3)$$

based on historical data or by variance which is represented as:

$$Var(R_i) = \sigma(R_i)^2 \qquad (1.4)$$

where $\sigma(R_i)$ denotes the standard deviation of returns of asset *i*,
T is the number of observations of returns and
$Var(R_i)$ is the variance of returns of asset *i*.

The variance measures the risk for an investor to realize a return different from the expected one, guiding him to ask for the appropriate return for the specific asset. Comparing two different assets with the same expected return, a rational investor or a risk adverse one should choose the asset with the lowest risk, and between two similar risk assets, he should choose the more profitable one. The standard deviation is more applicable because it is expressed in the same units with the return of the asset.

Moreover, they are widely used two more coefficients on evaluating securities, coefficient of variance, CV and the covariance between two different securities *i* and *k*, both given in the following equations:

$$CV(R_i) = \frac{\sigma(R_i)}{E(R_i)} \qquad (1.5)$$

$$Cov(R_i, R_k) = E\big[\big(R_i - E(R_i)\big)\big(R_k - E(R_k)\big)\big]$$
$$= Corr(R_i, R_k) \times \sqrt{\big(Var(R_i) \times Var(R_k)\big)} \quad (1.6)$$

where $Corr(R_i, R_k)$ is the correlation coefficient ρ between *i* and *k* securities.

The coefficient of variance measures at what degree the distribution of the returns of the security is dispersed, and it is useful if different securities are under examination. It indicates the risk per unit of expected return of the asset.

The covariance of two securities is the measure of common behavior between the securities, with positive covariance meaning that the securities have the same directional behavior, negative covariance that they move in opposite directions. It is not an indicator of the strength of the relationship, such as the correlation coefficient. The correlation coefficient shows not only the behavior between two securities, but the degree of this behavior, ranging from -1 to 1, 1 for strong positive correlation *r* is -1, for strong negative one, and zero for neutral relationship.

Finally, a last characteristic of an asset, hard to be evaluated, is its liquidity, the ability of the investor to retrieve all or part of the present value of his investment immediately. Few assets are liquid, such as deposits, term deposits, stocks and many of them are not, such as bonds. Liquidity is somehow underestimated, yet it could be sometimes hidden behind big expected returns and investment period, but if not properly estimated, it can cause the investor to suffer big losses in the process to sell the asset.

1.1.2. PORTFOLIO CHARACTERISTICS

A portfolio is the basket where an investor keeps his assets and it can contain from one asset to a huge number of them. The purpose of portfolio is the opportunity it gives to the investor to deal with different assets, returns and risks. Despite a first thought that the outcome of a portfolio would be the outcome of each element inside, it offers a very famous property, diversification, a holy grail of economic science. The diversification, which will be analyzed later on in this study, offers the opportunity to put theoretical boundaries to stochastic phenomena like the securities' returns and risks.

Again, the same characteristics that refer to simple assets can now be expanded for the portfolio. The portfolio return is the value-weighted average of its elements' returns or the average of the portfolio's returns, if we base the calculation on historic data:

$$R_{Pt} = \frac{P_{Pt} - P_{Pt-1}}{P_{Pt-1}} \approx \log\left(\frac{P_{Pt}}{P_{Pt-1}}\right) \qquad (1.7)$$

or

$$R_P = \sum_{i=1}^{N} w_i \times R_i \qquad (1.8)$$

where P_{Pt} represents the price of portfolio at time t,
R_{Pt} the return of portfolio at time t,
w_i is the weight the asset *i* contributes to the portfolio (usually value-weighted or probability-weighted) and
R_i the return of asset *i*.

In the process to construct a portfolio, we need to know or to assume the probabilities of each asset's returns in the portfolio. The probabilities formulate their own distribution. Under normal distribution hypothesis, as before, the mean is a measure of the portfolio expected return and the standard deviation a measure of risk:

$$E(R_P) = \sum_{i=1}^{N} w_i \times E(R_i) \qquad (1.9)$$

the equation for expected return of the portfolio and:

$$\sigma(R_p) = \sqrt{\sum_{i=1}^{N} W_i^2 \sigma(R_i)^2 + \sum_{i=1}^{N}\sum_{k=1}^{N} W_i W_k Cov(R_i, R_k)} \qquad (1.10)$$

the equation for the standard deviation or in terms of variance:

$$Var(R_p) = \sum_{i=1}^{N} W_i^2 \sigma(R_i)^2 + \sum_{i=1}^{N}\sum_{k=1}^{N} W_i W_k Cov(R_i, R_k) \qquad (1.11)$$

where W_i denotes the weight of asset *i* in the portfolio,

$\sigma(R_i)$ the standard deviation of returns *i* asset,

$\sigma(R_p)$ the portfolio risk,

$i \neq k$ portfolio assets,

$Cov(R_i, R_k)$ the covariance between *i* and *k* assets' returns and

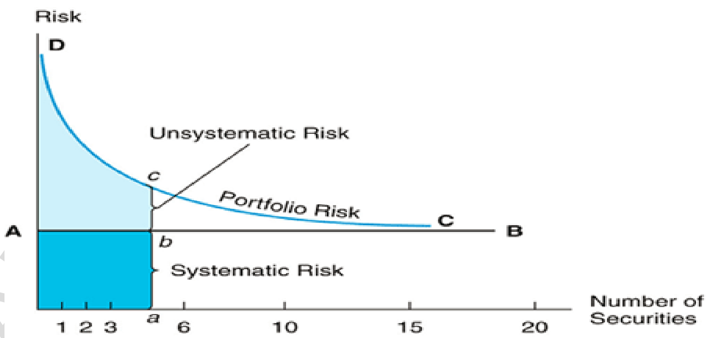
N the number of assets.

The variance is further analyzed into two factors (Figure 1.1):

a) $\sum_{i=1}^{N} W_i^2 \sigma(R_i)^2$ that describes the unsystematic risk attributed to a specific asset or sector and can be eliminated for a well-diversified portfolio;

b) $\sum_{i=1}^{N} \sum_{k=1}^{N} W_i W_k Cov(R_i, R_k)$ that describes the systematic risk attributed to the market and influencing all assets of the market. This risk can be reduced but not entirely eliminated (it can be hedged by participating in another market oppositively correlated with the one above) by selecting assets with low or negative correlation coefficient ρ and it is measured by the beta coefficient mentioned later.

Figure 1.1. The representative picture of the systematic and unsystematic risk.



Similarly, the coefficient of variance can be calculated for the whole portfolio in case of comparison with other portfolios, measuring the degree of dispersion of the distribution of portfolio's returns:

$$CV(R_P) = \frac{\sigma(R_P)}{E(R_P)} \qquad (1.12)$$

where $\sigma(R_p)$ stands for the portfolio risk and $E(R_P)$ the expected return of the portfolio.

However, one of the most important evaluation characteristic, as mentioned earlier, is the correlation coefficient ρ that helps to the diversification of a portfolio and is produced by the following equation:

$$Corr(R_i, R_k) = \frac{Cov(R_i,R_k)}{\sqrt{(Var(R_i)\times Var(R_k))}} = \frac{E[(R_i - E(R_i))(R_k - (R_k))]}{\sqrt{(Var(R_i)\times Var(R_k))}} = \rho,\ i \neq k \qquad (1.13)$$

The correlation coefficient is the normalized to unity correlation strength degree between two assets and it is an arbitrary unit value. It varies from -1 to 1, with -1 meaning perfect negative relationship, 1 perfect positive one and zero neutral correlation. For a portfolio, in order to obtain a clear image of the intraportfolio relationships, matrixes of variance-covariance coefficients and correlation coefficients are formatted and examined amongst all assets (Tables 1.1 and 1.2).

Table 1.1. Matrix of variance-covariance coefficients of 5 assets.

	1	2	3	4	5
1	Var(1,1)				
2	Cov(2,1)	Var(2,2)			
3	Cov(3,1)	Cov(3,2)	Var(3,3)		
4	Cov(4,1)	Cov(4,2)	Cov(4,3)	Var(4,4)	
5	Cov(5,1)	Cov(5,2)	Cov(5,3)	Cov(5,4)	Var(5,5)

Table 1.2. Correlation coefficient matrix of 5 assets.

	1	2	3	4	5
1	Corr(1,1)=1				
2	Corr(2,1)	Corr(2,2)=1			
3	Corr(3,1)	Corr(3,2)	Corr(3,3)=1		
4	Corr(4,1)	Corr(4,2)	Corr(4,3)	Corr(4,4)=1	
5	Corr(5,1)	Corr(5,2)	Corr(5,3)	Corr(5,4)	Corr(5,5)=1

In the process of constructing a portfolio by minimizing the portfolio risk, the most common practice is to find assets that have negative ρ between them. If all assets possess positive correlation coefficients then the risk is accumulative, while if some of them are driven by negative correlation the overall portfolio risk is reduced. However, the level of unsystematic risk can be reduced, by adding assets (as shown in

Figure 1.1), with a big ratio in the beginning, however, as securities are added it stabilizes and approaches the systematic risk level asymptotically if number of assets is driven to infinite. A general accepted notion is that with the addition of more than 20 different assets the above can happen.

The standard deviation of the portfolio returns is a measure of absolute risk. If someone wants to study the risk emerging from individual assets in comparison to the whole portfolio, then the most appropriate and known evaluation coefficient is the beta coefficient. Beta is the most widely used coefficient for stock markets and portfolio theory bibliography. It shows the risk of asset *i* in the portfolio *p* relatively to the risk of the whole portfolio and is given by the following equation:

$$\beta_i = \frac{cov(R_i, R_p)}{\sigma(R_p)^2} \qquad (1.14)$$

As mentioned above, beta is a relative risk measure. Three cases rise here:

a) Beta = 1. The asset follows the volatility of the portfolio and its behavior is neutral.
b) Beta > 1 the asset is aggressive and is more volatile than the portfolio. In case of portfolio overperformance, the asset will overperform with a higher rate, and vice-versa.
c) Beta < 1 the asset is defensive relatively to the portfolio. It will underperform the portfolio whichever direction the later takes, meaning fewer asset profits in case of portfolio gains, but fewer asset losses in case of portfolio devaluation.

Risk adverse investors tend to prefer assets with asset or portfolio beta lower than unity and risk driven investors prefer more aggressive assets and portfolios.

To measure the asset risk in comparison with the market portfolio, then it can be proved that variance of the market portfolio is just the weighted average of the covariance of all assets in the portfolio with the market itself:

$$\sigma_M^2 = \sum_{i=1}^{N} W_i cov(i,M) \qquad (1.15)$$

$$cov(i,M) = \frac{\partial \sigma_M^2}{\partial W_i} \qquad (1.16)$$

From the above equation it is obvious that the covariances of N assets add up to the market risk (systematic risk), and that the risk of an asset towards the market portfolio is the covariance of the asset with the market.

Finally, a portfolio's beta coefficient can be calculated as the sum of all assets weighted beta coefficients in the portfolio:

$$\beta_p = \sum_{i=1}^{n} W_i \beta_\iota \qquad (1.17)$$

where β_p denotes the portfolio beta,

β_ι the asset *i* beta coefficient and

W_i the weight of asset *i*.

1.1.3. MODERN PORTFOLIO THEORY

There are four steps in order to invest in a portfolio:

a) Analyze the underlying assets in terms of return and risk.
b) Analyze the possible assets combinations and formulate portfolios.
c) Construct the efficient portfolio frontier.
d) Combine the efficient portfolio frontier with the investor's utility curve and choose the best portfolio.

In March 1952, Harry Markowitz[1] introduced the modern portfolio selection published in Journal of Finance and 7 years later, the efficient diversification of investments theory, a process to help investors evaluate portfolios according to the relationship of return versus risk. Markowitz assumed that all investors are rational or risk averse so they need to receive excess return to suffer a specific amount of investment risk. Investors should focus on the relationship between assets and the market (sum of portfolios, as shown in the equation (1.16), rather than just on a specific asset. An investor in the Markowitz world will choose among different portfolios with the following two rules:

a) Between two portfolios with the same risk level, he or she will choose the one with the highest expected return and

b) Between two portfolios with the same expected return, he or she will choose the one with the smallest level of risk.

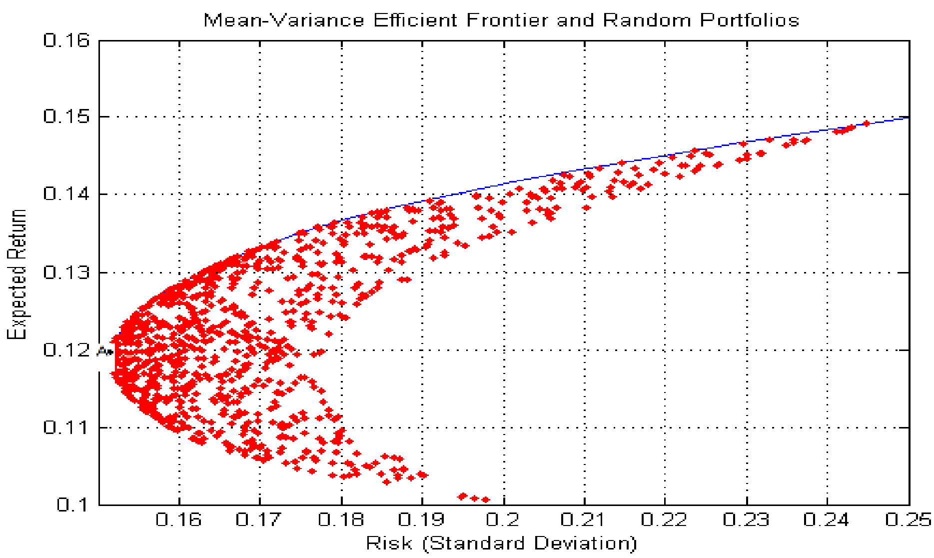
The line or frontier that depicts the best possible portfolio combinations is called mean-variance efficient frontier. Specifically, the efficient frontier represents that sets of portfolios with the highest rate of return for the given risk level, and lowest risk for given return level (Figure 1.2). In Figure 1.2, randomly produced by Matlab, at point A there is the portfolio with the minimum risk, also named global minimum variance portfolio. Above A and on the mean variance line, portfolios offer higher returns, but with higher risk level formatting the efficient frontier with risky assets line. Below efficient line, the red area in Figure 1.2, all portfolios cannot be chosen by a rational investor. To calculate the frontier the minimum variance has to be calculated under some restrictions:

a) Portfolio expected return is given and it is E(Rp);

b) All portfolio assets' weights sum up to 1, meaning that there is no leverage;

c) Portfolio asset weights are positive, implying that there is no short-selling.

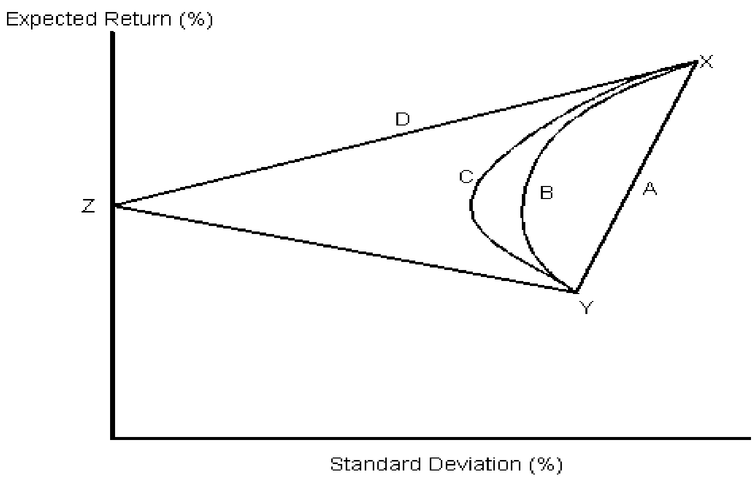
Figure 1.2. Matlab produced 1000 portfolios efficient frontier.



The shape of the frontier strongly depends on the extent of correlation between assets making up the portfolio. Usually, it has a concave shape. Assuming that we have two assets (1 and 2), and the extreme cases of perfect positive correlation ρ=1 and perfect negative correlation ρ=-1 between the two assets of the portfolio (Figure 1.3). As shown in Figure 1.3:

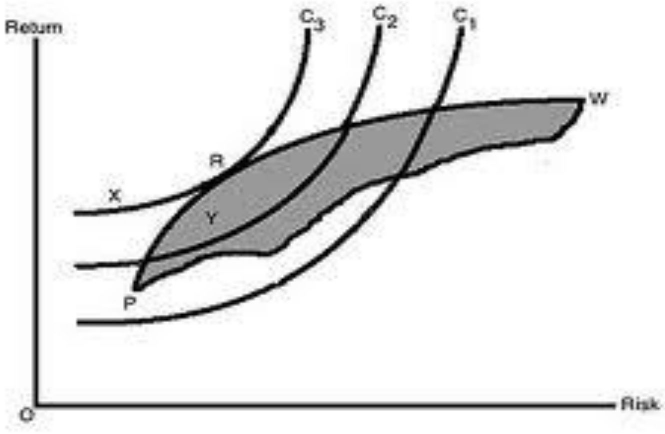
- A: ρ = 1. This indicates a perfect linear relationship between the two assets. Diversification has no potential benefits.
- B: ρ = 0.5. Portfolio diversification can be achieved. The lower the correlation, the greater the diversification benefits.
- C: ρ = 0. This indicates there is no linear relationship between the two assets. More diversification can be achieved then B.
- D: ρ = -1. This indicates a perfect inverse linear relationship. Notice the minimum-variance frontier has two linear segments: XZ and ZY. XZ (line D) is the efficient frontier. The risk of the portfolio can be reduced to zero if desired.

Figure 1.3. Different frontier shape due to asset correlation.



To find the most efficient portfolio for an investor, the point that the investor's best utility curve touches the efficient frontier must be found (Figure 1.4). As shown, the indifference curves are C1, C2 and C3 for the investor and PRW the efficient frontier with risky assets. Portfolio R is the most efficient and possible for this investor.

Figure 1.4. Efficient frontier-utility curves.



An indifference curve stated above is the presentation of an investor's preferences (John von Neumann and Oskar Morgenstern, 1947)[2]. It shows the disposition of the investor to suffer higher or lower risk for a given expected return level and the opposite. The indifference curves bear also some characteristics:

- All portfolios on an indifference curve mean the same for the investor, thus, he is indifferent which one he will choose, but portfolios below these curves shall be excluded.
- The indifference curves are parallel between them.
- Every investor can be characterized by numerous curves, which also show the consumption needs of the investor, if the consumption good is a portfolio.
- The indifference curve can be shifted upwards and left and show a more preferable condition for the investor.
- They specify the trade-off an investor is willing to do, in terms of risk-return, when a portfolio selection is concerned.

This Markowitz world expects investors to follow the rule of lowest risk level and highest expected return always. For this world to exist some assumptions had to be made[3]:

a. A portfolio of assets can be sufficiently described by the expected return and the variance of return of the portfolio, so investors' indifference curves are only function of return and risk as well.

b. Investors consider each investment alternative as being represented by a probability distribution of expected returns over a period.
c. Investors care about maximizing their wealth and not about the condition of their portfolio's assets.
d. Investors maximize one-period expected utility, and their utility curves (indifference curves) demonstrate diminishing marginal utility of wealth
e. Investors are rational, thus they choose portfolios with highest return for given risk level and lower risk for given return level.

1.2. PORTFOLIO MODELLING THEORY

Economic science after the introduction of Markowitz portfolio selection theory made strides of progress trying to describe the behavior of financial portfolios, assets and markets with new models, which used the efficient frontier as their elementary theory. Famous amongst them were the single index model, the CAPM model, the Fama-French three factor model, the APT model etch.

1.2.1. SINGLE INDEX MODEL (SIM)

The single index model is a return production model. It is the simplest of the models and it was used because, given a big number of assets in a portfolio, the consequent number of parameters needed to be calculated was enormous. An example, for N assets it was needed to find N expected returns, N variances and $(N^2-N)/2$ covariances, a total of $(N^2+3N)/2$ parameters. The simple idea behind the single index model is that many factors that influence the asset returns can be summarized in a major factor, that (a market index) having impact on the prices of assets in markets. Furthermore, there are microeconomic factors that affect every different asset without affecting the market. Thus, the single index model:

$$R_i = \alpha_i + \beta_i R_M + u_i \qquad (1.18)$$

where R_i the return of asset *i*,

α_i constant,

β_i the beta coefficient of the asset *i* (the market's influence on the asset *i*),

R_M the return of the market portfolio and

u_i an error term (influence on the R_i from unterritoried factors).

Asset return is split in two parts:

- systematic return: $\beta_i R_M$ which depends on macroeconomic factors, the market
- unsystematic return: $\alpha_i + u_i$ which depends on microeconomic factors not affecting the rest of the market

The expected return of the asset is given by:

$$\mathrm{E}(\mathrm{R_i}) = \alpha_i + \beta_\mathrm{i}\mathrm{E}(R_\mathrm{M}) \qquad (1.19)$$

where $\mathrm{E}(R_\mathrm{M})$ is the market portfolio expected return. (1.19) is split in $\beta_\mathrm{i}\mathrm{E}(R_\mathrm{M})$ which is the systematic expected return and α_i which is the unsystematic expected return of asset *i*. The variance of the asset return is:

$$Var(R_i) = \beta_i^2 Var(R_M) + Var(u_i) \qquad (1.20)$$

where $Var(R_M)$ is the variance of market portfolio, $Var(u_i)$ is the variance of the error term.

Again equation (1.20) is split in $\beta_i^2 Var(R_M)$ which is the systematic risk of asset *i* and $Var(u_i)$ which is the unsystematic risk of the asset. Finally, the covariance of the asset with the market is:

$$\mathrm{Cov}(\mathrm{R_i}, \mathrm{R_M}) = \beta_\mathrm{i}\mathrm{Var}(\mathrm{R_M}) \qquad (1.21)$$

or

$$\beta_\mathrm{i} = \frac{\mathrm{Cov}(\mathrm{R_i}, \mathrm{R_M})}{\mathrm{Var}(\mathrm{R_M})} \qquad (1.22)$$

where β_i is beta coefficient, a relative risk measure of the asset in market M towards the whole market risk.

- ✓ If β_i<0 then the asset returns move opposite with the market portfolio return;
- ✓ If $0 < \beta_i < 1$ then the asset moves defensively but with the market portfolio;

- ✓ If $\beta_i = 1$ the asset moves exactly as the market portfolio;
- ✓ If $\beta_i > 1$ the asset moves aggressively but with the market portfolio.

The single index model indicates that when an investor anticipates an upward movement in the market return, he increases the beta above 1 to beat the market and when he anticipates negative market performance, he chooses beta smaller than 1 to limit losses.

Two more equations of particular interest can be extracted:

$$\alpha_i = E(R_i) - \beta_i E(R_M) \quad (1.23)$$

for the (alpha) α coefficient and

$$R^2 = \rho_{i,M}^2 = \left[\frac{Cov(R_i, R_M)}{\sigma(R_i)\sigma(R_M)}\right] \quad (1.24)$$

where R^2 is called the coefficient of determination and gives the percentage of R_i's volatility that can be explained by the volatility of the R_M.

The number of parameters needed to be calculated to construct the efficient frontier using the single factor index model is 3N+ 2. For the single index model to be valid there are made some assumptions that need to be followed:

- $E(u_i\ ) = 0$ the expected value of error term is zero;
- $Cov(R_i, u_i) = 0$ there is no correlation between the error term and the market return;
- Coefficients α,β are constants.

Many times these assumptions are violated but still the single index model is a very useful return generator model.

1.2.2. CAPITAL MARKET THEORY (CMT)

Capital market theory is the theory that attempts to explain the pricing of an asset or a portfolio by combining not only risky assets to formulate the efficient frontier but also risk-free assets, assets of zero risk. CMT is based on Markowitz theoretical approach. The CMT is based on the following assumptions[3]:

- All investors follow Markowitz theory and purchase portfolios from the efficient frontier.
- There is a risk-free asset that all investors can borrow and lend infinitely on its rate of return, meaning there is accessible leverage.
- There is a unique and common investment horizon.
- The assets have to be linearly dependent, restriction implicit from the use of covariance that shows only linear dependence.
- The market is perfect, thus:
    - No taxes and no transaction costs exist;
    - No inflation exists;
    - Investors can't individually affect the market prices, they are price takers not market makers;
    - The assets are perfectly divided and an investor can invest in any quantity;
    - The assets are instantly liquid, can be sold and bought instantly;
    - Information is the same and available for everyone.

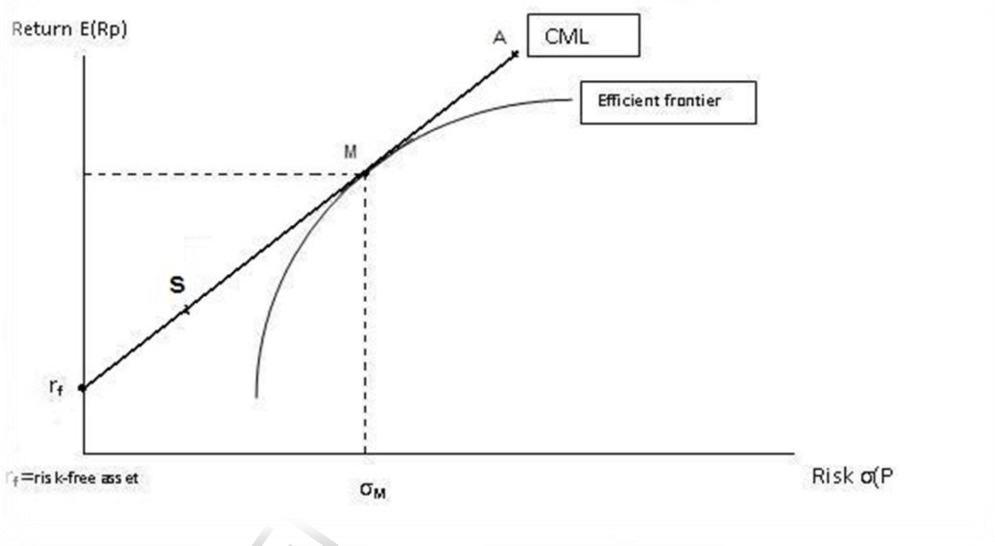
The above mentioned market is almost a perfect market and it is always in equilibrium.

1.2.3. CAPITAL MARKET LINE (CML)

Since the CMT is valid and there is a risk-free asset, this can be depicted by a line touching the efficient frontier in a specific point. The portfolio that represents that point is the tangent market portfolio and it is considered the most acceptable for an investor.[3]

The CML shows the expected return-risk relationship for efficient portfolios of minimum risk and maximum return. It **transforms** the Markowitz efficient frontier to a straight line (Figure 1.5). If the investor chooses a portfolio S between the r_f rate and M point he is lending money at the risk-free rate. The lending is equal to the area below CML and above the efficient frontier until point M. By choosing a portfolio on the CML after M point towards A point is like he is borrowing to the risk free rate. Again, his borrowings equal the area below the CML and above the efficient frontier. All portfolios below CML are inefficient and all portfolios above the CML are violating the Markowitz world rules. The optimal is the M portfolio or tangent market portfolio. At point r_f all the investment is on the risk-free asset. As mentioned above, the new efficient frontier is the CML and the investor chooses either if he will just invest on his own money or he will borrow and lend while doing it. The CML is a more realistic approach.

Figure 1.5. Combination of efficient frontier with risk-free asset gives the CML



The following equation is the CML equation for a portfolio S:

$$E(R_S) = r_f + \left(\frac{(E(R_M) - r_f) \times \sigma_S}{\sigma_M}\right) \qquad (1.25)$$

where $E(R_S)$ denotes the expected return of S portfolio,
r_f is the risk-free asset return,
$E(R_M)$ is the expected return of the efficient market portfolio,
σ_M and σ_S are the standard deviations of portfolios M and S respectively.

The term $\left(\frac{(\mathbf{E}(\mathbf{R_M})-\mathbf{r_f})\times\boldsymbol{\sigma}_\mathbf{S}}{\boldsymbol{\sigma}_\mathbf{M}}\right)$ is also called risk premium and is the excess return from r_f that the investor will require to invest in portfolio S.

1.2.4. SML (SECURITY MARKET LINE) AND CAPM (CAPITAL ASSET PRICING MODEL)

The security market line is the depiction of the relationship between the return and the risk when risk is expressed by beta, the relative risk and is the expression of the CAPM. The security market line is a useful tool in determining whether an asset being considered for a portfolio offers a reasonable expected return for risk. Individual assets and portfolios are plotted on the SML graph. If the security's risk versus expected return is plotted above the SML, it is undervalued because the investor can expect a greater return for the inherent risk. A security plotted below the SML is overvalued because the investor would be accepting less return for the amount of risk assumed. The market risk premium is determined from the slope of the SML.

A movement along the SML exhibits a change in the risk properties of a specific investment, a change in its systematic risk (its beta). This change affects only the individual investment. A change in the steepness of the SML slope incorporates a change in the preferences of the investor towards risk. The investor wants either higher or lower rates of return for the same risk; it is a change in the market risk premium. A change in the market risk premium will affect all investments. Finally, a shift in the SML reflects a change in market conditions, such as change of inflation levels. Again, such a change will affect all investments. The market portfolio beta is equal to unity (Figure 1.6).

The equation expressing the SML is the following:

$$E(R_i) = r_f + \left[\frac{\left(E(R_M) - r_f\right) \times \sigma_{i,M}}{\sigma_M^2}\right] = r_f + \left[\left(E(R_M) - r_f\right) \times \beta_i\right] \qquad (1.26)$$

where $E(R_i)$ is the security i (asset or portfolio) expected return,

r_f is the risk-free asset return,

$E(R_M)$ the expected return of the market portfolio,

$\sigma_{i,M}$ is the covariance between asset i and the market,

σ_M the standard deviation of returns of the market portfolio and

β_i the security i relative systematic risk coefficient beta in comparison with the market.

The CAPM (capital asset pricing model) was developed by Jack Treynor (1962)[4], William Sharpe (1964)[5], John Lintner (1965)[6] and Jan Mossin (1966)[7]. The assumptions valid in the CMT also apply here. The CAPM shows the relationship between the expected return and risk of an individual asset or a portfolio. For CAPM to be valid, the market portfolio M must be efficient. The equation that expresses this relationship is the SML equation (1.26). As mentioned above, the beta of the efficient market portfolio is 1 and the investor just decides how much he will invest on the efficient market portfolio and how much on the risk-free asset return. CAPM is used to price efficient or inefficient assets or portfolios by their relative risk. Both CML and CAPM consider the market portfolio to be efficient,

The differences between CML and CAPM are the following:

1) CAPM measures relative risk with the beta coefficient, while CML measures risk with the standard deviation of returns
2) CAPM (SML) is used to price efficient or inefficient portfolios or assets, while CML prices only efficient ones respectively.
3) The risk premium for CAPM is $\left[\left(E(R_M) - r_f\right) \times \beta_i\right]$, while for CML is $\left(\frac{(E(R_M) - r_f) \times \sigma_S}{\sigma_M}\right)$
4) The CAPM (the single factor model) is the base for many later developments just by expanding the number of factors.

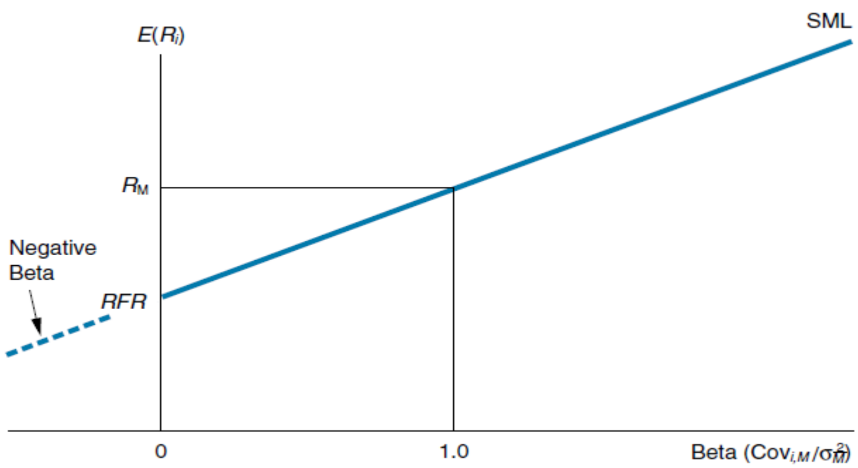
However there is much critique on the CAPM since many of its assumptions are invalid:

- It doesn't incorporate information on investments;
- It is a single-period model, after which it needs to be rebalanced;
- New assets having nonlinear dependence among them can't be priced, such as derivatives;

- Shortselling is not allowed;
- Risk and return measures are unconditional, investors cannot formulate their own;
- It explains the returns only by a single factor, while more can be used to increase creditability of a model;
- It assumes that all assets are tradable;
- Transaction costs and taxes are not included.

Many different models were proposed on the process to cover the blanks but still CAPM remains the base of them, disputable and studied enough.

Figure 1.6. SML (security market line) of CAPM



1.2.5. CAPM DERIVATIVE MODELS

To overcome the conditionality of moments used in CAPM for returns and risks, the **conditional CAPM** was proposed by Jagannathan and Wang in 1996[8]. The equations of the conditional CAPM are the following:

$$E(R_{it+1}|Z_t) = \gamma_0(Z_t) + \beta_{imt}\gamma_m(Z_t) \qquad (1.27)$$

$$\gamma_0(Z_t) = E\left(r_f|Z_t\right) \qquad (1.28)$$

$$\gamma_m(Z_t) = E(R_{mt+1}|Z_t) - \gamma_0(Z_t) \qquad (1.29)$$

and the market beta is :

$$\beta_{imt} = \frac{cov(R_{it+1}, R_{mt+1}|Z_t)}{var(R_{mt+1}|Z_t)} \qquad (1.30)$$

where $E(R_{it+1}|Z_t)$ is the return rate of asset *i* between time t and t+1 given the public information Z_t available at time t,

$\gamma_0(Z_t)$ is the expected return for all portfolios with zero market betas or risk free asset rate of return at time t+1,

β_{imt} is the market beta at time t

$\gamma_m(Z_t)$ is the risk premium for market beta at time t+1

R_{it+1} is the return it time t+1

Z_t is the available information in time t and

$R_{mt+1}$is the market portfolio return in time t+1.

The expected return depends linearly on the market risk and the changes in the market risk over time, so it depends on two different uncertainties. The Conditional CAPM is a generalization of the unconditional form and not a generalization to include other risk factors. The conditional CAPM tried to trace the effects of varying betas and risks premix, but it didn't incorporate still other factors influencing returns like firm size, book-to-market value and momentum.

To investigate the preferences of investors due to consumption and wealth needs, Merton in 1973[9] proposed his **intertemporal CAPM or ICAPM** which bears the following assumptions:

1. All assets have limited liability;
2. No transaction costs and no taxes;
3. Capital market is always in equilibrium;
4. Trading is continual in time;
5. Shortselling is allowed;
6. There are many investors that can lend or borrow at risk-free asset rate.

The equation for the intertemporal CAPM is:

$$\alpha_i - r = \frac{\sigma_i[\rho_{iM} - \rho_{in}\rho_{n,M}]}{[\sigma_M(1-\rho_{nM}^2)]}(\alpha_m - r) + \frac{\sigma_i[\rho_{in} - \rho_{iM}\rho_{n,M}]}{[\sigma_n(1-\rho_{Mn}^2)]}(\alpha_n - r) \qquad (1.31)$$

where *I* =1,2,3,…..,n-1 number of assets

α_i , α_m, α_n, return of asset *i*, market M and asset *n* respectively, r = risk free asset return,

σ_i, σ_n, σ_M standard deviation of asset *i*, asset *n* and market M respectively, and

$\rho_{a,b}$ correlation coefficient between *a,b*.

To overcome the problem of unlimited lending and borrowing at the risk-free asset rate, Black in 1972 introduced the zero-beta CAPM or **Black CAPM**.[10] Risk free asset may not exist due to inflation uncertainty and credit rationality. Even if there is not a risk free asset, if the tangent to the market portfolio is extended we have another portfolio g. Thus, the CAPM becomes:

$$E(R_i) - E(R_G) = \beta_i\big(E(R_M) - E(R_G)\big) \qquad (1.32)$$

where $E(R_i)$ is the expected return of asset *i*,

$E(R_G)$ is the expected return of asset G,

$E(R_M)$ is the expected return of the market portfolio and

β_i is the beta coefficient of asset *i*.

G is a portfolio to which the return is uncorrelated with the return of the market portfolio and it is called zero-beta portfolio. All frontier portfolios have companion portfolios that are uncorrelated. The zero-beta portfolio is the inefficient portfolio mirror of the efficient one, situated on the lower part of the efficient frontier. It assumes shortselling existence. If no shortselling takes place, the Black CAPM is invalid.

Douglas Breeden and Robert Lucas, presented in 1979 the consumption based CAPM or **CCAPM**.[11] The equation behind CCAPM is the following:

$$E(R_i) = r_f + \beta_c(E(R_M) - r_f) \qquad (1.33)$$

where $E(R_i)$ denotes the asset *i* expected return

r_f the risk free asset rate of return

β_c the consumption beta coefficient and

$E(R_M)$ the market portfolio expected return.

The β_c coefficient is the fraction of the covariance of i asset returns and the consumption growth towards the covariance of the market return and the consumption growth.

In the CCAPM, an asset is more risky if it pays less when consumption is low (savings are high). The consumption beta is 1, if the risky assets move perfectly with the consumption growth. The CCAPM, like the CAPM, has been criticized because it relies on only one parameter. The CCAPM remedies some of the weaknesses of the CAPM. Moreover, it directly bridges macro-economy and financial markets, provides understanding of investors' risk aversion, and links the investment decision with wealth and consumption.

To overcome the restriction of no taxes and no dividends, Brennan (1970)[12] and Lally (1992)[13] proposed two different models given by the following equations:

$$E(R_j) = r_f + \beta_j\big(E(R_M) - r_f - T(\delta_M - r_f)\big) + T(\delta_j - r_f) \qquad (1.34)$$

$$E(R_j) = r_f(1 - t_i) + \beta_j(E(R_M) - r_f(1 - t_i)) \qquad (1.35)$$

where δ_j denotes the dividend yield on asset *j*

δ_M is the dividend yield on the market portfolio

T is the aggregate tax factor, a complex weighted average of tax rates

t_i is the investor's tax rate

$E(R_j)$, $E(R_M)$, r_f are the expected return of asset *j*, market *m* and the risk-free asset return respectively and

β_j Beta coefficient of asset *j*

The only applicable situation of these models was the Australian and New Zealand economies.

Finally, to incorporate the international market portfolio the **International CAPM** was expressed as follows (Adler and Dumas, 1983)[14]:

$$E(R_j) = r_{fd} + (E(R_{Mi}) - r_{fi})\beta_j + (c_i FCRP_i) \qquad (1.36)$$

where $E(R_j)$ denotes the expected return of asset *j*

r_{fd} the domestic-currency expressed risk-free return

r_{fi} the international currency risk-free return

$E(R_{Mi})$ is the world market portfolio expected return

β_j is the beta coefficient of asset *j* in comparison with the world market portfolio

c_i is the sensitivity of the domestic currency returns to changes in foreign currencies

$FCRP_i$ is the difference between the expected future spot exchange rate and the forward rate, divided by today's spot rate.

All returns are expressed in domestic currency of the asset j country. The assumptions needed for the International CAPM to be valid is the global market to be integrated and no deviations to exist from PPP (purchasing power parity) hypothesis.

1.2.6. MULTI-FACTOR MODELS

Multi factor models were introduced to fill the gaps of the one factor models. Multi-factor models proved that they can explain the return volatility of an asset or a portfolio with a largest percentage than single factor models. First, to conduct major work on this field was Stephen Ross, in his article in the Journal of Economic Theory in 1976, introducing his **APT** model or Arbitrage Pricing Theory[15]. It is a model of generating returns, as the previously mentioned ones in an equilibrium market. The model's equations are the following:

$$R_j = a_j + \beta_{j1}F_1 + \beta_{j2}F_2 + \cdots + \beta_{jk}F_k + e_j \qquad (1.37)$$

where R_j the return of asset *j*

a_j is a constant for asset *j*

β_{jk} is the sensitivity of asset *j* to the *k* macroeconomic factor

F_k is a systematic factor and

$$E(R_j) = r_f + \beta_{j1}RP_1 + \beta_{j2}RP_2 + \cdots + \beta_{jk}RP_k \qquad (1.38)$$

where $E(R_j)$ the expected return of asset *j*

r_f risk free asset return

β_{jk} is the sensitivity of *j* asset to the *k* macroeconomic factor

RP_k is the risk premium of the *k* factor

Assumptions of APT:

• Investors are risk averse;

• No transaction costs or taxes exist;

• No restrictions on short sales for any asset;

• In equilibrium no arbitrage possibilities exist;

• Every asset wants to be held by investors, the total demand for every asset is positive;
• All investors have homogeneous expectations.

At a first glance, we could interpret the APT as a generalization of the CAPM single factor model to a multibeta (multifactor) model. The CAPM is concerned to find equilibrium of the market by holding optimal portfolios as implied by portfolio theory, whereas the APT finds this equilibrium by ruling out arbitrage possibilities. Arbitrage is the investor's opportunity to buy (get long on) the undervalued and sell (get short on) the same overvalued asset and make a sure profit with no risk undermining the process. The factors mostly identified in the APT are related to macroeconomic factors. Chen, Roll and Ross[16] in 1986 described the main macroeconomic factors to be:

- inflation and rate surprises;
- gross national product surprises;
- government and corporate bonds yield curves changes;
- bond default premium surprises.

Most investigations show that three to five factors are sufficient to explain the observed returns, adding more factors does not improve the result substantially. The number of factors cannot be larger than the number of assets. The investigations give evidence that the APT can explain the observed returns quite good for long and medium time horizons. For time horizons below one year, the factors are not able to explain the data adequately.

The assumption of a linear relation between the assets in the CAPM is replaced by the assumption of a linear relationship with risk factors. As in the CAPM this assumption limits the theory as nonlinear assets, financial derivatives, can't be modeled adequately. The advantage of the APT is that, it is not necessary to form a market portfolio to include these assets. It enables to restrict the analysis to a certain group of assets, provided that the number of assets is sufficiently large.

The more assets are included the more precise the findings should be, with restricting to only a few assets the pricing relation does not break down as in the CAPM, it only becomes less precise. In practice, indexes, diversified portfolios, oil prices, commodities and other can be used as factors instead of macroeconomical ones due to the exclusive dependence of some assets on the above ‘tailor-made’ factors. Different factors apply in different economies, examining periods and group of assets. The APT and the CAPM still remain the two fundamental theories in asset pricing and asset management owns a lot to them.

In 1993, Eugene Fama and Kenneth French published their three factor model in asset pricing.[17] The model is mainly applicable on equities and on equity portfolios. The equation of the three-factor model is:

$$R_{jt} - r_f = a_j + b_j(R_{Mt} - r_f) + b_{SMB}SMB_t + b_{HML}HML_t + e_{jt} \qquad (1.39)$$

where $R_{jt} - r_f$ denotes the excess return of asset *j* from r_f which is the risk-free rate return

a_j is a constant for asset *j* indicating management performance

b_j is the sensitivity coefficient of asset *j* towards the $R_{Mt} - r_f$ parameter

$R_{Mt} - r_f$ the excess market portfolio return from r_f

b_{SMB} is the sensitivity coefficient towards the SMB_t factor

SMB_t is the small-minus-big size factor

$b_{HML}$is the sensitivity coefficient towards the HML_t factor

HML_t is the high-minus-low factor and

e_{jt} is the error term of the regression for asset *j*

SMB represents the factor that is constructed by sorting the portfolios, in terms of containing assets with small market capitalization minus portfolios containing big market capitalization (small minus big, SMB, the size proxy).

HML represents the factor that is constructed by sorting the portfolios in terms of containing assets with high book-to-market value minus portfolios containing low book-to-market value (high minus low, HML, the BE/ME proxy).

The sensitivity factors of the SMB and HML are evaluated by linear regressions and they can take positive and negative value. The above mentioned three factor model can explain more than 90% of the returns while the CAPM could explain about 60%-70% of the returns based on historical data. However, more factors have been identified that did not participate in the asset pricing, but explain a large percentage of the returns, called anomalies. Some of them are market equity ME, earnings to price ratios P/E, leverage, BE/ME and cash flow to price ratio CF/P. All these factors, about five of them, fit well in the three factor model, depending on the examined market and country, but cannot be explained by the CAPM. The factors are arguably locally-centered to each country and transform the macroeconomic APT factors to microeconomic Fama French factors.

Finally, constant alpha, regression evaluated, shows the management performance in comparison with the market. If alpha is positive, the portfolio overperformes the market, if alpha is negative it underperforms the market, if alpha is zero it marches with the market.

Mark Carhart in his "On Persistence in Mutual Fund Performance" article published in 1997,[18] presented an extension of the Fama-French three factor model:

$$\left(R_{jt} - r_f\right) = a_j + b_j(R_{Mt} - r_f) + b_{SMB}SMB_t + b_{HML}HML_t + b_{MOM}MOM_t + e_{jt} \qquad (1.40)$$

where $R_{jt} - r_f$ denotes the excess return of asset *j* from r_f which is the risk-free rate return

a_j is a constant for asset *j* indicating management performance

b_j is the sensitivity coefficient of asset *j* towards the $R_{Mt} - r_f$ parameter

$R_{Mt} - r_f$ the excess market portfolio return from r_f

b_{SMB} is the sensitivity coefficient towards the SMB_t factor

SMB_t is the small-minus-big parameter

$b_{HML}$is the sensitivity coefficient towards the HML_t factor

HML_t is the high-minus-low parameter and

e_{jt} is the error term of the regression for asset *j*

b_{MOM} is the sensitivity coefficient towards the MOM_t factor

MOM_t the momentum factor

He added the momentum factor (MOM), described as the tendency of an asset to follow a short term memory, meaning follow the recent return direction. The momentum portfolios can be obtained by sorting them in high performance and low performance during a past lagged period and subtracting the low 30% of them from the high 30% (winners to losers proxy). The examining period is usually one month, 6 months and one year. It is a fine strategy interpreter of mutual funds and other funds management efficiency.

1.3. PERFORMANCE MEASURES

In the financial industry and, especially, in the mutual fund industry, performance measurement is a very important decision making parameter. If hedge funds are excluded, which are absolute return oriented financial instruments, the majority of financial vehicles need to be compared and categorized according to performance. Performance is not only return but also risk, while sometimes risk is more important, e.g. derivative products. As mentioned earlier, an investor if rational wants to find the most profitable investment among investments with the same level of risk and the safest among the ones with the same level of return.

Moreover, measuring risk and return can help an investor hedge the risk emerging from his choices and sometimes speculating if he encounters mispricing. In modern portfolio theory, the choice of a portfolio derives from the appropriate measure of return risk relationship, thus, making the performance measures vital for the financial sector.

There are numerous performance measures in the bibliography, especially because each one fits best to a different class of financial assets or to a different return distribution of the assets. Performance measures can be based on standard deviation, beta coefficient, lower partial moments, the drawdown of a fund and the value-at-risk to measure risk as a denominator. In order to measure the return nominator, they use the excess return and the higher partial moments. By combining return and risk we have a range of measures analyzed below. Of course, someone can measure fund performance only by using net asset value changes, which is an absolute return measure but it is not advised since it omits the risk parameter.

1.3.1. SHARPE RATIO

Sharpe ratio is the most used performance measure by economists, analysts, authors and others. Introduced by Sharpe in 1966,[19] Sharpe ratio or reward to variability is expressed as the fraction of excess return of a portfolio or fund divided with the standard deviation of returns:

$$\text{Sharpe Ratio} = \frac{r_P - r_f}{\sigma_p} \qquad (1.41)$$

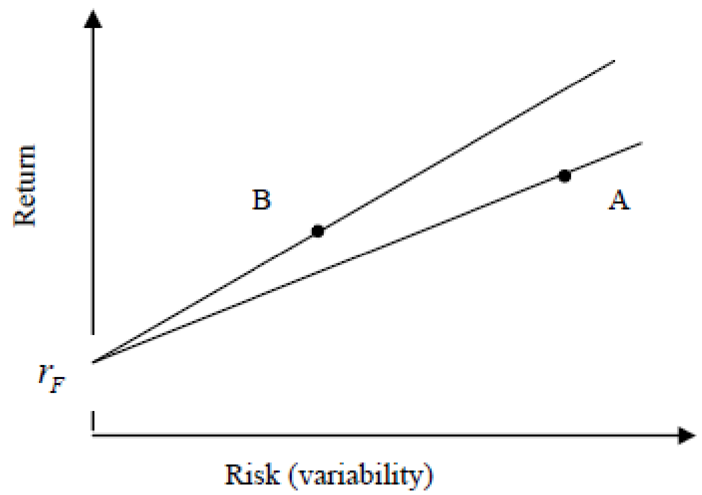
where r_P is the return of the portfolio or fund;

r_f is the risk-free asset return;

σ_p is the standard deviation of the portfolio

It is based on the capital market line and indicates the slope of the CML. The returns and deviation usually are annualized. Risk averse investors according to Sharpe ratio should look for higher excess return and lower risk in the same time, so the biggest the ratio the best the portfolio.

Figure 1.7. Graphic description of Share ratio for portfolios A and B.



As shown in Figure 1.7 the ratio measures the effectiveness between different portfolios. The steeper the line that connects the risk-free asset return with the portfolio, the largest the Sharpe ratio (which is the gradient of this line). Sharpe is not a risk-adjusted performance measure but a comparing ratio, used in ranking and sorting different portfolios and funds. It may also be used to compare portfolios with the market portfolio, usually a well-known index portfolio.

Positive Sharpe ratio indicates portfolio overperformance in comparison with the market, while negative Sharpe ratio indicates that investing on this portfolio is less profitable than investing on the market. Finally, a negative Sharpe ratio shows that investing only on the risk-free asset is better than the under examination portfolio.

Basic assumption is that the return distribution is normal but when returns are not normally expressed, it gives misleading results. However, recent studies[20] show that comparing rankings generated by Sharpe ratio and other performance measures are statistically and practically identical, even for abnormal return products like hedge funds. This lack of abnormality drove the need to incorporate skewness and curtosis of return distribution to modern performance measures.

1.3.2. MODIGLIANI-MODIGLIANI RAP OR M^2 MEASURE

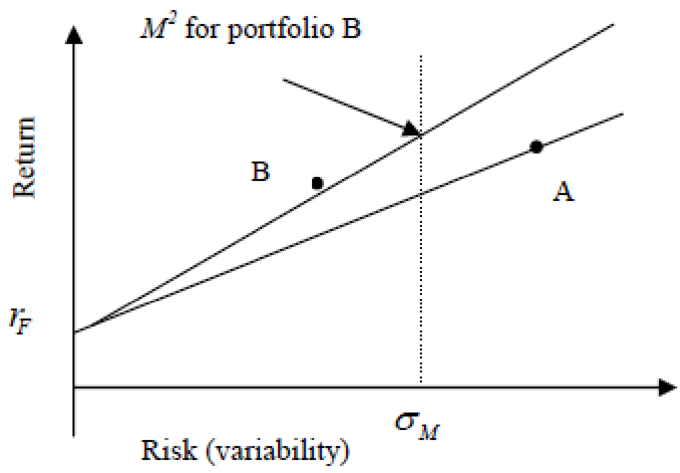
This measure was proposed by Leah Modigliani and her grandfather Franco Modigliani (Nobel Prize) in 1997.[21] M^2 is a risk-adjusted performance (RAP) measure that bears the market portfolio return and is used to compare portfolios with different levels of risk.

$$M^2 = (r_P - r_f)\frac{\sigma_M}{\sigma_P} + r_f \quad (1.42)$$

where r_P is the return of the portfolio or fund;
r_f is the risk-free asset return;
σ_p is the standard deviation of the portfolio;
σ_M is the standard deviation of the market portfolio return.

The M^2 measure is derived from the CML by adding the market portfolio as shown in Figure 1.8 below. It shows that, there is a return penalty for a portfolio with risk level higher than the benchmark risk level (market) and a return reward for a portfolio with lower risk level than the benchmark. This notion originated from the idea that, especially in corporate asset portfolios, a portfolio can transit to higher or lower risk level by borrowing/lending to the risk-free rate, thus, by increasing/reducing leverage (levering/unlevering terminology also used).

Figure 1.8. Two portfolios compared with the M^2 measure.



Levering for an investor means borrowing at the risk-free rate and making the portfolio larger, both in terms of risk and return and vice-versa. The bigger the measure, the higher the performance of the portfolio or fund evaluated.

1.3.3. TREYNOR RATIO

The Treynor ratio (also called reward-to-volatility ratio) was introduced by Jack Treynor.[22] The equation of the Treynor ratio is as follows:

$$\text{Treynor ratio} = \frac{(r_P - r_f)}{\beta_p} \quad (1.43)$$

where r_P is the return of the portfolio or fund;
r_f is the risk-free asset return;
β_p is the standard deviation of the portfolio.

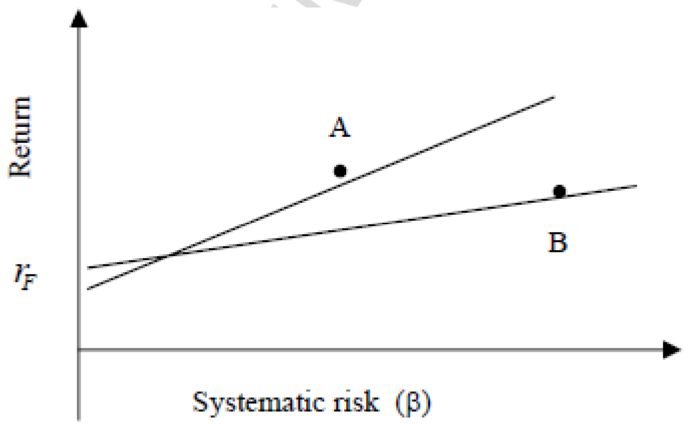
The measure is similar to the Sharpe ratio with the only difference that instead of the standard deviation of returns of portfolio or fund it uses as a denominator the relative risk of portfolio. This relative risk is expressed through the beta coefficient of the portfolio. This ratio is based on the realization of the CAPM description of the market returns and incorporates all the assumptions made for this model.

The beta coefficient measures the systematic (market) risk and not the absolute risk of the portfolio. In that sense, it excludes unsystematic risk assuming that all investors manage well-diversified risk, which is not accounted in the ratio. In case of unsystematic risk existence the ratio is invalid (Figure 1.9).

Similarly to the Sharpe ratio, it is used to rank portfolios and compare them with the return of the market, but only portfolios with the same level of market risk. Alternatively stated, it measures the portfolio or fund's sensitivity to market (benchmark) return variation.

Positive and negative Treynor ratios have a two-way explanation and, specifically, the negative value can be explained as follows: either by a negative sensitivity of the portfolio to the market, meaning a great management, or by an underperformance of the portfolio towards the risk-free asset, meaning a bad management. Respectively, a positive value indicates either overperformance of the fund or a combination of fund underperformance with negative fund correlation with the market.

Figure 1.9. Treynor ratio graphic depict for two portfolios.



1.3.4. APPRAISAL RATIO AND INFORMATION RATIO

Appraisal ratio was introduced by Jack Treynor and Fischer Black in 1973.[23] Appraisal ratio is described by the following equation:

$$\text{appraisal ratio} = \frac{\alpha}{\sigma_\varepsilon} \qquad (1.44)$$

where α is the Jensen's alpha and
σ_ε is the specific risk.

It compares Jensen's alpha that measures the excess return adjusted for systematic risk at the nominator, and the specific risk or standard deviation of residuals at the denominator. It is a ratio used to measure a fund's manager selection ability. The appraisal ratio measures the managers' performance, by comparing the return of their chosen assets to the specific risk of those selections. The higher the ratio, the better the asset chosen.

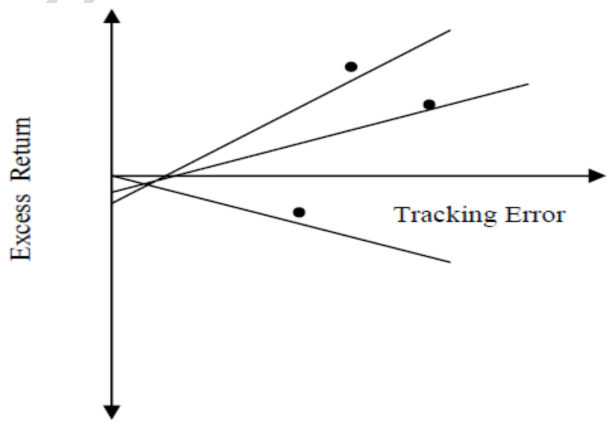
Another way to express the above is the information ratio developed by Grinold in 1989.[24] The equation is as follows:

$$\text{Information ratio} = \text{IR} = \frac{E(R_P - R_B)}{\sigma(R_P - R_B)} \qquad (1.45)$$

where R_P is the return of the portfolio and
R_B is the return of the benchmark.

The nominator of the fraction is the expected excess return of the portfolio from the benchmark and the denominator is the standard deviation of the excess return or else called 'tracking error'. The ratio is the similar to the Sharpe ratio, with the difference of use of excess return and the use of a benchmark instead of a risk-free asset.

Figure 10. Information ratios for three portfolios.



A negative IR is indications of fund's underperformance towards the benchmark (usually an index), while a positive one is an indicator of overperformance. The ratio also proposes the maximization of excess return and for the same period minimization of the undertaken risk. Finally, it can't be used to compare portfolios of different risk levels since it doesn't take into account systematic risk.

1.3.5. JENSEN'S ALPHA

Jensen's Alpha was introduced by Michael Jensen in 1968. It is historically the first benchmark-based measure to be used. It measures the excess return produced by management of a fund over the expected return due to better market timing and security selection. The Jensen's alpha is a relative risk-adjusted performance measure, that is used to compare portfolio with the benchmark portfolio. It is yet again another measure based on the CAPM and is given by the following equation:

$$\alpha_P = [E(R_P) - r_f] + \beta_p[E(R_M) - r_f] \qquad (1.46.)$$

where α_P is the Jensen's alpha;
$E(R_P)$ is the portfolio's expected return;
r_f is the risk-free asset return;
β_p is the sensitivity or beta coefficient of the portfolio towards the market or benchmark portfolio;
$E(R_M)$ is the expected return of the benchmark.

The Jensen's alpha is produced by regression as described in equation (1.46). If alpha is positive, it indicates that the fund management or portfolio *p* overperforms the benchmark, while a negative alpha indicates a portfolio underperformace. The benchmark portfolio alpha is zero. This excess return produced can be attributed to market timing, the ability to predict the movement of the market portfolio and higher security selection ability.

The Jensen's alpha can be transformed into other alphas, like the Fama-French three factor model alpha and the Carhart's four factor model alpha, each time produced by regression. The difference in each case is the change of the market benchmark and the addition of factors characterizing it, in the place of the classic CAPM.

1.3.6. THE TREYNOR AND MAZUY MEASURE

A similar with Jensen's alpha performance measure is the Treynor and Mazuy measure. It was introduced by 1966 by Jack Treynor and Kay Mazuy. This measure is also a relative risk-adjusted performance measure as in the case of Jensen's alpha. It is given by regression of the following equation:

$$R_P - r_f = \alpha_P + \beta_p[(R_M) - r_f] + c_p[(R_M) - r_f]^2 \qquad (1.47)$$

where α_P is the Jensen's alpha;
(R_P) is the portfolio's return;
r_f is the risk-free asset return;
β_p is the sensitivity or beta coefficient of the portfolio towards the market or benchmark portfolio;
(R_M) is the expected return of the benchmark and
c_p is the market timing coefficient.

Coefficient of market timing indicates if the fund management has market timing ability or not. If the coefficient is positive, the manager can predict the movement of the market, while if it is negative it shows that the management is acting without predicting.

1.3.7. ADJUSTED SHARPE RATIO

Adjusted Sharpe ratio was introduced by Pezier in 2006 and it incorporates the abnormal return distribution. Adjusted Sharpe Ratio (ASR) explicitly adjusts for skewness and kurtosis by incorporating a penalty factor for negative skewness and excess kurtosis. It is given by the following equations:

$$ASR = SR[1 + \left(\frac{S}{6}\right) SR - \frac{(K-3)}{24} SR^2] \qquad (1.48)$$

$$S = \frac{1}{N}\sum_{i=1}^{N}\left[\frac{(R_i - E(R_i))}{\sigma_{Ri}}\right]^3 \qquad (1.49)$$

$$K = \frac{1}{N}\sum_{i=1}^{N}\left[\frac{(R_i - E(R_i))}{\sigma_{Ri}}\right]^4 \qquad (1.50)$$

where ASR is the adjusted Sharpe ratio measure
SR is the Sharpe ratio given by equation (1.41),
S is the skewness of a distribution given by equation (1.49),
K is the kurtosis of a distribution given by the equation (1.50),
R_i is the return of *i*,
σ_{Ri} is the standard deviation of returns of *i*,
$E(R_i)$ is the average return of *i*,
N is the number of observations of returns of the distribution.

The mean is known as the first moment of the return distribution, variance or standard deviation the second moment, skewness the third moment and kurtosis the fourth moment. Kurtosis provides additional information about the shape of a return distribution. It measures the weight of returns in the tails of the distribution relative to standard deviation and is more a measure of flatness of the distribution. The kurtosis of a normal distribution is 3. If kurtosis is greater than 3 it indicates a distribution with fat tails and if it is less than 3 it indicates a less peaked distribution with thin tails. Since the 4^{th} power is used, both negative and positive extremes add positive contributions.

Skewness of a normal distribution is zero and indicates in which direction the distribution is skewed. If there are more returns extending to the right tail of a distribution, it is positively skewed and if they are more returns extending to the left, it is negatively skewed due the 3^{th} power that is used.

Equity markets tend to have fat tails thus there is a higher probability of extreme events than the normal distribution suggests. Therefore, statistics calculated using normal assumptions underestimate risk. Investors should prefer high average returns, lower variance or standard deviation, positive skewness and lower kurtosis.

1.3.8. MARKET RISK-ADJUSTED PERFORMANCE MEASURE (MRAP)

In 2005 Scholz and Willkens[25] introduced the market risk-adjusted performance measure. It derives from the Treynor ratio by adding the risk-free asset return and is given by the following equation:

$$\mathrm{MRAP} = \frac{(\mathrm{E}(\mathrm{R_i}) - \mathrm{r_f})}{\beta_\mathrm{i}} + \mathrm{r_f} \qquad (1.51)$$

where $\mathrm{E}(\mathrm{R_i})$ is the expected portfolio i return,
$\mathrm{r_f}$ is the risk-free asset return and
β_i the sensitivity of the portfolio i towards the market.

MRAP allows for a comparison of portfolio returns with those of the market, and it is easy to interpret. As it measures returns relative to market risk instead of total risk, it is suitable for investors that invest in many different assets.

1.3.9. UPSIDE-DOWNSIDE RISK ADJUSTED MEASURES

New financial products and funds such as derivatives and hedge funds, respectively, are designed to be asymmetric in their return distributions. Investors are less concerned with variability on the upside, but are more concerned about variability on the downside. This lead to an extended family of risk-adjusted measures reflecting the downside risk tolerances of investors.

Semi-standard deviation measures the variability of underperformance below a minimum target rate. The minimum target rate could be the risk free rate, the benchmark or any other fixed return required by the investor. All positive returns are included as zero in the calculation of semi-standard deviation or downside risk. Downside risk is expressed as:

$$\text{downside risk} = \sigma_\mathrm{D} = \sqrt{\sum_{\mathrm{i}=1}^{\mathrm{T}} \frac{(\min(\mathrm{R_i} - \mathrm{R_T}, 0))^2}{\mathrm{T}}} \qquad (1.52)$$

Downside potential is the average sum of returns below the accepted one:

$$\text{downside potential} = \sum_{i=1}^{T} \frac{(\min(R_i - R_T, 0))}{T} \qquad (1.53)$$

Similarly for the upside risk and potential we have the following expressions:

$$\text{upside risk} = \sigma_U = \sqrt{\sum_{i=1}^{T} \frac{(\max(R_i - R_T, 0))^2}{T}} \qquad (1.54)$$

and

$$\text{upside potential} = \sum_{i=1}^{T} \frac{(\max(R_i - R_T, 0))}{T} \qquad (1.55)$$

where R_i is the return of the fund or portfolio,

R_T is the minimum accepted return and

T is the number of periods calculated.

From the combination of the above equations (1.52)-(1.55) we have the following measures:

1) **Omega** (Ω) ratio introduced by Shadwick and Keating[26] in 2002 given by the following equation:

$$\Omega = \frac{\text{upside potential}}{\text{downside potential}} = \frac{\sum_{i=1}^{T} \frac{(\max(R_i - R_T, 0))}{T}}{\sum_{i=1}^{T} \frac{(\min(R_i - R_T, 0))}{T}} \qquad (1.56)$$

Omega ratio can be used as a ranking statistic, the higher the better, it equals 1 when R_T is the mean return, it implicitly adjusts for both skewness and kurtosis in the return distribution.

2) **Omega-Sharpe ratio** similar to omega ratio in ranking portfolios and funds:

$$omegaSharpe\ \text{ratio} = (\Omega SR) = \Omega - 1 \qquad (1.57)$$

3) **Bernardo-Ledoit**[27] **gain-loss ratio** which is the omega ratio for $R_T = 0$:

$$\text{gain} - \text{loss ratio} = \frac{\sum_{i=1}^{T} \frac{(\max(R_i, 0))}{T}}{\sum_{i=1}^{T} \frac{(\max(0 - R_i, 0))}{T}} \qquad (1.58)$$

4) **Sortino ratio**[28] introduced in 1991 by Sortino, Van Der Meer and Platinga:

$$\text{sortino ratio} = \frac{R_P - R_T}{\sigma_D} \qquad (1.59)$$

which is the Sharpe ratio by replacing the risk free asset return with the minimum accepted one and the standard deviation with the downside risk. It focuses on returns below the mean return of a portfolio or fund and it appeals to risk averse investors.

5) **Upside potential ratio**[29] again introduced by Sortino, Van Der Meer and Platinga in 1999. It is expressed as the ratio of upside potential to downside risk:

$$\text{upside potential ratio} = \frac{\sum_{i=1}^{T} \frac{(\max(R_i - R_T, 0))}{T}}{\sqrt{\sum_{i=1}^{T} \frac{(\min(R_i - R_T, 0))^2}{T}}} \qquad (1.60)$$

It is used to rank funds or portfolios. The denominator is downside risk as calculated in the Sortino ratio. UPR uses the same reference rate for evaluating both profits and losses. Moreover, the UPR increases with its numerator, which measures the expected return above minimum acceptable return ,and decreases as its denominator increases helping investors to measure rise potential while protecting against losses.

6) **Prospect ratio** introduced by Watanabe[30] in 2006 is based on the prospect theory. Prospect theory is a theory proposed by Khaneman and Tversky[31] in 1979, in response to the expected utility theory. Under prospect theory, a value is assigned to gains and losses rather than to final assets and probabilities are replaced by decision weights. The equation is as follows:

$$\text{prospect ratio} = \frac{\frac{1}{N}\sum_{i=1}^{T}(\max(R_i, 0) + 2.25\min(R_i, 0) - R_T)}{\sigma_D} \qquad (1.61)$$

1.3.10. VAR ADJUSTED PERFORMANCE MEASURES

The VaR (value-at-risk) stands for the maximum potential losses of a portfolio during a specific period under a specific confidence level of the return distribution. In simple words, the losses in all cases of extreme events at the confidence level percentage. VaR is a parameter used by investors to measure risk of their investment in plain amounts and it gives the limits of the return distribution. Nevertheless VaR can’t really promise no extreme negative returns will appear. Based on VaR derived the following different performance measures for funds:

1) **Standard VaR risk measure or Sharpe ratio based on VaR**, introduced by Dowd[32] in 2000 and is given by the following equation:

$$\text{standard VaR measure} = \frac{(R_i - r_f)}{VaR_i} \quad (1.62)$$

where R_i the expected return of fund *i*,

r_f the risk-free asset return and

VaR_i the value-at-risk of fund *i*.

VaR does not provide any information about the shape of the tail or the expected size of loss beyond the confidence level. The measure deals with classic measure drawbacks like their inability to distinguish between upside and downside risks but it is applicable to compare funds at the same level of confidence.

2) **Reward to VaR** which is the standard VaR measure if VaR_i is divided by the portfolio or fund value and is described by the following equation:

$$\text{reward} - \text{to} - \text{VaR} = \frac{(R_i - r_f)}{\frac{VaR_i}{V_i}} \quad (1.63)$$

$$VaR_i = -\left[E(R_i) + Z_a \sigma_{R_i}\right] \quad (1.64)$$

where R_i the expected return of fund *i*,

r_f the risk-free asset return,

VaR_i is the value-at-risk of fund *i*,

V_i is the initial value of the fund,

Z_a is the number attributed to the specific confidence level for the standard normal distribution and

σ_{R_i} is the standard deviation of the return of fund *i*.

The denominator expresses potential losses as a percentage of the initial portfolio value and not as an amount of losses.

3) **Sharpe ratio based on the conditional VaR** introduced by Agarwal and Naik[33] in 2004. It derives from the conditional VaR which is otherwise known as expected shortfall, meaning expected loss, tail VaR or tail loss and takes into account the shape of the return distribution tail. Historical simulation (Monte Carlo) method is used for calculating conditional VaR. It describes the

magnitude of the losses in case of a negative extreme event while not using the confidence level below which disaster may happen. It is described as follows:

$$\text{conditional Sharpe ratio} = \frac{(\mathrm{R_i} - \mathrm{r_f})}{\text{conditionalVaR}_\mathrm{i}} \qquad (1.65)$$

and

$$\text{conditional VaR} = \mathrm{E}(-\mathrm{R_i}|\mathrm{R_i} < -Va\mathrm{R_i}) \qquad (1.66)$$

where $\mathrm{R_i}$ the expected return of fund i,

$\mathrm{r_f}$ the risk-free asset return,

$\mathrm{VaR_i}$ is the value-at-risk of fund i.

4) **Modified Sharpe ratio** introduced by Gregoriou and Gueyie[34] in 2003. It is described by the following equation:

$$\text{modified Sharpe ratio} = \frac{(\mathrm{R_i} - \mathrm{r_f})}{\mathrm{MVAR}} \qquad (1.67)$$

and

$$\mathrm{MVaR} = \left[-\mathrm{R_i} + \sigma_{\mathrm{R}_i}\left\{\mathrm{Z_a} + \frac{(\mathrm{Z_a^2} - 1)}{6}\mathrm{S} + \frac{(\mathrm{Z_a^3} - 3\mathrm{Z_a})}{24}\mathrm{K} - \frac{(2\mathrm{Z_a^3} - 5\mathrm{Z_a})}{36}\mathrm{S}^2\right\}\right] \qquad (1.68)$$

where $\mathrm{R_i}$ the expected return of fund *i*,

σ_{R_i} the standard deviation of returns of fund *i*,

$\mathrm{Z_a}$ is a number depending on the confidence level,

S is the excess skewness given by equation (1.49) and

K is the excess kurtosis given by equation (1.50).

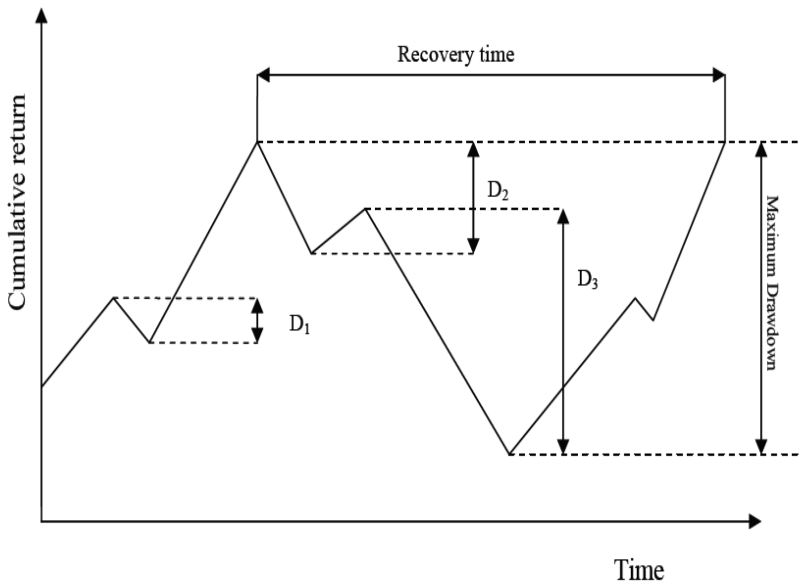
1.3.11. DRAWDOWN BASED MEASURES

Drawdown is the potential losses for an investor during a specific period. As risk measures are used the maximum drawdown, an average of a certain number of drawdowns and a type of standard deviation of a number of the largest drawdowns. The maximum drawdown $\mathrm{D_{Max}}$, must not to be confused with the largest individual drawdown, **is the maximum potential loss over a specific time period**, typically three years. Maximum drawdown represents the maximum loss an investor can suffer in the fund, buying at the highest point and selling at lowest. It is essential to compare performance over the same time frame. The average drawdown is the average continuous negative return over an investment period.

$$D_{AVER} = \text{average drawdown} = \sum_{i=1}^{i=d} \frac{D_i}{d} \qquad (1.69)$$

where D_i is the drawdown over the overall period and
d is the number of individual drawdowns during the overall period as shown in Figure 1.11.

Figure 1.11. Drawdown (maximum and individual) during a period



By using the drawdown as a measure of performance numerous ratios and indexes derived with the most important to be the following:

1) **Calmar ratio** (California Managed Accounts Reports) introduced by Young[35] in 1991 which incorporates the maximum drawdown and it is a Sharpe type ratio:

$$\text{Calmar ratio} = \frac{R_i - r_f}{D_{MAX}} \qquad (1.70)$$

where R_i the expected return of the fund,
r_f the risk-free asset return and
D_{MAX} the maximum drawdown for the given period.

2) **Sterling ratio** introduced by Kestner[36] in 1996 which incorporates the average drawdown, it is also a Sharpe type ratio and is given as follows:

$$\text{Sterling ratio} = \frac{R_i - r_f}{D_{AVER}} \quad (1.71)$$

3) **Burke ratio** introduced by Burke[37] in 1994, it uses the concept of the square root of the sum of squares of the main drawdowns or standard deviation of the drawdowns, it is again a Sharpe type ratio and it is shaped in the following equation:

$$\text{Burke ratio} = \frac{R_i - r_f}{\sqrt{\sum_{i=1}^{k} D_k^2}} \quad (1.72)$$

4) Finally there is an extended bibliography on numerous other drawdown based measures such as the **Ulcer index**, **Pain index**, **Pain ratio**, **Martin ratio** etch in an attempt to cover all possible investors needs for tailor-made performance measures and minimization of the risk emerging from new and traditional financial products.

1.4. MUTUAL FUNDS THEORY

A mutual fund is a diversified investment vehicle, managed by financial professionals or financial companies, responsible for the gathered funds of the individual investors. These funds are invested in many asset classes for a given purpose and under the capital market regulations. The mutual fund management issues shares and sell them to investors. The number of shares an investor holds amounts the percentage he owns in the mutual fund. Net asset value of a share of a mutual fund is the total value of the fund the end of the day divided with the number of shares circulating. Many times shares are hold from the mutual fund company as well as from big financial institutes.

1.4.1. MUTUAL FUNDS CHARACTERISTICS

Basic characteristics of mutual funds are:

- group of professionals or expertise companies are behind the management of the mutual funds, called the management;
- specific period, usually daily, within net asset value clearing happens;
- specific investment purpose and strategy;
- specific participation terms;
- specific fees and expenses;
- specific net asset value calculating method;
- specific law frame, usually approved by the capital market.

Benefits of investing in mutual funds are the following:

- mutual funds are obliged to disclosure details periodically;
- mutual funds provide usually a good diversification to investors by nature;
- mutual funds are managed by professionals who incur the cost of capital and time of analyzing the market on behalf of the investors;
- mutual funds provide to investors the service of investing in the same assets with lower costs (transaction costs);
- mutual funds are obliged to buy the shares back offering immediate liquidity to investors;
- mutual funds, especially in developed countries are regulated usually from the national capital market.

Disadvantages of investing in mutual funds:

- Fees
- Less control over investment
- Less predictable income

The origin of mutual funds is disputed by financial historians, with ancient Athenians of the classic era and Hollandese of the 18^{th} century attributed the idea. Nonetheless, mutual funds are historically proven to pace with the financial sector. During the periods of crisis, like the one in 2008, the total amount investments in mutual funds decreases while in periods of economic growth the industry blooms.

Recent statistics from ICI (Investment Company Institute) show that worldwide there were at the end of 2012 around 73000 mutual funds. The total amount managed from mutual funds worldwide was for the same period about $26, 8 trillion, 50% of which were managed by US mutual funds. In Greece, currently the mutual funds industry numbers 177 running mutual funds with the total amount managed reaching about 6 billion Euros.

1.4.2. MUTUAL FUNDS DISCIPLINATION

There are four main disciplines based on the structure of the mutual fund:

- ✓ Open-end funds: funds that issue and redeem shares at the net asset value after the daily clearing. The above transaction is done independently on the mutual fund management. It is the majority of the mutual funds industry. There is a management company and the investors are numerous. The investors cash out by selling their shares to the management company at the net asset value.
- ✓ Closed-end funds: they issue a specific number of shares at the creation. Investors that need to cash out have to sell their shares to another investor but not to the fund manager. The trading price is at premium or at discount due to demand and supply equilibrium. The investors are usually big players like financial institutes and hedge funds.
- ✓ Unit investment trusts (UIT): these funds issue shares at the creation. Investors can cash out their shares in the market but also to the fund management. They have limited lifespan and no rebalancing in the fund during this life. Combination of open-type and closed-type funds.
- ✓ ETFs (exchange traded funds): these funds are traded on the stock exchanges and their price depends on demand supply equilibrium. They also issue and redeem their shares. They are mainly 'tailor-made' and can invest on other mutual funds. The management buys and issues large blocks of shares to keep the value close to the net asset value.

Another criterion on which mutual funds can be categorized, is their prior creation manifested strategy and investment objectives. The investment policy determines the way the management will deal with the three main problematics.

- ❖ Security selection, the security choices during the overall investment period;
- ❖ Asset allocation, the proportion of portfolio invested on every asset;
- ❖ Market timing, rebalancing of the portfolio due to predictions.

The investment policy is specified as mentioned in the fund's prospectus. The categorization due to different policies is a bit complicated since new products emerge in the financial markets. Four basic categories are:

- ✓ Money market funds
- ✓ Bond funds
- ✓ Equity funds
- ✓ Specialty funds

1.4.2.1. MONEY MARKET FUNDS

Money market funds invest primarily in money market products like foreign currency deposits, term deposits, certificates of deposits, commercial papers, repos and secondly in short-term government bonds. The investment is short-term offering few risk and steady capital gains. The portfolios of these funds are well diversified and invest in many different assets with high creditability. Pension funds and risk averse investors are the main clients, because they usually offer a better investment opportunity than commercial banks rates. The costs of participating in money market mutual funds are relatively low making them very attractive to individual investors.

Moreover, money market funds can be subcategorized in two further ways: the first one been taxable funds versus tax-free ones and the second one been domestic, international and global funds. Taxable funds are the majority of funds which investors are taxed for their capital gains and tax-free are the funds that invest their portfolio's majority on tax-evading assets. Domestic are the funds that invest only on domestic securities, global are the funds that invest both on domestic and foreign securities and international are the funds that invest only on foreign securities, depending on the issuer's country of domain.

According to ICI, the money market mutual funds hold about the 20% of global mutual fund industry.

1.4.2.2. BOND FUNDS

The bond funds capture about 26% of the mutual fund industry. These funds invest mainly on government bonds and other debt securities. The maturity of the invested bonds varies from short-term, medium-term and long-term periods. They offer better returns than the money market funds, but with a higher risk. The risk emerges from the endogenous bond risks like interest rate fluctuations, bond par value changes, reinvestment risk, credit risk and sovereign risk. They offer payments in the shape of dividends generated by the bonds coupon payments and capital appreciation through bond rate compounding. They can be classified according to the type of bonds they invest on:

- Government bond funds, the ones that invest mainly on government bonds and they bear the least risk of all.
- Municipality or state bond funds, the ones that invest on bonds issued by state organizations, especially municipalities. Higher risk and return than government bond funds.
- Corporate bond funds, the ones that invest on bonds issued by large corporations, domestic or international. Higher risk and return relative to the corporate credit rating.
- High-yield bond funds, the ones that invest mainly on junk-bonds, government and corporate bonds with lower creditability. They offer more risk and more return respectively.

The bond funds can be further separated in domestic, international and global ones, as happens for the money market bonds.

1.4.2.3. EQUITY FUNDS

As their name indicates equity mutual funds invest mainly in domestic equities, global and international ones. The managers of these funds have to deal with the high volatility of the stock returns, so they offer biggest returns to the investors. This class of mutual funds is the most volatile. The minimization of the portfolios managed is crucial for most of them, so managers of the funds need to be active to keep the investors. Market timing and security selection are important indicators of funds performance in order to make these funds attractive. They capture the majority of the mutual fund industry. They can be split in the four following disciplines:

- **Aggressive growth funds**, seeking for capital growth maximization. These mutual funds usually invest in emerging companies, or recovery financial periods. They use some speculation techniques, such as leverage and shortselling and fully apply market timing and security selection. The expected returns are much higher than normal ones so are the risks.
- **Growth funds** are similar to the aggressive growth ones, with the difference that they invest to well-rated companies or financial sectors.
- **Equity income funds** are funds that invest in stocks, with high level of earnings and ones that usually pay dividends.
- **Growth and income funds or blend funds** are funds that combine steady capital growth and dividends paying stocks.

Finally, the segregation can be made by the size of the firms that the funds invest on. So there are the micro-cap equity funds (micro-capitalization, below $300 mil) small-cap funds (small capitalization, below $2 billion), the mid-cap funds (middle capitalization, below $10 billion) and the large-cap equity funds (large capitalization, above $10 billion).

1.4.2.4. SPECIALTY MUTUAL FUNDS

Specialty mutual funds are funds that focus on particular strategies and cannot therefore be disciplined in the previously mentioned three large categories. Specialty funds invest in particular sectors or regions and are categorized in:

- Index funds
- Funds of funds or hybrid funds
- Utilities funds
- Technology funds

Index mutual funds are funds that truck an equity index or a bond index by applying the rules of the index. The strategy is passive and rebalancing is required only when there is a deviation from the index structure, usually a 2%, called the trucking error. They charge for these passive strategy relatively very low fees.

Funds of funds are the ones that invest on a basket of other mutual funds affiliated (managed from the same investment company) or not. Hybrid funds invest in both bonds and stocks. Asset allocation funds, balanced funds, target date or target risk funds and lifecycle or lifestyle funds are all types of hybrid funds. They offer high diversification but at the same time they have high management fees. In reality the returns of funds of funds are not beating the market.

Utilities funds are the one that invest in gas, water and energy companies and in companies supplying the later. Utilities funds pay high dividends and are of low risk. Technology funds are funds investing on the technology sector which appears to be a lot volatile and unpredictable. Main sectors of investing are computer technology, biogenetics, and biotechnology.

1.4.2.5. ETF (EXCHANGE TRADED FUNDS)

Special reference must be done for ETFs, the most rapidly growing investment vehicle in mutual fund industry. ETFs are funds-securities that are traded in an exchange as common stocks. They usually truck indexes, commodities, basket of assets, inflation fluctuations, sectors, and others. The difference between ETFs and index funds is that the first are traded like an autonomous security. Moreover, financial derivatives can be written on ETFs making them very appealing to investors who don't have to own the asset or participate in the fund. They additionally offer better tax efficiency than mutual funds and sometimes lower transaction costs.

ETF industry is rapidly growing due to its adjustability to many markets. There are all kinds of ETFs like inverse, hybrid, leveraged, active strategy ones etc. Gathering all the advantages of ETFs:

- Lower transaction costs
- Low management costs
- Taxation benefits

- Flexibility
- Liquidity
- Transparency
- Can be tailor-made, underlying assets for derivatives, allow shortselling etc.

1.4.3. MUTUAL FUNDS FEES

Mutual fund expenses are categorized as follows:

- Distribution charges
- Management fees
- Securities transaction fees
- Shareholder transaction fees
- Other fund fees

Distribution fees are charged for distribution of the fund's shares as well as for services to investors. They are separated in:

- Front-end load fee or sales charge fee;
- Back-end load fee;
- 12b-1 fees;
- No-load funds fee.

A **front-end load fee** is a fee paid to a broker by a mutual fund when shares are purchased. It is calculated as a percentage of the total amount invested which equals the net asset value plus the front-end load per share. The front-end load declines when the amount invested increases. The front-end load is paid by the shareholder and it is deducted from the amount invested.

A **back-end load fee** is a fee which is paid by the investor when shares are redeemed. Like in the front-end load case, the back-end load is paid by the shareholder and it is deducted from the redemption proceeds.

There is an annual fee paid to the distributor of fund to compensate for providing ongoing services to fund shareholders. This fee is called a **12b-1 fee**. The 12b-1 fee is paid by the fund and reduces net asset value.

A **no-load** fund doesn’t charge neither a front-end load nor a back-end load to the shareholders and doesn’t charge a high 12b-1 fee.

The **management fee** is paid directly to the fund manager who manages the fund portfolio and provides investment advisory services. The fund manager may also provide other administrative services. The management fee often has breakpoints, thus it declines as assets increase. The management fee is paid by the fund and is included in the expense ratio. The fund's board of directors reviews the management fee annually. Fund shareholders must vote on any proposed increase in the management. The fund manager may agree to remove a portion of the management fee in order to lower the fund's expense ratio.

A mutual fund pays expenses related to buying or selling the securities in its portfolio, the **securities transaction fees**. These fees include brokerage commissions. Securities transaction fees increase the cost of investments purchased and reduce the proceeds from their sale. The amount of securities transaction fees paid by a fund is normally positively correlated with its trading volume.

Shareholders may be required to pay fees for certain transactions, **shareholders transaction fees**. Some funds charge redemption fees when an investor sells fund shares shortly after buying them. Redemption fees are calculated as a percentage of the sale amount. Shareholder transaction fees are not part of the expense ratio.

A mutual fund pays **other fees** for services including:

- Board of directors expenses.
- Custody fee, paid to a custodian bank for holding the fund's portfolio.
- Fund administration fee, for overseeing all administrative affairs of the fund such as preparing financial statements, monitoring compliance with investment restrictions, computing total returns and other fund performance information, preparing tax returns.
- Fund accounting fee, for performing investment accounting services and computing the net asset value.
- Legal and auditing fees.
- Registration fees.
- Catalogue expenses: printing and mailing required prospectuses to shareholders prospectuses.

- Transfer agent service fees, for keeping shareholder records.

Mutual funds are disciplined in classes according to the fees their shares bear, named share classes:

- **Class A** shares charge a front-end load together with a small 12b-1 fee.
- **Class B** shares don't charge a front-end sales load. Class B shares usually convert automatically to Class A shares after a certain period.
- **Class C** shares usually have a high 12b-1 fee. Class C shares do not convert to another class.
- **Class I** funds are known as "institutional" shares. They are no-load shares.
- **Class R** are shares usually for use in retirement plans. They do not charge loads, but do charge a small 12b-1 fee.

No-load funds often have two classes of shares:

- **Class I** shares do not charge a 12b-1 fee.
- **Class N** shares charge a 12b-1 fee of no more than 0.25% of fund assets.

Here, it has to be mentioned that expenses and fees is a subject of examination and controversy, especially amongst scientists since many studies have indicated that after fee deduction the realized fund return doesn't overperform the market index.

Chapter 2

Literature Review

2. LITERATURE REVIEW

2.1. MUTUAL FUND PERFORMANCE

Mutual fund performance[19]

William F. Sharpe

In his article published in 1966, January, William Sharpe brought a breakthrough in the measuring of return relatively to risk. The reward-to-variability ratio was the name given by the author himself. The purpose of his study was to use the newly introduced Treynor ratio in examining mutual funds and to propose alternative models of measuring performance. All of these on the basis of capital theory.

Sharpe analyzed the characteristics of a successful investment, which are the choice of the efficient portfolio among possible ones, the selection of undervalued stocks or assets and the investor's selection of personal utility level. In the case of mutual funds, since the manager of the funds could not have knowledge of the individual investor's preferences, they could just attract investors on a specific investing strategy, the mutual fund strategy for a specific level of risk.

Yet, predicting the exact move of stocks was and is impossible, so the manager of the fund has shifted his tries towards examining the correlations between stocks, so as to form diversified portfolios and choose the one for the desired level risk. He went on presenting briefly the capital market model and the ratio of excess return towards the standard deviation of the returns. The study of the model can be done only on historical data and predictions can't be obtained.

To examine this case he obtained data for 34 open-end mutual funds, annual rates of returns, during the period from 1954 to 1963. For the sample of the 34 mutual funds he observed that for higher return the funds exhibited also larger risk, validating the capital market theory, since the relationship was linear. Exceptions of the rule existed, so he proposed the use of his measure in order to have another perspective on the relationship of return and risk.

The numerator of the new measure showed the difference between a mutual fund's annual return and the rate of risk-free asset, usually a US treasury bill. The denominator showed the standard deviation of the returns of the mutual fund describing the total risk of it. By ranking the funds according to the performance ratio the results of effective funds were different. To compare the results the 34 mutual funds performance was calculated also for the decade 1944-1953, using again the Sharpe ratio.

The comparison gave out an increasing trend scatter, sign that low and high ranked funds in the first decade tend to be ranked low and high respectively in the second decade under examination.

Additionally, he presented the Treynor index, the ratio of excess return of the mutual fund towards the specific fund risk or volatility of the mutual fund. He ranked the 34 for the second decade according to the Treynor index and compared them with his measure produced rankings. He concluded that the Treynor index was an inferior past performance measure, but a superior predicting performance one.

By calculating the rankings for the two decades and plotting them on the basis of Treynor index a thiner trend was produced, with the point scatter to be much thinner and the statistical significance higher than the first one.

Further investigating the properties of mutual funds he plotted the rankings of the mutual funds for the two different decades when rankings are derived from the expense ratios and size. Good performance was correlated with low expense ratios and in the case of examined size the results were insignificant. Ranking the funds again only by risk the output was that the fund managers tend to keep funds in the desired risk level.

Finally, a histogram of reward-to-variability ratios versus number of funds was generated, plotting also the ratio for the benchmark which was the Dow Jones portfolio, during the second decade. The average ratio for the funds was lower than the index or market ratio indicating that only 11 out of the 34 mutual funds outperformed the index. If gross performance is compared with the index 19 out of the 34 mutual funds did better than the market in terms of return and risk.

The results were focused only on 34 mutual funds which is a very small sample, but studies after the appearance of this ratio, the Sharpe ratio, ranked the ratio itself among the classic one and specifically the most used one, even today for ranking abnormally performing financial instruments, like hedge funds.

2.2. CAN MUTUAL FUNDS OUTGUESS THE MARKET?

Can mutual funds outguess the market?[38]

Jack Treynor and Kay Mazuy

In their renowned paper published in august 1966, Treynor and Mazuy tried to answer the question: whether the predicting ability of mutual funds is something real and if it can be actually measured?

Treynor and Mazuy discussed the fund manager-investor relationship, since investors frequently expected then, and still expect nowadays, managers to be able to predict market tendencies, plus the dilemma of whether or not managers should try to market time.

Stocks since then were known to move with the market they participated in, but with different volatility, different sensitivity to the market fluctuations. That is, if they thought that the market would move downwards they make their portfolios more defensive so as the portfolio to decrease in return terms less than the market. In case of predicting an upward movement of the market, they increase the volatility to make the portfolio more aggressive and, thus, realizing more profits than the market. To test the prediction ability of the funds or their managers specifically, Mazuy and Treynor examined the volatility of the funds in ''good'' and ''bad'' market years.

Data for the above mentioned study were collected from Investment Companies 1963, by Arthur Wiesenberg Company. The formula employed by Wiesenberg company for the open-end funds was the following: annual rate of return of the fund equaled the end of the year asset value per share plus dividend distributions throughout the year per share, all divided by the initial asset value per share of the fund. The rate of return produced this way did not take into account the timing abilities during the dividend distribution periods and the effect of taxes in returns.

Moving on, they plotted the annual fund rate of return versus the annual market rate of return like S&P 500 or Dow Jones index as market. The line that fitted the different produced points was named characteristic line of the fund and had the following properties: a) the sensitivity of the fund is described by the slope of the characteristic line. The characteristic line is a straight line, if the slope is constant in good and bad years; b) the degree of scatter around the characteristic line is the measure of diversification of a fund. Specifically, the less scatter the more diversified the fund is.

As far as the manager's prediction abilities are concerned, when a manager outguesses the market, the slope of the fund is steeper than the slope of the market in the upward movement. The opposite happens when the market moves downwards, realizing fewer losses for the fund relatively to the losses of the market. However, since no perfect predicting abilities were assumed by the two authors, the behavior of a fund manager doing well most of the times should be depicted as a curved line. That is because the fund managers in the occasion of predicting a positive market move, he will try to change the fund's volatility to the maximum available at that time and vice-versa. The result is an upwards concaved line in the fund-market rate of returns diagram.

The most important and influential argument the above process lead them to was the fitting of this line. The scatter can be fitted by the least square method but this time a third quadratic factor needed to be added, formulating the Treynor-Mazuy return generating model. The change of volatility in each fund can be done in two ways, either by changing the leverage level of the fund or equity to debt ratio of the fund, or by changing the volatility of the equity part of the fund. This strategy appeals more to the category of the balanced funds that anyway have to frequently change their portfolios and less to the growth equity funds that are high return oriented ones. For this reason they divided the 57 funds under examination in equal parts of growth and balanced funds.

The size of the 57 funds was selected by all size categories varying from 20mil$ to more than 7500mil$. Finally, the period under examination was from 1953 to 1962. The choice of the time frame was based explicitly, because during that period were many upwards and downwards in the market movements. The length was not larger to avoid future changes of managers' strategies or market fundamentals. The data collected as earlier mentioned were annual so as to exclude the effect of more frequent volatility or portfolios changes that may have taken place during the examined years.

The study lead the authors to manifest that there was no evidence of curvature in characteristic lines for any of the funds, only one fund out of 57 reacted in a curved return diagram. From this, they conclude that none of the managers outguess the market and that these managers should not be held responsible for failing to foresee changes in market direction. Nonetheless they estimated that these results do not indicate that high returns cannot be achieved, but these returns have to be attributed to better selection abilities, such as choosing underperformers.

2.3. THE PERFORMANCE OF MUTUAL FUNDS IN THE PERIOD 1945-1964

The performance of Mutual Funds in the period 1945-1964[39]

Michael C. Jensen

In the paper published in 1967, Jensen presented for the first time the famous measure named after him, Jensen's alpha, a performance measure which had the purpose to demonstrate the contribution of a manager's forecasting ability in mutual fund returns. In a first discussion, the author suggested that the two main problems a portfolio manager is facing is the diversification of the portfolio's risk and the effort of the manager to increase the fund return.

He used the theory of pricing assets model (CAPM) derived independently by Sharpe (1964)[4], Lintner (1965)[5] and Treynor[6]. The requirements for the model to be valid are: 1) all investors are risk averse; 2) all investors have identical decision horizons and subjective expectations for investments; 3) all investors choose portfolios on the basis of expected return and given risk; 4) there are no transaction costs and 5) assets can be as small as the investors want in order to buy them.

The equation expressing the model is:

$$E(\overline{R}_j) = R_F + \beta_j[E(\overline{R_M}) - R_F] \qquad (2.1.)$$

where R_F is the one period risk-free rate, β_j the measure of risk calculated with the benchmark, also called systematic risk, and $E(\overline{R_M})$ the expected return of the market portfolio which is an asset-value-weighted portfolio.

Based on this equation, Jensen proposed a more generalized one:

$$E(\bar{R}_{jt}) = R_{Ft} + \beta_{jt}[E(\overline{R_{Mt}}) - R_{Ft}] \qquad (2.2.)$$

Combining the above time equation with the Fama market model[17]:

$$\bar{R}_{jt} = E(\overline{R_{jt}}) + \beta_j \bar{\pi} i + \bar{e}_{jt,} \quad j = 1,2,..,N \qquad (2.3.)$$

he ended up with the measure of performance Jensen's alpha which is given by the following equation:

$$\bar{R}_{jt} - R_{Ft} = a_j + \beta_j[\bar{R}_{Mt} - R_{Ft}] + \bar{u}_{jt,} \qquad (2.4.)$$

that allows the existence of a non-zero constant, a. The a_j constant will be positive if the fund manager has the ability to predict security prices since it represents the average rate of return per unit time which is dependent only to the abilities of the fund manager. On the contrary, if the manager is underperforming comparing with a random asset selection and hold policy, the Jensen's alpha should be negative. For the above equations to be valid, the author assumed that the risk level of the portfolio was stationary through time. This is not totally accurate since a fund manager can change the risk level of a portfolio by acquiring more or less risky assets or by changing the distribution of assets amongst bonds, equities and other assets.

An additional forecasting uncertainty emerged from the fact that is not known if a manager has the ability to forecast individual asset pricing changes or the average asset behavioral changes, in simple words, if he can predict the stock or the market movements (market factor π). To deal with the case above mentioned, Jensen added another equation for the risk:

$$\bar{\beta}_j = \beta_j + \bar{\varepsilon}_{jt,} \qquad (2.5.)$$

where β_j is a target risk level a manager wants to keep through time and $\bar{\varepsilon}_{jt,}$ is a normally distributed random variable. The latter variable is the mean for the manager to realize profit from subjective expectations on the market behavior without changing the target level of risk. By combining the last two equations, he presented a more general model expressed by the following equation:

$$\bar{R}_{jt} - R_{Ft} = a_j + (\beta_j + \bar{\varepsilon}_{jt})[\bar{R}_{Mt} - R_{Ft}] + \bar{u}_{jt,} \qquad (2.6.)$$

The two cases were that if the manager would have predicting abilities, a parameter, would be positive and if not it would be zero. The negative scenario (a<0) was conflicting with the rationality of the manager and was excluded. It can be shown that if

$$E(\widehat{\beta}_j) = \beta_j - a_j E(R_M) \qquad (2.7.)$$

the risk estimator is decreased by a parameter $a_j E(R_M)$, so the risk estimation can be negative if the manager has the ability to predict market prices (a>0). The performance measure a_j will be positive for two reasons: a) the manager has the prediction abilities and b) a positive bias of estimated performance measure resulting from negative bias in risk estimation.

The sample under examination consisted of 115 open end mutual funds, where the annual data were taken from Wiesenberger's Investment Companies database for the period 1955-1964. For the period 1945-1954, data were obtained only for the 56 out of the 115 original funds. The estimates of a were in the range of -0.0805 to +0.0582. To obtain further information on managers predicting abilities, the regressions were run twice, before and after deduction of fund expenses. The net of expenses estimated a was -0.011, translated in a underperforming of a 1.1% annually, given the systematic risk. Moreover 76 funds were found to have a<0 and only 39 a>0, indicating a swift from distributional normality. The average estimated a, from gross return data, was within the range of -0.004 to -0.4% annually, with 67 funds showing a<0 and 48 having negative estimated alphas. It appeared that during the overall 20 year period really did not exceed by their returns not ever their fees.

In terms of statistical significance, only the positive alpha estimations were examined, at the 5% confidence level and the results showed that there was little evidence that funds had significant predictable abilities. M. Jensen based on the above evidence, concluded that these 115 mutual funds for the overall period did not show on average any predicting abilities as far as market prices were concerned, but also no individual fund could be statistically proved to beat the market. Measures were repeated before and after fee and expenses deduction, indicating the same results. Finally, he reported that a major contribution of mutual funds is the minimization of the risk and the diversification of the portfolios.

2.4. DO LOCALS PERFORM BETTER THAN FOREIGNERS? AN ANALYSIS OF UK AND US MUTUAL FUND MANAGERS

Do locals perform better than foreigners? An analysis of UK and US mutual fund managers[40]

Ravi K Shukla and Gregory B van Inwegen

In their work, Shukla and van Inwegen published in 1995, tried to give an answer to the question: "can local fund managers perform better than foreigners?". As database they selected 108 US mutual funds and 18 UK mutual funds that met the following three criteria:

a) the selected mutual funds had continual monthly returns from June 1981 to May 1993;

b) managers of the mutual funds had invested more than 85% of their assets in the US;

c) they were classifying themselves as "growth" funds.

The above mentioned data were extracted as far as US mutual funds were concerned from Morningstar, whilst the UK ones were obtained from Micropal. Additional data were obtained from the 1989 and the 1993 Unit Trust Year Book.

In this work, they referred to the commonly known factors that could explain the superiority of local fund managers such as transaction costs, information costs, lack of knowledge about foreign markets, legal and institutional constraints and currency risks, with particular interest on information and relationship asymmetries. They showed with solid examples that UK fund managers had several disadvantages relatively to US managers, onto accessing local information, creating strong relationships with investment brokers and institutions, accessing IPOs and onto trading because of time difference and execution process.

They concluded that fund size was a factor to be taken into account since US funds that period in their database were averagely tenfold bigger than the UK ones. The only potential advantage UK managers could have relied on was the ability to trade US securities in London, before the NYSE had opened.

For the experimental methodology, they chose to use pre-taxed returns denominated in US dollars and gross of fund expenses. They used as a performance benchmark the S&P 500 index to evaluate both US and UK funds. To incorporate the changes in the economy during the 12 years of the sample, the authors separated the period into two subperiods, from June 1981 to May 1987 and from June 1987 to May 1993, in order to obtain more concrete results. In the first series of results, they demonstrated that, in both subperiods and over the full sample period, US funds have lower risk and higher returns than UK funds investing in USA, giving them the comparative advantage. Moreover, over the full period, the S&P 500 index has higher return and lower risk than both sets of funds, with about 39% of US funds and 5.5% of UK funds showing higher return than the benchmark. The S&P 500 appeared to be less risky than UK and US funds, since only 26% of US funds and none of UK funds had lower standard deviation than the benchmark index.

Further on, they used three classical measures of performance: the Sharpe index, the Treynor index and the Jensen's alpha. Again, for the full sample period, average Sharpe index (SI) and Treynor index (TI) are higher for US relatively to UK funds, both being lower than the S&P 500 average SI and TI. Specifically, none of the UK and about 27% of the US funds have greater SI than S&P 500 and 5.5% of UK and 43% of US funds have greater TI relatively to S&P 500. They also indicated that the differences between UK and US average SI and TI, respectively, are statistically significant. These results were confirmed for both subperiods, with the exception of many UK funds overperforming S&P 500 in the second subperiod, fact showing that foreigners could gradually learn the game.

Furthermore, they moved on presenting results with the Jensen's alpha and found that only 5.5% of UK and 43% of US funds had positive alphas, but only 4.63% of US have positive and significant alphas, whilst only 5.56% of both UK and US funds have negative and significant alphas. In this case, by examining the subperiods, they received the same results, with fewer UK funds underperforming the second subperiod.

To examine the timing ability of the two sets of managers-funds, they used Treynor and Mazuy quadratic regression and they concluded that UK managers exhibit significantly worse timing ability than the US managers, factor that contributes to their poor performance.

Finally, they studied the impact of fund size to its performance, since US funds were ten times larger in average than the UK ones and they could benefit from economies of scale, reduce their costs and have better access to information resources.

To examine the impact of fund size, they regressed Jensen alphas for US and UK funds on a US/UK country dummy and fund asset size as from 31 December, 1992. In the first subperiod, the coefficient of size variable was positive and significant and the country dummy coefficient as well, showing that UK fund size did play a significant role in performance. In the second subperiod, the size coefficient remained significant, but not the country dummy one. For the full sample, both coefficients were found statistically significant. From all the above, they concluded that UK managers underperform in comparison to US, after taking into account the size of the fund but during the second subperiod, they gained experience and they improved their performance.

Concluding the authors stated that indeed, locals perform better than foreigners, under this particular case, as a result of information/relationship disadvantage of the UK managers, but acknowledged that further studies had to be conducted, examining the reverse relationship (UK based funds) and even including other major countries.

2.5. RISK-ADJUSTED PERFORMANCE

Risk-adjusted performance[21]

Franco Modigliani and Leah Modigliani

In their article in 1997, Franco Modigliani and grandchild of his Leah Modigliani presented a new performance measure, the RAP or risk-adjusted performance measure. The concept of this measure derived from the corporation financial universe, where a firm can change the level of leverage or debt to equity to become less or more aggressive. The basic idea they claimed behind the measure was the matching of a portfolio's risk with that of the market's portfolio risk and then measuring the return of the portfolio of the investor or the fund. That is the risk-adjusted term of the measure. The comparison between the portfolio and the market is given as a percentage.

For the process of risk-adjusting portfolios, he used the notation earlier mentioned, the levering and unlevering of the portfolio. The unlevering is done by lending (usually the governments) at the risk free rate the amount gained from selling a portion of the portfolio or fund and the levering is being achieved by borrowing money to increase the portfolio investment. Unlevering reduces the risk level of the overall portfolio and decreases the expected return, if the portfolio is well performing. Levering increases the level of risk, but ideally increases in the same manner the expected return of the portfolio.

Risk-adjusting a portfolio to the level of risk of the market portfolio gave the formula for the RAP measure which is equal to the excess return of the portfolio over the risk free rate, multiplied by the ratio of market volatility to portfolio volatility, plus the risk free rate of return. Alternatively, RAPA is RAP minus the risk free asset rate.

$$RAP_{mfi} = \frac{\sigma_M}{\sigma_{mfi}}(R_{mfi} - R_f) + R_f \qquad (2.8.)$$

According to the authors RAP can be used firstly as a tool for choosing the optimal portfolio, by selecting for a specific level of risk the highest value of the RAP measure. After the portfolio selection, the fund can be transformed by changing the levering and unlevering levels.

Comparing the RAP measure with the Sharpe ratio it is obvious that the relationship between the two measures is perfect and the rankings generated by both of them are identical. The difference is that the RAP measure is an absolute measure given on basis points or percentages and can be interpreted by a wide range of people, not only experts. By comparing the RAP with the Treynor ratio, the authors saw the defects of incorporating only the relative risk of the portfolio towards the market, beta coefficient, and not the total risk.

In the application part of their study, the authors calculated the RAP measure values for 7 selected mutual funds versus the market index, S&P 500 on a quarterly risk-adjusted return, to exhibit the difference between total and risk-adjusted return.
The evaluation showed that very famous funds had lower return on the risk-adjusted level. One of the seven funds, while having the lower return, it had the highest risk-adjusted return and with the appropriate handling it could have given the highest return for any risk class.

Finally, the authors presented five qualifications of the measure: a) The measure uses historical data; b) it is an alternative measure of adjusted-risk performance of funds; c) it can be calculated with arithmetic returns which are simpler than the geometric returns; d) by using the RAP ranking new combinations of portfolios can be created with enhanced characteristics of return and risk and e) RAP can be used parallel with the Information ratio for most robust results.

The RAP measure was a combination of the high influential Sharpe ratio and the modern financial theory that incorporates changing the leverage level of an investment in order to create new optimal portfolios and not only to rank existed ones. It was one of the tools that helped fund managers reallocate investment opportunities and escape from the classic measures.

2.6. THE PERFORMANCE OF JAPANESE MUTUAL FUNDS

The Performance of Japanese Mutual Funds[41]

Jun Cai, K. C. Chan and Takeshi Yamada

In the article published in 1997 by Yamada et al., the group analyzed the performance of Japanese mutual funds for the period 1981 to 1992. Their sample covered the open-type stock mutual funds managed by nine investment management companies and it was the first comprehensive study of Japanese mutual funds. They employed the Jensen's measure (alpha), as well as, the positive period weighting measure developed by Grinblatt and Titman.

Moreover, they incorporated conditional information directly into the performance measures to take into account the biases of the managers handling those mutual funds. They used two different reference benchmarks to compare the results, the first one having been a value-weighted single index benchmark that was covering Japanese stock market (Tokyo Stock Exchange, TSE) government bonds, corporate bonds and convertible bonds. The second consisted of three factors: a) the value-weighted model factor; b) the size effect related mimicking factor; and c) the book-to-market related factor, adding that the multifactor benchmark was more appropriate than the single index one.

At that period in Japan, there were nine management companies, sixteen of them domestic, five of them foreign affiliated and finally, five bank affiliated investment companies. In their work, the authors explained in details the function of the Japanese mutual fund industry that consisted of: management companies, brokerage houses and investors, domestic or foreign. They demonstrated that the method they employed to deduct the fees of the mutual funds in order to determine the NAV of them. The fees had two parts; the first was a management fee paid to the management company and the second was the security transfer tax plus the brokerage commission paid totally to the brokerage company. In general they estimated that the total transaction cost ranged between 1.27% and 1.87%.

The study data were obtained from Kinyuu Deta Sisutemu (Financial Data Systems Incorporated) in Tokyo for the period of January 1978 to April 1994, dataset consisting of 1151 mutual funds managed by 26 companies. The final outcome was the continuous compounded monthly returns of the mutual funds with dividend payments. To observe better results they chose 800 mutual funds with more than 97 observations in that period plus 64 managed by the nine big investment companies. They split the 864 mutual funds dataset in four portfolios, containing all mutual funds, and in four portfolios containing the well-diversified ones. They found 190 well diversified funds in the 800 and 13 in the basket of 64.

In a primary analysis, the well diversified funds showed up to be less profitable and more risky than the entity of all mutual funds, in terms of performance, with a particular poor performance for the period January 1990 to December 1992. Management companies, with the exception of three, underperformed any comparing benchmark, making the Japanese mutual funds less attractive for the whole under examination period.

The authors employed the positive period weighting measure (PPW), developed by Grinblatt and Titman, to fix the problem of a manager having timing information and the conditional Jensen measure to incorporate dynamic economic conditions in the mutual funds performance evaluation. They concluded that open type Japanese mutual funds underperformed the market index, the portfolio alphas were negative and statistically significant and the well diversified portfolios performed even worst. Furthermore, well diversified funds had betas higher than unity, while the mutual funds industry had a beta close to that of the market. The results also showed that both aggregate and individual mutual funds managers responded well to dividend yield information, but not very well to interest rate information.

In this work, the authors, investigated managers' strategies by constructing portfolios ranked by size and book-to-market (25 portfolios), by earnings price ratio (6 portfolios) and book market to market equity ratio (5 portfolios). They regressed these 36 portfolios with the market portfolio. To investigate further they used a three factor model to replicate a trustful benchmark that explained about 81.1% of the mutual funds performance. They concluded that most Japanese mutual funds tended to trust stock with large market capitalization and low book-to-market ratios or famous stocks. These strategies employed by Japanese managers were not the main underperformance reason.

They went on to examine these 36 passive portfolios, as far as timing and selectivity was concerned. They found that most of the timing coefficients were negative, but they were not significant enough to explain the underperformance of Japanese mutual funds.

Finally, they took into account the dilution effect of fund inflows, which reduces the value of a stock to the tax value. This happens because a new investor in the mutual fund pays only the after tax NAV of a share, so inflows dilute mutual funds NAV per share. Based on a set of assumptions, the dilution effect explained about 3% of the underperformance of the mutual funds per annum, with a probability of 50%, fixed management fee explained about 1%, the brokerage commissions and transfer tax fees about 1.3%, totaling a 5% contribution to these factors. They added that further studies should be done to examine the Japanese mutual fund industry underperformance and its special characteristics.

2.7. EUROPEAN MUTUAL FUND PERFORMANCE

European mutual fund performance[42]
Roger Otten and Dennis Bams

In their article published in 2000, Otten and Bams, investigated the not so fully studied territory of European mutual fund industry. To proceed with this study, they used data from the five biggest European economies with regard to mutual funds, Germany, Italy, France, UK and Netherlands. They examined a database of 506 mutual funds from these 5 countries, which covered more than 85% of the total assets in European equities.

They applied the 4-factor model of Carhart and investigated in parallel the ‘’hot hands effect’’, whether these mutual funds’ past performance was a signal of future performance. The European mutual fund industry, according to the authors, while not with the same impact as the US respective one, still growing in a fast pace and needed to be given attention. This difference in the two areas mutual funds industry magnitude was attributed to the different equity culture, fact that seemed to faint in time.

The sample of mutual funds used was restricted to pure domestic equity funds with at least 24 months of data. The data obtained were monthly logarithmic returns from January 1991 to December 1998, and were in local currency and the databases used for the fund characteristics were Standard & Poor’s Micropal for France and Italy, Hoppenstedt Fondsfuhrer 1998 for Germany, ABN-AMRO Beleggingstellingen for Netherlands and the Unit Trust Yearbook 1998 for the UK. Within a country they disciplined the funds in stated strategies investment styles to measure the effect on performances. Finally, returns were collected from Datastream (Germany, Italy, Netherlands and the UK) and Standard & Poor’s Micropal for France, returns were inclusive of distributions, net of annual management fees and in local currency.

To construct the 4-factor model, they took all equities that were in the Worldscope, as a benchmark, for each country larger than $25 million minus one month interbank rate to formulate R_M-R_F. For the HML factor, stocks were ranked on book-to-market ratio. The top 30% (high book-to-market portfolio) minus the bottom

30% (low book-to-market portfolio) made the HML. Respectively, the SMB factor was the return difference between the 20% bottom size-ranked portfolio and the rest 80% size-ranked portfolio. Finally, to obtain the Pr6m factor (prior 6-month return) they took the return difference between the top 30% of the Pr6m-ranked portfolio and the bottom 30% of the Pr6m-ranked portfolio.

Carhart's four factor model (Fama's three-factor model extension by Pr6m factor) was used to capture the momentum anomally and is given as follows:

$$R_{it} - R_{ft} = a_i + \beta_{0i}\left(R_{mt} - R_{ft}\right) + \beta_{1\iota}(SMB_i) + \beta_{2t}(HML_t) + \beta_{3t}(PR6m_t) + \varepsilon_{it} \quad (2.9)$$

To deal with the survivorship bias problem they used Datastream which contained data from dissolved mutual funds whose percentages were 5%, 6%, 11% and 25% for Germany, Italy, the Netherlands and the UK respectively. This bias would overestimate average returns in all countries.

The results of the regression, (equally weighted strategy-based portfolios and individual funds) showed that SMB factor was negative for all countries, resulting in a small-stock suffering during the overall period. Additionally momentum strategies added value in three out of the five countries, especially in Italy and the UK. The low cross-correlations showed that multicollinearity did not significantly contribute in the estimated factors. European mutual funds seemed to prefer smaller stocks and ones with high book-to-market values.

The HML factor added few to the explanation of returns, and the fourth factor showed up significantly in half cases, indicating contrarian strategies. As far as alphas are concerned, Germany demonstrates negative average alpha, whilst the highest positive alphas are obtained for Netherlands and the UK. Moreover, as stated earlier, small companies in all countries, with the exception of Germany, seemed to add significant value.

To examine the effect of return and risk time dependence, the authors produced conditional alphas with a 4-factor Carhart model with time varying betas. The conditional and unconditional alphas did not seem to derive much among them, fact that the unconditional model was trustful enough and that beta variation did not affect significantly their results. Furthermore, they examine the effect of management fees to performance before and after deduction. When management fees were added almost all countries (again Germany was the exception) demonstrated positive alphas. Using the unconditional model, Italy and Netherlands funds outperformed at the 5% and 10% significance level, respectively, while using the conditional one 4out of 5 countries outperformed at the 5% significance level. The European fund managers demonstrated enough abilities to incorporate new pieces of information and increase returns.

To investigate the "hot hands effect", persistence in performance, they ranked all funds in each country based on the past twelve month return, and the top performing funds formatted a portfolio, kept for one year (examining period) at the end of which it was rebalanced based again on the last twelve month return.

The results from this continuous annual rebalancing showed that for all funds there was a decrease in the excess return between the high and the low (12-month return based) portfolio, providing weak evidence of the hot hands effect, except for the UK. When the influence of funds characteristics related to risk-adjusted performance entered the discussion, the authors proved that the majority of European mutual funds was able to incorporate new information to overcome their expenses, and therefore added value to their investors, phenomenon attributed to the small size of the European equity mutual fund industry relatively to the market (11%).

2.8. EQUITY MUTUAL FUNDS MANAGERS PERFORMANCE IN GREECE

Equity mutual funds managers performance in Greece[43]

N.D. Philippas and C. Psoma

In their article published in Managerial finance in 2001, N Philippas and Christine Psoma tried to find evidence of market timing abilities and asset selection abilities of greek mutual funds managers. To evaluate the above they employed the model of Treynor-Mazuy.

In the Jensen's approach of the market description the model used was characterized mainly from the abilities of fund managers to alternate investments between expected and risk-free rate return, selecting undervalued assets but was excluding the evaluation of potential market timing abilities. Treynor and Mazuy by adding a quadratic term to this model they gave a concave form to the fitting of the return scatter, adding the third term characteristic of this market timing.

Significant positive alpha and c terms of the model exhibit strong selectivity and market timing ability, giving them the ability to change the portfolio proportions in terms of beta coefficients manipulation.

Data used for the study were obtained from Datastream online and were daily returns of Greek mutual funds operating for the overall period from 01/01/1995 to 31/12/1998, thus for a three year period. For this period 33 mutual funds were in total, but only 17 were screened out. Additionally the General Index of Athens stock exchange was used for the same period as benchmark and the three-month Treasury bill as the risk-free asset rate of return.

After regressing the returns for the Treynor-Mazuy model the appropriate corrections were made in the case of existence of heteroskedasticity in the residuals of the regressions. The beta coefficients as expected were statistically significant and positive. The 14 out of 17 alpha coefficients were positive, 4 of which statistically significant. All negative alphas were statistically insignificant. As far as the c coefficients are concerned, 12 were negative out of which 6 were significant and 5 were statistically insignificantly positive. The level of significance was defined at the 5%.

The significant 6 negative c coefficients were attributed to either wrong manager forecasting or to changes in betas due to inflows or outflows independent to the managers will. The funds with significant positive alphas, selection ability on the part of the manager, were the only for to outperform the general index in general. The trend for the three year period was an upward with a steep slope due to the burst of the Greek stock market, with the result to be mutual funds and index returns to range from 83% to 163%.

The results showed that as far as market timing and undervalued stock selection was concerned, Greek mutual funds managers showed no evidence of these two characteristics in their investment policies in general. Only for mutual funds managers showed traces of market timing ability and none of them selection abilities. This inability to demonstrate these managerial and investing properties is attributed to the infancy of the mutual fund industry in Greece during that period. Moreover these extreme returns are mainly a result of the trend of that era and not a result of managerial contribution to the mutual funds returns.

2.9. EVALUATING MUTUAL FUND PERFORMANCE

Evaluating Mutual Fund Performance[44]

S.P. Kothari and J. B. Warner

In their work, published in October 2001, Kothari and Warner studied the evaluating strength of mutual fund standard performance measures, by using combined samples of data from NYSE and AMEX securities. Their main result was, as an introductory comment in the first part of the work, that the usual performance measures are misspecified, mainly because they are based on the CAPM (capital asset pricing model) and demonstrated that using different models gives better results. Moreover, they examined whether the misspecification of classical performance measures depended on returns' and return distributions' departures from normality, in particular, skewness. Finally, they showed that Fama-French three factor model based performance measures are significantly related to information variables, while CAPM based ones are not.

In the second part of their work, they presented some key issues in performance evaluation, focusing mainly on the ones affecting the properties of the benchmarks in the absence of any abnormal performance. These issues were security market lines, market timing and reward-risk ratios. On security market lines, they described the way that both CAPM and Fama-French three factor model are used to regress excess returns and extract results.

They investigated the properties of the regression intercepts, commonly known as alphas, they found that these are non-zero and sensitive to the selection of index. On the issue of market timing, the ability to predict the direction of the market faster than others, they employed tests on both single-factor and multifactor models and found market timing ability which was a paradox, since by construction, their portfolios did not include any timing ability. Finally, on the issue of reward-risk ratios, they demonstrated how CAPM departures can give higher Sharpe ratio than the value-weighted index and criticized the use of the value-weighted index to construct an efficient mutual fund benchmark.

In their baseline simulation procedure part, they discussed sample construction, mutual fund performance measures deriving from alternative pricing models and test statistics under null hypothesis of performance under normality. They constructed one 50-stock mutual fund portfolio for every month over the period from January 1964 to December 1991. They went on tracking the performance of these 336 constructed portfolios, for a period of three years using multiple measures.

The stocks they selected to form these portfolios were chosen randomly from NYSE and AMEX, fulfilling the criteria of having annual returns report on CRSP (Center for Research in Security Prices). They excluded NASDAQ market to avoid domination of NASDAQ stocks in their portfolios and they were changing the portfolio composition, at the start of each of the three years, to mimic mutual funds operation. For every individual portfolio, from the 336, they constructed a time series of 36 monthly returns, the first one been equal-weighted. After recomposing them at the starts of years two and three, again the portfolios formed were equally-weighted. Dividends were considered to be reinvested in the portfolio.

To measure the performance of the constructed portfolios they used the following performance measures: Sharpe measure, Jensen alpha (based on the CAPM), Treynor measure, Appraisal ratio, Fama-French three-factor model's alpha, CAPM market-timing alpha and gamma and the Fama-French three-factor model market-timing alpha and gamma.

In order to present their results better they disciplined the performance measures in subcategories as follows: regression-based performance measures (CRSP value-weighted index used as benchmark) with and without market-timing variables (two subcategories), regression-based performance measures (CRSP equal-weighted index used as benchmark) with and without market-timing variables accompanied by their test statistics and rejection frequencies. The third discipline of measures was reward-risk ratios. Moreover in their study, they included results for the subperiods from 1964 to 1971, from 1972 to 1981 and from 1982 to 1991 and discussed results referring to the investing style of portfolios, size-based and book-to-market-based style.

In more details, using the value-weighted index as benchmark and regressing with no market-timing variables, they found average alphas for CAPM and Fama-French model to be significantly positive and negative, respectively. The paradox, as mentioned earlier, was that this abnormal performance should not appear in randomly formatted portfolios. They also reported skewness and "kurtosis" properties (i.e. departures from normality) mainly in the distribution of Jensen alphas, which showed large standard deviation and wide range of prices, fact that lead them to the opinion that Jensen alpha is becoming weaker when abnormal performance appears. As far as regressions with market-timing variables are concerned, the authors stated that they found significant market-timing alphas and gammas, using both CAPM and Fama-French three-factor model.

After studying regression-based performance measures by using equal-weighted CRSP index as benchmark, concluded that not only CAPM based, but also Fama-French based measures, had size-related misspecifications. With no market-timing variables and equal-weighted index used, Jensen alpha is close to zero which is logic. Including market-timing variables and regressing to an equal-weighted benchmark, the alphas are averagely positive and significant and the gammas the exact opposite but still significant. They went on presenting distributional properties of the 336 portfolios in any regression employed, in the test statistics section. The mean and the standard deviation of t-statistics distribution are greater than zero and unity for both alphas, Jensen and Fama-French respectively. The CAPM timing gamma using both equal- and value-weighted index and the three factor timing gamma using the the equal-weighted index, all exhibit too many rejections in favor of negative market-timing.

As long as reward-risk ratios are concerned, the authors estimated that contrary to the CAPM prediction, equal-weighted index and randomly selected stock portfolios have Sharpe ratio bigger than the value-weighted index Sharpe ratio. On Treynor measure, one should expect that the portfolios used the value-weighted index would have bigger Treynor measure than the ones using equal-weighted index, but the opposite was observed, fact that is the same in the Sharpe ratio case. Moving on, the appraisal ratio did not give any concrete or consistent results.

Studying the subperiods, they found that the results of the subperiods were supporting their initial opinion of serious measures misspecifications. Average Jensen alphas were positive for the period of seventies and significantly negative during the eighties. Fama-French timing alphas were financially and statistically significant in all three subperiods, mainly positive in the first subperiod. With the use of equal-weighted index, the misspecification of both alphas was eliminated as shown earlier in their work, but both models gave timing alphas consistently positive in all subperiods and timing gammas negative in all three subperiods, making the total effect unobservable.

Summarizing, the authors concluded that typical performance measures were unreliable, especially since they showed the existence of market-timing and abnormal behavior, where none was, attributing this malfunctionality to misspecification rather than to abnormality. Fama-French based measures were better than the CAPM-based ones, still appearing to be some misspecifications. One possible reason was the incapability of size and book-to-market factors to fully describe the returns and another reason according to the writers was the process followed in the estimation part, for example expected returns change over the whole period. They closed their work suggesting further research on this market-timing appearance in simulated portfolios, when none exists.

2.10. EVALUATION OF BALANCED MUTUAL FUNDS: THE CASE OF THE GREEK FINANCIAL MARKET

Evaluation of balanced mutual funds: the case of the Greek financial market[45]

George Artikis

` In his article published in 2001 George Artikis aimed to evaluate the performance of ten Greek balanced mutual funds functioning in the Greek market over the period from 01/01/1995 to 31/12/1998, thus for a three year period. The mutual funds characteristics under examination were their return, their standard deviation, their coefficient of variation, their systematic risk, their Sharpe, Treynor and Jensen's alpha measures.

All three above mentioned measures use or derive from the CAPM (capital asset pricing model). Daily returns were calculated for the mutual funds using the daily net asset value per share of every mutual fund plus the dividend per share for every period when it was distributed. The standard deviation of daily returns for every mutual fund gave their total risk. By dividing the standard deviation with the return of each of the ten mutual funds, the coefficient of variation was produced.

The systematic risk of each mutual fund was calculated by regressing the return of the fund with the return of the market benchmark on the basis of a single index CAPM model. The benchmark used was the Greek index ASE (ATHENS STOCK EXCHANGE). The results were tested in their residuals for the existence of serial correlation and heteroskedasticity. The result of the regression as a parameter was beta which is the systematic risk or the sensitivity of the fund towards the market.

Using the CAPM the author calculated for all ten mutual funds the Sharpe ratio which is the excess return over the risk-free asset rate of the fund divided by the standard deviation of the market portfolio. Additionally Treynor's ratios were calculated by dividing the excess return over the risk-free rate of the fund with its beta coefficient. Finally Jensen's alpha for each mutual fund was produced by regressing the CAPM equation for excess from the risk-free rate of the fund and market.

After calculating each characteristic for the ten mutual funds, rankings were formatted for each one of them and were compared among them. The daily average return of the ASE was for the three year period higher than the respective one of the mutual funds. After the risk ranking the result was that the total risk of the market was bigger than the individual total risk of all the mutual funds. As far as the coefficient of variation was concerned, only two mutual funds had bigger coefficient of variation than the ASE. The coefficient of variation the higher it is the riskier the investment in return and risk terms combined.

The rankings of the beta coefficient showed that the mutual funds were quite defensive towards the market and the coefficient of determination (a parameter) was statistically significant in all ten cases.

Ranking the mutual funds by the Sharpe, Treynor ratios and Jensen's alpha gave different rankings with some mutual funds taking the same ranking in the case of Treynor ratio and Jensen's alpha, 4 out of the ten.

As a conclusion, these Greek mutual funds for the period under examination were as expected defensive, since they claimed to be balanced ones, their risk was analogue to the return achieved but in some cases they achieved higher returns for the undertaken level of risk. Generally their risk level was lower than the market's, both in terms of total and systematic risk.

2.11. A UNIVERSAL PERFORMANCE MEASURE

A Universal Performance Measure[26]

Con Keating and William F. Shadwick

In their article published in 2002, Keating and Shadwick presented for the first time the known OMEGA function. They tried to tackle with the main two problems of classic performance measures used in evaluating portfolios. The first problem arises from the simplification that mean and variance of the return distribution of a portfolio can fully describe the performance of it. The second and most common in new financial products is that returns do not always follow the normal distribution.

To deal with these issues higher moments of a distribution must be incorporated in performance measures such as kurtosis and skewness. Omega function according to the authors is a performance that includes all the above and presents the reward-risk relationship in an easy to understand for the investors manner. Omega is a function that can be evaluated for any threshold an investor may put on a distribution of returns. It is a ranking measure for portfolios like traditional measures bearing many more details.

To demonstrate the flaws of classic mean-variance relationships they presented three examples of pairs of assets with the following construction:

a) Two normally distributed assets with the same mean but different variances.

Flaw: if only mean and variance are used the ranking produced is biased since potential big losses and gains are considered equally undesirable which is not true.

b) Two assets distributed with the same mean and variance, higher odd moments the same and equal even moments but with opposite in sign.

Flaw: mean and variance exhibit the two assets as identical but a newer measure like omega would show different investing decisions.

c) Two assets distributed with the same mean and variance but different tails.

Flaw: large losses and gains are not estimated by Sharpe ratio.

In all three cases higher moments should be included because their impact is known to be significant in the performance measure construction. As stated earlier new financial products like hedge funds, derivatives and traditional ones such as bonds tend to show abnormal return distributions. These products when used in portfolios make the ranking of these portfolios difficult.

The authors presented the omega function as a function of return level. Available information from the returns distribution, including the higher moments, is enclosed in omega. Moving to its characteristics, omega function is a smooth monotone decreasing function and it is differentiable at least twice for comparison with other functions to be allowed. To apply the function they used indices related to two hedge fund style, MSCI and SWGBI. The data obtained were monthly from January 1993 to April 2001 (100 data points for each series). The distribution s of the data appeared to be typically non normal but nevertheless a Sharpe ratio with a risk-free arte of zero was calculated so as ranking of portfolios to be comparable with that of omega.

They ranked the portfolios (indices) by Sharpe ratio with risk-free rate zero and omega ratio and created a dummy indicator column parallel to the rankings. When the ranking from Sharpe agrees with the ranking from omega the indicator is valued 1 and when not is valued 0. Only in five cases the two ratios agreed in rank order, projecting the importance of using higher moments and the difference in results one can have by not using them. Of course the same was done for a range of returns for the omega function and not only for the zero return. The outcome was a decreasing function as expected, with the steepness of the line to measure the risk. The steeper the line, the less risky for an investor. The majority of then hedge funds indices were found to be less risky than the used two indices here.

Furthermore, they plotted the indifference points generated by Sharpe bratio and by omega function for the UK market in three different disciplines, real-estate, bonds and equity. The plots again indicated that the indifference points never coincided, illustrating that the use of higher moments gives other results that mean-variance only. In another application, using as risk threshold the MSCI index returns they ranked again the portfolios by Sharpe and omega ratios. The above mentioned indicator was again created and used. The results showed that once more the two rankings differed substantially due to the use of higher moments in the omega case.

Additionally, they used to rank these MSCI related portfolios another performance measure, the tracking error. No agreement in the rankings except for the cases of the two poorest performing portfolios. By correlating the three measures, the coefficients appeared to be very low, especially by comparing the tracking error with the other two.

The measure the two authors presented includes the higher moments of a return distribution, it is kind of simple to be interpreted by the financial industry and it is focused in two more financial disciplines. The downside related literature and the endogenous characteristic of decision literature. The results of applying this measure to hedge funds with abnormal returns showed that even for the simplest decision, how much we suffer to lose or gain, classic measures and omega give totally different explanations and tools.

2.12. PERFORMANCE EVALUATION OF INDIAN MUTUAL FUNDS

Performance evaluation of Indian mutual funds[46]

S. Narayan Rao and M. Ravindran

In their publication, S Narayan Rao and M Ravidran in October 2003 evaluated the performance of Indian mutual funds using different performance measures such as relative performance index, risk-return analysis, Treynor ratio, Sharpe ratio, Sharpe's measure, Jensen's measure and Fama's measure.

For the purposes of the examination 269 mutual funds were screened out from a total of 433 active at 31/03/2002. These 269 mutual funds were open-end, at least one year in life and were examined for the period from September 1998 to April 2002.

The logarithmic returns were calculated on a monthly basis for NAVs (net asset values). The data were obtained from AMFI website (association of mutual funds in India).

To screen out more mutual funds the relative performance index was initially calculated. The calculations of RPI were multiplied with the market return and were excluded the ones out of 269 that had RPI larger than 5. The RPI criteria passed only 58 open-end mutual funds.

The next step was the calculation of the standard deviation as a total risk measure. Additionally individual mutual fund risk or beta coefficient was calculated using the single index model, regressing the returns of the funds with the market returns. High betas are preferred during an expanding market period and low betas during a shrinking market. To estimate the diversification of mutual funds, they calculated the coefficient of determination which is the r^2 value of the individual regressions. The coefficient of determination if low shows an aim from the part of the mutual fund for diversification.

For the 58 remaining mutual funds the Treynor measure was calculated as the risk premium towards the individual mutual fund risk or beta coefficient. The risk premium was the excess return of the mutual fund return over the risk free rate of return. Treynor measure was calculated for the Indian market and compared with the Treynor ratios earlier estimated. If the ratio of a mutual fund is larger than the respective of the market then the fund is said to have outperformed the market for this period.

The Sharpe ratios for mutual funds were calculated in the next step as a ratio of risk premium towards the total risk born by the fund in this market. These ratios were compared with the one of the market, in the case of been higher than the market's ratio the mutual fund is considered again an outperformer of the market. Limitations exist for both Treynor and Sharpe ratios, the first been unreliable in a bear market and the second assuming only normal distribution of returns.

To examine special properties of mutual funds like selection ability of their managers, Jensen's alphas were calculated through regression og the CAPM model for all the mutual funds. Positive alpha shows stock or asset selection ability and vice-versa. Finally the Fama's measure was calculated using the multi-factor model of Fama. A positive Fama measure exhibits for the mutual fund higher than the expected returns.

The RPI analysis gave away 49 funds as underperformers, 118 par performers and 118 outperformers of the Indian market for that period. The statistical risk-return analysis showed that averagely the funds incorporated low unsystematic and high total risk. The Treynor ratio analysis gave out 32 positive performers and 4 negatively valued ones. The Sharpe ratio analysis demonstrated slightly different results with 30 overperformers and only 2 with negative evaluation. The Jensen's alpha estimation resulted in 35 positively valued mutual funds and the Fama's measure estimations found 46 mutual funds with positive Fama measure. In conclusion, 58 out of 269 mutual funds performed better than the market for that period in India, in both terms of systematic and total risk.

2.13. TESTING FOR PERSISTENCE IN MUTUAL FUND PERFORMANCE AND THE EX POST VERIFICATION PROBLEM: EVIDENCE FROM THE GREEK MARKET

Testing for persistence in mutual fund performance and the ex post verification problem: Evidence from the Greek market[47]

V. Babalos, G. M. Caporale, A. Kostakis and N. Philippas

In their article published in 2008, the authors attempted to examine the ex post verification problem. In order to do that they employed a number of performance measures in the Greek mutual fund market for the period of 1998-2004.

Their study focused in Greece because the Greek mutual fund industry had the characteristics they were looking for. It contained few major participants and the stock market was relatively small in capitalization terms and illiquid. Moreover the fund market under the globalization of the financial systems and the EU observation was transforming into a developed market from an emerging one, fact that is validated from the increased participation of foreign players also.

The Greek financial system was mainly based and fueled on three big banks that dominated the information channels and increased the information asymmetry to the whole fund industry. Additionally these major players were price makers sometimes mainly through the signaling effect to other participants. In general the market can be for these reasons characterized as a biased one.

Data used were obtained from all mutual funds that had available data during a continuous two year period from 01/01/1998 to 31/12/2004. ASE (Athens stock exchange) was used as benchmark and the 3-month government zero-coupon bond as the risk-free rate of return. Data were collected from the AGII (Association of Greek institutional investors) and Datastream database. The funds were domestic equity funds whose returns were weekly and were calculated through their net asset values. Information on foreign participants was collected by the Central Depository of ASE.

To construct mimicking portfolios they followed the methodology of Otten and Bams (2002). For the HML factor, stocks were ranked on book-to-market ratio. The top 30% (high book-to-market portfolio) minus the bottom 30% (low book-to-market portfolio) made the HML. Respectively, the SMB factor was the return difference between these two portfolios. Finally to obtain the MOM (momentum) portfolio they took the difference between the top 30% winners based on market capitalization and the bottom 30% losers.

In the next step they calculated the following performance measures:

a) Sharpe ratio measuring the excess return of mutual funds toward the total risk they bear
b) Jensen's alpha which is an indicator of selection ability of the part of the mutual fund manager
c) Fama-French three-factor model coefficient a which is a performance measure
d) Carhart's four factor model coefficient a which is a performance measure based only on market risk

Furthermore, after calculating the performance measures they ranked the mutual funds according to these measures. The rankings were formatted first according to raw returns, Sharpe ratio, Jensen's alpha, Fama-French's alpha and Carhart's alpha.

The raw returns analysis showed that evidence of persistence in performance attributed mainly to the investment strategies of the funds and is not a reliable analysis. The Sharpe ratio analysis demonstrated significant persistence in performance of funds explained mainly from the fact that a number of funds achieved higher returns without increasing their level of risk. The Jensen's alpha and the augmented model's regression analysis exhibited contradictory results. Jensen showed significant persistence for the 2000-2001 and 2003-2004 periods, while the augmented model showed that this persistence was not statistically significant. The

Fama-French and Carhart measures analysis through regressions resulted in significant evidence of persistence in the 2000-2001 period and weak evidence in the 1998-1999 period for the Fama-French case. Carhart's regression exhibited significant persistence only in the period of 2000-2001 (hot hands effect).

Evidence of persistence was found only for the period 1998-2001 and not for the second. This persistence was attributed to the failure of adjusting to performance important risk factors. Lack of persistence in the second half of the period was due to big outflows from past losers toward past winners, as a result of the increased number of new funds and foreign players entering the market, fact that eliminated the noise investments. Additionally domestic players had to add value and adjust their strategies to the fluctuations of cash flows, contributing to the volatility of performance these years. Finally no asymmetry in performance persistence was observed, thus low performing managers did not outnumbered high performing ones.

The authors in conclusion implied that performance persistence can be observed in an international or domestic market under equilibrium and this persistence will be due to reallocation of cashflows to past winners and elimination of the low performing mutual funds. The best performance measure was according to them the Carhart's model coefficient which included information on the persistence after adjusting for important risk factors for the specific Greek market that period.

2.14. DOES THE MEASURE MATTER IN THE MUTUAL FUND INDUSTRY?

Does the Measure Matter in the Mutual Fund Industry?[20]

Martin Eling

In his article published in 2008, M. Eling tried to answer to the question if alternative investments performance need alternative performance measures or the job can be done with classic measures like the Sharpe ratio. In order to obtain substantial and robust results he experimented not only in hedge funds but also in funds investing in stocks, bonds, commodity pool operators, commodity trading advisers, funds of hedge funds and real estate covering the majority of asset classes of the fund industry.

On the concept that hedge fund return deviate enough from normality, there has been much criticism on whether the Sharpe ratio should be used, since it demands the presence of normality in the return distributions. For this reason, mainly during the last decade researchers have proposed numerous new performance measures, amongst them: the Omega ratio, the Sortino ratio, the upside potential ratio, the Kappa 3 ratio, and the modified Sharpe ratio. Their difference with the Sharpe ratio is the replacement of the standard deviation from an alternative risk measure, like the lower partial moments of the first three orders, from three alternatives based on the drawdown and three VaR-based approaches. In some of them, there is another interpretation of the return (e.g. the higher partial moments) replacing the excess Sharpe return. In his paper, Eling compared the Sharpe ratio results with the ones from ten different performance ratios:

1) Four lower partial moments ratios: Omega, Sortino, Upside Potential and Kappa3;
2) Three drawdown measures : Calmar, Sterling and Burke Ratios;
3) Three VaR-based measures: Excess Return on VaR, Conditional VaR and Modified VaR ratios.

Lower partial moments (LPM) consider only negative deviations of return, while the Sharpe ratio standard deviation includes both positive and negative deviations of return from the expected value. High partial moments (HPM) are used as a return indicator as in the upside potential ratio case. The drawdown of a fund measures the losses realized over a given period and it is used in the Calmar, Sterling and Burke ratios. Finally VaR is the minimum potential losses a fund can suffer, given a certain confidence level in a given period, and it is used in the last three VaR-based measures.

Eling used data from a total of 38 954 investment funds for his empirical research. He gathered data for 17 817 stock funds, 12 279 bond funds and 751 real estate funds from the Thomson Datastream Database. He also took data for 4 048 hedge funds, 1 949 funds of hedge funds, 1 076 commodity trading advisers funds and 1 034 commodity pool operators funds from the CISDM Database. The overall examined period for which data were taken was from January 1996 to December 2005. He constructed from these data the return distributions of all asset classes with time-series analysis and cross-sectional one. Hε presented the mean, median, standard deviation, maximum and minimum of the first four moments of the funds' returns (mean(%), standard deviation(%), skewness and excess kurtosis.

The results incorporate also the Jaqcue-Bera test, which shows the percentage of funds for which the normality assumption is rejected at 1% and 5% significance levels and the average correlation amongst funds in each class. Using the mean value as a measure of return and the standard deviation as a risk measure, he found some interesting results. When risk and return are compared this rule does not stand entirely. Hedge funds offer the highest return without having the highest risk and funds of hedge funds have a very low risk for the return they offer, signal of a bigger diversification.

Another observation was that the rejection rate for Jacque-Bera test was high for hedge funds and other classes. At the 1% significance level the rejection ranged from 19.84% for stock funds to 45.54% for real estate funds, fact that would obviously make the use of the Sharpe ratio inappropriate to measure performance in many asset classes, according to the criticism. Additionally, the correlation amongst the elements of the classes is average high, ranging from 0.57 for stock funds to 0.16 for the sample of the more diverse hedge funds. Finally, the author calculated the survivorship bias and the attrition rate from the two databases data, and found them to be lower for traditional investment vehicles than for alternative ones as expected, ranging from 0.01% for stock funds to 0.10% for commodities pool operators funds.

In the performance measure section, Eling calculated all eleven different performance measures in each specific asset class and then ranked the class funds according to each measure. After the ranking took place he examined the results between the different rankings. To smooth the process, he assumed that the minimum required return in the LPM-based measures was the monthly risk-free US 10 year treasury bond rate as of December 2005. He also assumed that the five largest drawdowns for the Sterling and Burke ratios and that the accepted significance level for VaR calculations would be 5%.

As far as the correlation between the alternative performance measures and the Sharpe ratio are concerned, the results showed that due to the ranking there is a high degree of correlation. The minimum correlation for hedge funds was between Sharpe and Sterling ratio (0.94) and the maximum was between Sharpe and excess return on VaR (1). The Sharpe ratio has averagely a high (almost unit) correlation with Omega, Sortino, Kappa3 and modified Sharpe ratio for all asset classes. Furthermore, averagely with all the set of ten measures, Sharpe ratio is highly correlated, for the stock fund (0.99) and commodities pool operators funds (0.99) with the minimum graded class to be real estate (0.96) and funds of hedge funds (0.96).

In this point he mentioned that he found a negative relationship between Jacque-Bera test rejection and ranking correlation, thus the asset discipline with the lowest rejection rate had the highest rank correlation and vice-versa, stock funds and real estate funds respectively. Even when returns deviated largely from normality, the ranking correlation did not significantly changed as in the case of real estate category. The correlation was only referring to the relationship between the Sharpe ratio and the other ten measures, since similar results were found for all the interactive experiments for all the measures amongst them, so the rule could be generalized.

Eling attempted also to prove the robustness of his results by carrying out numerous tests. In order to achieve that, firstly he separated the overall period in five periods of two years each and reconducted the measurements. Secondly he repeated the experiments by changing the sample in surviving and dissolved funds to incorporate potential survivorship bias in the results. Moreover he changed the range of the initial parameters for the LPM measures from 0% to 1%, for the drawdown measures he varied the number of drawdowns from 1 to 10, and the significance level of VaR measures from 1% to 20%. He repeated the experiments by eliminating the first to tenth extreme (highest and lowest) returns from the time series. Finally he split the groups of stock funds, bond funds and hedge funds in groups according to the strategy the funds claimed to follow at that period. The results showed for all the above mentioned robust tests a high correlation with the results initially obtained.

To explain this high correlation between performance measures, Eling used the fitting software BestFit to examine the distribution kind of every fund based on historical returns, and the best fit was done by a logistic or a Weibull or a normal distribution, fund returns usually been elliptically distributed. To confirm the result he simulated 1000 artificial funds with the Monte Carlo method with 120 monthly returns (10 years) with five different distributions (logistic, weibull, normal, lognormal and generalized beta) and the outcome was that the reason for the high rank correlation amongst measures was that the performance measures and the fund returns were relatively similar.

To the question why Sharpe ratio is right, Eling named a number of reasons that make this performance measure so popular the last 50 years:

1) it is widely used in databases and from the overall financial industry
2) it is the most understood summary of two important aspects of investments, risk and return, and it is very convenient in the same time
3) a wide range of statistical tests are Sharpe-based which does not happen for many other measures
4) there is a huge research on the Sharpe ratio and as shown there is no significant difference when using it for alternative investments

Concluding, the author stated that the choice of performance measure did not really affect the ranking of hedge funds and mutual funds. There was found a negative relationship between the Jacque-Bera test rejection and the rank correlation as stated before. The results were based on a huge database (38954 funds) and the robustness tests made the results concrete. From practical and theoretical point of view, the Sharpe ratio, according to Eling, is superior to the rest and by far the simplest and more studied one.

2.15. COMPARING AND SELECTING PERFORMANCE MEASURES USING RANK CORRELATIONS

Comparing and Selecting Performance Measures Using Rank Correlations[48]

Massimiliano Caporin and Francesco Lisi

In their article published in 2011, Caporin and Lisi tried to study the possibility of using numerous different performance measures in order to rank financial assets. The study is based on comparing results with the most recent works on this area from Eling and Schumacher (2007), Eling (2008) and Eling (2011). It should be noted that Eling's studies propose that using different classic and modern performance measures in big fund databases, there is a high correlation in the produced rankings.

Caporin and Lisi use the same methodology with earlier studies of Gemmill, Eling and Schumacher. They used multiple measures and, in case of identical ranking results, they reduce the number of appropriate measures to a minimum. They tried to trace the measures that incorporate different information on the risk-reward relationship. They contributed to the earlier studies in three ways: a) they increased the initial number of performance measures used, in order to extract a well-specified group; b) they tried to study the dynamics of rankings and their correlations. This time variation and size variation were not examined in the past and may well have a big impact on the outcome of asset performing; and c) they proposed a different method to reduce the number of performance measures from the large group.

The following performance measure groups were formatted: a) traditional performance measures group containing the Sharpe ratio, the Treynor index, the appraisal ratio, the mean absolute deviation ratio of Konno and Yamazaki, the Minimax ratio of Young the expected return over the range ratio and the Modigliani risk adjusted performance measure; b) drawdown based measures group containing the Calmar ratio, the Sterling ratio and the Burke ratio; c) partial moments based measures group containing the Sortino ratio, the Kappa 3 measure and the Farinelli and Tibiletti ratio; d) quantiles based measures group containing the expected return over absolute VaR, the VaR ratio, the expected return over absolute expected shortfall and the generalized Rachev ratios; and e) utility functions derived measures group containing the Morningstar risk-adjusted return and two alternative measures to the one introduced by Gemmill et al.(2006).

The data used in this study were collected from Datastream and referred to all stocks of S&P 500 for the period from January 1990 to October 2008. The benchmark used was the S&P 500 index and the US treasury-bill of 1month index as the risk free asset rate, taken by Citigroup. The returns were calculated to be logarithmic and there was a clear deviation from normality. An issue rose since not all 1500 assets were data-available for the overall period, so the authors tackled with this problem by following two different strategies. They formatted three different subperiods for the time frame from November 1998 to October 2008. The first was from November

1998-October 2008 with 120 observations, the second was November 2003-October 2008 with 60 observations and the last was November 2005-October 2008 with 30 observations. The second strategy was to examine the whole initial period from January 1990 to October 2008, with a rolling time window of 60 for all available observations in each window.

One big difference with Eling's studies was that the former was examining managed funds and not stocks, as well as the high rank correlations he was attributing to most performance measures. Caporin and Lisi estimate low rank correlation to be below 0.8 so as to define a novel comparing level. The first reduction in the number of performance measures used came after applying an analysis within the groups. Despite finding similar results with Eling in terms of similar performance measures, especially with the Sharpe ratio, their correlations were lower than the almost identical ones proposed by Eling.

They ended up in the use of Sharpe ratio, the Calmar ratio, the Sterling ratio, the Burke ratio, the VR index, the STARR, the VaR ratio, the generalized Rachev ratio, the FT index, the MRAR index and the LAP measures. Their next step was to examine only the selected measures. They found some interesting results in these conditions.

Specifically, partial moments and loss-aversion based performance measures give different rankings from the traditional measures, fact that is opposite to Eling's studies. So they conclusion was that different rankings are based on the fact that different measures fit different pieces of information and time intervals. Finally, they proposed that further studies should be carried out on the process of selecting specific baskets of performance measures, according to the specific needs and time frame under examination.

TABLE 2.1. SUMMARY OF RESEARCH REVIEW

	Authors	# Funds	Article title	Period and place of exam.	Perf.measure	Conclusion
1	*William F Sharpe*	34 open-end	Mutual fund performance	1944-1953 & 1954-1963 USA	Sharpe ratio, Treynor ratio	11 out of 34 outperformed the market
2	*Jack Treynor and Kay Mazuy*	57 open-end	Can mutual funds outguess the market?	1953-1962 USA	Treynor-mazuy model coefficients	No fund managerial market timing and selection abilities
3	*Michael Jensen*	115 open-end	The performance of Mutual Funds in the period 1945-1964	1945-1962 USA	Jensen alpha	Little evidence of predicting abilities in mutual funds before and after fees
4	*Ravi K Shukla and Gregory B van Inwegen*	108 US &18 UK Growth funds	Do locals perform better than foreigners? An analysis of UK and US mutual fund managers	1981-1993 USA & UK	Sharpe ratio, Treynor ratio, Jensen alpha	Locals perform better than foreighners
5	*Franc o Modigliani and Leah Modigliani*	7 selected famous mutual funds	Risk-adjusted performance	USA Quarterly returns	RAP, Sharpe ratio, Treynor ratio	RAP is an improved risk-adjusted performance measure
6	*Jun Cai , K. C.Chan and Takeshi Yamada*	800 funds In 36 portfolios	The Performance of Japanese Mutual Funds	1981-1992 Japan	Positive partial weighted measure and Jensen's conditional measure	Most Japanese funds underperformed the market. No signs of market timing
7	*Roger Otten and Dennis Bams*	506 mutual funds	European mutual fund performance	1991-1998 Germany, Italy, France, UK, Netherlands	Carhart's four factor model coefficients	No evidence of the 'hot hands effect' or persistence performance effect
8	*N.D.Philippas and Christine Psoma*	17 Greek mutual funds	Equity mutual funds managers performance in Greece	1995-1998 Greece	Treynor-Mazuy model coefficients	No evidence of market timing and undervalued stock selection abilities
9	*S.P.Kothari and Jerold B. Warner*	336 artificial portfolios of equity mutual funds	Evaluating Mutual Fund Performance	1964-1991 USA	Sharpe ratio, Treynor ratio, Jensen alpha, Appraisal ratio, Fama-French 3 factor model coefficients	No evidence of market timing abilities even in constructed portfolios
10	*George Artikis*	10 balanced mutual funds	Evaluation of balanced mutual funds: the case of the Greek financial market.	1995-1998 Greece	Sharpe ratio, Treynor ratio, Jensen alpha, Standard deviation, Coefficient of variation and systematic risk	Funds were found to be defensive, with risk level lower than the market, after ranking them.

11	*Con Keating and William F. Shadwick*	Two hedge funds styles, MSCI & SWGBI with abnormal returns	A Universal Performance Measure	1993-2001 UK	Sharpe ratio, Tracking error, Omega measure	Classic measures and omega measure give different results and tools
12	*S Narayan Rao and M Ravidran*	269 mutual funds	Performance evaluation of Indian mutual funds	1998-2002 India	Sharpe ratio, Treynor ratio, Jensen alpha, Fama measure, RPI, Risk-return analysis	58 out of 269 mutual funds performed better than the market for that period in India, in both terms of systematic and total risk.
13	*Vassilios Babalos, Guglielmo Maria Caporale, Alexandros Kostakis and Nikolaos Philippas*	All equity mutual funds in Greek market	Testing for persistence in mutual fund performance and the ex post verification problem: Evidence from the Greek market	1998-2004 Greece	Sharpe ratio, Jensen alpha, Fama-French alpha, Carhart's alpha Jensen's augmented model alpha	Performance persistence was observed in 1998-2001.The best performance measure the Carhart's model coefficient which included information on the persistence after adjusting for important risk factors.
14	*Martin Eling*	38954 Investment funds	Does the Measure Matter in the Mutual Fund Industry?	1996-2005 Global	Sharpe ratio, Treynor ratio, Omega, Sortino, Kappa3, Calmar ratio, Sterling ratio, Burke ratio, 3 VaR-based measures, Upside potential	The Sharpe ratio is identical to the rest and by far the simplest and more studied one. High measure correlations.
15	*Massimiliano Caporin and Francesco Lisi*	Stocks of S&P 500, not managed funds	Comparing and Selecting Performance Measures Using Rank Correlations	1990-2008 USA	Sharpe ratio, Calmar ratio, Sterling ratio, Burke ratio, VR index, STARR, VaR ratio, generalized Rachev ratio, FT index, MRAR index and LAP measures	Their conclusion was that different performance measure rankings are based on the fact that different measures fit different pieces of information and time intervals. Not so high correlations

Chapter 3

EXPERIMENTAL PART

3. EXPERIMENTAL PART

3.1. DATA SELECTION

3.1.1. MUTUAL FUND SELECTION

The financial health around the world after 2009 is under examination and many claim that it will take many years for some countries to escape the absurd results of past bad financial decisions. The continent influenced more during the crisis was indisputably Europe and, especially, the ‘builded-on sand south countries’ economies. Still in the year this dissertation is written, the European economy shows again signs of recovery after prolonged austerity and fiscal bailouts that removed many of the degrees of freedom of the local markets and economies.

The European sovereign crisis was a result of many sequential bubbles in the US and European economy like the estate bubble, the stock market bubble and the bubble of financial derivatives. During this period, huge funds shifted towards new economies and more safe ones, resulting in drainage of capital in European countries and already developed economies as well. Nowadays, the sense of safety seems to return and the funds returning to their ‘base’ will be missing from the blooming until recently economies like Brazil, Russia, India and China.

The purpose of this study is to examine the use of multiple performance measures in the asset class of mutual funds. It is focused on Europe and especially on three economies that didn’t collapse during the crisis and are considered amongst the ones formatting the backbone of the European financial organism. These are Germany, Austria and France. The selection of countries didn’t include south European countries like Greece, Italy, Spain and Portugal because the effects of bailouts in these countries after 2008 are obvious, though they are not market-driven, but pure political decisions. These four countries for a long period are not part of the markets since state funding and private sector funding was conducted with internal European state borrowing.

On the other hand, countries like Germany, France and Austria that depend their economies on domestic industrial production and parental industrial production, passed the years of crisis with minor financial injuries, strengthening their position in the markets and becoming lenders of the weak economies. Their answer to crisis was a mixture of large exports, high technology products and a prior-crisis strict fiscal policy. The monetary policy of European Union, which depends primarily from the decisions of France and Germany, is a low inflation oriented policy and is predicted not to change towards an expansion.

The crisis is thought to have started about the end of 2007 in the USA, with people witnessing averagely lower wages in purchasing ability than in 1990, large financial organizations being rescued by the USA government, an increase rate of unemployment and a collapsed real-estate sector. The first signs came in Europe early 2008 and in the south European countries in 2009. For this reason the time frame under examination was chosen to be eleven years, from 01/01/2002 to 31/12/2012. This overall period was divided in two sub periods, the first from 01/01/2002 to 01/06/2007 and the second from 01/06/2007 to 31/12/2012. So, roughly it can be estimated that the two subperiods characterize the prior-crisis and after-crisis periods of the European economies.

The mutual funds screened out for this study were meeting the below criteria for each country:

a) Open-end funds;
b) Country of domicile: the country under examination;
c) Equity focus: domestic equity;
d) Asset class: equity;
e) Mutual fund status: survivor mutual funds;
f) Fund size: any.

By meeting the above criteria there is, of course, survivorship bias. Moreover, the asset class of equity funds doesn't exclusively include domestic equity, since it is allowed for a small percentage of the mutual fund capital to be invested on bonds and foreign equity. Nonetheless, this small percentage is considered to have no substantial effect on the returns of the funds and the different sources of return, as shown later slightly change the parameters of the market. The choice of mutual funds resulted in a random selection of fund sizes.

After meeting the above criteria, weekly data for numerous mutual funds were collected, from which 204 mutual funds from each country were screened for which funds data were available for the overall period. Totally, they were chosen 612 mutual funds for all three countries in the sense of producing statistically more substantial results. All mutual funds in Germany, Austria and France are traded in euro for the overall period, so no conversion had to be done with currency exchange rates throughout the sample.

Data were obtained by the Bloomberg database with the subscription of University of Piraeus. In the appendix, in Tables 1-3 are presented amongst other things the tickers of the mutual funds (name) per country as they are registered in the Bloomberg database and the number associated to them for this study for methodology purposes.

As far as the risk free rate is concerned, we used the data available for the 3M Euribor rate common for all three countries and not one of the domestic 1Y, 3Y, 5Y and 10Y Treasury bill, because the rates in the domestic treasury bills especially in Germany are not representative of the domestic equity market. Moreover, they were chosen bond indexes additional to the main equity index from each country. The entire above mentioned are described below:

a) Germany

Main equity index: Deutsche Borse AG German Stock Index DAX

It is the main equity index used in the German economy as a market reference. The German Stock Index is a total return index of selected German stocks traded on the Frankfurt Stock Exchange.

b) France

Main equity index : SBF250 French stock index

The CAC SBF250 contains stocks of the Euronext Paris market that have an annual Free Float Velocity over 20%.

It is the main equity index used in the French economy as a market reference.

c) Austria

Main equity index: ATX INDEX

The Austrian Traded Index is a capitalization-weighted index of the most heavily traded stocks on the Vienna Stock Exchange.

Totally, we collected 574 observations for each country for the overall period, 283 observations for the first subperiod and 294 observations for the second subperiod. The data were based on weekly rates to avoid the fluctuations generated from daily data and to overpass the issue of few observations in the case of monthly data. The data were prices per share of the individual mutual fund at the closing of every week, weekly closing prices for the 3M Euribor, weekly closing prices of all main stock.

3.1.2. RETURN CALCULATIONS

In order to use the data we needed first to transform them in logarithmic returns, so we used the following equation for all different assets:

$$\mathrm{Rln}_{\mathrm{asseti,t}} = \ln \frac{\mathrm{P}_{\mathrm{asseti,t}}}{\mathrm{P}_{\mathrm{asseti,t-1}}} \qquad (3.1)$$

where $R\mathrm{ln}_{\mathrm{asseti,t}}$ is the logarithmic return of asset *i* in time *t*, $\mathrm{P}_{\mathrm{asseti,t}}$ is the price of asset *i* in time *t*. The logarithmic returns are quite identical with the first-difference returns but the distribution of logarithmic returns is more continuous.

We produced the main descriptive statistics for every mutual fund for all countries and all time frames. These were: the mean of the mutual fund returns, the standard deviation, the kurtosis and the skewness. Appendix Tables 4-6 include the mean and standard deviation of returns of all mutual funds for every time period under examination. The mean return shows the average value of returns, the standard deviation is the deviation of returns from the mean value, kurtosis is the indicator of how sharp is the return distribution and the skewness measures the asymmetry of the distributions. A normal return distribution has a kurtosis of 3 and a skewness of 0. If the kurtosis is higher than 3, then the distribution is smoother and has thinner tails, called platykurtotic and in the opposite case the distribution is peaker, the tails fatter and is called leptokurtotic. If the skewness is negative, the left tail of the distribution is fatter than the right tail and vice versa if the skewness is positive. Skewness equal to zero means perfect distribution symmetry or perfectly evened out tails asymmetries (one tail short-fat, the other long-thin).

Furthermore, we calculated the mean return and standard deviations of the main indices. As a first step, we converted the 3M Euribor data from annual to weekly by using the following formula:

$$3M_W = (1 + EUR3M)^{\frac{1}{52}} - 1 \qquad (3.2)$$

Where $3M_W$ the real weekly 3M euribor rate and EUR3M is is the annualized data as collected from Bloomberg database.

3.2. PERFORMANCE MEASURES

3.2.1. BETA

The first calculation using the returns of the mutual funds was the calculation of the beta coefficient for every mutual fund. The beta coefficient will be later used to calculate the Treynor ratio. The first model is the single index model:

$$R_{mfi} = a_i + b_i R_m + u_i \qquad (3.3)$$

where R_{mfi} is the mutual fund return, R_m the return of the country's market-index, a_i the intercept, b_i the beta coefficient for the mutual fund *I* and u_i the error term. To calculate the beta coefficients, we run regressions of the above equations with the least square method using the Eviews 6 program and the results and their *t*-tests are presented in Tables 7-9.

Residuals tests were contacted for heteroskedasticity and autocorrelation existence using the ARCH-LM test and the LM test, respectively. In the case of existence of autocorrelation in the residuals of the regressions, it is a sign of incomplete model used since more information is hidden in the residuals. The same effect is also valid in the case of heteroskedasticity. The estimated parameters are right (unbiased estimators), but the classic tests can't work because the estimated standard errors of the parameters are wrong and are used in the tests. A solution is to restimate the equation with the least square method by correcting the standard errors, with the White consistent coefficient covariance, if only heteroskedasticity exists in the residuals. Newey-West heteroskedasticity consistent coefficient covariance can be used so as the *t*-statistics to be valid, in the case of existence of autocorrelation with or without heteroskedasticity in the residuals. The single index model is known to be very simplifying, but it is not in the purpose of this study to propose a new model for the mutual funds of these three countries.

Finally, the beta of the market used in calculations in later steps was unit.

3.2.2. SHARPE RATIO

Sharpe ratio was calculated for each mutual fund for every country for every period. Additionally, we calculated the Sharpe ratios for the market benchmark for every period and country using the following equations:

$$\mathrm{SR_{mfi}} = \frac{\mathrm{ER_{mfi}} - \mathrm{ER_f}}{\mathrm{SDP_{mfi}}} \qquad (3.4)$$

$$\mathrm{SR_M} = \frac{\mathrm{ER_M} - \mathrm{ER_f}}{\mathrm{SDP_M}} \qquad (3.5)$$

Where $\mathrm{SR_{mfi}}$ is the Sharpe ratio of the mutual fund *i*, $\mathrm{SR_M}$ denotes the Sharpe ratio of the market benchmark, $\mathrm{ER_{mfi}}$ the average return of the mutual fund, $\mathrm{SDP_{mfi}}$ the standard deviation population of the mutual fund, $\mathrm{ER_f}$ the average return of the risk-free rate, $\mathrm{ER_M}$ the average return of the market benchmark and $\mathrm{SDP_M}$ the standard deviation of population of the market benchmark.

Positive Sharpe ratio indicates portfolio overperformance in comparison with the market, while negative Sharpe ratio indicates that investing on this portfolio is less profitable than investing on the market. Finally, a negative Sharpe ratio shows that investing only on the risk-free asset is better than the under examination portfolio. Basic assumption is that the return distribution is normal, but when returns are not normally expressed it gives misleading results. However, it is widely used for ranking purposes.

3.2.3. TREYNOR RATIO

Having calculated the beta coefficient with the single index model (in part 3.2.1.), we used them to calculate the Treynor ratios for the the market benchmark and the individual mutual funds in every country and every time frame. (Appendix Tables 7-9) Using the equations below:

$$TR_{mfi} = \frac{ER_{mfi} - ER_f}{b_{mfi}} \qquad (3.6)$$

$$TR_M = \frac{ER_M - ER_f}{b_M} \qquad (3.7)$$

Where TR_{mfi} is the Treynor ratio of the mutual fund *i*, TR_M represents the Treynor ratio of the market benchmark, ER_{mfi} the average return of the mutual fund, b_{mfi} is the beta coefficient of the mutual fund *i*, ER_f the average return of the risk-free rate, ER_M is the average return of the market benchmark and b_M the beta coefficient of the market benchmark.

The measure is similar to the Sharpe ratio, with the only difference that instead of the standard deviation of returns of fund, it uses as a denominator the relative risk of portfolio. This relative risk is expressed through the beta coefficient of the portfolio.

The beta coefficient measures the systematic (market) risk and not the absolute risk of the portfolio. In that sense, it excludes unsystematic risk, assuming that all investors manage well-diversified risk, which is not accounted in the ratio. In case of unsystematic risk existence, the ratio is invalid.

It is used to rank portfolios and compare them or compare them with the return of the market. Positive and negative Treynor ratios have a two-way explanation and specifically the negative value can be explained as follows: either by a negative sensitivity of the portfolio to the market, meaning a great management or by an underperformance of the portfolio towards the risk-free asset, meaning a bad management. Respectively, a positive value indicates either overperformance of the fund or a combination of fund underperformance, with negative fund correlation with the market.

3.2.4. JENSEN'S ALPHA

We calculated Jensen's alpha for each mutual fund, for all countries, for all examined periods by regressing the equation (3.8) with the Eviews 6 program and presented in Appendix Table 10-12. The estimated intercepts are the Jensen's alphas and the beta coefficients. The residuals of the regressions were tested for the existence of autocorrelation and heteroskedastisity and the estimated standard errors were recalculated with the White and Newey-West methods. Jensen's Alpha was the first benchmark-based measure to be used. It measures the excess return produced by management of a fund over the expected return due to better market timing and security selection. The Jensen's alpha is a relative risk-adjusted performance measure used to compare portfolio with the benchmark portfolio. It is based on the CAPM and given by the following equation:

$$\alpha_{mfi} = [(R_{mfi}) - r_f] + \beta_{mfi}[(R_M) - r_f] \qquad (3.8.)$$

where α_{mfi} is the Jensen's alpha for the mutual fund;
(R_{mfi}) is the mutual fund i return;
r_f is the risk-free asset return;
β_{mfi} is the sensitivity or beta coefficient of the mutual fund towards the market or benchmark;
(R_M) is the return of the benchmark.

The CAPM model, although a breakthrough in financial theory, has many disadvantages one of which is that as a model is not very accurate and statistically significant in many cases. However, as mentioned earlier for the single index model, these two models are to be used without proposing an alternative one in this study.

If alpha is positive, it indicates that the fund management or portfolio *p* overperforms the benchmark, while a negative alpha indicates a portfolio underperformace. The benchmark portfolio alpha is zero. This excess return produced can be attributed to market timing, the ability to predict the movement of the market portfolio and higher security selection ability.

3.2.5. MODIGLIANI-MODIGLIANI MEASURE

We calculated the MM measure for all mutual funds, for every country and for every period under examination with the help of equation:

$$MM = (ER_{mfi} - ER_f)\frac{SDP_M}{SDP_{mfi}} + ER_f \qquad (3.9)$$

where ER_{mfi} is the return of the fund;
ER_f is the risk-free asset return;
SDP_{mfi} is the standard deviation of population of the mutual fund I returns;
SDP_M is the standard deviation of the market portfolio returns,
MM is the Modigliani-Modigliani measure.

Equation (3.9) shows that there is a return penalty for a portfolio with risk level higher than the benchmark risk level (market) and a return reward for a portfolio with lower risk level than the benchmark. This notion originated from corporate asset portfolios, a portfolio can transit to higher or lower risk level by borrowing/lending to the risk-free rate.

Levering for an investor means borrowing at the risk-free rate and making the portfolio larger, both in terms of risk and return and vice-versa. The bigger the measure, the higher the performance of the portfolio or fund evaluated.

3.2.6. INFORMATION RATIO

We calculated the measure named Information Ratio for every mutual fund, for all three countries and for every period under examination. The equation for calculating the measure is as follows:

$$\text{Information ratio} = \text{IR} = \frac{E(R_{mfi} - R_M)}{SDP(R_{mfi} - R_M)} \qquad (3.10)$$

where R_{mfi} is the return of the mutual fund *I*, R_M is the return of the market and SDP is the standard deviation of population of the returns.

The nominator of the fraction is the expected excess return of the portfolio from the benchmark and the denominator is the standard deviation of the excess return or else called ‘tracking error’. The ratio is the similar to the Sharpe ratio with the difference of use of excess return and the use of a benchmark instead of a risk-free asset.

A negative IR is indications of fund’s underperformance towards the benchmark, while a positive one is an indicator of overperformance. The ratio also proposes the maximization of excess return and for the same period minimization of the undertaken risk.

3.2.7. TREYNOR-MAZUY MEASURE

Finally, we calculated the parameters of the Treynor-Mazuy equation for every mutual fund, all three countries and every period under examination. We regressed equation (3.11) using the Eviews 6 statistical program.(Appendix Table 10-12)

$$R_{mfi} - r_f = a_{mfi} + b_{mfi}[(R_M) - r_f] + c_{mfi}[(R_M) - r_f]^2 \qquad (3.11)$$

where a_{mfi}, b_{mfi}, c_{mfi} are the Treynor-Mazuy alpha, beta and c parameters, respectively;
(R_{mfi}) is the mutual fund *i* return;
r_f is the risk-free asset return;
(R_M) is the return of the market.

We tested the residuals of the regressions for the existence of autocorrelation and heteroskedasticity and dependant on the case we corrected the estimated standard errors of the parameters with the White and Newey-West methods.

The coefficient *c* of market timing indicates if the fund management has market timing ability or not. If the coefficient is positive, the manager can predict the movement of the market, while if it is negative, it shows that the management is acting without predicting. Alpha coefficient measures the abnormal return of the mutual fund over the expected rate of return and beta coefficient measures the degree of co-movement between the mutual fund *i* and the market.

3.3. RANKING PERFORMANCE MEASURES

After we calculated the six different performance measures (Appendix Tables 1-3), we formatted rankings using the number associated to each mutual fund for each country which are presented in the appendix (Tables 13-15). Furthermore to have a more robust image of the rankings we structured the correlation matrixes for the six performance measures with their statistical significance.

RESULTS ANALYSIS

4. RESULTS ANALYSIS

4.1. INTRODUCTION

In the previous chapter, it is described the calculation of 6 different performance measures of 204 mutual funds for three countries over a period of 11 years (01/01/2002 to 31/12/2012). The countries under examination were Germany, France and Austria and the calculations were repeated for two subperiods of 11 years. The measures calculated were Sharpe ratio, Treynor ratio, the Modigliani-Modigliani (MM) measure, the Jensen's alpha, the information ratio (IR) and the alpha of Treynor-Mazuy model. Additionally, the beta coefficients for the calculation of Treynor ratio were estimated using the single index model and correlation matrixes of the rankings were produced in each case, to demonstrate the relationship amongst the measures.

4.2. DESCRIPTIVE STATISTICS OF MUTUAL FUNDS AND MARKETS

After calculating the descriptive statics for all mutual funds for the three countries and for the three periods under examination, we present them here conclusively and compare them with the market respective ones to demonstrate the relationship between the individual mutual fund and the market benchmark.

In the case of Austria, for the overall period the average kurtosis and average skewness were 6.51 and -0.98 respectively, characterizing the distributions leptokurtotic and negatively skewed, with the data gathered to the right side of the median. The majority of the mutual funds had a lower return than the market (172 out of 204), but also the majority of them had lower risk than the market risk (186 of the 204). The analysis in the two subperiods, before and during the crisis the results were mixed. Both subperiods showed consistent positive kurtosis and negative skewness as for the overall period. During the first subperiod, almost all mutual funds (202 of the 204) demonstrated lower returns than the market and more than half of them (113 of the 204) larger risk level than the market; whilst during the subperiod two, corresponding to the crisis, almost all overperformed the market (195 of the 204) and took fewer risks, (195 of the 204). It is obvious that, after the arrival of the crisis, the funds became more careful and overperformed the falling market.

French mutual funds reacted differently than the Austrian ones in the same periods of examination. For all three periods under examination, the average kurtosis and skewness were positive and negative, respectively, showing that the distributions of returns were leptokurtotic and negatively skewed. As far as return and risk are concerned, the entire French funds examined beat the downwards moving market in return terms and the majority of them (156 of the 204) had lower risk than the market risk. In the period before the crisis, the French funds were less efficient and less risky than the market index. During the crisis, these funds had better returns (175) and lower risk (174) than the falling market. The better returns of the funds are due to the bad performance of the market.

In a market that during the 11 years of examination, the return was positive the mutual funds studied exhibited again averagely positive kurtosis and averagely negative skewness. For the overall period, all German mutual funds performed better than the market in return terms and most of them (156) had lower risk than the market. Before the crisis, the funds were less efficient than the market (139), but also less risky (187). After the burst of the crisis, the funds went on to have averagely less return (168) and less risk (150) than the market. This defensive behavior of the German funds can be attributed to strategy purposes of the funds and to the expectation on behalf of the German managers of a diminishing market. In Table 4.1 below we present corroborated the above results.

TABLE 4.1. CONCLUSIVE RETURN DESCRIPTIVE STATISTICS FOR 3 COUNTRIES, 3 PERIODS OF EXAMINATION, EQUITY MARKET BENCHMARK

COUNTRY	**AUSTRIA**	**FRANCE**	**GERMANY**
OVERALL PERIOD			
Market mean	0,00133	-0,00015	0,00066
Market stdev	0,03674	0,03077	0,03420
# MF with mean > market mean	32	**204**	47
# MF with mean < market mean	**172**	0	**157**
# MF with stdev > market stdev	18	48	34

# MF with stdev < market stdev	**186**	**156**	**170**
SUBPERIOD ONE			
Market mean	0,00525	0,00140	0,00152
Market stdev	0,02166	0,02292	0,02999
# MF with mean > market mean	2	76	65
# MF with mean < market mean	**202**	**128**	**139**
# MF with stdev > market stdev	**113**	94	17
# MF with stdev < market stdev	91	**110**	**187**
SUBPERIOD TWO			
Market mean	-0,00238	-0,00158	-0,00006
Market stdev	0,04647	0,03665	0,03774
# MF with mean > market mean	**195**	**175**	36
# MF with mean < market mean	9	29	**168**
# MF with stdev > market stdev	9	30	54
# MF with stdev < market stdev	**195**	**174**	**150**

4.2.1. BETA COEFFICIENT RESULT ANALYSIS

We calculated the individual beta coefficients for the mutual funds in all countries for the 3 periods of examination, by regressing the single index model equation. After correcting the standards errors in the case of existence of heteroskedasticity and serial correlation in the residuals of the regressions, we present the results in disciplines of statistically significant and not in Table 4.2. T-tests were calculated for a confidence level of 95%.

In the Austrian case, for all periods under examination the beta coefficients were lower than the market's beta, with the majority of them to be statistically significant and the funds resolving to a defensive strategy.

In the French case, the mutual fund industry in terms of beta showed a contradictory behavior. For all three periods all funds betas were smaller than unity showing a defensive approach. Yet, in all three periods the statistically significant calculated betas were the minority (21, 85 and 89). This can be attributed to the inconsistencies of the single index model to incorporate all the available information of the French market in the calculated beta and the differences of time frames examined.

Finally in the German market, again, almost all of the beta coefficients for all three periods under examination were smaller than the index beta, except for 4 of them that were more aggressive than the market in the second subperiod. However, in this case all betas calculated were statistically significant. The German managers demonstrated a defensive strategy towards the market anticipating worsening of the market conditions in both subperiods.

TABLE 4.2. CONCLUSIVE BETA COEFFICIENTS, 3 COUNTRIES, 3 PERIODS OF EXAMINATION

	SIM (SINGLE INDEX MODEL)					
COUNTRY	**AUSTRIA**		**FRANCE**		**GERMANY**	
OVERALL PERIOD	Stat. sign.	Stat. insig.	Stat. sign.	Stat. insig.	Stat. sign.	Stat. insig.
# MF with BETA > 1	0	0	0	0	0	0
# MF with BETA< 1	**202**	2	21	**183**	**203**	1
SUBPERIOD ONE	Stat. sign.	Stat. insig.	Stat. sign.	Stat. insig.	Stat. sign.	Stat. insig.
# MF with BETA > 1	0	0	0	0	0	1
# MF with BETA< 1	**201**	3	85	**119**	**202**	1
SUBPERIOD TWO	Stat. sign.	Stat. insig.	Stat. sign.	Stat. insig.	Stat. sign.	Stat. insig.
# MF with BETA > 1	0	0	0	0	4	0
# MF with BETA< 1	**198**	6	89	**115**	**199**	1

4.2.2. SHARPE RATIO RESULT ANALYSIS

Positive Sharpe ratio indicates mutual fund overperformance in comparison with the market, while negative Sharpe ratio indicates that investing on this portfolio is less profitable than investing on the market. As a comparing measure between the mutual fund and the market, the Sharpe ratio showed consistent results for all three countries. Firstly, the evolution of the market Sharpe ratio in France and Germany seems identical.

In Austrian mutual fund industry, for the overall period, 158 funds overperformed the market, this ranging from 74 for the first subperiod to an absolute 204 for the crisis period. The results for France were 161, 80 and 177 respectively. Finally, for Germany, 137 funds overperformed the market the overall period, 68 during the period before crisis and 110 during the crisis. All three countries demonstrated identical Sharpe adjusted behavior. It seems that, in terms of reward-to-total risk, most of the mutual funds in the three countries overperformed the market. Yet, the Sharpe ratio is based on normal distributions of returns assumption, not the case here. It is widely used for ranking funds and in these rankings the information incorporated is more reliable. In Table 4.3 the conclusive Sharpe ratios of the mutual funds and the comparison with the market Sharpe ratio are exhibited.

TABLE 4.3. CONCLUSIVE SHARPE RATIOS COMPARATIVE STATISTICS, 3 COUNTRIES, 3 PERIODS OF EXAMINATION, EQUITY MARKET BENCHMARK

COUNTRY	**AUSTRIA**	**FRANCE**	**GERMANY**
OVERALL PERIOD			
Market Sharpe	0,20911	0,20138	0,20503
# MF with Sharpe > market Sharpe	**158**	**161**	**137**
# MF with Sharpe < market Sharpe	46	43	67
SUBPERIOD ONE			
Market Sharpe	0,20654	0,02728	0,02479
# MF with Sharpe > market Sharpe	74	80	68
# MF with Sharpe < market Sharpe	**130**	**124**	**136**
SUBPERIOD TWO			
Market Sharpe	0,23138	0,31531	0,34662
# MF with Sharpe > market Sharpe	**204**	**177**	**110**
# MF with Sharpe < market Sharpe	0	27	94

4.2.3. TREYNOR RATIO RESULT ANALYSIS

Treynor ratio is used to rank portfolios or to compare them with the return of the market. Positive and negative Treynor ratios have a two-way explanation and, specifically, the negative value can be explained as follows: either by a negative sensitivity of the portfolio to the market, meaning a great management, or by an underperformance of the portfolio towards the risk-free asset, meaning a bad management. Respectively, a positive value indicates either overperformance of the fund or a combination of fund underperformance, with negative fund correlation with the market.

The Treynor ratios were calculated with the help of the beta coefficients, calculated earlier in the 4.1.3 part of this study by regressing the SIM. Relativelly to the Treynor ratio of a mutual fund, the Treynor ratio of the market index is a measure of overperformance or underperformance of the fund. In this case, the average fund results are different than the ones obtained in the Sharpe ratio part.

Austria and Germany are highly correlated in the number of mutual funds over or under performing the market, while France gives totally opposite results. More accuratelly, in Austria for the overall period, 201 funds overperformed the market, for subperiod one, 165 underperformed the market and the period of crisis, 201 overperformed it. Similar results were found in German mutual fund industry, with 194 overperforming the overall period, 126 underperforming the first subperiod and 178 overperforming during the crisis period.

In the case of French mutual funds, 146 of them were underperformers in the overall period, 132 overperformers the first subperiod and 183 overperformed the market the crisis period. All the above mentioned results are concentrated in Table 4.4.

During the periods where the majority of mutual funds underperformed the market, it is also observed that the values of the Treynor ratio were negative, indicating either underperformance of the fund and a positive beta of the fund, or a negative sensitivity of the fund and a good fund performance. Similarly, a positive value during positive Treynor ratio periods indicates either overperformance of the fund, or a combination of fund underperformance and negative fund sensitivity with the market. As shown in the rankings part, the Treynor ratios are calculated by using the beta coefficients through the single index model, in which case betas sometimes are not statistically significant and can give unreliable Treynor ratios as a consequence.

TABLE 4.4. CONCLUSIVE TREYNOR RATIOS COMPARATIVE STATISTICS, 3 COUNTRIES, 3 PERIODS OF EXAMINATION, EQUITY MARKET BENCHMARK

	SINGLE INDEX MODEL (SIM)		
COUNTRY	**AUSTRIA**	**FRANCE**	**GERMANY**
OVERALL PERIOD			
Market Treynor	0,00768	0,00620	0,00701
# MF with Treynor > Market Treynor	**201**	58	**194**
# MF with Treynor < Market Treynor	3	**146**	10
SUBPERIOD ONE			
Market Treynor	0,00447	0,00063	0,00074
# MF with Treynor > Market Treynor	39	**132**	78
# MF with Treynor < Market Treynor	**165**	72	**126**
SUBPERIOD TWO			
Market Treynor	0,01075	0,01156	0,01308
# MF with Treynor > Market Treynor	**201**	21	**178**
# MF with Treynor < Market Treynor	3	**183**	26

4.2.4. JENSEN ALPHA RESULT ANALYSIS

Jensen's alpha measures the excess return produced by management of a fund over the expected return due to better security selection. The Jensen's alpha is a relative risk-adjusted performance measure that is used to compare portfolios with the benchmark portfolio. Alpha measures produced by regression were checked for their statistical significance, to exam whether a positive contribution from the management of the fund was reliable. T-tests were again calculated for a confidence level of 95%.

Studying Austria, for the overall period almost all alphas were statistically insignificant and more than half of them were positive, indicating no contribution from the managers to excess returns.

TABLE 4.5. CONCLUSIVE JENSEN ALPHA STATISTICS, 3 COUNTRIES, 3 PERIODS OF EXAMINATION

COUNTRY	**AUSTRIA**		**FRANCE**		**GERMANY**	
OVERALL PERIOD						
T -test	Stat signif	Stat insign	Stat signif	Stat insign	Stat signif	Stat insign
# MF with a > 0	2	**113**	74	**134**	2	83
# MF with a < 0	0	89	0	0	6	**113**
SUBPERIOD ONE						
T -test	Stat signif	Stat insign	Stat signif	Stat insign	Stat signif	Stat insign
# MF with a > 0	3	29	14	**121**	13	67
# MF with a < 0	**114**	58	0	69	4	**120**
SUBPERIOD TWO						
T -test	Stat signif	Stat insign	Stat signif	Stat insign	Stat signif	Stat insign
# MF WITH a > 0	79	**124**	55	**149**	0	84
# MF WITH a < 0	0	1	0	0	15	**105**

In the first subperiod, 114 funds were statistically significant, but negative, while in the crisis subperiod the Austrian mutual funds in majority showed positive manager's contribution. Yet, from 203 of them only 79 were statistically significant, but their values were close to zero, showing weak decision abilities. In Austria, fund managers showed weak evidence of selection abilities to generate higher than expected returns only in the crisis period.

In the case of France, for the overall period, the majority of mutual funds alphas were positive but statistically insignificant, and the ones that were significant were close to zero. In the first subperiod, almost 70 funds had alphas negative and only 14 positive alphas were significantly positive, but close to zero. Finally, in the crisis subperiod, the majority of alphas (149) were insignificantly positive. Relatively few French mutual funds managers exhibited weak evidence of undervalued stocks selecting ability, in all three periods of examination.

Finally, in the German mutual fund industry the situation seemed different from the other two industries. In all three periods under examination, the alphas calculated were in majority (113, 120 and 105) negative and the very few ones that were significantly positive were almost zero valued. German mutual funds managers showed no evidence of selection abilities. The results are corroborated in Table 4.5.

4.2.5. TREYNOR-MAZUY RESULT ANALYSIS

After regressing the Treynor-Mazuy model equation, we obtained calculations for coefficients *alpha*, *beta* and *c*. *Alpha* is a performance measure, *beta* is the sensitivity of the fund towards the market and c the market-timing ability coefficient. The alpha is an indicator of stock selection abilities on the fund manager's part and *c* coefficient is the indicator of a manager's abilities to predict the market movement and act respectively. All three coefficients were tested for their statistical significance for a confidence level of 95% and results are reported in Table 4.6.

TABLE 4.6. TREYNOR-MAZUY COEFFICIENTS STATISTICS, 3 COUNTRIES, 3 PERIODS OF EXAMINATION

COUNTRY	**AUSTRIA**		**FRANCE**		**GERMANY**	
OVERALL PERIOD						
T -test	Stat signif	Stat insign	Stat signif	Stat insign	Stat signif	Stat insign
# MF with a > 0	0	22	1	**102**	0	53
# MF with a < 0	42	**140**	0	101	28	**123**
# MF with b > 1	0	0	0	0	0	0
# MF with b < 1	**204**	0	**204**	0	**203**	1
# MF with c > 0	**203**	1	**204**	0	**131**	72
# MF with c< 0	0	0	0	0	0	1
SUBPERIOD ONE						
T -test	Stat signif	Stat insign	Stat signif	Stat insign	Stat signif	Stat insign
# MF with a > 0	1	38	0	39	17	82
# MF with a < 0	**117**	48	21	**144**	5	**100**
# MF with b > 1	0	0	0	0	0	1
# MF with b < 1	**204**	0	**203**	1	**203**	0
# MF with c > 0	48	**82**	98	**106**	0	70
# MF with c< 0	11	63	0	0	2	**132**
SUBPERIOD TWO						
T –test	Stat signif	Stat insign	Stat signif	Stat insign	Stat signif	Stat insign
# MF with a > 0	0	**167**	0	**145**	0	48
# MF with a < 0	0	37	0	59	16	**140**
# MF with b > 1	1	0	0	0	21	0

# MF with b < 1	**203**	0	**204**	0	**182**	1
# MF with c > 0	**196**	8	**204**	0	**121**	62
# MF with c< 0	0	0	0	0	0	21

Alpha coefficient analysis: In Austrian mutual funds case, for the overall period the majority of alphas were negative and statistically insignificant (140). For the first subperiod, the majority of alphas were significantly negative (117) and for the crisis subperiod, the majority of alphas (167) were insignificantly positive. In the French case, for the overall period and for the crisis period the majority of alphas were statistically insignificant, while in the first subperiod the 21 significant alphas were negative. In the German case, for all three periods the majority of alphas were insignificant, except for 17 significantly positive ones in the first subperiod where the values were close to zero. The results exhibited that there was no evidence of selection abilities of the fund managers contributing to excess returns, except for 17 funds in the first subperiod in Germany where the evidence was weak. Additionally, the alphas calculated here are similar in trends with the Jensen's alphas calculated in 4.1.6 part, with the exception of the first subperiod in France.

Beta coefficient analysis: beta coefficients in all nine periods under investigation were smaller than unity and statistically significant. However, there were in the first subperiod of Germany 21 mutual funds with beta larger than unity, statistically important result that showed the different strategy these funds took this period in contrast with the common defensive fund policy in the three countries.

Market-timing coefficient analysis: during the overall period all three countries showed *c* coefficients significantly positive (203, 204 and 131), while there was only one unreliable negative *c*. During the first subperiod, statistically important positive *c* coefficients were found only in the case of Austria and France. Finally, during the crisis subperiod, the majority of the *c* coefficients were significantly positive (196, 204 and 121). In all three countries, strong evidence of market-timing abilities of the managers was found for the overall and the second subperiod. Weak evidence was found during the first subperiod only in Austria and France.

4.2.6. MODIGLIANI-MODIGLIANI MEASURE RESULT ANALYSIS

The RAP measure or M^2 measure is a risk-adjusted performance (RAP) measure that bears the market portfolio return and is used to compare portfolios with different levels of risk. It shows that, there is a return penalty for a portfolio with risk level higher than the benchmark risk level (market) and a return reward for a portfolio with lower risk level than the benchmark. The bigger the measure, the higher the performance of the portfolio or fund evaluated. The conclusive calculated MM measures (expressed in basis units or percentages) are corroborated in Table 4.7 below.

TABLE 4.7. CONCLUSIVE MM MEASURE STATISTICS, 3 COUNTRIES, 3 PERIODS OF EXAMINATION

COUNTRY	**AUSTRIA**	**FRANCE**	**GERMANY**
OVERALL PERIOD			
Average MM	0,00439	0,00105	0,00113
# MF with MM> 0	**190**	**147**	**178**
# MF with MM < 0	14	57	26
SUBPERIOD ONE			
Average MM	0,00116	0,00153	0,001406
# MF with MM> 0	**157**	**188**	**181**
# MF with MM < 0	47	16	23
SUBPERIOD TWO			
Average MM	0,01171	0,00096	0,00071
# MF with MM> 0	**177**	**112**	**107**
# MF with MM < 0	27	92	97

The RAP analysis showed that, for Austria, the funds performed averagely well for all three periods under investigation with the majority of them to be positive (190, 157 and 177), especially well during the crisis subperiod. In the French case, the average performances were positive, the individual funds performances were mainly positive (147,188 and 112), but during the crisis period their average performance was marginal positive. Finally, in Germany, we obtained the same results as for France. As a conclusion as far as average performance is concerned, all three countries' funds industries exhibited good performance and the majority of their funds showed positive outcome, even during crisis. Austrian funds in the last subperiod seemed way more efficient than the respective French and German ones in terms of adjusted–risk returns achieved.

4.2.7. INFORMATION RATIO RESULT ANALYSIS

The nominator of the IR measure is the expected excess return of the portfolio from the benchmark and the denominator is the standard deviation of the excess return or else called ‘tracking error’. The ratio is the similar to the Sharpe ratio with the difference of use of excess return and the use of a benchmark instead of a risk-free asset. A negative IR is the indication of fund underperformance towards the index, while a positive one is an indicator of overperformance and stock picking ability. Results of the IR calculations are gathered in Table 4.8.

TABLE 4.8. CONCLUSIVE INFORMATION RATIO STATISTICS, 3 COUNTRIES, 3 PERIODS OF EXAMINATION

COUNTRY	**AUSTRIA**	**FRANCE**	**GERMANY**
OVERALL PERIOD			
Average IR	-0,03726	0,00845	-0,02621
# MF with IR> 0	31	**137**	46
# MF with IR< 0	**173**	67	**158**
SUBPERIOD ONE			
Average IR	-0,16576	0,00096	-0,01576
# MF with IR> 0	3	76	65
# MF with IR< 0	**201**	**128**	**139**
SUBPERIOD TWO			
Average IR	0,04286	0,01183	-0,03772
# MF with IR> 0	**195**	**175**	36
# MF with IR< 0	9	29	**168**

The IR analysis showed for Austria that for the overall period, the funds did not have averagely stock picking abilities and the 173 of the 204 funds underperformed the market. The same trend was observed during the first subperiod. The opposite behavior was found during crisis subperiod, with mutual funds averagely overperforming the market.

In French case, during the overall and the second period, funds showed evidence of stock selection ability, whilst during the first subperiod, the majority underperformed the market. In all three periods, French mutual funds demonstrated averagely positive performance.

The German mutual fund industry underperformed averagely the market in all three periods of examination and the majority of funds (158, 139 and 168) individually showed no selection abilities during the three periods.

4.3. RANKING RESULT ANALYSIS

After calculating the performance measures for each case of examination, we sorted them from the smallest to the highest value, creating rankings of performance (Appendix). Moreover, we correlated these rankings with the use of Eviews6 program and we obtained the following matrixes for each period and country under examination. The matrixes contain the correlation coefficients and the t-test of the correlation between the measures (Matrices 4.1- 4.9).

Austrian mutual funds performance measures, ranking correlation analysis:

The results in Matrix 4.1 show that correlations among the measures range from 0.003 for Treynor ratio *vs* Treynor-Mazuy alpha to 1 for Sharpe *vs* MM. It can be observed that the Treynor ratio has statistically insignificant low correlation with IR, Jensen and Treynor-Mazuy measure and statistically significant low correlation with Sharpe and MM measure. Jensen has high correlation with the other regression-based measure, Treynor-Mazuy and the IR. Correlations below 0.1 are statistically unreliable.

Matrix 4.1. CORRELATION MATRIX FOR AUSTRIA, OVERALL PERIOD

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZUY	TREYNOR
IR	**1**					

JENSEN	**0.916347**	**1**				
	32.52803	-----				
M2	**0.072250**	**0.374247**	**1**			
	1.029552	5.735889	-----			
SHARPE	**0.072250**	**0.374247**	**1**	**1**		
	1.029552	5.735889	2.13E+08	-----		
TR_MAZUY	**0.975449**	**0.889634**	**0.034910**	**0.034910**	**1**	
	62.95243	27.68730	0.496463	0.496463	-----	
TREYNOR	**0.005601**	**0.054423**	**0.180101**	**0.180101**	**0.003091**	**1**
	0.079607	0.774650	2.602271	2.602271	0.043932	-----

During the first subperiod in Austria, the coefficients of correlation become statistically important for all measures intra-relationships, the correlations ranging from 0.19 to 1. This period was a homogeneous one and was before the crisis. In this period using the six measures produced similar rankings with the exception of the Treynor ratio (Matrix 4.2).

Matrix 4.2. CORRELATION MATRIX FOR AUSTRIA, SUBPERIOD ONE

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZUY	TREYNOR
IR	**1**					

JENSEN	**0.897929**	**1**				
	28.99521	-----				
M2	**0.926756**	**0.909920**	**1**			
	35.06252	31.17862	-----			
SHARPE	**0.926756**	**0.909920**	**1**	**1**		
	35.06252	31.17862	2.88E+08	-----		
TR_MAZUY	**0.936076**	**0.911944**	**0.905936**	**0.905936**	**1**	
	37.81767	31.58829	30.40938	30.40938	-----	
TREYNOR	**0.218932**	**0.191957**	**0.257800**	**0.257800**	**0.221928**	**1**
	3.188973	2.779921	3.792212	3.792212	3.234860	-----

During the crisis subperiod, the measures lost their correlation at a big grade, resulting in insignificant results (Matrix 4.3). Nonetheless, it is worthy to refer to the correlation among the Jensen, the Sharpe and the MM measures which is close to 0.9.

Matrix 4.3. CORRELATION MATRIX FOR AUSTRIA, SUBPERIOD TWO

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZUY	TREYNOR
IR	**1**					

JENSEN	**0.837367**	**1**				
	21.77153	-----				
M2	**0.256901**	**0.624436**	**1**			
	3.778051	11.36242	-----			
SHARPE	**0.256901**	**0.624436**	**1**	**1**		
	3.778051	11.36242	2.55E+08	-----		
TR_MAZUY	**0.054550**	**0.010991**	**-0.019199**	**-0.019199**	**1**	
	0.776460	0.156222	-0.272918	-0.272918	-----	
TREYNOR	**0.047309**	**0.162111**	**0.325764**	**0.325764**	**-0.006693**	**1**
	0.673137	2.334920	4.897116	4.897116	-0.095126	-----

French mutual funds performance measures, ranking correlation analysis:

Matrix 4.4 shows the correlation coefficients of French mutual funds for the overall period. All measures are positively and well correlated except for the Treynor ratio that has no correlation at all. The significant correlations range from 0.67 for the correlation of Jensen vs Sharpe measure, to 1 in the case of linearly related Sharpe and MM measures.

Matrix 4.4. CORRELATION MATRIX FOR FRANCE, OVERALL PERIOD

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZUY	TREYNOR
IR	**1**					

JENSEN	**0.985412**	**1**				
	82.29532	-----				
M2	**0.728982**	**0.675710**	**1**			
	15.13556	13.02777	-----			
SHARPE	**0.728989**	**0.675714**	**1**	**1**		
	15.13585	13.02791	29965.36	-----		
TR_MAZUY	**0.993003**	**0.983129**	**0.715185**	**0.715185**	**1**	
	119.5132	76.38960	14.54312	14.54311	-----	
TREYNOR	**0.001298**	**-0.025991**	**-0.012915**	**-0.012959**	**0.001458**	**1**
	0.018450	-0.369522	-0.183577	-0.184191	0.020723	-----

For the first subperiod in France, the correlations are high, statistically important with the exception of the Treynor ratio that shows no correlation with other measures, results presented in Matrix 4.5.

Matrix 4.5. CORRELATION MATRIX FOR FRANCE, SUBPERIOD ONE

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZUY	TREYNOR
IR	**1**					

JENSEN	**0.992301**	**1**				
	113.8748	-----				
M2	**0.977702**	**0.961049**	**1**			
	66.17161	49.42193	-----			
SHARPE	**0.977713**	**0.961077**	**0.999996**	**1**		
	66.18815	49.44085	4879.884	-----		
TR_MAZUY	**0.945956**	**0.945842**	**0.908409**	**0.908416**	**1**	
	41.45800	41.41038	30.88122	30.88271	-----	
TREYNOR	**-0.062273**	**-0.056077**	**-0.060582**	**-0.060593**	**-0.042896**	**1**
	-0.886785	-0.798255	-0.862623	-0.862777	-0.610223	-----

Finally, for the crisis subperiod under investigation, in a precautious market the correlations are positive and significant, but lower than the first subperiod. Treynor ratio continues its bad correlation relationship with all the other measures, while Treynor-Mazuy, Jensen and IR increase their intercoefficients. These results are presented in Matrix 4.6 below.

Matrix 4.6. CORRELATION MATRIX FOR FRANCE, SUBPERIOD TWO

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZUY	TREYNOR
IR	**1**					

JENSEN	**0.964560**	**1**				
	51.95440	-----				
M2	**0.698693**	**0.584072**	**1**			
	13.88033	10.22693	-----			
SHARPE	**0.698693**	**0.584072**	**1**	**1**		
	13.88033	10.22693	80324127	-----		
TR_MAZUY	**0.982109**	**0.950146**	**0.684101**	**0.684101**	**1**	
	74.12337	43.30960	13.33025	13.33025	-----	
TREYNOR	**0.099747**	**0.112311**	**0.066030**	**0.066030**	**0.093096**	**1**
	1.424771	1.606404	0.940512	0.940512	1.328910	-----

<u>German mutual funds performance measures, ranking correlation analysis</u>:

Matrix 4.7 presents the correlation among performance measures for the overall period for German mutual funds. Sharpe and MM had low correlations with the other measures, while high correlations were observed within the Jensen, Treynor-Mazuy and IR group. Treynor ratio gave low and sometimes insignificant rankings in all cases, with the exception of a 0.43 correlation with the IR.

Matrix 4.7. CORRELATION MATRIX FOR GERMANY, OVERALL PERIOD

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZ	TREYNOR
IR	**1**					

JENSEN	**0.746635**	**1**				
	15.95180	-----				
M2	**0.180756**	**0.359725**	**1**			
	2.612052	5.479452	-----			
SHARPE	**0.180756**	**0.359725**	**1**	**1**		
	2.612052	5.479452	1.13E+08	-----		
TR_MAZ	**0.725796**	**0.968638**	**0.211179**	**0.211179**	**1**	
	14.99540	55.40555	3.070672	3.070672	-----	
TREYNOR	**0.434140**	**0.054084**	**0.244594**	**0.244594**	**-0.116909**	**1**
	6.849436	0.769811	3.585235	3.585235	-1.673058	-----

During the first period in Germany, where there was no crisis yet, the correlations were significant and high in all cases, even for the Treynor ratio, as shown in Matrix 4.8.

Matrix 4.8. CORRELATION MATRIX FOR GERMANY, SUBPERIOD ONE

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZ	TREYNOR
IR	**1**					

JENSEN	**0.678586**	**1**				
	13.13035	-----				
M2	**0.970921**	**0.695763**	**1**			
	57.64150	13.76729	-----			
SHARPE	**0.970921**	**0.695763**	**1**	**1**		
	57.64150	13.76729	2.19E+08	-----		
TR_MAZ	**0.776890**	**0.937063**	**0.766195**	**0.766195**	**1**	
	17.53661	38.14327	16.94606	16.94606	-----	
TREYNOR	**0.827184**	**0.807406**	**0.867378**	**0.867378**	**0.870974**	**1**
	20.92161	19.44992	24.77199	24.77199	25.19470	-----

Finally, during the crisis period in Germany the measures were positively and high correlated with the exception of the Sharpe and the MM measures, whose correlations with the other measures ranged from 0,33 to 0,77. Again the Treynor ratio was significantly correlated with all of the other measures, as shown in Matrix 4.9.

Matrix 4.9. CORRELATION MATRIX FOR GERMANY, SUBPERIOD TWO

Included observations: 204						
Correlation						
t-Statistic	IR	JENSEN	M2	SHARPE	TR_MAZ	TREYNOR
IR	**1**					

JENSEN	**0.864846**	**1**				
	24.48380	-----				
M2	**0.332184**	**0.554488**	**1**			
	5.005465	9.469889	-----			
SHARPE	**0.332184**	**0.554488**	**1**	**1**		
	5.005465	9.469889	1.02E+08	-----		
TR_MAZ	**0.922040**	**0.933256**	**0.414855**	**0.414855**	**1**	
	33.85395	36.92559	6.480145	6.480145	-----	
TREYNOR	**0.450399**	**0.604925**	**0.776101**	**0.776101**	**0.451278**	**1**
	7.169767	10.79718	17.49179	17.49179	7.187334	-----

In conclusion, for the three markets we have gathered the following results:

a) MM (RAP) measure was perfectly correlated with the Sharpe measure, as expected.

b) The Jensen's alpha and the Treynor-Mazuy's alpha were highly correlated in 8 out of the 9 cases under examination, both derived from regressions.

c) The IR was well correlated (over 0.7) with the Jensen's alpha in all cases and with the Treynor-Mazuy's alpha in 8 of the 9 cases.

d) The Sharpe and the MM measures correlations versus the Jensen and Treynor-Mazuy measure ranged from 0.3 to 0.96 in 8 out of 9 cases of investigation.

e) The Treynor ratio was unreliable in 6 out of 7 cases under examination and it is obvious that it cannot be used to rank funds through different market phases.

These inconsistencies can be attributed to the following factors:

1) The benchmark used in each country is sometimes inefficient to describe the mutual fund industry. In this case, the regression parameters and the measures calculated based on this benchmark are unreliable.

2) The coefficient of sensitivity, beta calculated by the single index model or by regressions, doesn't bear the whole information of risk since it is a relative risk indicator, i.e. see Diacogiannis-Feldman,[49] and can be used an alternative beta to incorporate inefficient benchmarks. Each market needs a specialized model to describe the local industry and the three models used in this study have limited potentials.

3) The classic measures like Sharpe ratio, the RAP and the Treynor ratio are based on the symmetrical normal world which for sure is not the case for the three markets where the distributions were leptokurtotic and negatively skewed.
4) Results depend on the kind of stocks funds invested on, the strategy they followed in the specific market and the time interval examined. In all these categories, there were many qualitative and quantitative changes, especially during the crisis subperiod.
5) Finally, the ranking correlation of funds as examined from Eling (2008),[20] gave identical rankings, but the database used was enormous. Here the database was referring to 204 mutual funds per country for an eleven years period.

Different rankings are the outcome of incorporation of different pieces of information in the various performance measures.

4.4. CONCLUSIONS

As far as the descriptive statistic analysis is concerned, it can be concluded that for all three market all funds return distributions in average were leptokurtotic and negatively skewed. Specifically, in Austria for the overall period 172 out of 204 mutual funds had a lower return than the market and 186 of the 204 had lower risk. During the first subperiod 202 of the 204 funds demonstrated lower returns than the market and 113 of the 204 larger risk level, whilst during the crisis subperiod, 195 of the 204 funds over performed the market and took fewer risks. It is obvious that after the arrival of the crisis, the funds became more careful and overperformed the falling market.

French mutual funds reacted differently than the Austrian ones in the same periods of examination. French funds examined beat the downwards moving market for the overall period and 156 of the 204 had lower risk. In the period before the crisis, the French funds were less efficient and less risky than the market index. During the crisis, these funds had better returns (175) and lower risk (174) than the falling market. The better returns of the funds are mainly due to the bad performance of the market.

For the overall period, all German mutual funds did better than the market and most 156 of them had lower risk. Before the crisis, the funds were less efficient than the market (139), but also less risky (187). After the burst of the crisis, the funds went on to have averagely less return (168) and less risk (150) than the market. This defensive behavior of the German funds can be attributed to strategy purposes of the funds.

As far as the performance measures are concerned the results were mixed. In the case of the Sharpe measure, the Austrian mutual funds for the overall period overperformed the market, 74 overperformed the market for the first subperiod and an absolute 204 overperformed the market during the crisis period. The results for France were 161, 80 and 177, respectively. Finally, for Germany, 137 funds overperformed the market the overall period, 68 during the period before crisis and 110 during the crisis. All three countries demonstrated identical Sharpe-adjusted behavior.

In the case of the Treynor ratio, Austria and Germany were highly correlated in the number of mutual funds over or under performing the market, while France gave totally opposite results. In Austria, for the overall period, 201 funds overperformed the market, for subperiod one, 165 underperformed the market and the period of crisis, 201 overperformed it. Similar results were found in German mutual fund industry, with 194 overperforming the overall period, 126 underperforming the first subperiod and 178 overperforming during the crisis period.

In the case of Jensen's alpha Austria, fund managers showed weak evidence of selection abilities to generate higher than expected returns only in the crisis period. Relatively few French mutual funds managers exhibited weak evidence of undervalued stocks selecting ability, in all three periods of examination. German mutual funds managers showed no evidence of selection abilities.

In the Treynor-Mazuy coefficients case we observed the following results. The results of alpha coefficients exhibited that there was no evidence of selection abilities of the fund managers contributing to excess returns, except for 17 funds in the first subperiod in Germany where the evidence was weak. Beta coefficients in all nine periods under investigation were smaller than unity and statistically significant. However there were in the first subperiod of Germany 21 mutual funds with betas larger than unity, statistically important result, that showed the different strategy these funds followed this period in contrast with the common defensive fund policy in the three countries. In the *c* coefficient case, all three countries showed strong evidence of market-timing abilities of the managers for the overall and the second subperiod. Weak evidence was found during the first subperiod only, in Austria and France.

As far as the MM measure is concerned all three countries' funds industries exhibited good performance and the majority of their funds showed positive outcome, even during crisis. Austrian funds in the last subperiod seemed way more efficient than the respective French and German ones, in terms of adjusted–risk returns achieved.

As far as the IR is concerned for the overall period, Austrian funds averagely did not have stock picking abilities and the 173 of the 204 funds underperformed the market. The same trend was observed during the first subperiod. The opposite behavior was found during crisis subperiod, with mutual funds averagely overperforming the market. In French case, during the overall and the second period, funds showed evidence of stock selection ability, whilst during the first subperiod the majority underperformed the market. In all three periods French mutual funds demonstrated averagely positive performance. The German mutual fund industry underperformed averagely the market in all three periods of examination and the majority of funds (158, 139 and 168) individually showed no selection abilities during the three periods

Finally, the ranking correlation analysis showed that MM (RAP) measure was perfectly correlated with the Sharpe measure as expected, The Jensen's alpha and the Treynor-Mazuy's alpha were highly correlated in 8 out of the 9 cases under examination. Moreover the IR was well correlated (over 0.7) with the Jensen's alpha in all cases and with the Treynor-Mazuy's alpha in 8 of the 9 cases. Additionally, the Sharpe and the MM measures correlations versus the Jensen and Treynor-Mazuy measure ranged from 0.3 to 0.96 in 8 out of 9 cases of investigation. Finally, the Treynor ratio was found to be unreliable in 6 out of 7 cases under examination and it was obvious that it cannot be used to rank funds through different market phases.

Further study on the mutual fund performance could involve a bigger sample of countries, strong and weak ones. The time interval could include more periods in which the market behavior would be alternating, such as the 3 last years that we observe a blooming of stock markets. Finally, more complex performance measures could be used, based on more descriptive and modern benchmarks simulating models.

TABLE 1. AUSTRIAN MUTUAL FUNDS PERFORMANCE MEASURES

		OVERALL PERIOD						SUBPERIOD ONE						SUBPERIOD TWO					
#	NAME	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ
1	INTRGLD	0,15514	0,00144	0,01691	-0,00065	0,00581	-0,00016	0,04865	-0,00148	0,00268	0,00183	-0,06071	0,00083	0,23297	0,00447	0,03313	-0,00230	0,04684	0,00138
2	BAWSPAK	0,24707	-0,00091	0,02217	0,00273	-0,07760	-0,00264	-0,06298	-0,00379	-0,00330	-0,00059	-0,24906	-0,00482	0,58518	0,00270	0,05902	0,01406	0,01088	-0,00034
3	AIBCGVA	0,24685	-0,00084	0,01576	0,00272	-0,07679	-0,00225	-0,03084	-0,00281	-0,00166	0,00010	-0,22473	-0,00366	0,46983	0,00219	0,03291	0,00870	0,01020	-0,00018
4	SIRIU29	0,43158	0,00022	0,04976	0,00950	-0,04847	-0,00185	-0,04610	-0,00280	-0,00285	-0,00023	-0,23486	-0,00340	1,28039	0,00421	0,14143	0,04637	0,04037	0,00055
5	AIBCGEF	0,24528	-0,00087	0,01566	0,00266	-0,07796	-0,00229	-0,03084	-0,00281	-0,00166	0,00010	-0,22473	-0,00366	0,46714	0,00212	0,03273	0,00858	0,00824	-0,00026
6	P2FUNDS	0,76944	0,00066	0,34262	0,02192	-0,04049	-0,00156	-0,10343	-0,00271	-0,01565	-0,00147	-0,24492	-0,00528	2,63816	0,00511	1,57190	0,10947	0,05058	0,00128
7	BAWGSPC	0,86276	0,00073	-0,73531	0,02534	-0,03866	-0,00152	-0,11129	-0,00236	0,06677	-0,00164	-0,22958	-0,00506	2,03152	0,00501	-1,69664	0,08128	0,04718	0,00115
8	EKAKO17	0,84388	0,00063	0,18091	0,02465	-0,03996	-0,00160	-0,07559	-0,00227	-0,00559	-0,00087	-0,24341	-0,00439	1,79023	0,00464	0,65076	0,07007	0,04305	0,00073
9	EKAKO13	0,78234	0,00064	0,27145	0,02239	-0,04068	-0,00153	-0,10066	-0,00260	-0,00829	-0,00141	-0,25393	-0,00477	1,89634	0,00495	2,45110	0,07500	0,04709	0,00117
10	PACTRST	0,24854	0,00000	0,02394	0,00278	-0,04660	-0,00174	-0,01008	-0,00239	-0,00062	0,00055	-0,18440	-0,00252	0,47713	0,00335	0,05312	0,00904	0,02950	0,00032
11	CIENGSV	0,22569	-0,00009	0,01406	0,00194	-0,03838	-0,00128	0,03022	-0,00232	0,00119	0,00143	-0,16655	-0,00111	0,37720	0,00270	0,02815	0,00440	0,03585	0,00059
12	CIENGST	0,22555	-0,00011	0,01406	0,00194	-0,03872	-0,00130	0,03014	-0,00232	0,00119	0,00143	-0,16678	-0,00109	0,37694	0,00268	0,02815	0,00439	0,03536	0,00056
13	P1FUNDS	0,75007	0,00092	-0,29356	0,02120	-0,03328	-0,00136	-0,12252	-0,00267	-0,27244	-0,00188	-0,23876	-0,00481	1,72570	0,00563	-0,51672	0,06707	0,05793	0,00166
14	EKAKM14	0,91993	0,00100	-0,38987	0,02744	-0,03186	-0,00125	-0,13335	-0,00243	0,03568	-0,00212	-0,23317	-0,00526	2,11379	0,00565	-1,02859	0,08510	0,05961	0,00180
15	RENGAKA	0,20750	0,00012	0,01168	0,00127	-0,02512	-0,00087	0,07547	-0,00129	0,00318	0,00241	-0,13175	-0,00137	0,29068	0,00229	0,01981	0,00038	0,03546	0,00063
16	SIRIU37	1,08728	0,00082	0,11288	0,03359	-0,03553	-0,00128	-0,10927	-0,00212	-0,01346	-0,00160	-0,23666	-0,00420	2,06227	0,00499	0,21750	0,08271	0,05396	0,00139
17	RENGAKT	0,21123	0,00025	0,01190	0,00141	-0,02084	-0,00074	0,08044	-0,00117	0,00339	0,00251	-0,12570	-0,00123	0,29417	0,00243	0,02005	0,00054	0,03918	0,00076
18	3BV1FND	1,07117	0,00099	0,55747	0,03300	-0,03181	-0,00118	-0,08939	-0,00212	-0,01584	-0,00116	-0,23036	-0,00452	2,17090	0,00524	1,90605	0,08776	0,05317	0,00150
19	3BOBK14	0,89304	0,00078	0,11289	0,02646	-0,03640	-0,00134	-0,10830	-0,00245	-0,00928	-0,00157	-0,25004	-0,00455	1,87728	0,00514	0,25549	0,07411	0,05615	0,00149
20	3BKBTV1	1,29278	0,00126	0,12641	0,04114	-0,02272	-0,00083	-0,03870	-0,00185	-0,00214	-0,00007	-0,23031	-0,00385	2,39237	0,00550	0,28449	0,09805	0,06452	0,00190
21	GUTEUPO	0,23500	-0,00047	0,01323	0,00228	-0,06223	-0,00190	0,01619	-0,00215	0,00072	0,00112	-0,19185	-0,00210	0,39396	0,00216	0,02541	0,00518	0,01825	-0,00032
22	3BKOBK4	0,98103	0,00087	0,10089	0,02969	-0,03395	-0,00121	-0,10110	-0,00237	-0,00646	-0,00142	-0,25146	-0,00446	1,97794	0,00520	0,23091	0,07879	0,05816	0,00161

23	3BKOBK5	0,97231	0,00085	0,09915	0,02937	-0,03444	-0,00122	-0,10200	-0,00238	-0,00651	-0,00144	-0,25194	-0,00447	1,95800	0,00518	0,22644	0,07786	0,05771	0,00160
24	ESXTJAP	0,20758	-0,00027	0,02687	0,00128	-0,04849	-0,00215	-0,00795	-0,00257	-0,00057	0,00060	-0,15646	-0,00228	0,42596	0,00292	0,06567	0,00667	0,01764	-0,00047
25	A14FUND	0,95290	0,00082	0,13098	0,02866	-0,03565	-0,00133	-0,11613	-0,00240	-0,00785	-0,00174	-0,25614	-0,00408	1,97970	0,00520	0,33737	0,07887	0,05609	0,00147
26	TSERL1T	0,98307	0,00081	0,08749	0,02976	-0,03465	-0,00134	-0,14282	-0,00253	-0,01195	-0,00232	-0,25813	-0,00472	2,04318	0,00533	0,17999	0,08182	0,06444	0,00165
27	BTVAVMK	0,91787	0,00083	0,13699	0,02737	-0,03472	-0,00127	-0,10671	-0,00239	-0,00963	-0,00154	-0,24821	-0,00433	1,95526	0,00521	0,32381	0,07773	0,05702	0,00158
28	CAPIN14	0,23252	0,00022	0,01064	0,00219	-0,01853	-0,00058	0,18249	0,00002	0,00486	0,00473	-0,06767	0,00039	0,27717	0,00083	0,01614	-0,00025	0,00153	-0,00067
29	PUMAFND	0,19112	0,00040	0,01098	0,00067	-0,00915	-0,00017	0,07130	-0,00111	0,00290	0,00232	-0,07952	-0,00047	0,28032	0,00244	0,01893	-0,00010	0,04382	0,00152
30	PUMAFUN	0,20030	0,00072	0,01147	0,00101	0,00152	0,00008	0,08503	-0,00066	0,00345	0,00261	-0,06438	0,00002	0,28621	0,00266	0,01927	0,00017	0,05120	0,00160
31	KLMEGAA	0,19296	-0,00115	0,01090	0,00074	-0,07708	-0,00225	-0,00629	-0,00273	-0,00031	0,00064	-0,19230	-0,00269	0,34051	0,00148	0,02155	0,00269	0,00773	-0,00033
32	KLMEGAT	0,20439	-0,00084	0,01144	0,00116	-0,06673	-0,00194	0,00448	-0,00251	0,00022	0,00087	-0,18240	-0,00263	0,35301	0,00184	0,02211	0,00328	0,01925	0,00005
33	DWSAV48	0,64830	0,00068	0,05051	0,01747	-0,03752	-0,00134	-0,04116	-0,00238	-0,00198	-0,00012	-0,25243	-0,00361	1,31666	0,00472	0,11628	0,04806	0,05319	0,00119
34	POBAAKE	0,24943	-0,00039	0,01435	0,00281	-0,05998	-0,00180	0,00414	-0,00226	0,00020	0,00086	-0,19739	-0,00241	0,43779	0,00253	0,02808	0,00722	0,02815	0,00012
35	ESUMWSA	0,22648	-0,00041	0,01272	0,00197	-0,05621	-0,00146	0,02908	-0,00197	0,00128	0,00140	-0,17976	-0,00206	0,36209	0,00209	0,02369	0,00370	0,02036	0,00037
36	ESUMWST	0,22648	-0,00041	0,01272	0,00197	-0,05621	-0,00146	0,02908	-0,00197	0,00128	0,00140	-0,17976	-0,00206	0,36209	0,00209	0,02369	0,00370	0,02036	0,00037
37	SUP4AKT	0,20395	-0,00124	0,01108	0,00114	-0,08893	-0,00255	-0,04826	-0,00345	-0,00241	-0,00027	-0,23973	-0,00397	0,38783	0,00202	0,02325	0,00489	0,02008	-0,00015
38	SPORTVA	0,31714	-0,00014	0,02237	0,00530	-0,05690	-0,00188	-0,02702	-0,00256	-0,00165	0,00019	-0,21447	-0,00359	0,67151	0,00334	0,04735	0,01808	0,03448	0,00037
39	NOVEUII	0,28592	0,00001	0,01889	0,00415	-0,04877	-0,00160	-0,00410	-0,00254	-0,00020	0,00068	-0,20467	-0,00312	0,54135	0,00334	0,03943	0,01203	0,03899	0,00053
40	CPEEURP	0,21799	0,00069	0,01206	0,00166	-0,00431	-0,00039	0,13502	0,00042	0,00586	0,00370	-0,03622	0,00124	0,27928	0,00160	0,01811	-0,00015	0,01804	-0,00039
41	CPEEURT	0,22490	0,00091	0,01243	0,00191	0,00366	-0,00016	0,13994	0,00053	0,00603	0,00380	-0,03086	0,00133	0,28766	0,00192	0,01864	0,00024	0,02794	-0,00004
42	GLBLCHI	0,20408	-0,00105	0,01075	0,00115	-0,08294	-0,00218	-0,02138	-0,00267	-0,00118	0,00031	-0,20978	-0,00365	0,35355	0,00175	0,02061	0,00330	0,01480	-0,00002
43	APOLOST	0,17532	-0,00125	0,01058	0,00009	-0,08158	-0,00270	-0,02962	-0,00322	-0,00154	0,00013	-0,20007	-0,00315	0,33773	0,00175	0,02232	0,00256	0,00844	-0,00075
44	SAPEURT	0,19147	-0,00083	0,01142	0,00068	-0,06739	-0,00225	-0,01675	-0,00295	-0,00084	0,00041	-0,19108	-0,00297	0,35522	0,00227	0,02336	0,00338	0,02509	-0,00016
45	BTVAVMD	0,59034	0,00064	0,04831	0,01534	-0,03728	-0,00130	-0,04364	-0,00232	-0,00239	-0,00017	-0,24726	-0,00361	1,20751	0,00469	0,10843	0,04299	0,05489	0,00135
46	CONML27	0,34784	0,00072	0,02285	0,00643	-0,02756	-0,00093	0,04235	-0,00150	0,00207	0,00169	-0,16621	-0,00229	0,64531	0,00385	0,04529	0,01686	0,05072	0,00096
47	EQTYINV	0,28358	0,00118	0,01333	0,00407	0,01756	0,00036	0,24945	0,00125	0,00731	0,00618	-0,00314	0,00122	0,32638	0,00181	0,01925	0,00204	0,03010	0,00034
48	JPNTRND	0,24564	0,00038	0,02795	0,00267	-0,03187	-0,00134	0,00129	-0,00215	0,00010	0,00080	-0,15531	-0,00270	0,46771	0,00392	0,05926	0,00861	0,04328	0,00094

49	ALLINVT	0,20727	-0,00047	0,01193	0,00126	-0,05473	-0,00189	0,00493	-0,00245	0,00024	0,00088	-0,17465	-0,00279	0,36090	0,00246	0,02311	0,00364	0,03478	0,00004
50	ALLINVA	0,19401	-0,00083	0,01107	0,00078	-0,06630	-0,00222	-0,00289	-0,00265	-0,00014	0,00071	-0,18203	-0,00295	0,34175	0,00197	0,02172	0,00275	0,02097	-0,00040
51	PSKEUST	0,23091	-0,00035	0,01394	0,00213	-0,05506	-0,00188	-0,00870	-0,00272	-0,00042	0,00058	-0,19440	-0,00263	0,42971	0,00293	0,02845	0,00684	0,04025	0,00027
52	PSKEURO	0,21669	-0,00073	0,01316	0,00161	-0,06735	-0,00226	-0,02146	-0,00303	-0,00103	0,00031	-0,20822	-0,00297	0,41267	0,00249	0,02766	0,00605	0,02712	-0,00018
53	VNNAINV	0,21211	-0,00001	0,00993	0,00144	-0,02306	-0,00067	0,19674	0,00051	0,00533	0,00503	-0,00018	0,00082	0,23714	-0,00031	0,01414	-0,00211	-0,03431	-0,00165
54	VIENINT	0,22404	0,00037	0,01039	0,00188	-0,00681	-0,00029	0,20647	0,00072	0,00557	0,00525	0,01550	0,00105	0,25085	0,00021	0,01477	-0,00147	-0,01654	-0,00110
55	FINANST	0,16782	-0,00124	0,00885	-0,00019	-0,07570	-0,00227	0,01802	-0,00199	0,00111	0,00116	-0,16561	-0,00296	0,25960	0,00069	0,01570	-0,00107	-0,00805	-0,00094
56	FINANSA	0,15504	-0,00159	0,00824	-0,00066	-0,08929	-0,00248	0,01411	-0,00207	0,00091	0,00108	-0,16822	-0,00306	0,24121	0,00006	0,01473	-0,00192	-0,03094	-0,00129
57	DWSAVER	0,28446	0,00011	0,01695	0,00410	-0,04377	-0,00144	0,00054	-0,00247	0,00003	0,00078	-0,20304	-0,00320	0,51996	0,00355	0,03408	0,01103	0,05306	0,00087
58	NEWGENR	0,13729	-0,00177	0,00894	-0,00131	-0,07883	-0,00295	-0,05316	-0,00488	-0,00279	-0,00038	-0,19176	-0,00450	0,31555	0,00204	0,02158	0,00153	0,02602	0,00008
59	NEWGENT	0,13927	-0,00169	0,00912	-0,00123	-0,07646	-0,00288	-0,05151	-0,00481	-0,00271	-0,00034	-0,18984	-0,00446	0,31819	0,00214	0,02187	0,00166	0,02850	0,00016
60	GUTAKTN	0,27964	-0,00012	0,01771	0,00392	-0,05204	-0,00174	-0,03579	-0,00311	-0,00172	0,00000	-0,23738	-0,00380	0,53867	0,00376	0,03787	0,01190	0,05435	0,00097
61	3BKESKA	0,17171	-0,00123	0,01015	-0,00004	-0,07831	-0,00263	-0,02384	-0,00347	-0,00115	0,00026	-0,19409	-0,00354	0,32976	0,00180	0,02151	0,00219	0,01232	-0,00064
62	3BKEURT	0,20340	-0,00046	0,01161	0,00112	-0,05422	-0,00183	0,00873	-0,00244	0,00042	0,00096	-0,16874	-0,00246	0,35332	0,00243	0,02244	0,00329	0,03381	0,00006
63	RQEUEQA	0,19926	-0,00119	0,01182	0,00097	-0,08298	-0,00262	-0,02937	-0,00316	-0,00143	0,00014	-0,21855	-0,00336	0,37599	0,00176	0,02486	0,00434	0,00739	-0,00071
64	RQEUEQT	0,26016	0,00008	0,01462	0,00321	-0,04136	-0,00135	0,03918	-0,00165	0,00171	0,00162	-0,17075	-0,00157	0,42357	0,00278	0,02727	0,00655	0,03905	0,00032
65	BADVANS	0,29192	0,00004	0,02153	0,00437	-0,04944	-0,00153	-0,04108	-0,00297	-0,00267	-0,00012	-0,21588	-0,00426	0,62158	0,00404	0,04593	0,01576	0,05386	0,00142
66	CPBMEDR	0,38753	0,00058	0,02533	0,00789	-0,03056	-0,00104	0,14509	-0,00036	0,00776	0,00392	-0,14540	-0,00172	0,53772	0,00277	0,04230	0,01186	0,02435	-0,00001
67	KLASSAK	0,27575	0,00002	0,01451	0,00378	-0,04534	-0,00141	0,03335	-0,00176	0,00141	0,00149	-0,19383	-0,00210	0,43989	0,00285	0,02681	0,00731	0,04435	0,00042
68	KLAKTIT	0,28634	0,00025	0,01495	0,00417	-0,03703	-0,00119	0,04141	-0,00163	0,00174	0,00167	-0,18726	-0,00206	0,45277	0,00316	0,02735	0,00791	0,05445	0,00073
69	VOLKAME	0,22710	-0,00038	0,01491	0,00199	-0,05677	-0,00174	-0,04646	-0,00345	-0,00282	-0,00023	-0,21708	-0,00492	0,44723	0,00364	0,03129	0,00765	0,05509	0,00144
70	DANBINV	0,20304	0,00055	0,01209	0,00111	-0,00679	-0,00046	0,15424	0,00102	0,00677	0,00411	-0,01149	0,00204	0,24008	0,00065	0,01714	-0,00197	-0,00723	-0,00123
71	DANBINT	0,21060	0,00081	0,01247	0,00139	0,00191	-0,00017	0,15723	0,00109	0,00688	0,00418	-0,00815	0,00213	0,25056	0,00109	0,01776	-0,00149	0,00516	-0,00074
72	GUTUSPO	0,20840	-0,00071	0,01342	0,00131	-0,06793	-0,00199	-0,07748	-0,00399	-0,00453	-0,00091	-0,25229	-0,00524	0,41010	0,00356	0,02918	0,00593	0,05264	0,00155
73	R67FUND	0,23596	-0,00059	0,01348	0,00232	-0,06623	-0,00193	-0,01630	-0,00285	-0,00082	0,00042	-0,20407	-0,00364	0,44744	0,00260	0,02733	0,00766	0,03231	0,00037
74	VIENSTK	0,26894	0,00084	0,01223	0,00353	0,00404	-0,00001	0,22365	0,00066	0,00616	0,00562	-0,03603	0,00086	0,31631	0,00162	0,01816	0,00157	0,02509	0,00008

75	VIENAUS	0,26344	0,00068	0,01203	0,00333	-0,00379	-0,00017	0,21632	0,00052	0,00599	0,00546	-0,04580	0,00070	0,31125	0,00144	0,01793	0,00133	0,01762	-0,00011
76	3BKESTM	0,23459	-0,00042	0,01396	0,00227	-0,05636	-0,00183	-0,00147	-0,00234	-0,00008	0,00074	-0,19008	-0,00252	0,41156	0,00258	0,02704	0,00600	0,03363	0,00020
77	3BKOEKG	0,25996	-0,00008	0,01420	0,00320	-0,04907	-0,00132	-0,00352	-0,00258	-0,00015	0,00070	-0,21917	-0,00268	0,45238	0,00335	0,02828	0,00789	0,05606	0,00129
78	ESPGDYN	0,27152	-0,00001	0,01935	0,00362	-0,04588	-0,00156	-0,00045	-0,00228	-0,00002	0,00076	-0,19311	-0,00236	0,50354	0,00328	0,04014	0,01027	0,03870	0,00060
79	SBESTIN	0,23440	-0,00040	0,01916	0,00226	-0,05651	-0,00200	-0,05830	-0,00382	-0,00339	-0,00049	-0,22161	-0,00389	0,55951	0,00399	0,04666	0,01287	0,05353	0,00128
80	OSTEUSA	0,23136	0,00104	0,01339	0,00215	0,00795	0,00004	0,14888	0,00062	0,00669	0,00400	-0,02666	0,00163	0,29167	0,00203	0,02004	0,00042	0,02939	0,00018
81	OSTEUST	0,23759	0,00125	0,01370	0,00238	0,01469	0,00024	0,15609	0,00079	0,00697	0,00415	-0,01956	0,00182	0,29747	0,00227	0,02036	0,00069	0,03604	0,00042
82	OSTVLRF	0,23326	0,00142	0,01243	0,00222	0,02500	0,00062	0,14643	0,00057	0,00587	0,00394	-0,02164	0,00208	0,29601	0,00275	0,01869	0,00063	0,05748	0,00130
83	SPGOLDR	0,27827	0,00008	0,01704	0,00387	-0,04252	-0,00141	0,00662	-0,00220	0,00034	0,00092	-0,18609	-0,00228	0,51340	0,00337	0,03374	0,01073	0,05076	0,00083
84	SIEQWEE	0,25824	-0,00002	0,01431	0,00314	-0,04442	-0,00147	0,03370	-0,00175	0,00153	0,00150	-0,17703	-0,00204	0,41695	0,00271	0,02642	0,00625	0,03926	0,00023
85	JMEURSC	0,25227	0,00059	0,01497	0,00292	-0,01698	-0,00101	0,06366	-0,00121	0,00274	0,00215	-0,12882	-0,00100	0,39411	0,00322	0,02715	0,00519	0,05458	0,00035
86	SCHAKTT	0,25737	-0,00040	0,01533	0,00310	-0,06258	-0,00173	-0,05374	-0,00328	-0,00287	-0,00039	-0,24587	-0,00428	0,48690	0,00353	0,03192	0,00950	0,05302	0,00139
87	SKWBAKT	0,24910	-0,00055	0,01483	0,00280	-0,06762	-0,00188	-0,05997	-0,00340	-0,00323	-0,00053	-0,25053	-0,00435	0,47581	0,00335	0,03119	0,00898	0,04817	0,00122
88	KEPGLBT	0,24523	-0,00047	0,01380	0,00266	-0,06128	-0,00189	-0,01371	-0,00276	-0,00066	0,00048	-0,21151	-0,00337	0,44614	0,00277	0,02766	0,00760	0,03936	0,00038
89	KEPGLBA	0,23154	-0,00074	0,01316	0,00216	-0,07069	-0,00216	-0,02920	-0,00306	-0,00143	0,00014	-0,22352	-0,00371	0,43349	0,00256	0,02707	0,00701	0,03236	0,00016
90	CPBFRSA	0,28898	0,00010	0,01710	0,00427	-0,04403	-0,00133	-0,00324	-0,00264	-0,00014	0,00070	-0,20668	-0,00319	0,55915	0,00364	0,03559	0,01285	0,05606	0,00119
91	OBRBSMX	0,25530	-0,00039	0,01495	0,00303	-0,06005	-0,00188	-0,01804	-0,00283	-0,00083	0,00038	-0,22219	-0,00328	0,47388	0,00303	0,03097	0,00889	0,04066	0,00047
92	BESTEMT	0,24568	0,00050	0,01445	0,00267	-0,01676	-0,00079	0,06688	-0,00122	0,00311	0,00222	-0,13388	-0,00072	0,36778	0,00304	0,02551	0,00396	0,05314	0,00080
93	BESTEMA	0,23695	0,00025	0,01399	0,00235	-0,02518	-0,00105	0,06034	-0,00137	0,00285	0,00208	-0,13967	-0,00090	0,35734	0,00269	0,02488	0,00348	0,04304	0,00044
94	VIFVERI	0,16062	-0,00187	0,01004	-0,00045	-0,10070	-0,00328	-0,06887	-0,00429	-0,00367	-0,00072	-0,23745	-0,00392	0,35082	0,00144	0,02359	0,00317	-0,00119	-0,00095
95	VIFVERT	0,21265	-0,00073	0,01259	0,00146	-0,06641	-0,00212	-0,03184	-0,00313	-0,00168	0,00008	-0,20712	-0,00303	0,41457	0,00266	0,02614	0,00614	0,03780	0,00034
96	KLASAEA	0,22522	-0,00044	0,01278	0,00192	-0,05715	-0,00190	0,01333	-0,00221	0,00058	0,00106	-0,19242	-0,00200	0,37414	0,00230	0,02462	0,00426	0,02636	-0,00024
97	KLASAET	0,24201	-0,00003	0,01351	0,00254	-0,04338	-0,00148	0,02387	-0,00202	0,00103	0,00129	-0,18305	-0,00197	0,39636	0,00288	0,02556	0,00529	0,04458	0,00037
98	OSTINDT	0,26559	0,00131	0,01644	0,00341	0,00953	0,00012	0,10772	-0,00039	0,00509	0,00311	-0,08130	0,00031	0,37746	0,00370	0,02731	0,00441	0,06734	0,00161
99	EKASAMA	0,18614	-0,00108	0,01217	0,00049	-0,07610	-0,00238	-0,08313	-0,00423	-0,00534	-0,00103	-0,24584	-0,00537	0,38265	0,00316	0,02707	0,00465	0,04445	0,00111
100	ESTOAME	0,19783	-0,00076	0,01281	0,00092	-0,06584	-0,00204	-0,07227	-0,00398	-0,00453	-0,00079	-0,23791	-0,00509	0,39320	0,00353	0,02767	0,00514	0,05587	0,00153

101	INTSTAU	0,23495	-0,00053	0,01415	0,00228	-0,06456	-0,00192	-0,04010	-0,00322	-0,00224	-0,00010	-0,21799	-0,00383	0,47009	0,00318	0,02964	0,00872	0,04617	0,00089
102	INTRSTK	0,24145	-0,00038	0,01448	0,00252	-0,05937	-0,00176	-0,03493	-0,00311	-0,00192	0,00002	-0,21442	-0,00375	0,47659	0,00336	0,03001	0,00902	0,05204	0,00109
103	EUAKTIT	0,21598	-0,00050	0,01190	0,00158	-0,05525	-0,00183	0,01105	-0,00212	0,00056	0,00101	-0,17683	-0,00235	0,36034	0,00225	0,02221	0,00362	0,03492	0,00006
104	EURAKVT	0,21770	-0,00046	0,01201	0,00165	-0,05387	-0,00179	0,01166	-0,00211	0,00059	0,00102	-0,17663	-0,00234	0,36282	0,00232	0,02239	0,00373	0,03680	0,00012
105	RAFEAPS	0,20673	-0,00074	0,01133	0,00124	-0,06324	-0,00204	0,00488	-0,00226	0,00025	0,00088	-0,18239	-0,00245	0,34771	0,00194	0,02132	0,00303	0,02589	-0,00022
106	AMERSTT	0,22527	-0,00025	0,01175	0,00192	-0,05152	-0,00136	0,00302	-0,00227	0,00015	0,00084	-0,20687	-0,00397	0,35454	0,00289	0,02143	0,00335	0,05358	0,00119
107	AMERSTO	0,21256	-0,00059	0,01118	0,00146	-0,06383	-0,00170	-0,01369	-0,00259	-0,00066	0,00048	-0,22161	-0,00431	0,34271	0,00252	0,02092	0,00280	0,04094	0,00082
108	BAWGSTK	0,20752	-0,00088	0,01179	0,00127	-0,07124	-0,00225	-0,03074	-0,00343	-0,00134	0,00011	-0,22569	-0,00316	0,39741	0,00253	0,02532	0,00534	0,03492	0,00018
109	BASTOCT	0,22971	-0,00032	0,01288	0,00209	-0,05273	-0,00169	-0,00624	-0,00279	-0,00027	0,00064	-0,20082	-0,00250	0,41683	0,00303	0,02612	0,00624	0,05082	0,00069
110	EUPROPA	0,23892	0,00014	0,01439	0,00243	-0,03353	-0,00125	0,16525	0,00046	0,00742	0,00435	-0,07487	0,00028	0,29697	0,00091	0,02176	0,00067	-0,01203	-0,00156
111	EUPROPT	0,25895	0,00060	0,01527	0,00316	-0,01701	-0,00076	0,19106	0,00080	0,00841	0,00491	-0,05985	0,00064	0,31605	0,00151	0,02270	0,00156	0,00612	-0,00091
112	RAIFOST	0,22987	0,00054	0,01059	0,00209	0,00070	-0,00023	0,18650	0,00026	0,00510	0,00481	-0,03357	0,00109	0,27104	0,00118	0,01581	-0,00053	0,01813	-0,00028
113	3BKGSFD	0,24719	-0,00028	0,01681	0,00273	-0,05326	-0,00189	-0,01775	-0,00294	-0,00089	0,00039	-0,20206	-0,00330	0,49102	0,00323	0,03627	0,00969	0,04043	0,00042
114	OSTAKTT	0,23430	0,00069	0,01078	0,00226	0,00784	-0,00007	0,19305	0,00038	0,00525	0,00495	-0,02329	0,00114	0,27474	0,00135	0,01603	-0,00036	0,02424	-0,00009
115	ROSTAVT	0,23677	0,00078	0,01089	0,00235	0,01169	0,00002	0,19933	0,00050	0,00539	0,00509	-0,01367	0,00126	0,27557	0,00139	0,01608	-0,00032	0,02562	-0,00005
116	ALINOST	0,20478	0,00083	0,01140	0,00117	0,00861	0,00009	0,13213	0,00020	0,00536	0,00363	-0,03848	0,00143	0,25612	0,00202	0,01719	-0,00123	0,03702	0,00072
117	ALLIOST	0,19941	0,00067	0,01106	0,00098	0,00391	-0,00006	0,12953	0,00014	0,00527	0,00358	-0,04127	0,00138	0,24892	0,00177	0,01664	-0,00156	0,03100	0,00051
118	SIEQPAR	0,27236	0,00067	0,02159	0,00365	-0,02147	-0,00095	0,01146	-0,00208	0,00070	0,00102	-0,16229	-0,00189	0,49321	0,00435	0,04288	0,00979	0,06630	0,00155
119	ESXTEUR	0,25547	0,00002	0,01440	0,00303	-0,04240	-0,00150	0,02653	-0,00183	0,00126	0,00135	-0,17493	-0,00201	0,42314	0,00289	0,02684	0,00653	0,04499	0,00029
120	EUPROST	0,30156	0,00116	0,01735	0,00473	0,00127	-0,00023	0,22696	0,00131	0,00950	0,00569	-0,03594	0,00122	0,36497	0,00210	0,02560	0,00383	0,02208	-0,00036
121	EUPROSA	0,27307	0,00061	0,01617	0,00368	-0,01963	-0,00062	0,19915	0,00091	0,00874	0,00509	-0,05574	0,00077	0,33415	0,00139	0,02407	0,00240	-0,00054	-0,00077
122	RUSEQUA	0,20480	-0,00077	0,01377	0,00117	-0,06918	-0,00203	-0,08855	-0,00437	-0,00505	-0,00115	-0,26164	-0,00514	0,42316	0,00376	0,03137	0,00653	0,05489	0,00177
123	RUSEQUT	0,23163	-0,00011	0,01542	0,00216	-0,04838	-0,00136	-0,04657	-0,00341	-0,00257	-0,00024	-0,22655	-0,00398	0,43716	0,00411	0,03241	0,00719	0,06483	0,00212
124	GOLDEUR	0,28612	0,00036	0,01618	0,00416	-0,03182	-0,00112	0,04000	-0,00168	0,00179	0,00164	-0,16476	-0,00159	0,48784	0,00328	0,03054	0,00954	0,05332	0,00071
125	COLSTKT	0,24297	-0,00007	0,01321	0,00258	-0,04754	-0,00126	-0,00523	-0,00242	-0,00028	0,00066	-0,20006	-0,00396	0,40610	0,00333	0,02464	0,00574	0,06118	0,00145
126	CIAMESV	0,25378	0,00010	0,01352	0,00297	-0,04192	-0,00108	0,01135	-0,00217	0,00075	0,00102	-0,19748	-0,00362	0,40752	0,00337	0,02474	0,00581	0,06222	0,00149

127	COLMBST	0,22696	-0,00046	0,01247	0,00199	-0,06077	-0,00165	-0,02388	-0,00280	-0,00128	0,00025	-0,21641	-0,00435	0,39060	0,00294	0,02403	0,00502	0,04823	0,00107
128	EKSTAMR	0,20827	-0,00062	0,01128	0,00130	-0,06326	-0,00171	-0,02881	-0,00298	-0,00142	0,00015	-0,22864	-0,00412	0,35031	0,00281	0,02187	0,00315	0,04803	0,00113
129	EKSTAMT	0,21989	-0,00030	0,01181	0,00173	-0,05138	-0,00137	-0,01528	-0,00273	-0,00074	0,00044	-0,21915	-0,00384	0,36045	0,00318	0,02240	0,00362	0,06103	0,00155
130	NIPPORT	0,18900	-0,00017	0,01369	0,00059	-0,03770	-0,00156	0,05681	-0,00102	0,00339	0,00200	-0,10866	-0,00057	0,28274	0,00173	0,02371	0,00001	0,00803	-0,00073
131	I2STOCK	0,25607	-0,00035	0,01491	0,00306	-0,05741	-0,00189	-0,01865	-0,00257	-0,00110	0,00037	-0,21023	-0,00356	0,44722	0,00298	0,02861	0,00765	0,04376	0,00040
132	VOLKEUR	0,20582	-0,00069	0,01067	0,00121	-0,06282	-0,00184	0,01165	-0,00232	0,00051	0,00102	-0,19064	-0,00261	0,33465	0,00197	0,01997	0,00242	0,02950	0,00009
133	SELECTA	0,24596	-0,00004	0,01450	0,00269	-0,04410	-0,00155	0,00090	-0,00246	0,00004	0,00079	-0,18840	-0,00246	0,44150	0,00331	0,02866	0,00739	0,05440	0,00072
134	SECLTFV	0,25402	0,00010	0,01482	0,00298	-0,03935	-0,00141	0,01204	-0,00224	0,00073	0,00103	-0,18266	-0,00218	0,44289	0,00335	0,02875	0,00745	0,05582	0,00074
135	SELCTFD	0,23254	-0,00037	0,01374	0,00219	-0,05648	-0,00179	-0,01372	-0,00281	-0,00066	0,00047	-0,20386	-0,00286	0,42776	0,00298	0,02793	0,00675	0,04265	0,00056
136	SMPORT4	0,28623	0,00029	0,01546	0,00416	-0,03438	-0,00105	0,02874	-0,00188	0,00128	0,00139	-0,18942	-0,00239	0,46655	0,00345	0,02872	0,00855	0,06223	0,00122
137	PAZFKAA	0,27433	0,00036	0,02313	0,00373	-0,03160	-0,00137	0,02079	-0,00188	0,00124	0,00122	-0,16056	-0,00227	0,49290	0,00357	0,04687	0,00978	0,04333	0,00052
138	PAZFKAT	0,28169	0,00051	0,02388	0,00400	-0,02744	-0,00123	0,02560	-0,00180	0,00152	0,00133	-0,15694	-0,00226	0,50257	0,00376	0,04817	0,01023	0,04748	0,00069
139	PAZFKVT	0,28250	0,00053	0,02398	0,00403	-0,02693	-0,00121	0,02569	-0,00180	0,00152	0,00133	-0,15688	-0,00226	0,50411	0,00379	0,04840	0,01030	0,04822	0,00072
140	TECHNOA	0,20131	-0,00054	0,01673	0,00104	-0,05612	-0,00215	-0,06734	-0,00424	-0,00513	-0,00069	-0,20544	-0,00530	0,49473	0,00421	0,03903	0,00986	0,06446	0,00155
141	TECHNOT	0,20131	-0,00054	0,01673	0,00104	-0,05612	-0,00215	-0,06734	-0,00424	-0,00513	-0,00069	-0,20544	-0,00530	0,49469	0,00420	0,03903	0,00986	0,06446	0,00154
142	PHARMSA	0,34535	0,00053	0,04384	0,00634	-0,03704	-0,00136	-0,05794	-0,00299	-0,00467	-0,00048	-0,22780	-0,00467	0,72659	0,00504	0,10268	0,02064	0,06039	0,00182
143	PHARMST	0,35890	0,00072	0,04486	0,00683	-0,03225	-0,00118	-0,05794	-0,00299	-0,00467	-0,00048	-0,22780	-0,00467	0,76195	0,00540	0,10420	0,02228	0,06860	0,00217
144	GLBLEQU	0,21295	-0,00097	0,01203	0,00147	-0,07724	-0,00231	-0,03113	-0,00308	-0,00152	0,00010	-0,22742	-0,00378	0,38500	0,00214	0,02449	0,00476	0,02177	-0,00008
145	GLOBEQT	0,23172	-0,00054	0,01298	0,00216	-0,06202	-0,00187	-0,01484	-0,00270	-0,00073	0,00045	-0,21247	-0,00349	0,40558	0,00265	0,02552	0,00572	0,03849	0,00046
146	SEITEMU	0,24663	-0,00008	0,01578	0,00271	-0,04274	-0,00164	0,00638	-0,00250	0,00030	0,00091	-0,17294	-0,00234	0,47465	0,00314	0,03257	0,00893	0,04625	0,00039
147	SIEEEMK	0,25079	0,00102	0,01520	0,00286	0,00115	-0,00019	0,06591	-0,00111	0,00291	0,00220	-0,11275	-0,00047	0,38988	0,00392	0,02730	0,00499	0,07773	0,00185
148	BTVAVMW	0,28742	0,00028	0,01951	0,00421	-0,03588	-0,00131	0,00030	-0,00227	0,00002	0,00078	-0,19334	-0,00232	0,54026	0,00385	0,04032	0,01198	0,05758	0,00111
149	LNTMVTR	0,30447	0,00065	0,01738	0,00483	-0,02634	-0,00066	0,01643	-0,00184	0,00103	0,00113	-0,18791	-0,00361	0,48806	0,00428	0,03095	0,00955	0,07971	0,00221
150	RTECAKT	0,18361	-0,00047	0,01362	0,00039	-0,04836	-0,00190	-0,03213	-0,00359	-0,00233	0,00008	-0,16402	-0,00527	0,40202	0,00360	0,02911	0,00555	0,05811	0,00124
151	RTECAKA	0,17988	-0,00059	0,01332	0,00026	-0,05165	-0,00202	-0,03450	-0,00367	-0,00250	0,00002	-0,16663	-0,00536	0,39583	0,00344	0,02870	0,00527	0,05384	0,00109
152	USAKTNT	0,21931	-0,00033	0,01526	0,00171	-0,05389	-0,00170	-0,04904	-0,00361	-0,00328	-0,00029	-0,20907	-0,00562	0,44312	0,00384	0,03218	0,00746	0,05816	0,00163

153	USAKTNA	0,21560	-0,00043	0,01499	0,00157	-0,05670	-0,00179	-0,05172	-0,00365	-0,00346	-0,00035	-0,21149	-0,00560	0,43827	0,00371	0,03182	0,00724	0,05509	0,00152
154	USAKTVT	0,21936	-0,00033	0,01527	0,00171	-0,05386	-0,00170	-0,04902	-0,00361	-0,00328	-0,00029	-0,20906	-0,00562	0,44331	0,00384	0,03220	0,00747	0,05821	0,00163
155	RGLAKVT	0,24539	-0,00031	0,01481	0,00266	-0,05438	-0,00175	-0,02525	-0,00293	-0,00140	0,00023	-0,20700	-0,00401	0,46436	0,00330	0,02992	0,00845	0,05237	0,00090
156	GLOAKTT	0,24461	-0,00032	0,01476	0,00264	-0,05492	-0,00177	-0,02553	-0,00294	-0,00142	0,00022	-0,20727	-0,00402	0,46290	0,00328	0,02982	0,00838	0,05166	0,00088
157	RAIFAKT	0,23805	-0,00047	0,01435	0,00239	-0,05944	-0,00190	-0,03016	-0,00303	-0,00168	0,00012	-0,21110	-0,00408	0,45365	0,00310	0,02921	0,00795	0,04699	0,00073
158	TOPPHAT	0,28055	0,00026	0,03684	0,00396	-0,04151	-0,00144	-0,07531	-0,00344	-0,00733	-0,00086	-0,22820	-0,00543	0,59106	0,00502	0,08376	0,01434	0,06164	0,00224
159	TOPPHAV	0,28882	0,00038	0,03720	0,00426	-0,03831	-0,00131	-0,06464	-0,00321	-0,00615	-0,00063	-0,22259	-0,00518	0,59144	0,00503	0,08374	0,01436	0,06179	0,00224
160	TOPASIT	0,24409	0,00022	0,02170	0,00262	-0,03432	-0,00147	-0,00811	-0,00254	-0,00054	0,00060	-0,16612	-0,00238	0,48757	0,00394	0,04606	0,00953	0,05246	0,00099
161	PACFSTK	0,22800	-0,00017	0,02058	0,00203	-0,04472	-0,00186	-0,02259	-0,00296	-0,00149	0,00028	-0,17991	-0,00277	0,46697	0,00355	0,04531	0,00857	0,04287	0,00060
162	TOPPHAA	0,27332	0,00011	0,03598	0,00369	-0,04525	-0,00159	-0,08385	-0,00364	-0,00815	-0,00104	-0,23476	-0,00561	0,58547	0,00492	0,08314	0,01408	0,05934	0,00212
163	VIENNAT	0,26555	0,00115	0,01221	0,00340	0,02142	0,00034	0,26361	0,00130	0,00708	0,00648	0,02010	0,00127	0,29452	0,00152	0,01723	0,00056	0,02453	0,00004
164	VIENTPF	0,25744	0,00092	0,01190	0,00311	0,01125	0,00011	0,25414	0,00115	0,00684	0,00628	0,00990	0,00112	0,28600	0,00120	0,01683	0,00016	0,01342	-0,00028
165	VOLKPAC	0,28450	0,00108	0,02305	0,00410	-0,00668	-0,00055	0,05038	-0,00139	0,00262	0,00186	-0,13905	-0,00124	0,46526	0,00445	0,04488	0,00849	0,06792	0,00159
166	BESTHET	0,29260	0,00014	0,04705	0,00440	-0,04712	-0,00173	-0,08694	-0,00356	-0,00902	-0,00111	-0,23429	-0,00474	0,69818	0,00499	0,11794	0,01932	0,05697	0,00187
167	BESTHEA	0,28040	-0,00008	0,04609	0,00395	-0,05341	-0,00187	-0,09542	-0,00373	-0,01036	-0,00130	-0,23956	-0,00493	0,68153	0,00473	0,11689	0,01854	0,05022	0,00176
168	ESISTSA	0,14261	0,00090	0,01206	-0,00111	-0,00007	-0,00001	0,03766	-0,00139	0,00266	0,00159	-0,04901	0,00121	0,24093	0,00361	0,02123	-0,00193	0,04880	0,00198
169	ESISTST	0,14674	0,00112	0,01241	-0,00096	0,00485	0,00013	0,03953	-0,00130	0,00277	0,00163	-0,04700	0,00130	0,24678	0,00396	0,02179	-0,00166	0,05633	0,00218
170	CONAUST	0,24342	0,00027	0,01177	0,00259	-0,02155	-0,00057	0,18171	-0,00006	0,00544	0,00471	-0,10053	-0,00026	0,29764	0,00140	0,01810	0,00070	0,01597	-0,00001
171	AUSQUIT	0,24854	0,00040	0,01199	0,00278	-0,01580	-0,00043	0,18997	0,00007	0,00569	0,00489	-0,09218	-0,00011	0,30203	0,00155	0,01831	0,00091	0,02105	0,00014
172	OSTAKVT	0,22699	0,00156	0,01278	0,00199	0,02978	0,00075	0,15327	0,00082	0,00627	0,00409	-0,00969	0,00230	0,27991	0,00274	0,01891	-0,00012	0,05409	0,00126
173	OSTEAKT	0,22507	0,00149	0,01269	0,00192	0,02728	0,00067	0,14998	0,00074	0,00617	0,00402	-0,01340	0,00221	0,27870	0,00268	0,01884	-0,00018	0,05236	0,00120
174	RAIFOSE	0,22170	0,00137	0,01253	0,00179	0,02317	0,00055	0,14503	0,00061	0,00601	0,00391	-0,01868	0,00205	0,27611	0,00257	0,01869	-0,00030	0,04899	0,00108
175	KONAKTV	0,25920	0,00178	0,01723	0,00317	0,02590	0,00066	0,12599	0,00035	0,00599	0,00350	-0,04184	0,00096	0,35528	0,00377	0,02784	0,00338	0,06753	0,00178
176	KONAKTA	0,25168	0,00154	0,01676	0,00290	0,01867	0,00042	0,11227	-0,00005	0,00530	0,00320	-0,05570	0,00064	0,35205	0,00365	0,02766	0,00323	0,06424	0,00165
177	KONAKTT	0,25791	0,00174	0,01717	0,00312	0,02467	0,00062	0,12436	0,00031	0,00591	0,00347	-0,04343	0,00090	0,35423	0,00373	0,02781	0,00333	0,06645	0,00174
178	TIGFOND	0,23382	0,00058	0,01900	0,00224	-0,01891	-0,00116	0,00406	-0,00218	0,00026	0,00086	-0,15802	-0,00215	0,41056	0,00439	0,03747	0,00595	0,06991	0,00139

179	TIGERFD	0,22059	0,00020	0,01805	0,00175	-0,03003	-0,00148	-0,01331	-0,00264	-0,00085	0,00048	-0,17401	-0,00268	0,40044	0,00408	0,03675	0,00548	0,06154	0,00120
180	TOPSWSF	0,25326	0,00017	0,01593	0,00295	-0,03622	-0,00124	-0,00186	-0,00249	-0,00010	0,00073	-0,18002	-0,00221	0,47642	0,00376	0,03200	0,00901	0,06488	0,00139
181	TOPSWST	0,26237	0,00040	0,01642	0,00329	-0,02912	-0,00101	0,00857	-0,00222	0,00045	0,00096	-0,16980	-0,00194	0,48480	0,00395	0,03234	0,00940	0,07047	0,00158
182	STKIDXU	0,26122	0,00026	0,01429	0,00325	-0,03652	-0,00096	-0,00188	-0,00221	-0,00011	0,00073	-0,20022	-0,00395	0,42520	0,00387	0,02608	0,00663	0,07710	0,00199
183	EREALFD	0,20994	-0,00053	0,01173	0,00136	-0,05149	-0,00173	0,12694	-0,00024	0,00567	0,00352	-0,11147	-0,00045	0,26925	0,00039	0,01815	-0,00062	-0,01880	-0,00166
184	AMERIDX	0,25055	-0,00012	0,01380	0,00285	-0,05030	-0,00150	-0,02064	-0,00261	-0,00114	0,00033	-0,21806	-0,00431	0,42042	0,00347	0,02606	0,00641	0,06285	0,00125
185	KEPUSAT	0,23137	-0,00023	0,01232	0,00215	-0,05134	-0,00135	-0,00540	-0,00237	-0,00027	0,00066	-0,21168	-0,00380	0,36993	0,00303	0,02270	0,00406	0,05547	0,00131
186	KEPUSAK	0,22643	-0,00034	0,01210	0,00197	-0,05527	-0,00147	-0,01415	-0,00253	-0,00073	0,00047	-0,21751	-0,00398	0,36720	0,00297	0,02255	0,00393	0,05353	0,58240
187	COREEUT	0,22833	0,00013	0,01216	0,00204	-0,03061	-0,00116	0,03428	-0,00186	0,00153	0,00151	-0,17794	-0,00173	0,34974	0,00316	0,02194	0,00312	0,06525	0,00101
188	COREEUR	0,21870	-0,00013	0,01173	0,00168	-0,03952	-0,00142	0,01640	-0,00223	0,00071	0,00113	-0,19152	-0,00211	0,34559	0,00302	0,02176	0,00293	0,06059	0,00086
189	ESXTUSA	0,26006	0,00040	0,01372	0,00320	-0,02898	-0,00076	0,02299	-0,00192	0,00114	0,00127	-0,18844	-0,00343	0,40440	0,00377	0,02448	0,00566	0,07896	0,00195
190	SIEEQNA	0,22769	-0,00010	0,01411	0,00201	-0,04579	-0,00127	-0,03213	-0,00292	-0,00202	0,00008	-0,20600	-0,00438	0,40888	0,00385	0,02766	0,00587	0,06783	0,00207
191	OSTAKTV	0,20064	0,00091	0,01157	0,00102	0,00986	0,00025	0,12215	0,00018	0,00530	0,00342	-0,03925	0,00191	0,25411	0,00218	0,01750	-0,00132	0,03930	0,00105
192	ACEMERT	0,25922	0,00120	0,01560	0,00317	0,00933	-0,00014	0,06711	-0,00124	0,00286	0,00223	-0,12322	-0,00072	0,39360	0,00440	0,02797	0,00516	0,09221	0,00207
193	OSTAKTI	0,20658	0,00114	0,01191	0,00124	0,01751	0,00041	0,13111	0,00047	0,00575	0,00361	-0,02847	0,00224	0,25869	0,00237	0,01779	-0,00111	0,04539	0,00111
194	ACEMERA	0,25528	0,00110	0,01540	0,00303	0,00592	-0,00025	0,06350	-0,00133	0,00270	0,00215	-0,12701	-0,00082	0,38911	0,00428	0,02775	0,00495	0,08860	0,00195
195	ASIACAP	0,26690	0,00120	0,02066	0,00345	-0,00164	-0,00044	0,06544	-0,00073	0,00399	0,00219	-0,11628	-0,00064	0,40998	0,00424	0,03658	0,00592	0,06702	0,00141
196	TURYGEA	0,15437	-0,00106	0,00835	-0,00068	-0,06246	-0,00182	-0,02478	-0,00329	-0,00127	0,00024	-0,19261	-0,00292	0,26604	0,00222	0,01635	-0,00077	0,04145	0,00118
197	TURYGET	0,15627	-0,00101	0,00848	-0,00061	-0,06064	-0,00177	-0,02478	-0,00329	-0,00127	0,00024	-0,19261	-0,00292	0,26950	0,00232	0,01661	-0,00061	0,04443	0,00128
198	EUROTST	0,35689	0,00097	0,02496	0,00676	-0,01827	-0,00068	-0,00651	-0,00233	-0,00037	0,00063	-0,20276	-0,00324	0,66739	0,00519	0,04990	0,01788	0,08707	0,00241
199	GUTUSSP	0,29441	0,00125	0,01594	0,00446	0,00425	0,00008	0,09000	-0,00099	0,00387	0,00272	-0,14838	-0,00242	0,41872	0,00445	0,02700	0,00633	0,09497	0,00258
200	TURYGOA	0,16830	0,00042	0,01427	-0,00017	-0,01383	-0,00073	0,05034	-0,00107	0,00311	0,00186	-0,09203	-0,00002	0,24500	0,00274	0,02482	-0,00174	0,03052	0,00078
201	TURYGOT	0,17079	0,00052	0,01445	-0,00008	-0,01149	-0,00063	0,05565	-0,00093	0,00341	0,00198	-0,08706	0,00003	0,24588	0,00278	0,02489	-0,00170	0,03128	0,00082
202	WALCAPT	0,16640	-0,00079	0,00964	-0,00024	-0,05341	-0,00175	-0,04429	-0,00371	-0,00253	-0,00019	-0,21238	-0,00506	0,29190	0,00313	0,01918	0,00044	0,06104	0,00175
203	BIOTECA	0,25328	0,00099	0,02625	0,00295	-0,01898	-0,00054	-0,03105	-0,00319	-0,00234	0,00010	-0,18042	-0,00490	0,52355	0,00604	0,05772	0,01120	0,08910	0,00351
204	BIOTECT	0,25326	0,00099	0,02624	0,00295	-0,01899	-0,00054	-0,03105	-0,00320	-0,00234	0,00010	-0,18048	-0,00491	0,52355	0,00604	0,05771	0,01120	0,08910	0,00351

TABLE 2. FRENCH MUTUAL FUNDS PERFORMANCE MEASURES

		OVERALL PERIOD						SUBPERIOD ONE						SUBPERIOD TWO					
#	NAME	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ
1	CHI2000	0,21632	0,00242	0,05365	0,00031	0,03008	0,00128	0,09718	0,00252	0,01189	0,00300	0,06482	0,00104	0,30474	0,00219	0,12048	-0,00197	0,01012	0,00054
2	PCEUROP	0,45477	0,00224	-0,16529	0,00764	0,02434	0,00078	0,12865	0,00121	0,08839	0,00372	0,03022	-0,00025	0,65277	0,00297	-0,17853	0,01078	0,02021	0,00085
3	SLFAEUR	0,21196	0,00141	-0,09868	0,00017	-0,00077	-0,00011	0,03346	0,00060	0,02248	0,00154	0,00471	-0,00120	0,33220	0,00191	-0,10680	-0,00096	-0,00631	-0,00035
4	PCEUROD	0,44659	0,00213	-0,17081	0,00739	0,02151	0,00067	0,11976	0,00112	0,06472	0,00352	0,02672	-0,00034	0,64475	0,00285	-0,17968	0,01049	0,01763	0,00074
5	CAIVEFR	0,19528	0,00138	-0,08400	-0,00034	-0,00102	-0,00027	0,01193	0,00012	0,00391	0,00105	-0,01004	-0,00151	0,31668	0,00232	-0,08641	-0,00153	0,00164	-0,00017
6	CAIVEFI	0,18802	0,00116	-0,08602	-0,00057	-0,00596	-0,00049	0,00852	0,00003	0,00273	0,00097	-0,01265	-0,00160	0,30678	0,00198	-0,08699	-0,00190	-0,00485	-0,00053
7	INDIEUR	0,17415	0,00094	-0,09138	-0,00099	-0,00978	-0,00077	-0,00138	-0,00026	-0,00026	0,00074	-0,01995	-0,00167	0,29513	0,00186	-0,07728	-0,00232	-0,00641	-0,00079
8	CIFRANC	0,19363	0,00137	-0,13506	-0,00039	-0,00048	-0,00027	0,01476	0,00017	0,00269	0,00111	-0,00763	-0,00123	0,31526	0,00228	-0,09609	-0,00158	0,00136	-0,00024
9	UAEURO	0,21347	0,00110	0,11339	0,00022	-0,00175	-0,00047	0,02926	0,00038	0,00401	0,00144	-0,00098	-0,00102	0,32560	0,00156	0,84640	-0,00121	-0,00428	-0,00084
10	OFIMLEA	0,20840	0,00122	-0,11157	0,00006	-0,00421	-0,00037	-0,01040	-0,00045	-0,00179	0,00053	-0,02866	-0,00204	0,35303	0,00260	-0,09316	-0,00020	0,00676	0,00019
11	AXAINEC	0,19146	0,00146	-0,07076	-0,00046	0,00084	-0,00028	0,01300	0,00017	0,01329	0,00107	-0,00820	-0,00221	0,31327	0,00245	-0,08670	-0,00166	0,00431	-0,00018
12	ECURLLE	0,18734	0,00087	-0,13186	-0,00059	-0,01087	-0,00072	-0,00387	-0,00031	-0,00075	0,00068	-0,02302	-0,00203	0,31366	0,00176	-0,09993	-0,00164	-0,00696	-0,00067
13	NRWFRNC	0,20218	0,00158	-0,06078	-0,00013	0,00229	-0,00018	0,02145	0,00037	-0,02245	0,00126	-0,00399	-0,00211	0,31442	0,00245	-0,08406	-0,00162	0,00361	-0,00014
14	EXPEXDU	0,23632	0,00164	-0,28209	0,00092	0,00688	0,00017	0,02613	0,00042	0,00403	0,00137	0,00032	-0,00091	0,39625	0,00256	-0,12466	0,00138	0,00838	0,00034
15	ELNCLDS	0,17550	0,00096	-0,09019	-0,00095	-0,00979	-0,00073	-0,00301	-0,00028	-0,00068	0,00070	-0,02135	-0,00195	0,29489	0,00190	-0,08222	-0,00233	-0,00595	-0,00069
16	BPEUCRS	0,19814	0,00076	-0,08067	-0,00025	-0,01471	-0,00101	-0,05356	-0,00171	-0,03595	-0,00046	-0,05987	-0,00476	0,44717	0,00296	-0,10924	0,00325	0,01596	0,00035
17	MONCFRE	0,32571	0,00153	0,05696	0,00367	0,01127	0,00032	0,04822	0,00048	0,00324	0,00188	0,00626	-0,00083	0,51273	0,00234	0,18240	0,00565	0,01223	0,00051
18	CDCINSE	0,23160	0,00108	0,10815	0,00078	-0,00473	-0,00030	-0,00435	-0,00033	-0,00059	0,00067	-0,02465	-0,00153	0,40798	0,00218	1,20065	0,00181	0,00427	0,00013
19	CDCEUAC	0,17553	0,00106	-0,14053	-0,00095	-0,00537	-0,00050	-0,00320	-0,00040	-0,00068	0,00070	-0,02020	-0,00062	0,31199	0,00228	-0,10066	-0,00170	0,00170	-0,00024
20	SOGNFRN	0,19689	0,00156	-0,09106	-0,00029	0,00289	-0,00012	0,02046	0,00035	0,00631	0,00124	-0,00282	-0,00117	0,31679	0,00247	-0,08873	-0,00153	0,00402	-0,00010
21	LGSTCAC	0,18443	0,00115	-0,06105	-0,00068	-0,00692	-0,00055	0,00720	0,00006	-0,00389	0,00094	-0,01295	-0,00226	0,29990	0,00189	-0,09287	-0,00215	-0,00587	-0,00059
22	BALCANI	0,29443	0,00263	-0,08325	0,00271	0,02786	0,00108	0,08593	0,00129	0,03012	0,00274	0,03050	-0,00011	0,42048	0,00367	-0,08950	0,00227	0,02614	0,00135

23	AGFEUAC	0,20111	0,00140	-0,07147	-0,00016	0,00137	-0,00042	0,00546	0,00001	-0,00859	0,00090	-0,01374	-0,00225	0,34152	0,00247	-0,10125	-0,00062	0,00904	-0,00021
24	FEDEPAC	0,19134	0,00135	-0,10528	-0,00046	-0,00160	-0,00027	0,01833	0,00023	0,00494	0,00119	-0,00692	-0,00133	0,29472	0,00217	-0,09871	-0,00234	-0,00103	-0,00027
25	EURF50C	0,18756	0,00138	-0,06093	-0,00058	-0,00146	-0,00038	0,00750	0,00005	0,14650	0,00094	-0,01235	-0,00214	0,30901	0,00240	-0,08145	-0,00181	0,00305	-0,00023
26	AXAAGEU	0,17666	0,00111	-0,07348	-0,00091	-0,00708	-0,00060	0,01102	0,00020	0,01189	0,00102	-0,00819	-0,00038	0,30297	0,00170	-0,08791	-0,00203	-0,00871	-0,00084
27	POETHIC	0,21230	0,00165	-0,12944	0,00018	0,00642	0,00001	0,02503	0,00037	0,00384	0,00135	-0,00098	-0,00117	0,33546	0,00265	-0,09112	-0,00084	0,00872	0,00012
28	AXAEFEA	0,18308	0,00086	-0,05383	-0,00072	-0,01356	-0,00082	-0,02351	-0,00072	0,01304	0,00023	-0,03504	-0,00320	0,32548	0,00209	-0,08730	-0,00121	-0,00318	-0,00034
29	SCV5000	0,18530	0,00092	-0,11562	-0,00065	-0,00986	-0,00069	0,00691	-0,00003	0,00145	0,00093	-0,01418	-0,00160	0,30610	0,00161	-0,09286	-0,00192	-0,00977	-0,00085
30	ECURINV	0,18486	0,00110	-0,09231	-0,00066	-0,00664	-0,00057	0,00351	-0,00012	0,00079	0,00085	-0,01660	-0,00178	0,30499	0,00202	-0,08362	-0,00196	-0,00372	-0,00054
31	AGFOPID	0,20658	0,00146	-0,08224	0,00001	0,00319	-0,00032	0,01731	0,00030	0,04248	0,00117	-0,00526	-0,00185	0,34143	0,00232	-0,10352	-0,00063	0,00658	-0,00034
32	VIACTEC	0,19664	0,00127	-0,06362	-0,00030	-0,00355	-0,00047	0,02088	0,00030	0,01158	0,00125	-0,00517	-0,00152	0,30433	0,00194	-0,07455	-0,00199	-0,00487	-0,00069
33	AZUACFR	0,21513	0,00159	-0,06616	0,00027	0,00314	-0,00010	0,01530	0,00023	-0,01359	0,00112	-0,00799	-0,00208	0,34860	0,00259	-0,09409	-0,00036	0,00731	0,00013
34	BNPAIFC	0,19154	0,00149	-0,14227	-0,00046	0,00249	-0,00014	0,01613	0,00017	0,00212	0,00114	-0,00570	-0,00145	0,31423	0,00254	-0,08191	-0,00162	0,00488	-0,00004
35	SOGEPEA	0,19201	0,00101	-0,09720	-0,00044	-0,00921	-0,00066	-0,01356	-0,00054	-0,00289	0,00046	-0,03015	-0,00236	0,33503	0,00227	-0,08937	-0,00086	0,00055	-0,00026
36	TRICOLO	0,21875	0,00187	-0,07246	0,00038	0,00929	0,00020	0,02967	0,00057	-0,02448	0,00145	0,00225	-0,00148	0,34172	0,00278	-0,10096	-0,00062	0,01093	0,00035
37	UNIFRAN	0,18065	0,00082	-0,09517	-0,00079	-0,01234	-0,00081	-0,00821	-0,00040	-0,00228	0,00058	-0,02559	-0,00180	0,30725	0,00176	-0,09280	-0,00188	-0,00719	-0,00072
38	BALSWII	0,25084	0,00199	-0,07493	0,00137	0,01248	0,00034	0,03809	0,00066	0,01133	0,00165	0,00688	-0,00114	0,39717	0,00300	-0,07837	0,00142	0,01365	0,00052
39	BNPPADD	0,28221	0,00212	-0,10492	0,00233	0,01699	0,00049	0,12553	0,00135	0,02993	0,00365	0,03704	-0,00034	0,37235	0,00259	-0,10275	0,00051	0,00656	0,00008
40	AGFEACD	0,20181	0,00125	-0,05929	-0,00014	-0,00319	-0,00053	0,00371	-0,00004	-0,00423	0,00086	-0,01585	-0,00237	0,33673	0,00220	-0,08473	-0,00080	0,00198	-0,00042
41	SICEURS	0,20179	0,00146	-0,08958	-0,00014	0,00096	-0,00022	0,02067	0,00034	0,01695	0,00125	-0,00393	-0,00158	0,31999	0,00227	-0,10362	-0,00141	0,00167	-0,00023
42	ETVALUE	0,21144	0,00143	0,17562	0,00016	0,00417	-0,00006	0,02886	0,00045	0,00351	0,00143	0,00242	-0,00067	0,33501	0,00213	-0,39265	-0,00086	0,00294	-0,00017
43	BNPNAV3	0,20253	0,00101	1,94554	-0,00012	-0,00755	-0,00050	-0,02929	-0,00109	-0,00299	0,00010	-0,04534	-0,00237	0,39188	0,00289	-0,12654	0,00122	0,01271	0,00048
44	FRUFRAD	0,20398	0,00123	0,12970	-0,00007	-0,00079	-0,00022	0,02028	0,00028	0,00309	0,00124	-0,00410	-0,00104	0,33012	0,00189	-62,55819	-0,00104	-0,00122	-0,00028
45	FRUFRAC	0,20923	0,00136	0,08486	0,00009	0,00408	-0,00005	0,02499	0,00032	0,00219	0,00134	-0,00002	-0,00121	0,33736	0,00217	-1,37256	-0,00077	0,00421	-0,00007
46	AXAAGIA	0,21995	0,00103	-0,09956	0,00042	-0,00973	-0,00064	-0,03308	-0,00093	-0,00463	0,00001	-0,04650	-0,00310	0,39550	0,00273	-0,08510	0,00136	0,00812	0,00019
47	EMRGPSD	0,19680	0,00109	-0,15052	-0,00030	-0,00571	-0,00053	-0,01065	-0,00050	-0,00166	0,00053	-0,02841	-0,00205	0,34268	0,00240	-0,09913	-0,00058	0,00470	-0,00009
48	FRNCGAN	0,22599	0,00170	-0,10343	0,00060	0,00579	0,00009	0,02838	0,00047	0,00714	0,00142	0,00113	-0,00091	0,36181	0,00263	-0,09438	0,00012	0,00632	0,00018

49	FRUVEUR	0,22388	0,00143	-0,13572	0,00054	0,00112	-0,00016	0,01021	-0,00003	0,00134	0,00101	-0,01493	-0,00193	0,35566	0,00261	-0,09455	-0,00010	0,00728	0,00016
50	AGFEACC	0,21020	0,00149	-0,06269	0,00012	0,00204	-0,00029	0,00782	0,00006	-0,00916	0,00095	-0,01290	-0,00225	0,34827	0,00257	-0,08900	-0,00037	0,00878	-0,00004
51	BNPAPEU	0,17860	0,00077	-0,32981	-0,00086	-0,01254	-0,00081	-0,01520	-0,00069	-0,00186	0,00042	-0,03239	-0,00242	0,31913	0,00197	-0,10250	-0,00144	-0,00398	-0,00052
52	SYCEURO	0,22678	0,00194	-0,10493	0,00063	0,01246	0,00021	0,05233	0,00098	0,01688	0,00197	0,01706	-0,00051	0,33731	0,00261	-0,10096	-0,00078	0,00891	0,00000
53	BNPAIFD	0,18168	0,00107	-0,14552	-0,00076	-0,00649	-0,00056	0,00489	-0,00016	0,00060	0,00088	-0,01590	-0,00187	0,30067	0,00203	-0,08002	-0,00212	-0,00406	-0,00057
54	AMPTMND	0,24896	0,00114	-0,38212	0,00131	-0,00562	-0,00043	-0,03903	-0,00104	-0,00632	-0,00012	-0,05027	-0,00287	0,47591	0,00308	-0,17082	0,00430	0,01972	0,00075
55	AMPTMNC	0,25943	0,00132	-0,53205	0,00163	-0,00093	-0,00025	-0,03070	-0,00085	-0,00461	0,00007	-0,04437	-0,00277	0,48384	0,00324	-0,18030	0,00459	0,02349	0,00093
56	VINCACT	0,20167	0,00146	-0,06658	-0,00015	0,00054	-0,00028	0,02413	0,00038	0,01233	0,00133	-0,00238	-0,00148	0,31268	0,00225	-0,07668	-0,00168	0,00020	-0,00039
57	EXACFRD	0,18442	0,00128	-0,05492	-0,00068	-0,00432	-0,00048	0,01035	0,00014	-0,00669	0,00101	-0,01073	-0,00216	0,29543	0,00208	-0,08037	-0,00231	-0,00298	-0,00050
58	RICHINV	0,33565	0,00187	0,27108	0,00398	0,01614	0,00046	0,12082	0,00146	0,00985	0,00354	0,04639	0,00060	0,47518	0,00215	-0,32953	0,00428	0,00233	-0,00002
59	EXACFRC	0,19683	0,00166	-0,05780	-0,00029	0,00377	-0,00009	0,02366	0,00046	-0,01351	0,00131	-0,00138	-0,00181	0,30645	0,00252	-0,08357	-0,00191	0,00468	-0,00005
60	BALJPNI	0,21823	0,00130	0,11097	0,00036	0,00178	-0,00006	0,05596	0,00111	0,01034	0,00205	0,02286	0,00008	0,33805	0,00137	0,45394	-0,00075	-0,01047	-0,00066
61	AXAVALF	0,19380	0,00117	-0,05917	-0,00039	-0,00731	-0,00050	-0,01072	-0,00040	0,01149	0,00053	-0,02603	-0,00284	0,33643	0,00238	-0,08776	-0,00081	0,00138	-0,00004
62	SPGPSMC	0,35872	0,00251	0,06093	0,00469	0,03818	0,00125	0,16587	0,00271	0,00979	0,00457	0,10342	0,00234	0,51250	0,00215	0,24512	0,00564	0,00471	0,00015
63	SGEUROP	0,24104	0,00166	-1,24638	0,00107	0,00775	0,00010	0,02758	0,00034	0,00284	0,00140	-0,00145	-0,00093	0,38253	0,00271	-0,13613	0,00088	0,01082	0,00029
64	BDFREPA	0,19066	0,00107	2,91444	-0,00048	-0,00658	-0,00055	0,00287	-0,00013	0,00053	0,00084	-0,01699	-0,00151	0,32415	0,00198	-0,20746	-0,00126	-0,00280	-0,00049
65	BNPATRM	0,20162	0,00157	-0,22522	-0,00015	0,00482	0,00000	0,01644	0,00016	0,00193	0,00115	-0,00575	-0,00152	0,33401	0,00270	-0,09194	-0,00090	0,00828	0,00020
66	ABFEUR1	0,20891	0,00164	-0,08928	0,00008	0,00515	-0,00004	0,02905	0,00053	0,01715	0,00144	0,00256	-0,00169	0,32935	0,00244	-0,09834	-0,00107	0,00481	-0,00007
67	SGSOTEM	0,15156	0,00040	-0,29617	-0,00169	-0,01943	-0,00120	-0,04952	-0,00213	-0,00923	-0,00036	-0,05984	-0,00450	0,38362	0,00271	-0,11809	0,00092	0,01143	0,00028
68	BNPFVST	0,19390	0,00124	9,89808	-0,00038	-0,00152	-0,00028	0,01417	0,00007	0,00134	0,00110	-0,00808	-0,00141	0,32175	0,00214	-0,10412	-0,00135	-0,00070	-0,00029
69	MACTIEU	0,22843	0,00142	-0,68976	0,00068	0,00176	-0,00014	0,00105	-0,00020	0,00016	0,00080	-0,01975	-0,00193	0,39824	0,00277	-0,15893	0,00146	0,01250	0,00040
70	SLVAFRN	0,17421	0,00082	-0,08966	-0,00099	-0,01248	-0,00081	-0,00244	-0,00026	-0,00057	0,00072	-0,02072	-0,00168	0,29613	0,00160	-0,08157	-0,00229	-0,01050	-0,00088
71	BALEURI	0,21127	0,00167	-0,08738	0,00015	0,00564	-0,00001	0,02955	0,00055	0,02509	0,00145	0,00243	-0,00134	0,33092	0,00248	-0,10089	-0,00101	0,00565	-0,00003
72	INDVARE	0,21027	0,00169	-0,06799	0,00012	0,00565	0,00003	0,03116	0,00062	0,07964	0,00149	0,00450	-0,00087	0,33212	0,00241	-0,08386	-0,00097	0,00375	-0,00007
73	LIVRBRS	0,19651	0,00088	0,06850	-0,00030	-0,00809	-0,00044	-0,00334	-0,00031	-0,00052	0,00070	-0,02287	-0,00156	0,33284	0,00176	0,20648	-0,00094	-0,00237	-0,00019
74	AFERFLO	0,32352	0,00111	0,05026	0,00360	-0,00131	-0,00017	-0,00446	-0,00033	-0,00037	0,00067	-0,02741	-0,00150	0,68019	0,00230	0,15953	0,01179	0,01365	0,00043

75	EURRENC	0,31268	0,00240	-0,10225	0,00327	0,02348	0,00070	0,06578	0,00101	-0,18456	0,00228	0,01847	-0,00067	0,47584	0,00346	-0,13089	0,00430	0,02527	0,00093
76	MMAEUAC	0,20622	0,00141	-0,08137	-0,00001	-0,00001	-0,00023	0,00436	-0,00003	0,09633	0,00087	-0,01506	-0,00207	0,35063	0,00252	-0,10837	-0,00029	0,00703	0,00013
77	MEDIACT	0,19622	0,00140	-0,09333	-0,00031	-0,00028	-0,00027	0,01276	0,00011	0,00275	0,00106	-0,00906	-0,00089	0,32279	0,00239	-0,08257	-0,00131	0,00247	-0,00019
78	POABLTD	0,19535	0,00135	-0,11166	-0,00034	-0,00113	-0,00030	0,01009	0,00004	0,00198	0,00100	-0,01154	-0,00146	0,32038	0,00235	-0,09033	-0,00140	0,00234	-0,00018
79	VHCAACT	0,22942	0,00162	0,14917	0,00071	0,01107	0,00013	0,01831	0,00022	0,00262	0,00119	-0,00556	-0,00131	0,38308	0,00273	-1,64685	0,00090	0,01925	0,00050
80	POAMPLT	0,21005	0,00179	-0,10560	0,00011	0,00846	0,00015	0,02276	0,00036	0,00458	0,00129	-0,00155	-0,00107	0,33730	0,00291	-0,08866	-0,00078	0,01217	0,00039
81	PTONI10	0,23468	0,00120	-0,54685	0,00087	-0,00332	-0,00035	-0,01148	-0,00050	-0,00135	0,00051	-0,03079	-0,00192	0,41521	0,00266	-0,13527	0,00208	0,01034	0,00027
82	LGMFRNC	0,22822	0,00169	-0,08923	0,00067	0,00533	0,00009	0,01170	0,00013	0,00971	0,00104	-0,01064	-0,00220	0,38346	0,00291	-0,10679	0,00091	0,01283	0,00059
83	STHOPME	0,27785	0,00196	0,12850	0,00220	0,01802	0,00055	0,08841	0,00154	0,00765	0,00280	0,04414	0,00051	0,41109	0,00215	-0,59545	0,00193	0,00307	-0,00002
84	EURREDD	0,29555	0,00206	-0,08772	0,00274	0,01469	0,00034	0,05174	0,00076	-0,13676	0,00196	0,00990	-0,00097	0,45526	0,00305	-0,11405	0,00355	0,01597	0,00048
85	SGFROPC	0,20836	0,00149	-0,26750	0,00006	0,00291	-0,00011	0,02885	0,00049	0,00399	0,00143	0,00286	-0,00055	0,33279	0,00224	-0,11084	-0,00094	0,00119	-0,00024
86	AXAINVT	0,21965	0,00078	-0,09907	0,00041	-0,01499	-0,00082	-0,03859	-0,00099	-0,02535	-0,00011	-0,04709	-0,00268	0,40517	0,00229	-0,12586	0,00171	0,00258	-0,00006
87	MDMVALR	0,24557	0,00151	-0,07857	0,00121	0,00151	-0,00006	0,00260	-0,00008	-0,00454	0,00083	-0,01822	-0,00222	0,41501	0,00278	-0,11080	0,00207	0,01131	0,00052
88	ATTFUTC	0,19723	0,00153	-0,09021	-0,00028	0,00220	-0,00015	0,01722	0,00025	0,00551	0,00117	-0,00559	-0,00127	0,31837	0,00249	-0,08980	-0,00147	0,00455	-0,00005
89	ATTFUTD	0,17408	0,00093	-0,07408	-0,00099	-0,01173	-0,00078	0,00488	-0,00006	0,00168	0,00088	-0,01502	-0,00163	0,28627	0,00163	-0,07796	-0,00265	-0,01256	-0,00099
90	SSTRFRC	0,21284	0,00189	-0,08090	0,00020	0,00962	0,00018	0,04781	0,00105	-0,05979	0,00187	0,01608	-0,00125	0,32260	0,00241	-0,10546	-0,00132	0,00411	-0,00009
91	SSTRFRN	0,20059	0,00151	-0,07962	-0,00018	0,00161	-0,00019	0,03537	0,00075	-0,04320	0,00158	0,00727	-0,00152	0,31086	0,00196	-0,10600	-0,00175	-0,00376	-0,00055
92	FEDCA40	0,19198	0,00157	-0,07429	-0,00044	0,00269	-0,00016	0,01558	0,00025	0,04912	0,00113	-0,00683	-0,00213	0,30515	0,00256	-0,09489	-0,00196	0,00598	-0,00001
93	MMAOF30	0,31751	0,00149	-0,16776	0,00342	0,00299	-0,00004	-0,01702	-0,00043	-0,00798	0,00038	-0,03288	-0,00229	0,53878	0,00312	-0,18795	0,00661	0,02207	0,00092
94	GPINFRA	0,23589	0,00200	-0,11024	0,00091	0,01325	0,00040	0,03595	0,00063	0,00922	0,00160	0,00648	-0,00083	0,37062	0,00306	-0,10031	0,00044	0,01534	0,00063
95	EURDNSV	0,21946	0,00139	-0,11196	0,00040	-0,00036	-0,00025	0,00252	-0,00014	0,00057	0,00083	-0,01900	-0,00205	0,36080	0,00263	-0,10253	0,00008	0,00784	0,00015
96	UNICNP1	0,24225	0,00130	-0,12430	0,00110	-0,00256	-0,00031	-0,02333	-0,00065	-0,00895	0,00024	-0,03699	-0,00255	0,43135	0,00300	-0,13697	0,00267	0,01681	0,00066
97	BDFPLAS	0,21022	0,00178	-0,19757	0,00012	0,00889	0,00016	0,02129	0,00035	0,00343	0,00126	-0,00190	-0,00110	0,34617	0,00292	-0,10951	-0,00045	0,01343	0,00045
98	CGNVASI	0,31467	0,00284	0,07762	0,00333	0,04419	0,00172	0,11232	0,00206	0,01405	0,00335	0,06002	0,00098	0,46125	0,00344	0,17771	0,00377	0,03603	0,00185
99	LPOAMAD	0,22856	0,00116	-0,15197	0,00068	-0,00590	-0,00045	-0,04889	-0,00131	-0,01026	-0,00035	-0,05708	-0,00352	0,44310	0,00340	-0,13252	0,00310	0,02397	0,00103
100	LPOAMAM	0,23691	0,00136	-0,14789	0,00094	-0,00127	-0,00025	-0,04169	-0,00114	-0,00875	-0,00018	-0,05166	-0,00332	0,45254	0,00361	-0,13055	0,00345	0,02824	0,00126

101	HSBEUAD	0,19331	0,00127	-0,08807	-0,00040	-0,00291	-0,00043	0,00727	0,00002	0,01029	0,00094	-0,01343	-0,00194	0,31559	0,00220	-0,10960	-0,00157	0,00100	-0,00033
102	HSBEUAC	0,20067	0,00151	-0,09343	-0,00018	0,00225	-0,00019	0,01392	0,00019	0,02052	0,00109	-0,00853	-0,00176	0,32351	0,00250	-0,11505	-0,00128	0,00652	-0,00001
103	ATOUSEL	0,20347	0,00117	-0,08820	-0,00009	-0,00603	-0,00050	-0,01376	-0,00056	-0,00414	0,00046	-0,02954	-0,00228	0,36979	0,00261	-0,09205	0,00041	0,00602	0,00007
104	ATHCRIN	0,26813	0,00105	0,09700	0,00190	-0,00499	-0,00028	-0,03441	-0,00088	-0,00685	-0,00002	-0,04592	-0,00252	0,50795	0,00272	0,27206	0,00548	0,02019	0,00088
105	AXAEUNC	0,22362	0,00163	-0,09664	0,00053	0,00507	0,00002	0,00403	-0,00006	0,00669	0,00086	-0,01655	-0,00201	0,37090	0,00300	-0,12305	0,00045	0,01584	0,00065
106	INOSVAC	0,21727	0,00188	-0,09106	0,00034	0,01020	0,00021	0,02152	0,00036	0,00631	0,00127	-0,00224	-0,00120	0,35574	0,00307	-0,08970	-0,00010	0,01553	0,00055
107	INOVAFD	0,19704	0,00132	-0,08241	-0,00029	-0,00234	-0,00035	0,00480	-0,00006	0,00160	0,00088	-0,01504	-0,00160	0,33272	0,00239	-0,08608	-0,00094	0,00270	-0,00015
108	AXAEUND	0,21549	0,00142	-0,09402	0,00028	-0,00008	-0,00020	-0,00377	-0,00024	-0,00682	0,00069	-0,02207	-0,00220	0,36270	0,00274	-0,12169	0,00015	0,01075	0,00039
109	BNPAERP	0,21986	0,00149	-0,14434	0,00041	0,00230	-0,00013	-0,00250	-0,00027	-0,00041	0,00071	-0,02321	-0,00205	0,36124	0,00296	-0,10823	0,00010	0,01400	0,00050
110	EPRGUNI	0,20281	0,00084	-0,08991	-0,00011	-0,01322	-0,00081	-0,02213	-0,00065	-0,00720	0,00026	-0,03633	-0,00245	0,35045	0,00205	-0,09924	-0,00030	-0,00250	-0,00041
111	FONCINV	0,26267	0,00259	-0,37086	0,00173	0,02862	0,00118	0,19013	0,00287	0,02577	0,00513	0,09553	0,00179	0,31394	0,00198	-0,13768	-0,00163	-0,00348	-0,00019
112	BPOFOIC	0,28126	0,00306	-0,45848	0,00230	0,04016	0,00166	0,21412	0,00323	0,02913	0,00568	0,10990	0,00217	0,33175	0,00256	-0,15320	-0,00098	0,00753	0,00041
113	PVALFRE	0,27816	0,00230	0,08286	0,00221	0,02836	0,00091	0,13119	0,00193	0,00841	0,00378	0,06897	0,00120	0,37033	0,00247	0,73779	0,00043	0,01071	0,00027
114	CNPAVLA	0,20554	0,00107	-0,10468	-0,00003	-0,00774	-0,00057	-0,01514	-0,00057	-0,00253	0,00043	-0,03244	-0,00233	0,34879	0,00242	-0,08936	-0,00036	0,00300	-0,00010
115	ETOPPOR	0,22238	0,00140	0,20080	0,00049	0,00359	-0,00007	0,05432	0,00082	0,00608	0,00202	0,01592	-0,00021	0,32226	0,00171	-0,41665	-0,00133	-0,00456	-0,00054
116	UNIVACT	0,23492	0,00107	-0,23056	0,00088	-0,00785	-0,00051	-0,03740	-0,00098	-0,00684	-0,00009	-0,04856	-0,00296	0,43360	0,00287	-0,15185	0,00275	0,01447	0,00056
117	MDMEURP	0,22037	0,00144	-0,07975	0,00043	-0,00004	-0,00022	-0,00350	-0,00021	0,00715	0,00069	-0,02165	-0,00237	0,37406	0,00275	-0,11353	0,00057	0,01087	0,00036
118	HSBCAED	0,21512	0,00138	-0,08972	0,00027	-0,00086	-0,00032	0,00270	-0,00009	0,00234	0,00083	-0,01837	-0,00226	0,34768	0,00253	-0,11016	-0,00040	0,00669	0,00002
119	HSBCAEC	0,22288	0,00160	-0,09650	0,00051	0,00410	-0,00009	0,01143	0,00010	0,00776	0,00103	-0,01245	-0,00203	0,35476	0,00277	-0,11358	-0,00014	0,01129	0,00028
120	SSTREUR	0,22458	0,00177	-0,08386	0,00056	0,00714	0,00006	0,03674	0,00064	0,38568	0,00161	0,00492	-0,00134	0,34150	0,00259	-0,10564	-0,00062	0,00678	0,00005
121	LIVRPRT	0,24916	0,00144	0,21046	0,00132	0,00396	0,00004	-0,02437	-0,00079	-0,00303	0,00021	-0,04043	-0,00271	0,46372	0,00337	-0,44302	0,00386	0,02867	0,00133
122	AGFACIP	0,25558	0,00085	0,09098	0,00151	-0,01014	-0,00048	-0,05540	-0,00136	-0,01051	-0,00050	-0,06134	-0,00304	0,51145	0,00280	0,27443	0,00561	0,02208	0,00096
123	LOBETHQ	0,23767	0,00187	-0,12573	0,00096	0,01134	0,00022	0,02893	0,00040	0,00721	0,00144	-0,00083	-0,00127	0,36786	0,00303	-0,11410	0,00034	0,01626	0,00054
124	ELNUSAS	0,21456	0,00087	-0,17489	0,00025	-0,01216	-0,00073	-0,05806	-0,00147	-0,00990	-0,00056	-0,06431	-0,00365	0,40658	0,00295	-0,13092	0,00176	0,01557	0,00059
125	AZUACAM	0,24898	0,00147	-0,09101	0,00131	0,00048	-0,00013	-0,05576	-0,00141	-0,02398	-0,00051	-0,06007	-0,00333	0,48977	0,00409	-0,11751	0,00481	0,03705	0,00179
126	SOLELIN	0,26101	0,00119	-0,20875	0,00168	-0,00515	-0,00039	-0,04554	-0,00114	-0,00844	-0,00027	-0,05428	-0,00303	0,50756	0,00328	-0,15121	0,00546	0,02290	0,00094

127	SGMOPCD	0,25893	0,00177	1,21021	0,00162	0,01029	0,00032	0,02690	0,00032	0,00299	0,00139	-0,00282	-0,00119	0,41758	0,00299	-0,19075	0,00217	0,01673	0,00081
128	BNPEPST	0,22277	0,00153	-0,19429	0,00050	0,00361	-0,00008	-0,00191	-0,00028	-0,00024	0,00073	-0,02354	-0,00202	0,36411	0,00305	-0,10912	0,00021	0,01580	0,00059
129	INVAEUR	0,22801	0,00162	-0,07031	0,00067	0,00437	-0,00019	0,02140	0,00028	0,01436	0,00126	-0,00650	-0,00184	0,35383	0,00265	-0,08520	-0,00017	0,00840	-0,00008
130	AREUACT	0,25308	0,00201	-0,08253	0,00144	0,01370	0,00035	0,11744	0,00122	-0,23754	0,00346	0,02920	-0,00056	0,33221	0,00250	-0,10139	-0,00096	0,00570	0,00001
131	INDFONC	0,24891	0,00219	-0,26458	0,00131	0,01897	0,00071	0,13479	0,00217	0,03257	0,00386	0,06320	0,00079	0,31552	0,00182	-0,15288	-0,00158	-0,00604	-0,00041
132	CGMONDE	0,34911	0,00186	0,47837	0,00439	0,01559	0,00041	-0,00632	-0,00029	-0,00108	0,00063	-0,02774	-0,00171	0,60492	0,00374	-0,74719	0,00903	0,04027	0,00167
133	PRIMEURP	0,26680	0,00250	0,20172	0,00186	0,03016	0,00115	0,13820	0,00268	0,01280	0,00394	0,08550	0,00227	0,35465	0,00210	-0,26546	-0,00014	0,00130	-0,00004
134	ULYSSED	0,26737	0,00175	0,14632	0,00188	0,01181	0,00031	0,08255	0,00112	0,00713	0,00266	0,03004	0,00003	0,37823	0,00214	-0,82959	0,00072	0,00198	-0,00006
135	ULYSSEC	0,26687	0,00194	0,15372	0,00186	0,01668	0,00051	0,08430	0,00134	0,00866	0,00270	0,03651	0,00027	0,38383	0,00230	-0,95244	0,00093	0,00550	0,00010
136	CROSIMB	0,30137	0,00278	-0,15558	0,00292	0,03435	0,00128	0,20554	0,00267	0,04912	0,00548	0,08689	0,00115	0,36759	0,00257	-0,12297	0,00033	0,00862	0,00029
137	SOGMIFR	0,20285	0,00179	0,43466	-0,00011	0,01056	0,00025	0,03422	0,00076	0,00331	0,00156	0,01203	0,00040	0,33674	0,00253	-0,11933	-0,00080	0,00761	0,00011
138	OBJVALE	0,23857	0,00169	-0,12745	0,00099	0,00711	-0,00004	0,01504	0,00009	0,00319	0,00112	-0,01186	-0,00172	0,37233	0,00298	-0,11407	0,00051	0,01522	0,00034
139	SPACTCO	0,32075	0,00183	0,07632	0,00352	0,01742	0,00051	0,03059	0,00035	0,00199	0,00147	-0,00070	-0,00047	0,56563	0,00307	2,38377	0,00759	0,02656	0,00110
140	TOCHLDP	0,32264	0,00195	0,39610	0,00358	0,01714	0,00050	0,06984	0,00084	0,00570	0,00237	0,01904	-0,00017	0,48084	0,00280	-0,23670	0,00448	0,01503	0,00057
141	AXAVEUC	0,21975	0,00187	-0,09665	0,00041	0,01040	0,00027	0,01875	0,00029	0,01228	0,00120	-0,00533	-0,00164	0,35390	0,00312	-0,11070	-0,00017	0,01776	0,00078
142	AXAVEUD	0,20522	0,00146	-0,08320	-0,00004	0,00102	-0,00015	-0,00294	-0,00024	-0,00267	0,00070	-0,02117	-0,00225	0,34391	0,00283	-0,10385	-0,00053	0,01183	0,00047
143	SYCMICP	0,30027	0,00288	1,05274	0,00289	0,03902	0,00137	0,19780	0,00286	0,01479	0,00531	0,10574	0,00230	0,37360	0,00270	-0,16217	0,00055	0,01200	0,00033
144	OBJACEU	0,23894	0,00181	-0,16847	0,00100	0,01061	0,00021	0,02555	0,00032	0,00586	0,00136	-0,00359	-0,00142	0,37121	0,00301	-0,13525	0,00047	0,01672	0,00059
145	FQCADEU	0,24152	0,00178	-0,10948	0,00108	0,00856	0,00018	0,02012	0,00027	0,00936	0,00123	-0,00616	-0,00227	0,39050	0,00296	-0,11840	0,00117	0,01533	0,00064
146	UNIHOCC	0,23206	0,00202	-0,12101	0,00079	0,01372	0,00038	0,00695	-0,00002	0,00147	0,00093	-0,01401	-0,00186	0,39659	0,00372	-0,10376	0,00140	0,02801	0,00126
147	UNIHOCD	0,22053	0,00173	-0,10987	0,00044	0,00717	0,00009	0,00014	-0,00019	0,00003	0,00078	-0,01925	-0,00203	0,38054	0,00331	-0,09838	0,00081	0,02042	0,00085
148	MMAMUS E	0,25200	0,00147	-0,18175	0,00140	0,00296	-0,00008	-0,02301	-0,00067	-0,00551	0,00024	-0,03749	-0,00250	0,44913	0,00335	-0,15439	0,00332	0,02551	0,00108
149	MDMIMM B	0,26430	0,00288	-0,20357	0,00178	0,03413	0,00140	0,19335	0,00305	0,10331	0,00520	0,09341	0,00168	0,31551	0,00235	-0,16059	-0,00158	0,00394	0,00014
150	OBJSMAR	0,35849	0,00217	0,05450	0,00468	0,02997	0,00091	0,13614	0,00169	0,00850	0,00389	0,06024	0,00045	0,50373	0,00248	0,13458	0,00532	0,01525	0,00057
151	EURPATR	0,31513	0,00249	-0,31441	0,00335	0,02916	0,00102	0,16437	0,00188	0,01754	0,00454	0,06211	0,00055	0,40896	0,00283	-0,14860	0,00185	0,01473	0,00061
152	MMATRA N	0,23613	0,00154	-0,07269	0,00092	0,00140	-0,00013	-0,01473	-0,00042	0,01157	0,00043	-0,02983	-0,00272	0,39403	0,00315	-0,11111	0,00130	0,01727	0,00074

153	AGFFONC	0,28507	0,00285	-0,77045	0,00242	0,03688	0,00140	0,22540	0,00322	0,03889	0,00594	0,10836	0,00186	0,33367	0,00213	-0,20535	-0,00091	0,00198	-0,00006
154	ALOPERI	0,25597	0,00176	0,14412	0,00153	0,01371	0,00031	0,04494	0,00078	0,00415	0,00180	0,01446	-0,00008	0,41556	0,00248	-0,35933	0,00209	0,01194	0,00026
155	MEESVAL	0,20966	0,00169	-0,23436	0,00010	0,00660	0,00012	0,00963	0,00007	0,00225	0,00099	-0,01017	-0,00222	0,37121	0,00303	-0,14137	0,00047	0,01567	0,00069
156	CICEUOP	0,23485	0,00148	0,07574	0,00088	0,00673	0,00013	0,01375	0,00005	0,00107	0,00109	-0,00952	-0,00080	0,41534	0,00263	-1,17453	0,00208	0,01351	0,00052
157	VICAMRC	0,20916	0,00109	-0,11766	0,00009	-0,00720	-0,00062	-0,06169	-0,00165	-0,01236	-0,00064	-0,06717	-0,00377	0,40378	0,00358	-0,11411	0,00166	0,02640	0,00104
158	EURVALD	0,26009	0,00197	-0,26459	0,00165	0,01443	0,00043	0,03551	0,00063	0,01660	0,00159	0,00556	-0,00112	0,42666	0,00300	-0,21566	0,00250	0,01821	0,00075
159	ODEVEPP	0,24044	0,00219	0,03832	0,00105	0,02776	0,00108	0,09810	0,00235	0,00606	0,00302	0,07257	0,00234	0,35646	0,00185	0,13153	-0,00007	0,00095	0,00007
160	AMRGNSV	0,20365	0,00083	-0,08241	-0,00008	-0,01435	-0,00085	-0,08153	-0,00215	-0,02454	-0,00110	-0,08115	-0,00394	0,42531	0,00355	-0,10375	0,00245	0,02508	0,00110
161	INVEMER	0,25071	0,00332	0,15038	0,00136	0,04807	0,00204	0,09716	0,00243	0,01224	0,00300	0,06353	0,00117	0,36429	0,00405	-1,22289	0,00021	0,04072	0,00213
162	ETOINUS	0,21412	0,00112	-0,09135	0,00024	-0,00731	-0,00050	-0,05451	-0,00146	-0,01439	-0,00048	-0,06083	-0,00400	0,41477	0,00344	-0,10339	0,00206	0,02329	0,00109
163	ATOUTEM	0,25292	0,00334	0,24641	0,00143	0,04760	0,00204	0,09901	0,00244	0,01889	0,00304	0,06152	0,00180	0,36444	0,00405	-1,22605	0,00022	0,04088	0,00214
164	EURVALC	0,27106	0,00226	-0,23925	0,00199	0,02119	0,00072	0,04953	0,00094	0,02286	0,00191	0,01549	-0,00078	0,43457	0,00326	-0,20061	0,00279	0,02322	0,00101
165	BALWLDI	0,27060	0,00227	-0,19043	0,00198	0,02153	0,00075	0,06427	0,00095	0,01761	0,00225	0,01901	-0,00092	0,39548	0,00332	-0,15905	0,00136	0,02271	0,00107
166	UCRMAIT	0,23559	0,00134	0,05976	0,00090	0,00451	-0,00016	0,00124	-0,00026	0,00008	0,00080	-0,02328	-0,00054	0,39372	0,00263	0,55546	0,00129	0,01620	0,00029
167	UCAPCRO	0,23747	0,00134	0,06115	0,00096	0,00442	-0,00016	0,00037	-0,00027	0,00003	0,00078	-0,02388	-0,00081	0,39568	0,00264	0,44774	0,00136	0,01646	0,00031
168	ROLP	0,18936	0,00106	0,15242	-0,00052	-0,00578	-0,00030	-0,02714	-0,00083	-0,00597	0,00015	-0,04065	-0,00264	0,32743	0,00273	1,06650	-0,00114	0,01359	0,00081
169	AXASMAC	0,29565	0,00235	0,17555	0,00275	0,02748	0,00093	0,09512	0,00158	0,00948	0,00295	0,04477	0,00059	0,42834	0,00283	-0,63575	0,00256	0,01746	0,00071
170	AXASECM	0,28257	0,00201	0,18809	0,00234	0,01896	0,00060	0,07878	0,00127	0,00821	0,00258	0,03279	0,00026	0,41703	0,00247	-0,53146	0,00215	0,01026	0,00036
171	AAADSVI	0,34596	0,00209	-0,18045	0,00429	0,01850	0,00057	0,01649	0,00005	0,00200	0,00115	-0,01520	-0,00140	0,55340	0,00383	-0,12939	0,00714	0,03463	0,00158
172	AAACSVI	0,36558	0,00242	-0,19630	0,00490	0,02742	0,00090	0,03605	0,00034	0,00458	0,00160	-0,00361	-0,00116	0,57353	0,00419	-0,13899	0,00788	0,04281	0,00195
173	AGFFIDA	0,27775	0,00204	-1,02566	0,00219	0,01924	0,00047	0,05016	0,00080	0,00918	0,00187	0,01279	-0,00082	0,44134	0,00297	-0,22884	0,00304	0,02143	0,00064
174	UCROPME	0,23736	0,00134	0,06108	0,00095	0,00456	-0,00015	0,00088	-0,00026	0,00006	0,00079	-0,02343	-0,00080	0,39488	0,00264	0,43602	0,00133	0,01646	0,00031
175	CARFNOM	0,28803	0,00156	0,06902	0,00251	0,01002	0,00026	0,00338	-0,00020	0,00025	0,00085	-0,02121	-0,00135	0,52517	0,00302	0,67105	0,00611	0,02554	0,00109
176	BNPAADN	0,20689	0,00119	-0,09561	0,00002	-0,00538	-0,00037	-0,04526	-0,00132	-0,01466	-0,00027	-0,05384	-0,00379	0,40444	0,00350	-0,10978	0,00168	0,02445	0,00125
177	EUROPME	0,25681	0,00229	0,39978	0,00155	0,02443	0,00089	0,10506	0,00195	0,01681	0,00318	0,05354	0,00076	0,35419	0,00235	-0,40107	-0,00016	0,00793	0,00027
178	HSBMIDD	0,25615	0,00247	-1,30400	0,00153	0,02734	0,00102	0,11336	0,00192	0,01610	0,00337	0,05580	0,00085	0,34343	0,00274	-0,19076	-0,00055	0,01281	0,00053

179	HSBMIDC	0,25967	0,00255	-1,27882	0,00164	0,02928	0,00110	0,12032	0,00202	0,01734	0,00353	0,05966	0,00096	0,34506	0,00280	-0,19525	-0,00049	0,01400	0,00059
180	FIDEURO	0,24585	0,00233	-0,17694	0,00121	0,02175	0,00077	0,05295	0,00109	0,01794	0,00199	0,02020	-0,00081	0,38246	0,00329	-0,14546	0,00088	0,02197	0,00098
181	BMMCAPD	0,45725	0,00288	0,22574	0,00772	0,04701	0,00154	0,26085	0,00278	0,03515	0,00675	0,09846	0,00142	0,58270	0,00264	1,43453	0,00822	0,01754	0,00069
182	RENSEUR	0,35123	0,00237	-0,15213	0,00446	0,02559	0,00088	0,00310	-0,00010	0,00184	0,00084	-0,02015	-0,00197	0,60411	0,00446	-0,17718	0,00900	0,05065	0,00235
183	STHOVIE	0,31854	0,00194	-0,12096	0,00345	0,01355	0,00038	-0,02067	-0,00050	34,86670	0,00030	-0,03422	-0,00210	0,55227	0,00407	-0,17234	0,00710	0,04084	0,00184
184	VENSEEU	0,27087	0,00218	-0,37135	0,00198	0,02146	0,00070	0,04845	0,00071	0,00730	0,00188	0,01036	-0,00079	0,40589	0,00333	-0,16604	0,00174	0,02590	0,00114
185	EURPMDC	0,26167	0,00222	-0,44133	0,00170	0,02198	0,00073	0,06162	0,00106	0,00884	0,00218	0,02280	-0,00016	0,38802	0,00302	-0,15353	0,00108	0,01924	0,00078
186	CAREMER	0,29800	0,00350	0,18988	0,00282	0,05565	0,00226	0,13639	0,00298	0,02205	0,00390	0,08530	0,00146	0,41820	0,00388	12,67982	0,00219	0,04017	0,00204
187	BALUSAI	0,26193	0,00202	-0,12030	0,00171	0,01448	0,00048	0,01951	0,00017	0,00705	0,00122	-0,00888	-0,00182	0,41322	0,00361	-0,12881	0,00201	0,02675	0,00133
188	CDCMEDI	0,27230	0,00211	0,10707	0,00203	0,02298	0,00078	0,07880	0,00122	0,00515	0,00258	0,03659	0,00044	0,39538	0,00276	-0,51672	0,00135	0,01607	0,00068
189	CAIVESL	0,27632	0,00221	0,22633	0,00215	0,02374	0,00082	0,05387	0,00087	0,00499	0,00201	0,01815	-0,00060	0,42641	0,00326	-0,28633	0,00249	0,02555	0,00117
190	ODDGEND	0,24991	0,00209	-0,39501	0,00134	0,01804	0,00051	0,03260	0,00047	0,00437	0,00152	0,00219	-0,00091	0,38834	0,00341	-0,14701	0,00109	0,02499	0,00101
191	ROTHMAR	0,23257	0,00159	-0,12951	0,00081	0,00470	-0,00007	-0,00717	-0,00032	-0,00172	0,00061	-0,02712	-0,00217	0,37027	0,00327	-0,12821	0,00043	0,02059	0,00079
192	ROTHAMR	0,23815	0,00172	-0,13392	0,00098	0,00764	0,00006	0,00186	-0,00015	0,00045	0,00081	-0,02136	-0,00198	0,37325	0,00336	-0,13168	0,00054	0,02225	0,00088
193	ATOUTCR	0,26157	0,00190	1,55561	0,00170	0,01553	0,00045	0,07401	0,00122	0,00855	0,00247	0,03025	0,00050	0,38120	0,00229	-0,18776	0,00083	0,00628	0,00008
194	ODDGENC	0,25213	0,00217	-0,35928	0,00141	0,01987	0,00059	0,03496	0,00051	0,00449	0,00157	0,00378	-0,00092	0,38930	0,00352	-0,14072	0,00113	0,02700	0,00112
195	QUANUSD	0,23330	0,00196	-0,14816	0,00083	0,01302	0,00048	0,01844	0,00022	0,00433	0,00119	-0,00641	-0,00271	0,38097	0,00348	-0,12461	0,00082	0,02427	0,00133
196	MDMOPPI	0,22338	0,00179	-0,15656	0,00052	0,00961	0,00021	0,02259	0,00034	0,01041	0,00129	-0,00380	-0,00158	0,35102	0,00290	-0,15310	-0,00027	0,01523	0,00058
197	MDMPERS	0,23202	0,00177	0,14325	0,00079	0,01144	0,00038	0,03219	0,00050	0,00300	0,00151	0,00385	-0,00038	0,36699	0,00278	-0,38549	0,00031	0,01443	0,00070
198	ECHAPEA	0,30643	0,00269	0,33247	0,00308	0,03535	0,00123	0,12819	0,00187	0,01260	0,00371	0,05895	0,00054	0,41566	0,00325	-0,35491	0,00209	0,02429	0,00104
199	ECHAGRE	0,32022	0,00274	0,48903	0,00350	0,03653	0,00127	0,14810	0,00181	0,01567	0,00417	0,05790	0,00030	0,42346	0,00339	-0,40946	0,00238	0,02727	0,00120
200	ODDAVED	0,35776	0,00320	0,57598	0,00466	0,04960	0,00184	0,13669	0,00216	0,01304	0,00391	0,07030	0,00070	0,50773	0,00399	-0,24580	0,00547	0,03995	0,00194
201	ODDAVEC	0,36171	0,00328	0,66127	0,00478	0,05160	0,00192	0,14212	0,00223	0,01368	0,00403	0,07320	0,00077	0,50971	0,00407	-0,24294	0,00554	0,04169	0,00202
202	AXAESCC	0,28395	0,00265	0,37433	0,00239	0,03382	0,00124	0,10821	0,00200	0,01492	0,00325	0,05673	0,00073	0,40051	0,00299	-0,37001	0,00154	0,02044	0,00089
203	ODEUMIC	0,33559	0,00313	0,39871	0,00398	0,04722	0,00180	0,12934	0,00210	0,01139	0,00374	0,06868	0,00078	0,47279	0,00390	-0,24166	0,00419	0,03729	0,00188
204	AXAESCD	0,27569	0,00242	0,43030	0,00213	0,02828	0,00102	0,10582	0,00196	0,01496	0,00320	0,05483	0,00069	0,38851	0,00259	-0,32703	0,00110	0,01262	0,00049

TABLE 3. GERMAN MUTUAL FUNDS PERFORMANCE MEASURES

		OVERALL PERIOD						SUBPERIOD ONE						SUBPERIOD TWO					
#	NAME	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ
1	4N43	0,27635	0,00135	0,01877	0,00310	0,01420	0,00047	0,05049	0,00084	0,00362	0,00229	0,01368	0,00121	0,44414	0,00144	0,03041	0,00362	0,01469	0,00050
2	ADIF	0,19047	-0,00054	0,00732	0,00016	-0,04739	-0,00071	-0,00787	-0,00091	-0,00027	0,00054	-0,06412	-0,00038	0,36418	-0,00021	0,01518	0,00061	-0,03064	-0,00047
3	ADIGCON	0,21483	-0,00083	0,00929	0,00100	-0,07121	-0,00143	-0,06308	-0,00189	-0,00245	-0,00115	-0,11570	-0,00204	0,42566	-0,00004	0,02019	0,00293	-0,03809	-0,00074
4	ADIGEPV	0,18680	-0,00096	0,00793	0,00004	-0,06980	-0,00136	0,00798	-0,00034	0,00026	0,00098	-0,03263	-0,00026	0,31239	-0,00182	0,01460	-0,00135	-0,09952	-0,00223
5	ADIVERF	0,15847	-0,00123	0,00698	-0,00093	-0,06825	-0,00149	-0,00197	-0,00058	-0,00011	0,00069	-0,04403	-0,00048	0,25849	-0,00215	0,01247	-0,00338	-0,08789	-0,00232
6	AKTROHS	0,21746	0,00167	0,01224	0,00109	0,03285	0,00125	0,09715	0,00211	0,00712	0,00366	0,05554	0,00241	0,29670	0,00080	0,01586	-0,00194	0,01234	0,00063
7	ALLAKEU	0,21206	-0,00046	0,00877	0,00090	-0,04701	-0,00085	0,00306	-0,00041	0,00007	0,00083	-0,03807	-0,00070	0,34675	-0,00085	0,01538	-0,00005	-0,05727	-0,00113
8	ALLZAKT	0,24694	-0,00022	0,01102	0,00210	-0,04354	-0,00087	-0,01334	-0,00069	-0,00060	0,00034	-0,04962	-0,00082	0,42375	-0,00013	0,02029	0,00285	-0,04158	-0,00083
9	ALTLEIP	0,19949	-0,00032	0,00771	0,00047	-0,03470	-0,00053	0,00592	-0,00045	0,00017	0,00092	-0,04083	0,00011	0,34020	-0,00029	0,01432	-0,00030	-0,02609	-0,00048
10	BHWEURF	0,18299	-0,00094	0,00734	-0,00009	-0,07177	-0,00133	-0,00824	-0,00071	-0,00033	0,00050	-0,05664	-0,00061	0,30592	-0,00142	0,01323	-0,00159	-0,08511	-0,00179
11	BINEURF	0,18814	-0,00084	0,00779	0,00008	-0,06445	-0,00124	0,00193	-0,00046	0,00005	0,00080	-0,03122	0,00038	0,33824	-0,00153	0,01397	-0,00037	-0,11853	-0,00192
12	BWKASDT	0,19400	-0,00046	0,00722	0,00028	-0,04742	-0,00049	0,00571	-0,00050	0,00017	0,00092	-0,04034	0,00012	0,34343	-0,00049	0,01367	-0,00018	-0,05413	-0,00048
13	CXWB	0,19154	-0,00085	0,00830	0,00020	-0,06793	-0,00127	0,00797	-0,00034	0,00026	0,00098	-0,03267	-0,00027	0,32461	-0,00157	0,01570	-0,00089	-0,09510	-0,00206
14	CXWC	0,21177	-0,00068	0,00912	0,00089	-0,06264	-0,00117	-0,04133	-0,00142	-0,00171	-0,00050	-0,08484	-0,00146	0,39800	-0,00024	0,01824	0,00188	-0,04399	-0,00072
15	CXWE	0,20845	-0,00085	0,00871	0,00078	-0,07651	-0,00133	-0,06297	-0,00189	-0,00245	-0,00115	-0,11578	-0,00204	0,40747	-0,00010	0,01834	0,00224	-0,04380	-0,00058
16	CXWP	0,19249	-0,00063	0,00749	0,00023	-0,05583	-0,00084	-0,00098	-0,00067	-0,00006	0,00072	-0,05124	-0,00013	0,35175	-0,00070	0,01491	0,00014	-0,05975	-0,00096
17	D6R6	0,25647	-0,00012	0,01134	0,00242	-0,04186	-0,00079	-0,01942	-0,00085	-0,00089	0,00016	-0,05403	-0,00115	0,47435	0,00026	0,02168	0,00476	-0,03184	-0,00047
18	DBIMERF	0,19458	-0,00052	0,00760	0,00030	-0,04198	-0,00065	0,00059	-0,00056	-0,00001	0,00076	-0,04725	-0,00050	0,32583	-0,00066	0,01374	-0,00084	-0,03610	-0,00065
19	DED2	0,20347	0,00171	0,01074	0,00061	0,04281	0,00161	0,13511	0,00356	0,01003	0,00480	0,09807	0,00523	0,25322	-0,00063	0,01246	-0,00358	-0,01318	-0,00032
20	DED3	0,20559	0,00191	0,01130	0,00068	0,04514	0,00164	0,14044	0,00370	0,01039	0,00496	0,10266	0,00535	0,25363	-0,00035	0,01314	-0,00357	-0,00859	-0,00036
21	DED4	0,22429	-0,00042	0,00899	0,00132	-0,05259	-0,00084	0,00478	-0,00038	0,00014	0,00088	-0,03575	-0,00046	0,37246	-0,00080	0,01578	0,00092	-0,07357	-0,00117
22	DED6	0,22716	-0,00041	0,00919	0,00142	-0,05119	-0,00084	0,00533	-0,00037	0,00016	0,00090	-0,03497	-0,00047	0,37964	-0,00078	0,01627	0,00119	-0,07058	-0,00117

23	DED7	0,22069	0,00049	0,01183	0,00120	-0,00606	-0,00015	0,02228	0,00015	0,00116	0,00141	-0,00695	0,00054	0,36915	0,00052	0,02028	0,00079	-0,00504	-0,00016
24	DEKBAVF	0,26314	-0,00010	0,01181	0,00265	-0,04024	-0,00082	-0,02027	-0,00085	-0,00089	0,00013	-0,05614	-0,00117	0,48083	0,00031	0,02302	0,00501	-0,02827	-0,00051
25	DEKEURS	0,23086	-0,00028	0,00963	0,00155	-0,04202	-0,00082	-0,02295	-0,00099	-0,00092	0,00005	-0,06774	-0,00142	0,41022	0,00012	0,01841	0,00234	-0,02150	-0,00044
26	DEKSPEZ	0,23714	-0,00029	0,01039	0,00176	-0,04555	-0,00090	-0,03828	-0,00126	-0,00162	-0,00041	-0,07654	-0,00114	0,43631	0,00034	0,02031	0,00333	-0,01966	-0,00030
27	DI7S	0,20293	-0,00049	0,00815	0,00059	-0,04792	-0,00076	0,02207	-0,00001	0,00080	0,00140	-0,01556	0,00013	0,31819	-0,00126	0,01346	-0,00113	-0,08129	-0,00136
28	DI7Y	0,18994	-0,00073	0,00745	0,00015	-0,05749	-0,00096	0,00963	-0,00032	0,00031	0,00103	-0,03222	0,00001	0,31195	-0,00138	0,01314	-0,00136	-0,08126	-0,00151
29	DITEURA	0,19249	-0,00066	0,00771	0,00023	-0,05313	-0,00089	0,00890	-0,00033	0,00029	0,00101	-0,03326	-0,00001	0,31726	-0,00122	0,01379	-0,00116	-0,07114	-0,00138
30	DITVERE	0,20697	-0,00044	0,00854	0,00073	-0,04450	-0,00078	0,02103	-0,00003	0,00076	0,00137	-0,01684	0,00011	0,32634	-0,00116	0,01435	-0,00082	-0,07077	-0,00138
31	DITVERM	0,22678	-0,00023	0,01032	0,00141	-0,03889	-0,00079	-0,01051	-0,00070	-0,00049	0,00043	-0,04716	-0,00052	0,39865	-0,00006	0,01935	0,00191	-0,03255	-0,00065
32	DJF5	0,21142	-0,00048	0,00866	0,00088	-0,04858	-0,00080	0,00354	-0,00040	0,00009	0,00085	-0,03758	-0,00048	0,34368	-0,00089	0,01502	-0,00017	-0,06068	-0,00107
33	DJFG	0,24096	-0,00026	0,01059	0,00189	-0,04508	-0,00083	-0,01090	-0,00064	-0,00050	0,00041	-0,04693	-0,00067	0,40881	-0,00024	0,01906	0,00229	-0,04467	-0,00078
34	DJFH	0,21106	0,00020	0,00793	0,00087	-0,00347	0,00009	0,02282	0,00000	0,00077	0,00143	-0,00966	0,00058	0,34823	0,00027	0,01398	0,00000	0,00508	0,00023
35	DJFP	0,22421	-0,00025	0,01006	0,00132	-0,04026	-0,00070	-0,01071	-0,00069	-0,00050	0,00042	-0,04708	-0,00048	0,38952	-0,00013	0,01850	0,00156	-0,03492	-0,00051
36	DJL1	0,13385	0,00232	0,01793	-0,00177	0,02543	0,00167	0,08008	0,00421	0,01553	0,00316	0,06302	0,00495	0,18600	0,00092	0,02272	-0,00612	0,00703	0,00036
37	DJL5	0,11870	0,00159	0,01231	-0,00229	0,01583	0,00128	0,08815	0,00513	0,01672	0,00340	0,07288	0,00621	0,15500	-0,00137	0,01358	-0,00729	-0,02329	-0,00142
38	DJL6	0,21240	0,00144	0,01127	0,00091	0,02843	0,00112	0,14755	0,00366	0,01044	0,00517	0,10570	0,00497	0,26160	-0,00123	0,01303	-0,00327	-0,05277	-0,00133
39	DKD	0,21771	-0,00041	0,01113	0,00110	-0,04846	-0,00102	-0,06168	-0,00184	-0,00304	-0,00111	-0,09089	-0,00186	0,42967	0,00065	0,02317	0,00308	-0,01474	0,00003
40	DPEUAKT	0,26141	-0,00017	0,01126	0,00259	-0,04398	-0,00078	-0,00940	-0,00069	-0,00039	0,00046	-0,05345	-0,00117	0,48791	0,00004	0,02333	0,00528	-0,04049	-0,00068
41	DVGEMM K	0,22582	0,00104	0,01129	0,00137	0,02174	0,00068	0,08285	0,00187	0,00422	0,00323	0,05876	0,00298	0,33327	-0,00010	0,01695	-0,00056	-0,01377	-0,00038
42	DWSEATO	0,20598	-0,00028	0,00838	0,00069	-0,02980	-0,00054	0,02732	0,00012	0,00099	0,00156	-0,00669	0,00001	0,32485	-0,00097	0,01414	-0,00088	-0,05223	-0,00110
43	DWW9	0,22544	0,00107	0,01149	0,00136	0,02086	0,00073	0,08124	0,00182	0,00418	0,00318	0,05635	0,00308	0,33279	-0,00003	0,01731	-0,00058	-0,01353	-0,00027
44	DWWB	0,21145	-0,00019	0,00888	0,00088	-0,02768	-0,00059	0,02625	0,00009	0,00093	0,00153	-0,00741	0,00029	0,34090	-0,00075	0,01578	-0,00027	-0,04551	-0,00117
45	EZTD	0,23162	-0,00054	0,01004	0,00157	-0,05835	-0,00114	-0,02906	-0,00104	-0,00117	-0,00013	-0,07030	-0,00104	0,41450	-0,00035	0,01957	0,00251	-0,04977	-0,00100
46	FGQF	0,20691	-0,00037	0,00835	0,00073	-0,03912	-0,00074	0,00258	-0,00051	0,00006	0,00082	-0,04362	-0,00040	0,35545	-0,00037	0,01576	0,00028	-0,03369	-0,00079
47	FGUD	0,20816	-0,00012	0,00845	0,00077	-0,02951	-0,00043	0,00267	-0,00052	0,00007	0,00083	-0,04021	-0,00023	0,37353	0,00013	0,01650	0,00096	-0,02080	-0,00023
48	FK8T	0,22302	-0,00031	0,00911	0,00128	-0,04450	-0,00076	-0,02195	-0,00099	-0,00091	0,00008	-0,06460	-0,00140	0,39852	0,00005	0,01703	0,00190	-0,02564	-0,00036

49	FKTF	0,26152	0,00143	0,01422	0,00259	0,02839	0,00083	0,09945	0,00192	0,00552	0,00372	0,05877	0,00224	0,37867	0,00067	0,02101	0,00115	0,00522	0,00012
50	FNDS	0,21887	-0,00062	0,00967	0,00114	-0,05937	-0,00119	-0,04149	-0,00141	-0,00171	-0,00050	-0,08486	-0,00145	0,41724	-0,00011	0,01988	0,00261	-0,03951	-0,00075
51	FRTINSP	0,23241	-0,00056	0,00992	0,00160	-0,05901	-0,00114	-0,02930	-0,00105	-0,00116	-0,00014	-0,07177	-0,00109	0,41446	-0,00038	0,01930	0,00250	-0,04974	-0,00100
52	G4MF	0,33610	0,00044	0,01736	0,00514	-0,02376	-0,00057	-0,06694	-0,00164	-0,00318	-0,00127	-0,08761	-0,00219	0,71330	0,00213	0,03928	0,01378	0,02495	0,00090
53	GENEUUN	0,28668	0,00018	0,01172	0,00345	-0,02873	-0,00046	0,01962	-0,00006	0,00072	0,00133	-0,01929	-0,00050	0,50117	0,00008	0,02157	0,00578	-0,04107	-0,00066
54	HANSASC	0,23398	0,00057	0,01027	0,00165	0,00604	0,00021	0,07708	0,00118	0,00326	0,00305	0,04007	0,00133	0,33397	-0,00042	0,01523	-0,00053	-0,02816	-0,00063
55	HANSEUI	0,20434	-0,00069	0,00873	0,00064	-0,05887	-0,00119	0,00011	-0,00046	-0,00004	0,00074	-0,04019	0,00011	0,33816	-0,00123	0,01557	-0,00038	-0,07628	-0,00174
56	HG4H	0,22134	0,00174	0,01251	0,00122	0,03272	0,00122	0,09818	0,00212	0,00726	0,00369	0,05559	0,00235	0,30189	0,00089	0,01619	-0,00174	0,01070	0,00055
57	HJ3E	0,23305	0,00061	0,00966	0,00162	0,00724	0,00033	0,08084	0,00124	0,00343	0,00316	0,04253	0,00153	0,32933	-0,00041	0,01387	-0,00071	-0,03803	-0,00047
58	HJ3F	0,20382	-0,00065	0,00832	0,00062	-0,06357	-0,00107	0,00334	-0,00039	0,00009	0,00084	-0,03680	0,00035	0,33228	-0,00124	0,01434	-0,00060	-0,09188	-0,00159
59	HJUB	0,26126	-0,00001	0,01371	0,00259	-0,03760	-0,00094	-0,05433	-0,00173	-0,00258	-0,00089	-0,08713	-0,00191	0,57777	0,00154	0,03261	0,00867	0,00533	0,00033
60	HJVC	0,18674	-0,00056	0,00697	0,00004	-0,05474	-0,00064	-0,00710	-0,00092	-0,00027	0,00054	-0,06345	-0,00038	0,35348	-0,00025	0,01405	0,00020	-0,04310	-0,00036
61	HJVE	0,15460	-0,00123	0,00676	-0,00106	-0,06897	-0,00144	-0,00196	-0,00058	-0,00011	0,00069	-0,04402	-0,00048	0,25057	-0,00214	0,01193	-0,00368	-0,08913	-0,00224
62	HV8R	0,22051	-0,00021	0,00899	0,00119	-0,03586	-0,00057	-0,00048	-0,00049	-0,00006	0,00073	-0,03958	-0,00047	0,36911	-0,00027	0,01573	0,00079	-0,03445	-0,00052
63	HV8S	0,22404	-0,00015	0,00910	0,00131	-0,03113	-0,00055	0,00168	-0,00044	0,00003	0,00079	-0,03698	-0,00046	0,37234	-0,00023	0,01576	0,00091	-0,02829	-0,00052
64	HYPTWEL	0,23793	-0,00022	0,01040	0,00179	-0,04162	-0,00082	-0,02919	-0,00106	-0,00123	-0,00014	-0,06764	-0,00129	0,42531	0,00027	0,01984	0,00291	-0,02093	-0,00036
65	IUGM	0,07588	0,00102	0,01295	-0,00376	0,00455	0,00049	0,02637	0,00179	0,00397	0,00156	0,01786	0,00404	0,11685	0,00006	0,02179	-0,00873	-0,00595	-0,00069
66	IUGN	0,07990	0,00088	0,01004	-0,00362	0,00613	0,00080	0,04078	0,00295	0,00836	0,00199	0,03112	0,00548	0,11119	-0,00156	0,01205	-0,00894	-0,01462	-0,00133
67	IUVD	0,08135	0,00106	0,01020	-0,00357	0,00818	0,00096	0,04197	0,00261	0,00496	0,00202	0,03238	0,00458	0,11207	-0,00049	0,01483	-0,00891	-0,00530	-0,00043
68	IWMI	0,20113	-0,00014	0,00766	0,00053	-0,02638	-0,00022	0,01343	-0,00024	0,00045	0,00115	-0,02515	0,00028	0,33823	-0,00016	0,01376	-0,00037	-0,02520	-0,00014
69	IWT5	0,18685	0,00093	0,01081	0,00004	0,01277	0,00058	0,15686	0,00394	0,01336	0,00545	0,10730	0,00512	0,21508	-0,00259	0,01149	-0,00502	-0,07613	-0,00269
70	IWTC	0,20660	0,00129	0,01205	0,00072	0,02178	0,00094	0,15983	0,00403	0,01361	0,00554	0,10982	0,00522	0,24457	-0,00195	0,01311	-0,00391	-0,06695	-0,00207
71	J7N4	0,24485	-0,00039	0,01135	0,00202	-0,05581	-0,00105	-0,05811	-0,00154	-0,00259	-0,00101	-0,08713	-0,00151	0,46681	0,00041	0,02296	0,00448	-0,02964	-0,00026
72	LH4A	0,20607	-0,00022	0,00794	0,00070	-0,03579	-0,00053	0,00588	-0,00046	0,00017	0,00092	-0,04084	0,00013	0,35886	-0,00006	0,01506	0,00041	-0,02782	-0,00046
73	LIGAPAU	0,22139	-0,00053	0,00839	0,00122	-0,06511	-0,00097	-0,00830	-0,00070	-0,00034	0,00049	-0,05613	-0,00090	0,38275	-0,00065	0,01532	0,00131	-0,08088	-0,00110
74	M3AG	0,19059	-0,00021	0,00710	0,00017	-0,02677	-0,00027	0,01518	-0,00021	0,00050	0,00120	-0,02050	0,00018	0,32181	-0,00027	0,01272	-0,00099	-0,03003	-0,00027

75	MATAPAC	0,26420	0,00149	0,01430	0,00269	0,02888	0,00088	0,09974	0,00192	0,00541	0,00373	0,05952	0,00214	0,38307	0,00079	0,02129	0,00132	0,00494	0,00019
76	MIAKPRE	0,21330	-0,00072	0,00782	0,00094	-0,08541	-0,00107	-0,02829	-0,00118	-0,00096	-0,00011	-0,10611	-0,00136	0,38113	-0,00050	0,01522	0,00125	-0,06778	-0,00084
77	MONGRMY	0,19256	-0,00023	0,00738	0,00024	-0,02297	-0,00038	0,01513	-0,00022	0,00050	0,00120	-0,02133	0,00014	0,32725	-0,00028	0,01360	-0,00079	-0,02050	-0,00044
78	NORINRK	0,20259	-0,00018	0,00789	0,00058	-0,02368	-0,00035	0,01348	-0,00025	0,00044	0,00115	-0,02569	0,00027	0,34131	-0,00022	0,01441	-0,00026	-0,01904	-0,00035
79	NORISFD	0,20821	-0,00049	0,00830	0,00077	-0,05072	-0,00082	-0,01268	-0,00091	-0,00050	0,00037	-0,06208	-0,00037	0,38594	-0,00026	0,01641	0,00143	-0,03981	-0,00062
80	NURNADA	0,19394	-0,00061	0,00765	0,00028	-0,05261	-0,00087	-0,00098	-0,00067	-0,00006	0,00072	-0,05127	-0,00013	0,35491	-0,00067	0,01537	0,00026	-0,05389	-0,00100
81	OD5B	0,19166	-0,00072	0,00843	0,00020	-0,05756	-0,00124	0,00195	-0,00046	0,00005	0,00081	-0,03159	0,00037	0,34649	-0,00126	0,01570	-0,00006	-0,08725	-0,00189
82	OPJ3	0,34601	0,00119	0,01649	0,00548	0,01015	0,00045	0,04199	0,00039	0,00176	0,00199	0,00118	0,00005	0,59289	0,00162	0,03052	0,00924	0,01567	0,00079
83	OPPFGLB	0,43617	0,00150	0,02415	0,00857	0,01149	0,00048	0,01374	-0,00011	0,00065	0,00114	-0,02271	-0,00083	0,75765	0,00264	0,04372	0,01546	0,03783	0,00148
84	OXMC	0,41737	0,00147	0,02340	0,00792	0,01076	0,00049	0,01368	-0,00011	0,00066	0,00114	-0,02260	-0,00081	0,71057	0,00256	0,04160	0,01368	0,03651	0,00149
85	PBAE	0,21912	-0,00016	0,00918	0,00114	-0,03499	-0,00055	0,00871	-0,00025	0,00033	0,00100	-0,02746	-0,00045	0,34487	-0,00047	0,01469	-0,00012	-0,04654	-0,00066
86	RIXD	0,20835	0,00006	0,00926	0,00078	-0,01558	-0,00015	0,04065	0,00055	0,00167	0,00196	0,01340	0,00092	0,32871	-0,00072	0,01547	-0,00073	-0,04331	-0,00079
87	RK1W	0,27624	0,00066	0,01892	0,00310	-0,01335	-0,00034	0,02225	0,00018	0,00155	0,00141	-0,00942	-0,00024	0,49260	0,00070	0,03336	0,00545	-0,01773	-0,00043
88	RK1X	0,21083	-0,00039	0,01039	0,00086	-0,04692	-0,00097	-0,05094	-0,00173	-0,00251	-0,00078	-0,08349	-0,00150	0,42215	0,00061	0,02147	0,00279	-0,01531	0,00000
89	SGRWSAV	0,21128	-0,00010	0,00879	0,00088	-0,02624	-0,00047	0,00270	-0,00053	0,00007	0,00083	-0,04158	-0,00006	0,37992	0,00018	0,01762	0,00120	-0,01574	-0,00030
90	SMHINTL	0,26469	-0,00005	0,01147	0,00270	-0,03557	-0,00071	-0,02838	-0,00102	-0,00126	-0,00011	-0,06329	-0,00094	0,48962	0,00053	0,02198	0,00534	-0,01139	-0,00017
91	SMHSPZ1	0,19900	-0,00023	0,00724	0,00046	-0,02860	-0,00029	0,02053	-0,00006	0,00068	0,00136	-0,01249	0,00056	0,33371	-0,00049	0,01284	-0,00054	-0,05831	-0,00046
92	SRVL	0,09436	0,00195	0,01203	-0,00312	0,01794	0,00176	0,03865	0,00333	0,00665	0,00192	0,03107	0,00533	0,15539	0,00036	0,01701	-0,00727	0,00275	0,00030
93	SRVM	0,09476	0,00191	0,01238	-0,00311	0,01815	0,00175	0,03898	0,00339	0,00680	0,00193	0,03142	0,00543	0,15692	0,00021	0,01759	-0,00722	0,00260	0,00022
94	SRVN	0,09608	0,00203	0,01261	-0,00306	0,01944	0,00187	0,03925	0,00340	0,00684	0,00194	0,03167	0,00542	0,15769	0,00037	0,01794	-0,00719	0,00419	0,00037
95	THESAUR	0,21368	0,00019	0,00818	0,00096	-0,00002	0,00001	0,02468	0,00005	0,00083	0,00149	-0,00572	0,00058	0,35539	0,00023	0,01471	0,00027	0,00797	0,00006
96	U1IE	0,21637	-0,00047	0,00865	0,00105	-0,05164	-0,00104	-0,00261	-0,00056	-0,00014	0,00066	-0,04470	-0,00061	0,36680	-0,00068	0,01549	0,00071	-0,06108	-0,00132
97	U1II	0,24745	0,00035	0,01238	0,00211	-0,02038	-0,00031	-0,01525	-0,00077	-0,00084	0,00029	-0,04472	-0,00049	0,45962	0,00108	0,02315	0,00421	0,00060	0,00038
98	UI3L	0,23812	-0,00020	0,01008	0,00179	-0,03827	-0,00074	-0,03806	-0,00140	-0,00160	-0,00040	-0,08081	-0,00097	0,46188	0,00071	0,02031	0,00429	0,00296	0,00011
99	UIB5	0,20545	-0,00007	0,00788	0,00068	-0,02186	-0,00027	0,02129	-0,00003	0,00071	0,00139	-0,00973	0,00053	0,35534	-0,00014	0,01473	0,00027	-0,02916	-0,00040
100	UIV1	0,20941	-0,00039	0,00838	0,00081	-0,04166	-0,00070	0,03934	0,00034	0,00145	0,00192	0,00292	0,00013	0,31640	-0,00143	0,01331	-0,00120	-0,09043	-0,00160

101	UIV2	0,20659	-0,00037	0,00819	0,00072	-0,04130	-0,00064	0,04055	0,00037	0,00151	0,00196	0,00453	0,00015	0,31088	-0,00142	0,01286	-0,00141	-0,09505	-0,00151
102	UNACATI	0,28317	0,00079	0,01256	0,00333	0,00059	0,00007	0,03653	0,00036	0,00149	0,00184	0,00272	0,00081	0,48668	0,00090	0,02269	0,00523	-0,00330	0,00000
103	UNIEURP	0,21028	-0,00057	0,00794	0,00084	-0,06231	-0,00096	-0,00258	-0,00057	-0,00013	0,00066	-0,04839	-0,00075	0,34784	-0,00089	0,01383	-0,00001	-0,08766	-0,00122
104	UNIONGL	0,27040	0,00017	0,01119	0,00290	-0,02479	-0,00042	-0,01450	-0,00076	-0,00061	0,00030	-0,05464	-0,00084	0,48203	0,00076	0,02110	0,00505	0,00072	0,00012
105	UO1D	0,26137	-0,00014	0,01119	0,00259	-0,04458	-0,00070	-0,00942	-0,00068	-0,00040	0,00046	-0,05240	-0,00113	0,48704	0,00009	0,02288	0,00524	-0,04192	-0,00055
106	UQ2E	0,24221	-0,00008	0,01115	0,00193	-0,03511	-0,00059	-0,02360	-0,00088	-0,00110	0,00003	-0,05564	-0,00092	0,42206	0,00038	0,02033	0,00279	-0,01576	-0,00002
107	ZGS7	0,24036	0,00223	0,01747	0,00187	0,04111	0,00158	0,10513	0,00276	0,00860	0,00390	0,07009	0,00373	0,34249	0,00127	0,02431	-0,00021	0,01433	0,00061
108	ZPJF	0,22953	-0,00001	0,00931	0,00150	-0,02492	-0,00035	0,00673	-0,00033	0,00023	0,00094	-0,03114	-0,00027	0,38099	-0,00004	0,01608	0,00124	-0,02130	-0,00025
109	ZPJK	0,23159	-0,00007	0,00983	0,00157	-0,03224	-0,00074	0,00045	-0,00046	-0,00002	0,00075	-0,03763	-0,00052	0,39418	-0,00002	0,01767	0,00174	-0,02903	-0,00077
110	DKDP	0,22013	0,00002	0,01520	0,00118	-0,03388	-0,00090	-0,01514	-0,00082	-0,00108	0,00029	-0,03886	-0,00084	0,46297	0,00057	0,03195	0,00434	-0,02830	-0,00058
111	DWSJPOP	0,22007	0,00044	0,02306	0,00118	-0,02358	-0,00063	-0,01027	-0,00068	-0,00110	0,00044	-0,02956	-0,00015	0,56791	0,00125	0,05419	0,00830	-0,01565	-0,00009
112	DWSVDYN	0,33670	0,00047	0,01436	0,00517	-0,01830	-0,00028	0,03526	0,00019	0,00133	0,00179	-0,00872	-0,00055	0,56431	0,00038	0,02580	0,00816	-0,02849	-0,00046
113	DWW4	0,21249	0,00041	0,02123	0,00092	-0,02381	-0,00060	-0,00944	-0,00065	-0,00102	0,00047	-0,02889	0,00009	0,50523	0,00121	0,04636	0,00593	-0,01568	-0,00003
114	DWWN	0,22720	0,00194	0,01535	0,00142	0,03741	0,00145	0,12493	0,00339	0,00880	0,00450	0,09358	0,00216	0,30648	0,00016	0,02094	-0,00157	-0,00907	-0,00024
115	DZ7I	0,34283	0,00057	0,01622	0,00538	-0,01712	-0,00034	0,03505	0,00019	0,00134	0,00178	-0,00887	-0,00051	0,58101	0,00060	0,03110	0,00879	-0,02450	-0,00052
116	EUROAKT	0,20547	-0,00063	0,00863	0,00068	-0,05426	-0,00107	0,01749	-0,00011	0,00063	0,00127	-0,02043	-0,00035	0,33144	-0,00145	0,01498	-0,00063	-0,08584	-0,00188
117	FGUC	0,18461	-0,00070	0,00765	-0,00004	-0,06009	-0,00091	-0,00679	-0,00084	-0,00027	0,00055	-0,05757	-0,00064	0,35108	-0,00061	0,01623	0,00011	-0,06120	-0,00089
118	FHUK	0,23819	-0,00032	0,00998	0,00180	-0,04946	-0,00106	-0,00842	-0,00067	-0,00037	0,00049	-0,04948	-0,00075	0,42991	-0,00028	0,01918	0,00309	-0,05197	-0,00122
119	FK8V	0,16016	-0,00124	0,00625	-0,00087	-0,08353	-0,00132	0,00058	-0,00055	-0,00001	0,00076	-0,04122	-0,00017	0,26517	-0,00213	0,01086	-0,00313	-0,13035	-0,00205
120	FK8W	0,16470	-0,00113	0,00652	-0,00072	-0,08002	-0,00121	0,00073	-0,00055	-0,00001	0,00077	-0,04072	-0,00021	0,27553	-0,00192	0,01151	-0,00274	-0,12113	-0,00184
121	HV8A	0,20636	-0,00024	0,00896	0,00071	-0,03460	-0,00061	0,08826	0,00128	0,00372	0,00338	0,04378	0,00118	0,28034	-0,00219	0,01253	-0,00256	-0,11614	-0,00241
122	IWT4	0,20609	0,00080	0,01233	0,00070	0,00349	0,00040	0,19748	0,00427	0,02292	0,00666	0,11486	0,00509	0,22901	-0,00311	0,01206	-0,00450	-0,11085	-0,00320
123	IWTF	0,21665	0,00114	0,01270	0,00106	0,01561	0,00076	0,20805	0,00450	0,02409	0,00698	0,12213	0,00537	0,24062	-0,00266	0,01239	-0,00406	-0,09585	-0,00271
124	KAKDEKA	0,16599	-0,00116	0,00665	-0,00067	-0,07724	-0,00133	0,00075	-0,00055	-0,00001	0,00077	-0,04386	-0,00024	0,27417	-0,00198	0,01180	-0,00279	-0,10614	-0,00205
125	KLNAKTD	0,16677	-0,00117	0,00666	-0,00065	-0,07898	-0,00134	0,00060	-0,00055	-0,00001	0,00076	-0,04433	-0,00020	0,27600	-0,00199	0,01183	-0,00272	-0,10911	-0,00207
126	M3AH	0,17695	-0,00082	0,00688	-0,00030	-0,06809	-0,00106	0,00572	-0,00042	0,00018	0,00092	-0,03615	-0,00015	0,29336	-0,00144	0,01212	-0,00207	-0,10273	-0,00163

127	MONEULD	0,18205	-0,00079	0,00723	-0,00012	-0,06356	-0,00110	0,00569	-0,00044	0,00017	0,00092	-0,03761	-0,00020	0,30588	-0,00135	0,01315	-0,00159	-0,08738	-0,00169
128	S4WD	0,20797	-0,00046	0,00887	0,00076	-0,05217	-0,00107	0,01758	-0,00011	0,00062	0,00127	-0,02075	-0,00033	0,33632	-0,00109	0,01565	-0,00045	-0,07967	-0,00184
129	SRVK	0,21034	-0,00030	0,00969	0,00084	-0,04280	-0,00093	0,07629	0,00107	0,00320	0,00302	0,03426	0,00093	0,29634	-0,00207	0,01446	-0,00195	-0,11108	-0,00275
130	U1IG	0,19664	-0,00055	0,00772	0,00037	-0,05450	-0,00092	0,00528	-0,00044	0,00016	0,00090	-0,03567	0,00019	0,33756	-0,00088	0,01406	-0,00040	-0,07723	-0,00132
131	U1IJ	0,22416	0,00019	0,01784	0,00132	-0,03058	-0,00086	-0,00927	-0,00064	-0,00071	0,00047	-0,03297	-0,00072	0,47132	0,00072	0,04012	0,00465	-0,02833	-0,00066
132	UNIJAPN	0,22542	0,00016	0,01778	0,00136	-0,03049	-0,00079	-0,00799	-0,00062	-0,00059	0,00051	-0,03256	-0,00073	0,47369	0,00069	0,04146	0,00474	-0,02736	-0,00052
133	UNIONEL	0,19853	-0,00062	0,00736	0,00044	-0,06914	-0,00089	0,00658	-0,00041	0,00020	0,00094	-0,03852	-0,00008	0,33563	-0,00104	0,01318	-0,00047	-0,11924	-0,00129
134	UPKB	0,24310	0,00050	0,01117	0,00196	-0,00758	0,00020	0,06239	0,00094	0,00269	0,00261	0,02798	0,00120	0,37054	-0,00025	0,01795	0,00085	-0,03958	-0,00039
135	VERVALR	0,17952	-0,00075	0,00743	-0,00021	-0,05972	-0,00095	-0,00682	-0,00085	-0,00027	0,00054	-0,06036	-0,00044	0,33360	-0,00069	0,01556	-0,00055	-0,05924	-0,00098
136	ZJP3	0,20439	-0,00031	0,00894	0,00064	-0,03957	-0,00066	0,08141	0,00117	0,00341	0,00318	0,03876	0,00106	0,28173	-0,00219	0,01276	-0,00251	-0,11789	-0,00239
137	ASTRAFD	0,36619	0,00114	0,01813	0,00617	0,00317	0,00024	0,07085	0,00088	0,00305	0,00286	0,02224	0,00096	0,61618	0,00110	0,03334	0,01012	-0,01057	0,00000
138	DED5	0,18786	-0,00108	0,00758	0,00007	-0,08153	-0,00140	-0,01668	-0,00088	-0,00066	0,00024	-0,06347	-0,00096	0,32237	-0,00156	0,01390	-0,00097	-0,10106	-0,00180
139	DJLD	0,11088	0,00011	0,01133	-0,00256	-0,01016	-0,00034	0,00961	0,00009	0,00119	0,00105	-0,00620	-0,00012	0,19231	0,00070	0,01908	-0,00588	0,00186	0,00050
140	DKDI	0,16754	-0,00126	0,00649	-0,00062	-0,08800	-0,00150	-0,00956	-0,00082	-0,00038	0,00046	-0,06021	-0,00042	0,28604	-0,00192	0,01179	-0,00234	-0,11818	-0,00210
141	DKDJ	0,16740	-0,00122	0,00649	-0,00063	-0,08357	-0,00141	-0,00855	-0,00080	-0,00034	0,00049	-0,05843	-0,00042	0,28380	-0,00186	0,01169	-0,00243	-0,11078	-0,00197
142	DKDM	0,18868	-0,00021	0,00722	0,00010	-0,02032	-0,00016	0,02196	-0,00002	0,00074	0,00141	-0,00860	0,00021	0,30918	-0,00046	0,01271	-0,00147	-0,02798	-0,00026
143	EURAKTS	0,24784	0,00035	0,01000	0,00213	-0,00802	-0,00012	0,11427	0,00168	0,00453	0,00416	0,06565	0,00158	0,33441	-0,00141	0,01388	-0,00052	-0,10572	-0,00178
144	EZTQ	0,39927	0,00130	0,02086	0,00731	0,00635	0,00025	0,06952	0,00082	0,00304	0,00282	0,01871	0,00099	0,69297	0,00144	0,04049	0,01302	-0,00198	0,00011
145	FGMD	0,22946	0,00035	0,01135	0,00150	-0,01127	-0,00013	0,02478	0,00008	0,00103	0,00148	-0,01177	0,00018	0,35601	0,00022	0,01908	0,00030	-0,01343	-0,00017
146	FMMFNDS	0,41126	0,00135	0,02149	0,00772	0,00693	0,00028	0,06994	0,00082	0,00296	0,00283	0,01913	0,00096	0,72652	0,00156	0,04345	0,01428	-0,00090	0,00018
147	FMUD	0,23538	0,00014	0,01009	0,00170	-0,02887	-0,00031	0,05561	0,00072	0,00214	0,00241	0,02169	0,00063	0,36153	-0,00072	0,01662	0,00051	-0,07381	-0,00115
148	FPJA	0,26615	0,00051	0,01146	0,00275	-0,00692	-0,00008	0,11163	0,00168	0,00449	0,00408	0,06501	0,00163	0,37005	-0,00106	0,01681	0,00083	-0,07936	-0,00169
149	GGV	0,22920	0,00061	0,00980	0,00149	0,00778	0,00018	0,03027	0,00026	0,00111	0,00166	0,00567	0,00030	0,39732	0,00082	0,01869	0,00186	0,00865	0,00021
150	HJUK	0,20287	-0,00011	0,00802	0,00059	-0,02068	-0,00037	0,01855	-0,00011	0,00064	0,00130	-0,01297	0,00008	0,35417	-0,00021	0,01515	0,00023	-0,02691	-0,00057
151	LXFA	0,27386	0,00085	0,01681	0,00302	-0,00439	0,00010	0,00813	-0,00005	0,00142	0,00098	-0,01855	-0,00046	0,44621	0,00108	0,02215	0,00370	0,01011	0,00061
152	MEAGEIN	0,24451	0,00015	0,01115	0,00201	-0,02572	-0,00042	0,05569	0,00071	0,00210	0,00241	0,02240	0,00060	0,38167	-0,00068	0,01956	0,00127	-0,06104	-0,00135

153	MIAKPRW	0,20354	-0,00106	0,00817	0,00061	-0,08691	-0,00153	-0,07838	-0,00261	-0,00285	-0,00160	-0,16869	-0,00268	0,45983	0,00031	0,01993	0,00422	-0,02078	-0,00028
154	OE7A	0,26548	0,00044	0,01273	0,00273	-0,01677	-0,00020	0,04865	0,00054	0,00235	0,00219	0,00549	0,00089	0,40820	-0,00007	0,01996	0,00227	-0,03974	-0,00068
155	OXSA	0,07220	0,00054	0,01110	-0,00388	0,00114	0,00034	0,02044	0,00134	0,00352	0,00138	0,01208	0,00375	0,11635	-0,00052	0,01716	-0,00875	-0,00856	-0,00066
156	RINGAKF	0,19950	-0,00019	0,00776	0,00047	-0,02123	-0,00031	0,01800	-0,00012	0,00062	0,00129	-0,01431	-0,00003	0,34275	-0,00035	0,01432	-0,00020	-0,02696	-0,00045
157	RK11	0,20987	0,00190	0,01206	0,00083	0,04080	0,00150	0,14415	0,00367	0,01150	0,00507	0,10069	0,00506	0,25770	-0,00040	0,01385	-0,00341	-0,01644	-0,00062
158	RK1B	0,23360	-0,00039	0,01055	0,00164	-0,04855	-0,00105	-0,02938	-0,00110	-0,00133	-0,00014	-0,06480	-0,00085	0,43850	-0,00002	0,02066	0,00341	-0,03575	-0,00076
159	RK1P	0,19697	-0,00054	0,00868	0,00039	-0,05004	-0,00101	0,00594	-0,00031	0,00021	0,00092	-0,02940	0,00023	0,32412	-0,00111	0,01495	-0,00091	-0,07088	-0,00153
160	RK1U	0,23671	0,00185	0,01394	0,00175	0,04058	0,00147	0,11187	0,00267	0,00768	0,00410	0,07505	0,00419	0,32366	0,00053	0,01857	-0,00092	0,00519	0,00029
161	ROC	0,23189	-0,00018	0,01219	0,00158	-0,03934	-0,00099	-0,02409	-0,00094	-0,00118	0,00002	-0,05565	-0,00076	0,42418	0,00020	0,02430	0,00287	-0,02832	-0,00073
162	TDLB	0,24619	0,00040	0,00967	0,00207	-0,00605	0,00005	0,03758	0,00033	0,00134	0,00187	0,00479	0,00029	0,39371	0,00018	0,01648	0,00172	-0,02049	-0,00013
163	UI3B	0,21940	-0,00030	0,00873	0,00115	-0,04247	-0,00082	0,01032	-0,00028	0,00035	0,00105	-0,02945	-0,00026	0,36118	-0,00063	0,01521	0,00049	-0,05968	-0,00121
164	UI3F	0,20715	-0,00050	0,00836	0,00073	-0,04531	-0,00079	-0,02737	-0,00118	-0,00110	-0,00008	-0,07468	-0,00108	0,36923	-0,00015	0,01565	0,00080	-0,01849	-0,00032
165	UI3G	0,21204	-0,00042	0,00854	0,00090	-0,04297	-0,00077	-0,02567	-0,00114	-0,00105	-0,00003	-0,07104	-0,00088	0,37941	-0,00005	0,01594	0,00118	-0,01674	-0,00033
166	UI4L	0,27398	0,00032	0,01183	0,00302	-0,01942	-0,00036	-0,00842	-0,00065	-0,00039	0,00049	-0,04652	-0,00036	0,50501	0,00093	0,02291	0,00592	0,00130	0,00012
167	UI4M	0,20581	-0,00017	0,00800	0,00069	-0,02768	-0,00046	0,01757	-0,00013	0,00060	0,00128	-0,01502	0,00056	0,36362	-0,00027	0,01505	0,00059	-0,03757	-0,00067
168	UI4R	0,24037	-0,00019	0,01057	0,00187	-0,04267	-0,00083	-0,04350	-0,00149	-0,00189	-0,00056	-0,08329	-0,00127	0,47609	0,00078	0,02174	0,00483	-0,00605	0,00004
169	UIV7	0,25889	0,00155	0,01378	0,00250	0,03670	0,00099	0,09232	0,00172	0,00483	0,00351	0,05342	0,00239	0,37129	0,00100	0,02044	0,00087	0,02284	0,00050
170	UIVA	0,27155	0,00174	0,01640	0,00294	0,03427	0,00090	0,09431	0,00174	0,00505	0,00357	0,05324	0,00231	0,39274	0,00132	0,02572	0,00168	0,01915	0,00033
171	UNI21JH	0,24383	-0,00029	0,01034	0,00199	-0,04457	-0,00081	-0,04613	-0,00150	-0,00191	-0,00064	-0,08810	-0,00161	0,47003	0,00058	0,02090	0,00460	-0,00558	0,00007
172	UNIFDSN	0,19848	-0,00033	0,00716	0,00044	-0,04079	-0,00043	0,01860	-0,00013	0,00061	0,00131	-0,01649	0,00026	0,33648	-0,00058	0,01281	-0,00044	-0,11680	-0,00064
173	UNIGLBN	0,27320	0,00025	0,01130	0,00299	-0,02091	-0,00035	-0,00781	-0,00063	-0,00035	0,00050	-0,04749	-0,00067	0,48349	0,00078	0,02112	0,00511	0,00167	0,00014
174	AKKMULA	0,27209	0,00034	0,01144	0,00296	-0,01691	-0,00024	0,01698	-0,00012	0,00062	0,00125	-0,02172	-0,00025	0,45595	0,00047	0,02045	0,00407	-0,01491	-0,00015
175	ARIDEKA	0,20414	-0,00076	0,00833	0,00063	-0,06491	-0,00117	-0,01809	-0,00091	-0,00071	0,00020	-0,06500	-0,00112	0,35515	-0,00090	0,01559	0,00027	-0,06679	-0,00128
176	BFGINVA	0,18426	-0,00045	0,00713	-0,00005	-0,03543	-0,00056	-0,00290	-0,00068	-0,00015	0,00066	-0,04098	0,00019	0,32504	-0,00036	0,01281	-0,00087	-0,02547	-0,00035
177	BWKDSEU	0,23314	0,00009	0,00918	0,00162	-0,02534	-0,00031	0,07050	0,00095	0,00263	0,00285	0,03399	0,00138	0,33819	-0,00112	0,01392	-0,00037	-0,09973	-0,00144
178	CONCENT	0,20256	0,00001	0,00789	0,00058	-0,00783	-0,00007	0,00787	-0,00043	0,00025	0,00098	-0,03494	0,00015	0,35264	0,00039	0,01503	0,00017	0,01699	0,00034

179	DI7R	0,27071	0,00163	0,01197	0,00291	0,05083	0,00141	0,12462	0,00210	0,00544	0,00448	0,08020	0,00225	0,36578	0,00076	0,01666	0,00067	0,01992	0,00082
180	DI7T	0,21475	-0,00042	0,00871	0,00099	-0,05037	-0,00084	0,00070	-0,00047	-0,00001	0,00076	-0,04032	-0,00058	0,35887	-0,00068	0,01543	0,00041	-0,06197	-0,00104
181	DI7U	0,20134	-0,00005	0,00756	0,00054	-0,01018	-0,00014	0,00843	-0,00041	0,00026	0,00100	-0,03450	0,00017	0,34856	0,00026	0,01407	0,00002	0,02024	0,00021
182	DI7X	0,25180	0,00064	0,01025	0,00226	0,00636	0,00023	-0,00278	-0,00058	-0,00014	0,00066	-0,04615	-0,00066	0,43506	0,00154	0,01901	0,00328	0,05065	0,00115
183	DITSPZ2	0,26942	0,00159	0,01215	0,00286	0,04957	0,00133	0,12300	0,00210	0,00535	0,00443	0,08050	0,00223	0,36495	0,00069	0,01709	0,00064	0,01937	0,00066
184	DITWEUR	0,25705	0,00064	0,01071	0,00244	0,00661	0,00014	-0,00185	-0,00056	-0,00011	0,00069	-0,04484	-0,00065	0,44899	0,00154	0,02030	0,00381	0,04740	0,00100
185	DJFA	0,20385	-0,00002	0,00779	0,00062	-0,01027	-0,00014	0,03095	0,00023	0,00106	0,00168	0,00543	0,00087	0,32976	-0,00041	0,01354	-0,00069	-0,02548	-0,00047
186	DJFB	0,24574	-0,00007	0,01098	0,00205	-0,03620	-0,00067	-0,01942	-0,00085	-0,00087	0,00016	-0,05541	-0,00077	0,44084	0,00039	0,02079	0,00350	-0,01939	-0,00022
187	DPROVST	0,20713	-0,00012	0,00903	0,00073	-0,02456	-0,00048	0,06833	0,00100	0,00277	0,00279	0,03342	0,00157	0,29768	-0,00147	0,01363	-0,00190	-0,07286	-0,00172
188	DTVERMG	0,20120	0,00000	0,00788	0,00053	-0,00856	-0,00010	0,03159	0,00025	0,00108	0,00169	0,00734	0,00085	0,32512	-0,00034	0,01385	-0,00087	-0,01985	-0,00039
189	DWSAKDE	0,20833	0,00064	0,00830	0,00077	0,02903	0,00062	0,06759	0,00129	0,00246	0,00277	0,06305	0,00134	0,30651	-0,00017	0,01305	-0,00157	0,00000	-0,00002
190	DWSEURO	0,19856	-0,00054	0,00804	0,00044	-0,04616	-0,00081	0,01243	-0,00023	0,00043	0,00112	-0,02637	-0,00041	0,32081	-0,00114	0,01386	-0,00103	-0,06706	-0,00130
191	EZTC	0,19333	-0,00035	0,00746	0,00026	-0,03691	-0,00057	0,00547	-0,00049	0,00016	0,00091	-0,04119	-0,00019	0,33705	-0,00027	0,01421	-0,00042	-0,02996	-0,00053
192	FHUA	0,23424	0,00020	0,00968	0,00166	-0,02278	-0,00038	0,06971	0,00095	0,00264	0,00283	0,03338	0,00130	0,34168	-0,00087	0,01496	-0,00024	-0,07894	-0,00152
193	FONDAKI	0,21290	0,00015	0,00836	0,00093	-0,00363	0,00002	0,05893	0,00089	0,00208	0,00251	0,04151	0,00116	0,31852	-0,00077	0,01342	-0,00112	-0,04295	-0,00076
194	FTFREFF	0,19154	-0,00044	0,00734	0,00020	-0,03723	-0,00057	0,00554	-0,00049	0,00016	0,00091	-0,04303	-0,00030	0,32999	-0,00045	0,01384	-0,00068	-0,02922	-0,00055
195	HJU8	0,23489	0,00003	0,01000	0,00168	-0,02381	-0,00060	0,01020	-0,00029	0,00034	0,00105	-0,02940	-0,00040	0,40714	0,00010	0,01917	0,00223	-0,02190	-0,00072
196	HJUD	0,26541	0,00001	0,01212	0,00273	-0,03613	-0,00075	-0,02890	-0,00099	-0,00122	-0,00013	-0,06462	-0,00141	0,47744	0,00067	0,02383	0,00488	-0,01473	-0,00021
197	HJUI	0,21452	0,00078	0,00874	0,00099	0,02717	0,00061	0,06583	0,00126	0,00241	0,00272	0,06093	0,00148	0,32213	0,00011	0,01416	-0,00098	-0,00181	-0,00002
198	HJUL	0,18318	-0,00038	0,00721	-0,00009	-0,03025	-0,00064	0,00773	-0,00044	0,00024	0,00098	-0,03309	-0,00028	0,31601	-0,00042	0,01359	-0,00121	-0,02842	-0,00079
199	HJUQ	0,20991	-0,00007	0,00939	0,00083	-0,02402	-0,00054	0,06614	0,00096	0,00269	0,00272	0,03150	0,00160	0,30418	-0,00135	0,01445	-0,00166	-0,06816	-0,00180
200	HJUU	0,25532	0,00114	0,01393	0,00238	0,01569	0,00043	0,05366	0,00096	0,00276	0,00235	0,02419	0,00139	0,41911	0,00102	0,02397	0,00268	0,00836	0,00018
201	HJVD	0,21146	0,00018	0,00810	0,00088	-0,00471	0,00016	0,05836	0,00089	0,00207	0,00249	0,04122	0,00116	0,31687	-0,00069	0,01287	-0,00118	-0,05361	-0,00050
202	HV82	-0,00149	-0,00807	0,05081	-0,00640	-0,00599	-0,00894	-0,00895	-0,01856	-0,01005	0,00050	-0,00934	-0,01243	0,01121	0,00369	-0,00829	-0,01272	-0,00053	0,00085
203	HV8B	0,22582	0,00010	0,00912	0,00137	-0,02036	-0,00019	0,05243	0,00066	0,00203	0,00231	0,01844	0,00105	0,33907	-0,00080	0,01425	-0,00034	-0,06730	-0,00094
204	ZPJN	0,22835	0,00008	0,00947	0,00146	-0,02126	-0,00028	0,05230	0,00069	0,00207	0,00231	0,01885	0,00101	0,34716	-0,00088	0,01502	-0,00004	-0,06551	-0,00111

TABLE 4. AUSTRIAN MUTUAL FUNDS AND DESCRIPTIVE STATISTICS

		OVERALL PERIOD				SUBPERIOD ONE				SUBPERIOD TWO			
#	NAME	E(RP)	SD	KURTOSIS	SKEWNESS	E(RP)	SD	KURTOSIS	SKEWNESS	E(RP)	SD	KURTOSIS	SKEWNESS
1	INTRGLD	0,00163	0,05147	5,64149	-0,09558	0,00285	0,04265	2,31279	-0,72799	0,00051	0,05857	5,74149	0,16933
2	BAWSPAK	-0,00130	0,02043	5,90900	-1,07116	-0,00059	0,02162	2,66050	-0,33364	-0,00193	0,01914	10,67155	-2,12825
3	AIBCGVA	-0,00098	0,02177	9,27785	-1,15565	0,00017	0,01950	2,46848	-0,03460	-0,00202	0,02366	11,60100	-1,70982
4	SIRIU29	-0,00036	0,01388	6,50186	-1,33171	-0,00002	0,01711	5,04991	-1,35575	-0,00063	0,00976	1,19065	-0,70326
5	AIBCGEF	-0,00101	0,02177	9,28121	-1,15218	0,00017	0,01950	2,46848	-0,03460	-0,00208	0,02364	11,61048	-1,70476
6	P2FUNDS	-0,00016	0,00804	64,75172	-7,31944	-0,00029	0,01028	46,41488	-6,43945	-0,00003	0,00496	36,07246	-5,66306
7	BAWGSPC	-0,00013	0,00721	35,37491	-5,23813	-0,00011	0,00796	28,09422	-4,53012	-0,00015	0,00639	47,94486	-6,35823
8	EKAKO17	-0,00012	0,00739	2,91224	-0,95301	0,00019	0,00764	2,76709	-0,89073	-0,00039	0,00711	3,16693	-1,05905
9	EKAKO13	-0,00016	0,00791	9,62345	-1,79102	-0,00012	0,00888	8,51861	-1,80264	-0,00018	0,00683	10,12831	-1,65850
10	PACTRST	-0,00032	0,02426	0,87261	-0,45459	0,00054	0,02317	0,51505	-0,01104	-0,00112	0,02517	1,02422	-0,77726
11	CIENGSV	0,00016	0,02885	6,68541	-1,29335	0,00153	0,02502	3,14666	-0,93343	-0,00107	0,03197	7,25450	-1,39093
12	CIENGST	0,00015	0,02882	6,70357	-1,29307	0,00153	0,02499	3,20438	-0,93671	-0,00109	0,03195	7,25070	-1,38818
13	P1FUNDS	0,00005	0,00853	23,38584	-3,76534	-0,00035	0,00915	28,97581	-4,83006	0,00042	0,00785	11,81444	-2,07609
14	EKAKM14	0,00012	0,00703	25,80901	-4,29309	-0,00024	0,00758	26,37482	-4,63064	0,00046	0,00643	23,01083	-3,66862
15	RENGAKA	0,00060	0,03370	9,09613	-1,31976	0,00253	0,02264	1,70119	-0,79138	-0,00112	0,04130	6,82221	-1,17770
16	SIRIU37	0,00009	0,00597	18,44976	-2,55316	0,00019	0,00549	50,87596	-5,65367	0,00000	0,00637	1,70539	-0,68698
17	RENGAKT	0,00073	0,03370	9,11788	-1,32638	0,00265	0,02273	1,69095	-0,78074	-0,00099	0,04126	6,87633	-1,18946
18	3BV1FND	0,00016	0,00608	21,06571	-3,65823	0,00023	0,00604	28,26282	-4,57322	0,00010	0,00609	15,00196	-2,83395
19	3BOBK14	0,00005	0,00716	5,79345	-1,44625	-0,00001	0,00725	7,49060	-1,81452	0,00012	0,00706	4,12034	-1,08005
20	3BKBTV1	0,00053	0,00533	1,78620	-0,51955	0,00058	0,00489	0,19849	-0,21997	0,00050	0,00570	2,49928	-0,69662
21	GUTEUPO	-0,00040	0,02531	3,40087	-0,68699	0,00111	0,02089	4,37532	-0,51255	-0,00178	0,02880	2,43353	-0,66119
22	3BKOBK4	0,00015	0,00662	3,31848	-0,91477	0,00012	0,00648	3,58026	-0,99696	0,00019	0,00674	3,19067	-0,85874
23	3BKOBK5	0,00013	0,00666	3,43101	-0,89763	0,00011	0,00651	3,48293	-0,97144	0,00017	0,00679	3,47436	-0,84905

24	ESXTJAP	-0,00057	0,02783	1,75356	-0,24792	0,00055	0,02840	1,40187	0,15249	-0,00156	0,02716	2,08758	-0,71065
25	A14FUND	0,00006	0,00673	10,04569	-2,12307	-0,00001	0,00673	12,02401	-2,50757	0,00015	0,00671	8,36651	-1,77215
26	TSERL1T	0,00013	0,00660	2,56244	-0,36087	-0,00016	0,00653	4,33773	-0,66518	0,00042	0,00663	0,98075	-0,08945
27	BTVAVMK	0,00009	0,00702	7,22237	-1,71885	0,00000	0,00721	11,21182	-2,36952	0,00019	0,00681	2,48536	-0,98754
28	CAPIN14	0,00092	0,03129	3,56632	-0,86453	0,00438	0,01979	4,65503	-1,16511	-0,00233	0,03895	1,69475	-0,54527
29	PUMAFND	0,00104	0,03866	7,92292	-1,30924	0,00306	0,03206	1,86265	-0,83332	-0,00081	0,04395	8,35518	-1,37701
30	PUMAFUN	0,00138	0,03860	8,02673	-1,33042	0,00348	0,03190	1,94126	-0,84915	-0,00055	0,04395	8,38948	-1,39231
31	KLMEGAA	-0,00085	0,02851	6,36220	-1,12161	0,00062	0,02381	2,57007	-0,22707	-0,00213	0,03230	6,38867	-1,37558
32	KLMEGAT	-0,00054	0,02842	6,44994	-1,12759	0,00088	0,02379	2,55488	-0,22173	-0,00178	0,03216	6,53181	-1,39218
33	DWSAV48	0,00008	0,00993	12,56371	-2,33331	0,00036	0,00996	12,16858	-2,45542	-0,00014	0,00987	13,30995	-2,23873
34	POBAAKE	-0,00037	0,02400	5,66159	-0,88655	0,00086	0,02073	4,47570	-0,26564	-0,00145	0,02667	5,37518	-1,10270
35	ESUMWSA	-0,00024	0,02698	10,73540	-1,70932	0,00138	0,02104	1,36266	-0,42519	-0,00171	0,03154	10,31042	-1,90232
36	ESUMWST	-0,00024	0,02698	10,73540	-1,70932	0,00138	0,02104	1,36266	-0,42519	-0,00171	0,03154	10,31042	-1,90232
37	SUP4AKT	-0,00108	0,02585	5,29330	-0,71663	-0,00027	0,02161	2,65259	-0,23207	-0,00177	0,02928	5,22426	-0,84856
38	SPORTVA	-0,00045	0,01860	4,65660	-0,36430	0,00025	0,01919	4,92351	0,30041	-0,00109	0,01792	4,20268	-1,17560
39	NOVEUII	-0,00016	0,02166	3,15680	-0,51115	0,00069	0,02064	3,19782	-0,28646	-0,00095	0,02249	3,10283	-0,66679
40	CPEEURP	0,00120	0,03466	4,27284	-0,89966	0,00436	0,02657	2,40762	-0,90279	-0,00178	0,04065	3,42694	-0,72607
41	CPEEURT	0,00144	0,03464	4,30585	-0,91059	0,00449	0,02659	2,41806	-0,91372	-0,00145	0,04060	3,46582	-0,74023
42	GLBLCHI	-0,00086	0,02693	11,78054	-1,26968	0,00033	0,02081	3,38233	-0,10243	-0,00195	0,03161	10,96505	-1,45272
43	APOLOST	-0,00112	0,02981	3,56331	-0,61480	-0,00001	0,02640	7,59174	-0,72636	-0,00210	0,03266	1,59393	-0,52175
44	SAPEURT	-0,00067	0,02964	3,62878	-0,58335	0,00034	0,02610	7,64038	-0,72454	-0,00155	0,03259	1,69743	-0,47826
45	BTVAVMD	0,00009	0,01091	2,06148	-0,47625	0,00029	0,01098	1,81549	-0,10154	-0,00008	0,01081	2,34353	-0,86589
46	CONML27	0,00049	0,01967	4,08401	-0,74625	0,00161	0,01969	3,10302	-0,24209	-0,00052	0,01954	5,01714	-1,26566
47	EQTYINV	0,00173	0,02851	5,87949	-1,16335	0,00520	0,01775	3,51776	-0,70940	-0,00152	0,03559	3,44722	-0,88153
48	JPNTRND	0,00013	0,02638	2,21203	-0,13756	0,00081	0,02552	1,07099	0,06016	-0,00046	0,02710	3,09227	-0,29579
49	ALLINVT	-0,00025	0,02943	2,91730	-0,46916	0,00090	0,02521	5,19313	-0,52506	-0,00127	0,03288	1,71817	-0,39801

50	ALLINVA	-0,00058	0,02976	3,06527	-0,51177	0,00070	0,02527	5,12960	-0,50883	-0,00171	0,03341	1,91108	-0,45796
51	PSKEUST	-0,00029	0,02625	3,56839	-0,51356	0,00056	0,02402	6,04548	-0,28088	-0,00103	0,02815	2,11201	-0,63257
52	PSKEURO	-0,00066	0,02627	3,53609	-0,49339	0,00026	0,02390	6,17887	-0,26540	-0,00146	0,02827	2,01745	-0,60274
53	VNNAINV	0,00079	0,03369	4,68360	-1,11794	0,00524	0,02273	2,93588	-0,76962	-0,00339	0,04107	2,91048	-0,87226
54	VIENINT	0,00118	0,03359	4,73797	-1,11980	0,00546	0,02272	2,97107	-0,79468	-0,00285	0,04096	2,96683	-0,87689
55	FINANST	-0,00078	0,03380	10,79111	-1,14296	0,00126	0,02406	6,22260	0,47046	-0,00262	0,04049	8,50793	-1,26888
56	FINANSA	-0,00120	0,03393	10,53681	-1,11638	0,00117	0,02410	6,17648	0,47737	-0,00332	0,04065	8,24821	-1,22609
57	DWSAVER	0,00007	0,02256	4,49942	-0,60353	0,00078	0,02068	3,48086	-0,17724	-0,00058	0,02414	4,80250	-0,84055
58	NEWGENR	-0,00136	0,03636	3,53062	-0,65102	-0,00112	0,03565	3,32678	-0,34455	-0,00148	0,03692	3,78389	-0,92701
59	NEWGENT	-0,00129	0,03636	3,52244	-0,65843	-0,00107	0,03569	3,33499	-0,35876	-0,00139	0,03690	3,76568	-0,93016
60	GUTAKTN	-0,00023	0,02190	1,88624	-0,43114	0,00006	0,01997	2,41432	-0,15073	-0,00044	0,02355	1,47198	-0,58820
61	3BKESKA	-0,00101	0,03108	3,05143	-0,65685	0,00011	0,02783	5,38774	-0,88257	-0,00198	0,03383	1,78868	-0,50498
62	3BKEURT	-0,00023	0,03008	2,99651	-0,53280	0,00100	0,02597	4,88442	-0,48438	-0,00131	0,03346	1,90574	-0,50767
63	RQEUEQA	-0,00108	0,02644	2,62843	-0,75540	0,00010	0,02303	4,14053	-0,80156	-0,00213	0,02925	1,70131	-0,68141
64	RQEUEQT	0,00018	0,02511	2,79230	-0,65712	0,00159	0,02099	3,84729	-0,42760	-0,00111	0,02839	1,88906	-0,66678
65	BADVANS	-0,00025	0,02090	4,37106	-0,60636	-0,00010	0,02123	3,09026	-0,01427	-0,00038	0,02052	5,87941	-1,24515
66	CPBMEDR	0,00040	0,01744	6,66311	-1,40212	0,00237	0,01096	2,09311	-0,83570	-0,00145	0,02171	4,16404	-1,12627
67	KLASSAK	0,00013	0,02352	5,33899	-0,73876	0,00138	0,01821	4,16266	-0,41299	-0,00100	0,02758	4,25738	-0,71701
68	KLAKTIT	0,00036	0,02344	5,43133	-0,75277	0,00153	0,01819	4,18148	-0,42492	-0,00070	0,02746	4,36862	-0,73658
69	VOLKAME	-0,00043	0,02609	10,51443	-1,22165	-0,00032	0,02345	0,74629	-0,17881	-0,00046	0,02833	14,44408	-1,77630
70	DANBINV	0,00111	0,03676	5,76889	-1,06004	0,00496	0,02715	1,87748	-0,63500	-0,00265	0,04365	4,63815	-0,93316
71	DANBINT	0,00139	0,03677	5,79535	-1,06707	0,00504	0,02716	1,86691	-0,64160	-0,00218	0,04369	4,66218	-0,94568
72	GUTUSPO	-0,00076	0,02684	8,36427	-1,06578	-0,00093	0,02198	1,06588	-0,11498	-0,00052	0,03074	9,03109	-1,36516
73	R67FUND	-0,00053	0,02465	4,84633	-0,77198	0,00040	0,02270	2,85980	-0,09919	-0,00136	0,02631	5,63759	-1,16623
74	VIENSTK	0,00142	0,02889	5,95763	-1,20610	0,00476	0,01785	5,95191	-1,38776	-0,00169	0,03616	3,37160	-0,84963
75	VIENAUS	0,00125	0,02885	5,97704	-1,20041	0,00463	0,01782	5,95512	-1,37653	-0,00189	0,03610	3,38894	-0,84347

76	3BKESTM	-0,00031	0,02576	3,42521	-0,61565	0,00074	0,02198	5,65143	-0,37830	-0,00126	0,02883	2,16761	-0,66083
77	3BKOEKG	0,00000	0,02442	5,26826	-0,96003	0,00070	0,02034	2,39806	-0,59705	-0,00059	0,02771	5,22822	-1,03503
78	ESPGDYN	-0,00012	0,02293	5,72748	-0,92983	0,00076	0,02137	3,11395	0,08705	-0,00091	0,02426	6,94017	-1,57862
79	SBESTIN	-0,00058	0,02462	2,04165	-0,40483	-0,00076	0,02623	1,43257	0,02674	-0,00031	0,02292	2,93881	-1,02511
80	OSTEUSA	0,00161	0,03470	4,44356	-1,00269	0,00487	0,02651	3,03616	-1,22384	-0,00134	0,04043	3,54617	-0,77121
81	OSTEUST	0,00182	0,03465	4,51551	-1,01940	0,00506	0,02640	3,14469	-1,24287	-0,00111	0,04042	3,58249	-0,78619
82	OSTVLRF	0,00205	0,03601	5,85639	-0,81510	0,00473	0,02704	3,43528	-1,11251	-0,00050	0,04265	4,74928	-0,58161
83	SPGOLDR	0,00008	0,02311	4,21323	-0,75997	0,00092	0,02172	3,93082	-0,19615	-0,00065	0,02430	4,22687	-1,13372
84	SIEQWEE	0,00011	0,02501	2,98863	-0,64595	0,00145	0,02016	4,19915	-0,36054	-0,00112	0,02881	1,92630	-0,64777
85	JMEURSC	0,00083	0,02847	1,79106	-0,43769	0,00230	0,02404	2,01246	-0,54676	-0,00050	0,03204	1,31338	-0,32889
86	SCHAKTT	-0,00048	0,02282	13,12480	-1,26967	-0,00026	0,01925	3,48191	0,09897	-0,00060	0,02574	14,63309	-1,77292
87	SKWBAKT	-0,00062	0,02299	13,73843	-1,34507	-0,00039	0,01932	3,44050	0,09609	-0,00076	0,02599	15,25379	-1,86064
88	KEPGLBT	-0,00037	0,02437	5,83209	-0,80702	0,00048	0,02131	4,18116	-0,10959	-0,00113	0,02690	5,85855	-1,09657
89	KEPGLBA	-0,00065	0,02461	5,62586	-0,80901	0,00014	0,02151	3,96700	-0,09004	-0,00134	0,02719	5,66434	-1,11003
90	CPBFRSA	0,00006	0,02220	3,26843	-1,02538	0,00070	0,02167	1,53031	-0,81928	-0,00049	0,02261	4,72447	-1,20869
91	OBRBSMX	-0,00039	0,02336	3,49393	-0,63320	0,00040	0,02076	2,48906	-0,05177	-0,00101	0,02557	3,51475	-0,90223
92	BESTEMT	0,00086	0,02969	6,32512	-1,09773	0,00243	0,02344	1,02140	-0,74515	-0,00054	0,03424	6,12188	-1,08162
93	BESTEMA	0,00061	0,02971	6,26306	-1,07831	0,00228	0,02344	0,99962	-0,72776	-0,00088	0,03428	6,04799	-1,05847
94	VIFVERI	-0,00175	0,02867	5,50546	-0,80224	-0,00105	0,02647	5,39728	-0,45130	-0,00242	0,03054	5,38424	-1,00237
95	VIFVERT	-0,00060	0,02703	5,75816	-0,59966	-0,00002	0,02490	6,04239	-0,19954	-0,00117	0,02884	5,41396	-0,82837
96	KLASAEA	-0,00028	0,02696	3,19539	-0,58841	0,00106	0,02171	5,31134	-0,47694	-0,00151	0,03106	1,92855	-0,53905
97	KLASAET	0,00013	0,02676	3,30046	-0,60206	0,00129	0,02168	5,37052	-0,49642	-0,00094	0,03077	2,04501	-0,56007
98	OSTINDT	0,00162	0,03003	6,04345	-1,17332	0,00332	0,02368	2,08894	-0,99330	0,00005	0,03491	5,54571	-1,09418
99	EKASAMA	-0,00106	0,02844	10,13319	-1,31117	-0,00121	0,02388	2,03221	0,06624	-0,00082	0,03218	11,37912	-1,81433
100	ESTOAME	-0,00072	0,02845	10,17247	-1,31606	-0,00094	0,02371	2,04842	0,07538	-0,00043	0,03231	11,25651	-1,80561
101	INTSTAU	-0,00055	0,02467	4,21843	-0,71679	-0,00015	0,02306	2,61515	-0,08067	-0,00088	0,02606	5,04702	-1,13580

102	INTRSTK	-0,00040	0,02466	4,23089	-0,70647	-0,00003	0,02297	2,61638	-0,07056	-0,00069	0,02610	5,03926	-1,11882
103	EUAKTIT	-0,00020	0,02849	3,31701	-0,55804	0,00103	0,02299	6,25863	-0,22150	-0,00131	0,03281	1,83233	-0,59391
104	EURAKVT	-0,00016	0,02843	3,32979	-0,55588	0,00104	0,02295	6,32348	-0,22258	-0,00125	0,03275	1,83279	-0,59155
105	RAFEAPS	-0,00041	0,02873	3,40099	-0,58958	0,00088	0,02302	6,20297	-0,20569	-0,00159	0,03319	1,92353	-0,63085
106	AMERSTT	-0,00002	0,02811	19,75195	-1,26645	0,00083	0,01858	2,06144	0,04335	-0,00078	0,03482	15,53207	-1,26661
107	AMERSTO	-0,00035	0,02821	19,38815	-1,24115	0,00052	0,01858	2,02557	0,04428	-0,00114	0,03497	15,16740	-1,23568
108	BAWGSTK	-0,00068	0,02732	3,75032	-0,63481	0,00003	0,02429	4,96274	-0,41030	-0,00126	0,02987	2,89968	-0,72593
109	BASTOCT	-0,00014	0,02704	3,88554	-0,64594	0,00062	0,02393	4,83584	-0,34920	-0,00077	0,02964	3,11831	-0,76738
110	EUPROPA	0,00034	0,02799	4,81096	-1,09570	0,00372	0,01785	5,87927	-1,43543	-0,00281	0,03474	2,62016	-0,73753
111	EUPROPT	0,00084	0,02775	4,93478	-1,08348	0,00405	0,01717	4,65918	-1,20511	-0,00216	0,03471	2,66346	-0,75026
112	RAIFOST	0,00135	0,03349	4,35519	-0,93786	0,00478	0,02149	6,79452	-1,43165	-0,00186	0,04158	2,24073	-0,60145
113	3BKGSFD	-0,00033	0,02435	3,27086	-0,56337	0,00035	0,02368	5,43035	-0,68118	-0,00091	0,02489	1,65732	-0,47067
114	OSTAKTT	0,00151	0,03354	4,34509	-0,93576	0,00493	0,02152	6,78899	-1,44537	-0,00169	0,04165	2,23302	-0,59826
115	ROSTAVT	0,00159	0,03356	4,34209	-0,94008	0,00506	0,02151	6,81743	-1,45290	-0,00165	0,04167	2,22764	-0,59960
116	ALINOST	0,00160	0,03883	6,73274	-1,15459	0,00433	0,02691	3,28574	-1,10818	-0,00102	0,04730	4,86988	-0,94305
117	ALLIOST	0,00145	0,03914	7,26935	-1,23487	0,00426	0,02692	3,27077	-1,10224	-0,00124	0,04778	5,27129	-1,02489
118	SIEQPAR	0,00061	0,02555	2,12254	-0,30031	0,00104	0,02376	1,06284	0,08942	0,00023	0,02709	2,62114	-0,54545
119	ESXTEUR	0,00015	0,02544	2,74752	-0,52753	0,00133	0,02121	5,10890	-0,37293	-0,00094	0,02882	1,50248	-0,51942
120	EUPROST	0,00137	0,02559	5,80278	-1,19356	0,00455	0,01666	4,55579	-1,19691	-0,00161	0,03157	3,58148	-0,87474
121	EUPROSA	0,00076	0,02605	5,37805	-1,16302	0,00414	0,01692	4,14183	-1,14590	-0,00240	0,03212	3,25249	-0,84265
122	RUSEQUA	-0,00085	0,02687	6,20357	-0,81847	-0,00126	0,02293	0,92236	-0,05999	-0,00039	0,03011	7,28134	-1,13636
123	RUSEQUT	-0,00018	0,02663	6,43823	-0,83624	-0,00028	0,02257	1,08087	-0,09009	-0,00003	0,02997	7,34510	-1,12246
124	GOLDEUR	0,00044	0,02374	3,33469	-0,72163	0,00163	0,02153	4,64254	-0,58920	-0,00065	0,02558	2,46948	-0,75924
125	COLSTKT	0,00004	0,02631	8,39095	-1,05937	0,00067	0,02015	3,11745	0,08483	-0,00053	0,03103	7,44512	-1,25737
126	CIAMESV	0,00023	0,02634	8,64074	-1,10592	0,00106	0,01973	3,72166	0,07160	-0,00049	0,03101	7,41573	-1,25925
127	COLMBST	-0,00033	0,02651	8,14788	-1,03946	0,00029	0,02023	2,89007	0,08621	-0,00090	0,03132	7,19237	-1,22842

128	EKSTAMR	-0,00039	0,02861	12,23172	-1,55663	0,00020	0,01990	2,49692	-0,06575	-0,00089	0,03495	9,81753	-1,63389
129	EKSTAMT	-0,00006	0,02862	12,27963	-1,56721	0,00047	0,01974	2,49705	-0,05601	-0,00049	0,03505	9,75208	-1,63706
130	NIPPORT	0,00001	0,03372	2,24328	-0,45897	0,00229	0,02653	0,78481	-0,12385	-0,00205	0,03919	1,75020	-0,45127
131	I2STOCK	-0,00031	0,02361	5,14182	-1,03230	0,00042	0,01901	17,00982	-2,27929	-0,00095	0,02723	1,50031	-0,53832
132	VOLKEUR	-0,00031	0,02935	3,60099	-0,81974	0,00103	0,02229	2,55838	-0,67384	-0,00152	0,03470	2,64188	-0,74155
133	SELECTA	0,00006	0,02605	3,32075	-0,55183	0,00079	0,02325	5,73677	-0,37010	-0,00059	0,02840	1,98529	-0,62103
134	SECLTFV	0,00021	0,02627	3,33156	-0,57067	0,00112	0,02351	5,97018	-0,41283	-0,00055	0,02841	1,97802	-0,62284
135	SELCTFD	-0,00030	0,02601	3,33860	-0,52428	0,00046	0,02311	5,92080	-0,34696	-0,00097	0,02843	1,94114	-0,58776
136	SMPORT4	0,00040	0,02360	6,48290	-0,99940	0,00132	0,01896	2,24309	-0,22724	-0,00042	0,02725	6,18479	-1,15552
137	PAZFKAA	0,00026	0,02408	2,45930	-0,47513	0,00124	0,02254	1,07524	0,12594	-0,00062	0,02539	3,10750	-0,86374
138	PAZFKAT	0,00040	0,02395	2,49187	-0,46357	0,00135	0,02243	1,03926	0,15610	-0,00044	0,02524	3,18504	-0,86636
139	PAZFKVT	0,00041	0,02394	2,49731	-0,46414	0,00135	0,02243	1,04007	0,15559	-0,00041	0,02523	3,19840	-0,86822
140	TECHNOA	-0,00064	0,02837	1,86059	-0,46801	-0,00125	0,03000	1,51061	-0,22528	0,00004	0,02663	2,37231	-0,79113
141	TECHNOT	-0,00064	0,02837	1,86014	-0,46810	-0,00125	0,03000	1,51061	-0,22528	0,00004	0,02663	2,37126	-0,79130
142	PHARMSA	0,00000	0,01838	3,41025	-0,28721	-0,00028	0,01824	3,78352	0,42692	0,00028	0,01846	3,26686	-0,95557
143	PHARMST	0,00017	0,01818	3,34419	-0,23459	-0,00028	0,01824	3,78352	0,42692	0,00062	0,01805	3,16241	-0,89340
144	GLBLEQU	-0,00083	0,02592	7,86311	-0,94613	0,00011	0,02111	2,10584	-0,08952	-0,00168	0,02974	7,96547	-1,15800
145	GLOBEQT	-0,00039	0,02571	8,19766	-0,96713	0,00046	0,02092	2,16166	-0,07107	-0,00116	0,02952	8,31561	-1,19281
146	SEITEMU	0,00003	0,02587	2,93423	-0,50375	0,00094	0,02560	5,70017	-0,69913	-0,00078	0,02603	0,60061	-0,33390
147	SIEEEMK	0,00137	0,03077	4,35594	-0,93659	0,00249	0,02611	1,56779	-0,72299	0,00034	0,03455	4,58798	-0,96125
148	BTVAVMW	0,00022	0,02285	3,61991	-0,59224	0,00078	0,02173	3,13958	0,17378	-0,00026	0,02382	3,83967	-1,14797
149	LNTMVTR	0,00059	0,02280	11,06175	-1,30869	0,00105	0,01678	0,67442	0,10427	0,00020	0,02731	9,84827	-1,48996
150	RTECAKT	-0,00037	0,03284	2,18401	-0,46634	-0,00031	0,03375	1,14515	-0,19435	-0,00030	0,03191	3,44290	-0,77721
151	RTECAKA	-0,00048	0,03288	2,17200	-0,46493	-0,00038	0,03370	1,15969	-0,19207	-0,00045	0,03203	3,37914	-0,77275
152	USAKTNT	-0,00040	0,02713	6,05215	-0,75405	-0,00045	0,02500	2,14407	0,00511	-0,00030	0,02896	8,00068	-1,22543
153	USAKTNA	-0,00049	0,02718	5,99454	-0,74853	-0,00052	0,02502	2,15064	0,00267	-0,00041	0,02902	7,88993	-1,21248

154	USAKTVT	-0,00040	0,02713	6,04547	-0,75383	-0,00045	0,02500	2,14432	0,00484	-0,00030	0,02895	7,99707	-1,22576
155	RGLAKVT	-0,00026	0,02482	6,22011	-0,78620	0,00021	0,02241	3,05356	0,05216	-0,00066	0,02686	7,33397	-1,23563
156	GLOAKTT	-0,00027	0,02484	6,24883	-0,78976	0,00020	0,02241	3,05811	0,05461	-0,00068	0,02690	7,35733	-1,23996
157	RAIFAKT	-0,00041	0,02497	6,41161	-0,82085	0,00010	0,02245	3,04566	0,05379	-0,00084	0,02710	7,53136	-1,27728
158	TOPPHAT	-0,00021	0,02189	7,21327	-0,93043	-0,00079	0,02076	3,95801	0,36717	0,00037	0,02284	9,61411	-1,88669
159	TOPPHAV	-0,00009	0,02208	7,24441	-0,94736	-0,00058	0,02112	3,93488	0,36255	0,00038	0,02283	9,67464	-1,88856
160	TOPASIT	0,00012	0,02651	2,95160	-0,25665	0,00056	0,02650	2,25137	0,31578	-0,00025	0,02642	3,67272	-0,82086
161	PACFSTK	-0,00026	0,02672	2,84336	-0,28298	0,00017	0,02655	2,25494	0,27190	-0,00062	0,02679	3,42809	-0,80981
162	TOPPHAA	-0,00035	0,02195	7,16841	-0,92211	-0,00098	0,02084	3,95028	0,37062	0,00027	0,02288	9,58355	-1,88096
163	VIENNAT	0,00181	0,03071	6,91865	-1,33321	0,00550	0,01795	3,96025	-0,97740	-0,00168	0,03887	3,92089	-0,98532
164	VIENTPF	0,00158	0,03082	6,75110	-1,31217	0,00537	0,01811	3,90833	-0,99401	-0,00199	0,03894	3,82954	-0,96296
165	VOLKPAC	0,00110	0,02620	2,74619	-0,69277	0,00191	0,02266	0,81082	-0,43136	0,00043	0,02914	2,99157	-0,76985
166	BESTHET	-0,00044	0,02019	4,00553	-0,19630	-0,00107	0,02121	4,25896	0,58132	0,00019	0,01908	3,87520	-1,20510
167	BESTHEA	-0,00069	0,02020	3,97006	-0,18992	-0,00125	0,02121	4,27048	0,59923	-0,00011	0,01911	3,75005	-1,21330
168	ESISTSA	0,00134	0,05403	3,76624	-0,48613	0,00279	0,05313	3,83969	-0,24036	0,00005	0,05469	3,77121	-0,70777
169	ESISTST	0,00159	0,05421	3,73485	-0,47698	0,00289	0,05319	3,81183	-0,24294	0,00044	0,05498	3,73877	-0,68535
170	CONAUST	0,00082	0,02944	8,27932	-1,53853	0,00374	0,01633	4,98086	-1,30735	-0,00190	0,03774	4,60437	-1,15459
171	AUSQUIT	0,00095	0,02939	8,33561	-1,53629	0,00387	0,01629	5,11237	-1,33883	-0,00175	0,03769	4,63908	-1,14995
172	OSTAKVT	0,00226	0,03793	7,31793	-1,09062	0,00501	0,02765	2,87901	-1,03491	-0,00041	0,04543	5,89876	-0,90760
173	OSTEAKT	0,00218	0,03791	7,32461	-1,08818	0,00492	0,02764	2,84609	-1,03424	-0,00047	0,04541	5,91233	-0,90558
174	RAIFOSE	0,00206	0,03792	7,30652	-1,07829	0,00479	0,02768	2,79928	-1,01993	-0,00060	0,04540	5,91380	-0,89828
175	KONAKTV	0,00219	0,03295	5,82649	-1,22882	0,00417	0,02696	1,33160	-0,90239	0,00024	0,03763	5,89632	-1,21974
176	KONAKTA	0,00195	0,03298	5,74832	-1,21616	0,00381	0,02707	1,24888	-0,88450	0,00012	0,03763	5,87179	-1,21643
177	KONAKTT	0,00215	0,03296	5,80237	-1,22444	0,00413	0,02698	1,31568	-0,89891	0,00020	0,03764	5,87938	-1,21581
178	TIGFOND	0,00066	0,02999	2,29556	-0,35576	0,00088	0,02615	0,68309	-0,16966	0,00050	0,03319	2,56743	-0,43105
179	TIGERFD	0,00027	0,02999	2,30174	-0,34361	0,00042	0,02616	0,66703	-0,12622	0,00016	0,03319	2,58573	-0,43624

180	TOPSWSF	0,00024	0,02602	4,40325	-0,61276	0,00073	0,02465	6,12507	-0,29518	-0,00018	0,02719	3,25131	-0,83772
181	TOPSWST	0,00046	0,02594	4,39870	-0,60873	0,00098	0,02460	6,11675	-0,28786	0,00000	0,02709	3,24234	-0,83686
182	STKIDXU	0,00034	0,02560	13,39232	-1,25122	0,00074	0,01854	2,74619	0,08744	-0,00001	0,03085	11,53457	-1,39993
183	EREALFD	-0,00012	0,02967	5,77020	-1,16437	0,00300	0,01751	3,54796	-1,04255	-0,00302	0,03755	3,14706	-0,84353
184	AMERIDX	-0,00005	0,02516	5,19574	-0,80671	0,00039	0,01840	2,74136	0,04751	-0,00042	0,03023	3,93937	-0,90014
185	KEPUSAT	-0,00004	0,02728	14,51168	-1,16807	0,00067	0,01839	1,87940	-0,06610	-0,00069	0,03362	11,43834	-1,17253
186	KEPUSAK	-0,00015	0,02739	14,25539	-1,16415	0,00051	0,01855	1,77075	-0,06907	-0,00075	0,03372	11,30252	-1,17606
187	COREEUT	0,00051	0,03021	3,58534	-0,61878	0,00153	0,02129	3,84341	-0,50942	-0,00034	0,03658	2,16899	-0,53717
188	COREEUR	0,00025	0,03020	3,52162	-0,60625	0,00112	0,02145	3,64390	-0,52488	-0,00047	0,03663	2,13841	-0,52814
189	ESXTUSA	0,00057	0,02660	12,63088	-1,13352	0,00120	0,01857	2,01350	-0,04269	-0,00001	0,03244	10,31315	-1,18210
190	SIEEQNA	-0,00005	0,02767	11,37453	-1,17902	0,00005	0,02235	2,07537	0,09191	-0,00009	0,03190	11,84851	-1,54019
191	OSTAKTV	0,00165	0,03990	7,81695	-1,16888	0,00424	0,02837	3,72883	-1,23248	-0,00087	0,04823	6,02404	-0,95175
192	ACEMERT	0,00161	0,03072	4,90133	-0,91566	0,00241	0,02445	1,46252	-0,73778	0,00090	0,03565	4,57321	-0,89011
193	OSTAKTI	0,00191	0,03997	7,77424	-1,17664	0,00451	0,02850	3,67146	-1,22540	-0,00064	0,04827	6,01474	-0,96243
194	ACEMERA	0,00151	0,03080	4,89372	-0,91804	0,00233	0,02447	1,43323	-0,72652	0,00078	0,03576	4,55348	-0,89501
195	ASIACAP	0,00128	0,02857	2,84365	-0,35393	0,00229	0,02314	0,73971	-0,27569	0,00034	0,03287	2,64604	-0,32195
196	TURYGEA	-0,00053	0,03770	14,46230	-1,43100	0,00010	0,02730	4,20284	-0,08931	-0,00105	0,04542	12,35431	-1,56612
197	TURYGET	-0,00048	0,03757	14,66529	-1,43173	0,00010	0,02730	4,20284	-0,08931	-0,00095	0,04520	12,61312	-1,57456
198	EUROTST	0,00076	0,01992	4,55077	-0,71541	0,00065	0,01870	6,46236	-0,44839	0,00087	0,02097	3,36321	-0,90003
199	GUTUSSP	0,00145	0,02648	7,46078	-0,93684	0,00232	0,01719	0,40090	-0,35236	0,00068	0,03299	5,23083	-0,85183
200	TURYGOA	0,00075	0,04217	4,49536	-0,74634	0,00236	0,03153	1,17432	-0,31509	-0,00084	0,05016	3,64375	-0,73562
201	TURYGOT	0,00085	0,04214	4,47909	-0,75037	0,00252	0,03148	1,19428	-0,32279	-0,00080	0,05014	3,61665	-0,73574
202	WALCAPT	-0,00033	0,03616	4,91398	-0,76372	-0,00035	0,02529	0,02556	-0,25246	-0,00026	0,04410	3,72843	-0,78388
203	BIOTECA	0,00062	0,02753	2,49396	-0,75146	-0,00007	0,02716	1,23758	-0,49165	0,00145	0,02785	3,71267	-1,00229
204	BIOTECT	0,00062	0,02754	2,49188	-0,75128	-0,00007	0,02716	1,23437	-0,49146	0,00145	0,02785	3,71242	-1,00223

TABLE 5. FRENCH MUTUAL FUNDS AND DESCRIPTIVE STATISTICS

		OVERALL PERIOD				SUBPERIOD ONE				SUBPERIOD TWO			
#	NAME	E(RP)	SD	KURTOSIS	SKEWNESS	E(RP)	SD	KURTOSIS	SKEWNESS	E(RP)	SD	KURTOSIS	SKEWNESS
1	CHI2000	0,00117	0,03475	2,747169	-0,36397	0,00354	0,02847	1,775923	-0,52597	-0,00105	0,03966	2,408608	-0,21326
2	PCEUROP	0,00073	0,01556	26,15315	-2,42148	0,00215	0,01073	4,167458	-0,92721	-0,00069	0,01907	21,1632	-2,28077
3	SLFAEUR	-0,00017	0,02914	10,93687	-1,4742	0,00155	0,02320	1,141441	-0,42629	-0,00190	0,03382	10,92082	-1,63722
4	PCEUROD	0,00063	0,01562	25,71249	-2,39835	0,00206	0,01078	4,03272	-0,91925	-0,00081	0,01913	20,83042	-2,25919
5	CAIVEFR	-0,00019	0,03156	8,84583	-1,05337	0,00107	0,02493	4,670791	-0,04503	-0,00148	0,03681	7,880459	-1,23371
6	CAIVEFI	-0,00041	0,03158	8,788521	-1,04685	0,00098	0,02494	4,671755	-0,04485	-0,00184	0,03683	7,809394	-1,22025
7	INDIEUR	-0,00059	0,03305	8,074023	-0,98701	0,00074	0,02694	5,911039	-0,20638	-0,00193	0,03797	7,190556	-1,15382
8	CIFRANC	-0,00016	0,03196	8,84988	-1,0399	0,00115	0,02571	6,255196	-0,14096	-0,00150	0,03692	7,823143	-1,22032
9	UAEURO	-0,00021	0,02876	7,919413	-1,09254	0,00137	0,02043	4,197244	-0,25966	-0,00179	0,03486	5,93537	-1,06335
10	OFIMLEA	-0,00032	0,02892	10,15948	-1,17488	0,00054	0,02276	3,844521	-0,28045	-0,00121	0,03378	9,437946	-1,3208
11	AXAINEC	-0,00010	0,03264	6,935584	-1,04855	0,00111	0,02632	1,341031	-0,40328	-0,00133	0,03769	6,868602	-1,15355
12	ECURLLE	-0,00062	0,03058	9,194378	-1,10669	0,00068	0,02410	4,837969	-0,0241	-0,00195	0,03568	8,187273	-1,29981
13	NRWFRNC	-0,00004	0,03124	7,444711	-1,04755	0,00127	0,02304	1,607993	-0,34314	-0,00137	0,03743	6,193425	-1,05209
14	EXPEXDU	0,00015	0,02750	11,32923	-1,19481	0,00141	0,02430	5,573941	-0,1549	-0,00115	0,03025	12,55935	-1,64047
15	ELNCLDS	-0,00059	0,03280	7,743747	-0,96309	0,00069	0,02614	5,406286	-0,08845	-0,00191	0,03809	6,684462	-1,12489
16	BPEUCRS	-0,00078	0,02813	5,436442	-0,8324	-0,00076	0,02866	0,943451	-0,25901	-0,00079	0,02762	10,48935	-1,44676
17	MONCFRE	0,00024	0,02023	4,112721	-0,80533	0,00154	0,01596	2,744592	-0,29324	-0,00107	0,02355	3,273923	-0,82403
18	CDCINSE	-0,00032	0,02602	2,284376	-0,50926	0,00067	0,02266	4,418765	-0,30281	-0,00137	0,02883	1,09751	-0,54931
19	CDCEUAC	-0,00039	0,03395	7,278399	-1,15264	0,00068	0,02994	6,367424	-0,90777	-0,00148	0,03737	6,978058	-1,21426
20	SOGNFRN	-0,00001	0,03222	7,881283	-0,9486	0,00130	0,02597	5,061307	-0,00753	-0,00135	0,03721	7,021487	-1,14993
21	LGSTCAC	-0,00046	0,03193	7,380932	-1,08344	0,00095	0,02482	1,295559	-0,4405	-0,00190	0,03748	6,80964	-1,12753
22	BALCANI	0,00102	0,02504	7,961695	-0,9564	0,00224	0,01710	0,908022	-0,51865	-0,00022	0,03072	6,025348	-0,84474

23	AGFEUAC	-0,00008	0,03119	8,713264	-1,24047	0,00092	0,02623	1,071837	-0,44077	-0,00108	0,03529	9,72431	-1,46728
24	FEDEPAC	-0,00021	0,03207	10,59612	-1,30644	0,00118	0,02251	3,201361	-0,06755	-0,00163	0,03905	8,325239	-1,33423
25	EURF50C	-0,00021	0,03275	6,835597	-1,05562	0,00097	0,02615	1,2206	-0,45834	-0,00140	0,03798	6,650764	-1,1331
26	AXAAGEU	-0,00047	0,03327	21,89376	-0,85378	0,00110	0,02933	55,08147	0,107184	-0,00205	0,03659	7,220977	-1,26523
27	POETHIC	0,00015	0,03060	9,359102	-1,06475	0,00137	0,02379	4,213719	0,192016	-0,00110	0,03590	8,310605	-1,28877
28	AXAEFEA	-0,00076	0,03055	6,652498	-1,09903	0,00018	0,02506	1,293274	-0,57614	-0,00174	0,03501	6,814884	-1,18844
29	SCV5000	-0,00058	0,03113	9,539392	-1,22744	0,00094	0,02492	3,967272	-0,2552	-0,00210	0,03605	8,963155	-1,40305
30	ECURINV	-0,00044	0,03195	8,256872	-1,01476	0,00086	0,02526	4,892511	-0,05612	-0,00178	0,03724	7,226204	-1,1832
31	AGFOPID	0,00000	0,03076	6,805949	-1,03193	0,00122	0,02569	1,354591	-0,36731	-0,00122	0,03491	7,253685	-1,19588
32	VIACTEC	-0,00030	0,03076	8,134182	-1,20223	0,00124	0,02220	1,047518	-0,43454	-0,00184	0,03711	6,653314	-1,17349
33	AZUACFR	0,00000	0,02952	8,338729	-1,1945	0,00113	0,02351	1,455795	-0,43521	-0,00118	0,03430	8,134556	-1,30524
34	BNPAIFC	-0,00003	0,03302	7,62796	-0,7486	0,00121	0,02729	7,148624	0,390033	-0,00130	0,03768	6,48071	-1,08321
35	SOGEPEA	-0,00055	0,03021	11,56041	-1,20936	0,00044	0,02474	5,336742	-0,0498	-0,00154	0,03461	11,37892	-1,51713
36	TRICOLO	0,00028	0,03031	7,349755	-1,05922	0,00147	0,02359	1,165797	-0,3246	-0,00098	0,03558	6,802431	-1,13629
37	UNIFRAN	-0,00070	0,03129	9,339598	-1,19764	0,00057	0,02489	4,22994	-0,1664	-0,00197	0,03636	8,602947	-1,39009
38	BALSWII	0,00040	0,02689	15,25745	-1,4941	0,00161	0,02192	4,455597	-0,59894	-0,00086	0,03091	15,54272	-1,66552
39	BNPPADD	0,00055	0,02447	23,34778	-2,15047	0,00232	0,01235	1,690336	-0,38168	-0,00123	0,03197	14,29231	-1,72788
40	AGFEACD	-0,00028	0,03006	7,804397	-1,13243	0,00086	0,02433	0,799844	-0,38794	-0,00147	0,03467	7,975197	-1,26829
41	SICEURS	-0,00010	0,03099	8,01757	-1,21488	0,00127	0,02401	1,05213	-0,44185	-0,00148	0,03643	7,439369	-1,2819
42	ETVALUE	0,00004	0,03021	7,464991	-1,17636	0,00147	0,02419	3,896842	-0,51835	-0,00142	0,03498	6,748232	-1,25632
43	BNPNAV3	-0,00046	0,02909	11,2195	-1,07919	-0,00001	0,02670	9,064504	-0,31744	-0,00093	0,03116	11,93664	-1,51592
44	FRUFRAD	-0,00017	0,03028	7,397374	-1,08155	0,00127	0,02456	4,12683	-0,24313	-0,00163	0,03485	6,770536	-1,24681
45	FRUFRAC	0,00003	0,03049	7,413594	-0,97382	0,00140	0,02500	4,722373	0,102032	-0,00136	0,03492	6,756876	-1,24998
46	AXAAGIA	-0,00055	0,02638	12,13001	-1,10964	0,00006	0,02151	3,755423	0,042909	-0,00116	0,03030	12,36577	-1,42108
47	EMRGPSD	-0,00039	0,03028	8,34933	-1,08585	0,00050	0,02514	3,993166	-0,23731	-0,00132	0,03448	8,24926	-1,31575
48	FRNCGAN	0,00011	0,02859	7,376803	-1,02673	0,00143	0,02327	5,086644	-0,08751	-0,00124	0,03288	6,518366	-1,2342

49	FRUVEUR	-0,00009	0,02795	14,31051	-1,48434	0,00098	0,02042	3,243257	-0,0477	-0,00119	0,03361	12,28776	-1,60393
50	AGFEACC	-0,00005	0,02998	7,93161	-1,15149	0,00096	0,02430	0,831277	-0,40115	-0,00110	0,03457	8,135392	-1,29479
51	BNPAPEU	-0,00070	0,03165	10,76833	-1,18587	0,00036	0,02693	4,721677	0,14723	-0,00179	0,03557	11,33598	-1,66024
52	SYCEURO	0,00041	0,02982	13,01162	-1,55009	0,00192	0,02192	3,009452	-0,48945	-0,00109	0,03572	11,22383	-1,57979
53	BNPAIFD	-0,00044	0,03255	7,057951	-0,89328	0,00090	0,02607	3,551758	0,079685	-0,00180	0,03771	6,384299	-1,09658
54	AMPTMND	-0,00036	0,02405	6,450245	-0,74359	-0,00007	0,02148	1,3157	0,171035	-0,00064	0,02626	8,18478	-1,20012
55	AMPTMNC	-0,00018	0,02380	6,778505	-0,8399	0,00013	0,02098	1,390073	-0,00052	-0,00047	0,02619	8,327144	-1,22299
56	VINCACT	-0,00012	0,03092	7,670077	-1,17668	0,00132	0,02279	1,243138	-0,43102	-0,00156	0,03703	6,441642	-1,17406
57	EXACFRD	-0,00034	0,03257	6,829886	-1,00011	0,00103	0,02480	1,566183	-0,48801	-0,00174	0,03858	5,950918	-0,99391
58	RICHINV	0,00044	0,02024	7,892726	-1,38279	0,00248	0,01412	6,533874	0,057593	-0,00147	0,02456	5,404471	-1,37127
59	EXACFRC	0,00004	0,03245	6,904768	-1,01088	0,00135	0,02443	1,072864	-0,3917	-0,00131	0,03861	5,969224	-1,02124
60	BALJPNI	-0,00007	0,02879	6,461019	-1,04346	0,00210	0,02381	-0,03023	-0,20449	-0,00208	0,03271	7,051022	-1,2328
61	AXAVALF	-0,00047	0,03033	6,2372	-1,00061	0,00050	0,02514	1,192509	-0,44499	-0,00150	0,03460	6,50393	-1,11818
62	SPGPSMC	0,00115	0,02092	5,415925	-1,41677	0,00378	0,01815	1,479319	-0,58005	-0,00138	0,02295	6,003852	-1,70402
63	SGEUROP	0,00018	0,02709	10,42549	-1,2497	0,00136	0,02122	6,215142	-0,06901	-0,00102	0,03167	9,125972	-1,45026
64	BDFREPA	-0,00043	0,03107	6,690269	-0,98391	0,00085	0,02595	5,529687	-0,07184	-0,00172	0,03523	5,927276	-1,24479
65	BNPATRM	0,00008	0,03187	7,995233	-0,84369	0,00121	0,02692	5,873764	0,326376	-0,00112	0,03598	7,471323	-1,239
66	ABFEUR1	0,00009	0,03084	6,701906	-1,08357	0,00148	0,02442	1,321369	-0,49113	-0,00131	0,03591	6,333607	-1,13528
67	SGSOTEM	-0,00105	0,03496	8,468612	-0,15575	-0,00111	0,03803	7,484663	0,61304	-0,00099	0,03168	9,583751	-1,42936
68	BNPFVST	-0,00021	0,03168	7,470413	-1,09796	0,00115	0,02665	4,22412	-0,23442	-0,00161	0,03583	7,273507	-1,34491
69	MACTIEU	-0,00007	0,02751	8,003869	-1,08818	0,00080	0,02381	4,421973	-0,31312	-0,00095	0,03061	8,368656	-1,3724
70	SLVAFRN	-0,00071	0,03235	8,44923	-1,0832	0,00071	0,02649	4,741186	-0,1042	-0,00215	0,03709	7,906179	-1,31736
71	BALEURI	0,00011	0,03060	7,761419	-1,18699	0,00148	0,02383	1,15915	-0,49444	-0,00127	0,03588	7,244695	-1,24061
72	INDVARE	0,00012	0,03076	10,63782	-1,28369	0,00155	0,02493	1,676952	-0,21712	-0,00137	0,03544	10,8886	-1,51177
73	LIVRBRS	-0,00047	0,02992	2,40917	-0,45795	0,00069	0,02432	3,902977	-0,25653	-0,00169	0,03440	1,362797	-0,45018
74	AFERFLO	-0,00018	0,01906	3,243233	-0,79014	0,00068	0,02024	1,91805	-0,38011	-0,00105	0,01777	5,103515	-1,41008

75	EURRENC	0,00080	0,02287	13,99704	-1,56275	0,00193	0,01766	0,906294	-0,3808	-0,00035	0,02687	13,57417	-1,7106
76	MMAEUAC	-0,00014	0,03011	7,170918	-1,05643	0,00088	0,02537	1,218196	-0,28816	-0,00120	0,03405	7,851905	-1,27852
77	MEDIACT	-0,00015	0,03159	8,582172	-1,05018	0,00110	0,02582	4,858556	0,163371	-0,00144	0,03625	7,986189	-1,368
78	POABLTD	-0,00019	0,03153	7,513746	-0,95604	0,00103	0,02529	3,0963	0,032172	-0,00144	0,03650	7,001255	-1,16568
79	VHCAACT	0,00032	0,02906	7,359094	-1,11401	0,00123	0,02475	3,963764	-0,49901	-0,00062	0,03267	7,441565	-1,29373
80	POAMPLT	0,00024	0,03139	7,689872	-0,96074	0,00135	0,02529	3,099633	0,000151	-0,00090	0,03628	7,260824	-1,17297
81	PTONI10	-0,00027	0,02589	8,688179	-1,00112	0,00052	0,02204	1,491949	0,031843	-0,00106	0,02908	9,875825	-1,36342
82	LGMFRNC	0,00009	0,02822	7,190789	-1,02582	0,00105	0,02380	1,224577	-0,25197	-0,00091	0,03189	7,900396	-1,25346
83	STHOPME	0,00055	0,02483	5,048999	-1,21036	0,00255	0,02016	3,166347	-0,96053	-0,00143	0,02849	4,391621	-1,14112
84	EURREDD	0,00045	0,02302	13,51122	-1,51621	0,00168	0,01764	0,913096	-0,35535	-0,00079	0,02711	12,9061	-1,64327
85	SGFROPC	-0,00001	0,03042	7,683018	-0,86963	0,00149	0,02472	7,984891	0,255647	-0,00151	0,03495	6,198952	-1,14712
86	AXAINVT	-0,00076	0,02546	9,978315	-1,26668	-0,00005	0,02131	1,300452	-0,39073	-0,00145	0,02886	11,11331	-1,52077
87	MDMVALR	-0,00008	0,02555	9,692633	-1,16663	0,00083	0,02104	1,025867	-0,33347	-0,00101	0,02923	10,38451	-1,36362
88	ATTFUTC	-0,00004	0,03200	9,164016	-1,09126	0,00121	0,02557	5,86056	-0,0222	-0,00132	0,03712	8,116841	-1,31062
89	ATTFUTD	-0,00068	0,03255	8,45278	-1,05385	0,00090	0,02570	5,690807	0,003411	-0,00228	0,03794	7,235804	-1,23913
90	SSTRFRC	0,00030	0,03124	7,686389	-1,21442	0,00194	0,02445	1,341856	-0,5239	-0,00135	0,03655	7,178511	-1,26294
91	SSTRFRN	-0,00007	0,03133	7,533784	-1,18106	0,00164	0,02467	1,280236	-0,50984	-0,00178	0,03655	7,120446	-1,23243
92	FEDCA40	-0,00001	0,03301	7,596711	-1,1609	0,00117	0,02524	2,613735	-0,75413	-0,00123	0,03901	6,619905	-1,12855
93	MMAOF30	-0,00003	0,01991	13,46002	-1,44431	0,00051	0,01557	1,06028	-0,35414	-0,00057	0,02333	13,29179	-1,62167
94	GPINFRA	0,00044	0,02877	8,290025	-1,06129	0,00160	0,02298	5,699473	-0,04911	-0,00076	0,03339	7,187012	-1,2612
95	EURDNSV	-0,00016	0,02823	11,42268	-1,28409	0,00083	0,02185	3,350862	-0,14816	-0,00116	0,03320	10,52511	-1,45645
96	UNICNP1	-0,00025	0,02520	6,341118	-0,7826	0,00029	0,02087	1,394282	-0,30914	-0,00075	0,02873	6,658889	-0,89721
97	BDFPLAS	0,00026	0,03143	10,05181	-0,70716	0,00134	0,02648	13,05071	0,871509	-0,00085	0,03550	7,811452	-1,26859
98	CGNVASI	0,00150	0,02495	2,397468	-0,51962	0,00306	0,02039	1,075438	-0,62098	0,00002	0,02853	2,121401	-0,38717
99	LPOAMAD	-0,00038	0,02611	3,606544	-0,3815	-0,00035	0,02296	1,82904	0,20738	-0,00039	0,02877	3,930261	-0,66093
100	LPOAMAM	-0,00019	0,02599	3,608799	-0,36165	-0,00018	0,02287	1,773423	0,23537	-0,00018	0,02863	3,962411	-0,64703

101	HSBEUAD	-0,00027	0,03144	7,16667	-1,07807	0,00095	0,02452	1,279086	-0,37727	-0,00152	0,03682	6,677544	-1,15164
102	HSBEUAC	-0,00004	0,03146	7,177814	-1,07242	0,00111	0,02452	1,292178	-0,3776	-0,00122	0,03685	6,684489	-1,14662
103	ATOUSEL	-0,00041	0,02922	8,42672	-1,02401	0,00042	0,02583	5,588017	-0,12753	-0,00126	0,03213	8,799512	-1,41923
104	ATHCRIN	-0,00032	0,02248	7,584942	-1,21339	0,00008	0,02017	1,429477	-0,49805	-0,00071	0,02446	9,809299	-1,56197
105	AXAEUNC	0,00008	0,02876	6,293499	-1,02162	0,00086	0,02293	0,9502	-0,35999	-0,00074	0,03342	6,093091	-1,12743
106	INOSVAC	0,00032	0,03070	7,39415	-0,93074	0,00132	0,02562	5,479905	-0,03947	-0,00073	0,03488	6,762713	-1,18936
107	INOVAFD	-0,00025	0,03098	7,007889	-0,88632	0,00090	0,02584	5,268071	-0,02505	-0,00143	0,03520	6,356586	-1,13008
108	AXAEUND	-0,00014	0,02880	6,193296	-1,01457	0,00069	0,02300	0,911258	-0,34665	-0,00101	0,03344	6,01307	-1,12331
109	BNPAERP	-0,00004	0,02870	16,03166	-1,59075	0,00072	0,02171	4,636868	0,125339	-0,00083	0,03407	14,48093	-1,85426
110	EPRGUNI	-0,00071	0,02783	11,23646	-1,10521	0,00029	0,02165	4,450569	-0,06493	-0,00170	0,03263	10,27545	-1,274
111	FONCINV	0,00107	0,02824	8,362649	-1,4679	0,00386	0,01622	4,751226	-1,26272	-0,00176	0,03625	4,649288	-1,08935
112	BPOFOIC	0,00155	0,02809	8,644292	-1,50446	0,00422	0,01611	5,03972	-1,31025	-0,00117	0,03608	4,824644	-1,12367
113	PVALFRE	0,00095	0,02623	6,061304	-1,25888	0,00299	0,01692	2,732436	-0,82488	-0,00105	0,03264	3,783578	-1,03641
114	CNPAVLA	-0,00048	0,02859	10,04315	-1,23932	0,00044	0,02215	1,692649	-0,42866	-0,00141	0,03362	9,440185	-1,33009
115	ETOPPOR	0,00001	0,02859	8,941356	-1,38341	0,00182	0,01937	3,300012	-0,54521	-0,00181	0,03516	6,45605	-1,26366
116	UNIVACT	-0,00046	0,02509	8,761862	-0,91313	-0,00002	0,02119	2,128308	-0,00636	-0,00087	0,02830	9,690351	-1,22615
117	MDMEURP	-0,00014	0,02817	11,17435	-1,33842	0,00069	0,02290	1,729685	-0,314	-0,00101	0,03243	11,61678	-1,57535
118	HSBCAED	-0,00018	0,02869	10,73284	-1,27232	0,00083	0,02133	1,519893	-0,37352	-0,00122	0,03429	9,45988	-1,32089
119	HSBCAEC	0,00004	0,02866	10,80531	-1,28289	0,00102	0,02124	1,430985	-0,35007	-0,00097	0,03429	9,493762	-1,33565
120	SSTREUR	0,00017	0,02905	12,01915	-1,41768	0,00155	0,02119	1,241233	-0,44405	-0,00121	0,03493	10,37536	-1,42935
121	LIVRPRT	0,00001	0,02555	7,762225	-0,88839	0,00021	0,02287	2,960476	0,133428	-0,00023	0,02784	9,369041	-1,40718
122	AGFACIP	-0,00051	0,02284	7,173855	-1,21873	-0,00039	0,02099	1,641357	-0,62585	-0,00063	0,02445	9,801722	-1,5623
123	LOBETHQ	0,00035	0,02818	6,710658	-0,95286	0,00137	0,02077	3,072988	-0,42297	-0,00072	0,03377	5,31664	-0,93283
124	ELNUSAS	-0,00064	0,02660	4,47613	-0,40108	-0,00050	0,02190	1,263777	-0,07085	-0,00079	0,03037	4,53192	-0,49529
125	AZUACAM	-0,00012	0,02502	3,185516	-0,56786	-0,00047	0,02232	1,922965	-0,5552	0,00024	0,02732	3,469546	-0,57853
126	SOLELIN	-0,00034	0,02302	6,79111	-0,77382	-0,00018	0,02086	1,930616	-0,0448	-0,00050	0,02490	8,721188	-1,16802

127	SGMOPCD	0,00027	0,02557	12,44075	-1,5036	0,00132	0,02038	1,364717	-0,2863	-0,00075	0,02966	12,62542	-1,74466
128	BNPEPST	0,00001	0,02857	16,12153	-1,67605	0,00073	0,02138	3,721924	-0,19124	-0,00074	0,03406	14,47307	-1,8539
129	INVAEUR	0,00005	0,02807	12,45955	-1,4501	0,00120	0,02012	1,822882	-0,50201	-0,00112	0,03396	10,44938	-1,43866
130	AREUACT	0,00044	0,02685	15,58403	-1,78982	0,00215	0,01176	3,709646	-0,28866	-0,00126	0,03574	8,300495	-1,35207
131	INDFONC	0,00066	0,02818	6,573843	-1,41697	0,00314	0,01754	3,434589	-0,99565	-0,00189	0,03564	3,755265	-1,13039
132	CGMONDE	0,00042	0,01940	6,246024	-0,93219	0,00067	0,01622	1,72907	-0,33153	0,00017	0,02200	6,602339	-1,10858
133	PRIMEURP	0,00109	0,02787	5,328489	-1,35412	0,00372	0,02134	2,029423	-0,88708	-0,00151	0,03280	4,31081	-1,26034
134	ULYSSED	0,00031	0,02493	6,435548	-1,09696	0,00213	0,01646	4,336867	-0,14316	-0,00148	0,03083	4,105871	-0,99078
135	ULYSSEC	0,00051	0,02571	6,58554	-1,1507	0,00235	0,01875	10,44089	-0,86964	-0,00131	0,03082	4,135874	-1,00864
136	CROSIMB	0,00127	0,02528	8,714117	-1,68093	0,00362	0,01388	4,033341	-1,28331	-0,00113	0,03268	4,686444	-1,26844
137	SOGMIFR	0,00033	0,03294	11,27128	-1,36985	0,00180	0,02990	5,644699	-0,24308	-0,00116	0,03556	13,2343	-1,9591
138	OBJVALE	0,00016	0,02729	7,133847	-0,98007	0,00106	0,01926	2,193971	-0,44344	-0,00078	0,03320	5,438546	-0,92857
139	SPACTCO	0,00047	0,02127	6,091868	-1,4681	0,00138	0,01988	6,991479	-1,42505	-0,00044	0,02246	5,390894	-1,46528
140	TOCHLDP	0,00049	0,02121	10,32773	-1,43552	0,00185	0,01543	4,289271	-0,44731	-0,00088	0,02550	8,318653	-1,42389
141	AXAVEUC	0,00032	0,03038	7,984186	-1,19248	0,00122	0,02406	1,195165	-0,42465	-0,00062	0,03538	7,755367	-1,30913
142	AXAVEUD	-0,00009	0,03048	7,765431	-1,15387	0,00070	0,02418	1,091432	-0,38059	-0,00093	0,03549	7,577222	-1,28101
143	SYCMICP	0,00142	0,02588	11,23983	-1,66418	0,00388	0,01571	2,325658	-0,57557	-0,00096	0,03260	7,432515	-1,40247
144	OBJACEU	0,00031	0,02787	6,271783	-0,96512	0,00129	0,02038	2,745947	-0,47873	-0,00070	0,03350	4,877288	-0,9298
145	FQCADEU	0,00022	0,02722	10,46495	-1,31934	0,00121	0,02166	1,248279	-0,43688	-0,00079	0,03163	10,46638	-1,46347
146	UNIHOCC	0,00046	0,02935	7,643462	-0,6149	0,00095	0,02517	9,256755	0,256624	-0,00010	0,03288	6,193199	-0,94889
147	UNIHOCD	0,00017	0,02959	7,517769	-0,63358	0,00078	0,02526	9,101509	0,269543	-0,00049	0,03323	6,054438	-0,96689
148	MMAMUSE	-0,00002	0,02512	10,53055	-1,25947	0,00029	0,02097	1,529049	-0,40715	-0,00033	0,02852	11,6997	-1,51606
149	MDMIMMB	0,00133	0,02907	8,962398	-1,6239	0,00399	0,01663	3,242487	-1,02023	-0,00136	0,03733	5,085876	-1,26254
150	OBJSMAR	0,00085	0,02010	7,192904	-1,51748	0,00273	0,01439	2,780091	-0,62815	-0,00095	0,02420	5,404034	-1,431
151	EURPATR	0,00100	0,02333	18,33256	-1,86951	0,00287	0,01277	2,116557	-0,97374	-0,00084	0,03007	11,69222	-1,49045
152	MMATRAN	-0,00008	0,02655	12,74851	-1,33077	0,00048	0,01993	1,923722	-0,35642	-0,00068	0,03161	11,59622	-1,4262

153	AGFFONC	0,00138	0,02712	10,47297	-1,78549	0,00419	0,01515	4,103185	-1,12346	-0,00147	0,03497	5,943961	-1,37188
154	ALOPERI	0,00040	0,02637	5,66277	-1,11628	0,00180	0,02296	3,285748	-0,48756	-0,00100	0,02921	5,794937	-1,3284
155	MEESVAL	0,00015	0,03102	6,19473	-0,89284	0,00105	0,02833	1,817645	-0,06598	-0,00076	0,03335	7,983603	-1,34599
156	CICEUOP	0,00012	0,02757	5,471446	-1,0655	0,00112	0,02552	4,5438	-0,44723	-0,00093	0,02938	5,625424	-1,41767
157	VICAMRC	-0,00045	0,02822	6,493615	-0,52698	-0,00068	0,02351	1,468057	-0,28172	-0,00021	0,03202	7,026807	-0,61071
158	EURVALD	0,00045	0,02615	6,95724	-1,18035	0,00157	0,02251	1,818696	-0,62932	-0,00069	0,02918	7,828278	-1,34069
159	ODEVEPP	0,00094	0,03031	3,469022	-1,17314	0,00347	0,02746	5,5594	-1,32358	-0,00153	0,03257	2,251298	-1,02303
160	AMRGNSV	-0,00075	0,02748	4,545799	-0,60558	-0,00121	0,02426	1,962561	-0,44325	-0,00030	0,03019	5,224822	-0,69085
161	INVEMER	0,00198	0,03323	5,990826	-0,58944	0,00347	0,02778	1,354778	-0,56007	0,00058	0,03765	6,433907	-0,52658
162	ETOINUS	-0,00045	0,02754	4,558244	-0,4588	-0,00052	0,02366	1,905311	0,188667	-0,00038	0,03076	4,916992	-0,73178
163	ATOUTEM	0,00197	0,03290	6,221207	-0,58669	0,00344	0,02696	1,259143	-0,52595	0,00059	0,03766	6,429963	-0,5269
164	EURVALC	0,00073	0,02612	7,05623	-1,21712	0,00188	0,02239	1,929112	-0,69357	-0,00044	0,02921	7,833673	-1,3557
165	BALWLDI	0,00075	0,02624	10,60813	-1,30514	0,00193	0,01799	0,816321	-0,24457	-0,00042	0,03217	8,30524	-1,27217
166	UCRMAIT	0,00003	0,02710	6,275464	-1,10867	0,00080	0,02179	3,624318	-0,66546	-0,00080	0,03133	5,615883	-1,14883
167	UCAPCRO	0,00003	0,02687	6,675862	-1,13459	0,00078	0,02140	3,603677	-0,59705	-0,00079	0,03120	5,951695	-1,19264
168	ROLP	-0,00039	0,03148	6,517085	-0,63757	0,00013	0,02357	2,090504	-0,14964	-0,00086	0,03749	5,512797	-0,68162
169	AXASMAC	0,00091	0,02457	5,867213	-1,42685	0,00257	0,01887	3,754633	-1,22804	-0,00075	0,02893	4,660534	-1,28855
170	AXASECM	0,00059	0,02456	5,820764	-1,41209	0,00226	0,01888	3,674772	-1,19279	-0,00109	0,02890	4,63545	-1,28057
171	AAADSVI	0,00056	0,01996	14,1554	-1,55791	0,00102	0,01497	2,166102	-0,23342	0,00005	0,02382	12,7533	-1,70738
172	AAACSVI	0,00089	0,01980	14,69905	-1,60017	0,00131	0,01484	2,325487	-0,27008	0,00042	0,02364	13,24878	-1,74904
173	AGFFIDA	0,00063	0,02515	6,641137	-1,19777	0,00182	0,02085	2,064843	-0,4814	-0,00054	0,02854	6,727109	-1,35168
174	UCROPME	0,00003	0,02690	6,669985	-1,13829	0,00079	0,02140	3,598211	-0,59425	-0,00079	0,03126	5,92883	-1,19603
175	CARFNOM	0,00022	0,02281	3,647627	-0,98144	0,00084	0,02140	2,030856	-0,59057	-0,00047	0,02413	4,369491	-1,21747
176	BNPAADN	-0,00037	0,02889	2,369304	-0,227	-0,00039	0,02557	1,03299	-0,01901	-0,00031	0,03172	2,626967	-0,32942
177	EUROPME	0,00087	0,02811	7,451105	-1,47142	0,00292	0,02045	2,511838	-1,00811	-0,00117	0,03379	5,843036	-1,33323
178	HSBMIDD	0,00101	0,02875	5,14785	-1,02803	0,00292	0,01894	1,36566	-0,45874	-0,00090	0,03565	3,25349	-0,87795

179	HSBMIDC	0,00109	0,02867	5,240622	-1,04691	0,00302	0,01866	1,2565	-0,48067	-0,00083	0,03566	3,269364	-0,88484
180	FIDEURO	0,00080	0,02909	12,14672	-1,52094	0,00205	0,02404	2,95677	-0,30755	-0,00043	0,03322	12,70548	-1,83839
181	BMMCAPD	0,00147	0,01710	6,479579	-1,42747	0,00374	0,01138	2,716111	-0,99629	-0,00084	0,02111	4,131155	-1,1393
182	RENSEUR	0,00084	0,02046	7,349377	-1,23782	0,00083	0,01756	2,018032	-0,78977	0,00074	0,02297	8,18688	-1,3798
183	STHOVIE	0,00038	0,02114	12,57195	-1,54993	0,00042	0,01714	4,499866	-0,67802	0,00032	0,02437	12,6025	-1,75397
184	VENSEEU	0,00074	0,02616	4,885773	-1,03113	0,00168	0,01874	1,293615	-0,4999	-0,00026	0,03172	3,56379	-0,97868
185	EURPMDC	0,00077	0,02721	7,877867	-1,25869	0,00204	0,02061	2,259023	-0,55135	-0,00059	0,03234	6,717585	-1,26654
186	CAREMER	0,00214	0,02848	6,291107	-1,11233	0,00400	0,02368	2,08794	-0,86863	0,00039	0,03235	6,39758	-1,08292
187	BALUSAI	0,00046	0,02601	7,700758	-0,81626	0,00114	0,01894	2,176055	-0,29932	-0,00021	0,03128	6,324824	-0,81452
188	CDCMEDI	0,00075	0,02608	6,675079	-1,29748	0,00228	0,01916	4,06388	-0,67085	-0,00079	0,03124	5,050372	-1,23922
189	CAIVESL	0,00080	0,02586	4,112818	-0,98539	0,00188	0,02063	2,351219	-0,56586	-0,00033	0,03004	3,416178	-1,00039
190	ODDGEND	0,00062	0,02788	5,395914	-0,75343	0,00146	0,02108	4,304122	0,086802	-0,00028	0,03311	4,047386	-0,85671
191	ROTHMAR	0,00006	0,02756	8,91803	-0,51747	0,00064	0,01819	1,6957	-0,50078	-0,00049	0,03417	6,54227	-0,42542
192	ROTHAMR	0,00018	0,02744	9,093494	-0,52004	0,00081	0,01789	1,642768	-0,43782	-0,00040	0,03412	6,581437	-0,43196
193	ATOUTCR	0,00048	0,02613	7,831039	-1,49125	0,00221	0,01947	3,121364	-0,90894	-0,00126	0,03116	6,35628	-1,41165
194	ODDGENC	0,00069	0,02794	5,440959	-0,73122	0,00150	0,02093	4,408372	0,044075	-0,00017	0,03331	4,023055	-0,81146
195	QUANUSD	0,00042	0,02904	4,147489	-0,53878	0,00120	0,02314	1,044509	-0,10969	-0,00030	0,03370	3,827365	-0,60714
196	MDMOPPI	0,00028	0,02968	9,600654	-1,27009	0,00128	0,02242	1,601165	-0,36034	-0,00077	0,03525	8,59814	-1,34552
197	MDMPERS	0,00033	0,02879	6,017448	-1,27289	0,00151	0,02278	3,917573	-1,06395	-0,00084	0,03350	5,121786	-1,2051
198	ECHAPEA	0,00124	0,02476	6,434642	-1,18129	0,00286	0,01630	5,475494	-0,45329	-0,00039	0,03068	3,997319	-1,03845
199	ECHAGRE	0,00127	0,02379	7,48379	-1,25826	0,00279	0,01360	4,352846	-0,15398	-0,00025	0,03044	4,184943	-1,04474
200	ODDAVED	0,00174	0,02260	5,716014	-1,08432	0,00318	0,01760	2,107136	-0,54518	0,00030	0,02646	4,94402	-1,08018
201	ODDAVEC	0,00181	0,02257	5,801299	-1,05725	0,00325	0,01741	1,792605	-0,46145	0,00038	0,02652	4,997099	-1,05981
202	AXAESCC	0,00122	0,02666	5,709084	-1,29483	0,00299	0,02051	3,019157	-1,00012	-0,00057	0,03139	4,63607	-1,19216
203	ODEUMIC	0,00168	0,02392	5,593622	-1,12702	0,00314	0,01828	1,238047	-0,44568	0,00021	0,02824	4,758976	-1,13793
204	AXAESCD	0,00100	0,02666	5,655058	-1,28727	0,00294	0,02050	3,038384	-1,00908	-0,00095	0,03137	4,5742	-1,17375

TABLE 6. GERMAN MUTUAL FUNDS AND DESCRIPTIVE STATISTICS

		OVERALL PERIOD				SUBPERIOD ONE				SUBPERIOD TWO			
#	NAME	E(RP)	SD	KURTOSIS	SKEWNESS	E(RP)	SD	KURTOSIS	SKEWNESS	E(RP)	SD	KURTOSIS	SKEWNESS
1	4N43	0,00110	0,02697	3,009377	-0,68588	0,00191	0,02258	0,803966	-0,40901	0,00043	0,03054	3,04010	-0,74085
2	ADIF	-0,00008	0,03290	7,866264	-1,22867	0,00053	0,03098	3,02555	-0,67703	-0,00055	0,03457	10,75402	-1,60578
3	ADIGCON	-0,00083	0,02569	12,02154	-1,43476	-0,00064	0,02209	1,496643	-0,41929	-0,00093	0,02868	14,50088	-1,83630
4	ADIGEPV	-0,00076	0,02991	10,73313	-1,68085	0,00094	0,02380	2,300931	-0,69005	-0,00231	0,03466	10,56470	-1,83517
5	ADIVERF	-0,00090	0,03437	12,97795	-1,53138	0,00070	0,02444	3,214375	-0,22614	-0,00238	0,04162	10,70025	-1,57881
6	AKTROHS	0,00170	0,03703	12,04246	-0,83331	0,00320	0,02526	1,455447	-0,54018	0,00035	0,04545	9,55354	-0,73305
7	ALLAKEU	-0,00024	0,02880	18,59335	-2,01448	0,00081	0,02128	2,016163	-0,52503	-0,00120	0,03443	16,90032	-2,14290
8	ALLZAKT	-0,00030	0,02451	17,60773	-2,03745	0,00049	0,01928	0,992951	-0,28176	-0,00102	0,02859	17,90922	-2,39427
9	ALTLEIP	0,00011	0,03236	8,577286	-1,10415	0,00091	0,02641	3,666007	-0,9921	-0,00050	0,03715	8,44788	-1,06815
10	BHWEURF	-0,00063	0,03126	9,689918	-1,2194	0,00056	0,02293	1,644755	-0,57885	-0,00167	0,03748	8,33923	-1,20948
11	BINEURF	-0,00059	0,03062	9,322522	-0,85663	0,00080	0,02740	12,35219	0,161093	-0,00188	0,03329	7,35735	-1,35873
12	BWKASDT	0,00002	0,03284	10,07111	-1,52069	0,00091	0,02884	2,683014	-0,63292	-0,00071	0,03620	12,11311	-1,90200
13	CXWB	-0,00077	0,02912	3,209279	-0,98297	0,00094	0,02383	2,277698	-0,68789	-0,00233	0,03329	2,65851	-0,98136
14	CXWC	-0,00064	0,02697	12,84411	-1,35707	-0,00019	0,02262	1,302684	-0,23835	-0,00100	0,03050	14,73184	-1,73215
15	CXWE	-0,00085	0,02640	11,41833	-1,33825	-0,00064	0,02213	1,468807	-0,41622	-0,00096	0,02989	12,97679	-1,64379
16	CXWP	-0,00025	0,03168	6,819554	-1,22269	0,00072	0,02861	2,803107	-0,71	-0,00108	0,03427	8,28788	-1,47816
17	D6R6	-0,00025	0,02378	11,39816	-1,31882	0,00034	0,02101	3,495714	0,272539	-0,00075	0,02611	13,70856	-2,07227
18	DBIMERF	-0,00004	0,03244	14,35192	-1,69722	0,00076	0,02493	2,277359	-0,51397	-0,00068	0,03822	13,69435	-1,87093
19	DED2	0,00204	0,04126	23,21323	-1,27533	0,00469	0,02916	2,283116	-0,87179	-0,00048	0,04999	20,16067	-1,13918
20	DED3	0,00218	0,04148	22,17921	-0,00789	0,00483	0,02903	2,306836	-0,91655	-0,00035	0,05041	19,24240	0,26060
21	DED4	-0,00028	0,02706	12,74615	-1,65137	0,00085	0,02099	2,20046	-0,5659	-0,00133	0,03172	12,23721	-1,79781
22	DED6	-0,00028	0,02673	13,44202	-1,7402	0,00086	0,02108	2,133728	-0,57468	-0,00133	0,03111	13,35993	-1,93874
23	DED7	0,00049	0,03101	3,178688	-0,48277	0,00133	0,02606	1,535542	-0,20622	-0,00020	0,03504	3,07642	-0,55171

24	DEKBAVF	-0,00024	0,02323	11,6703	-1,53205	0,00034	0,02013	1,283545	-0,11492	-0,00072	0,02582	14,26111	-2,11643
25	DEKEURS	-0,00016	0,02680	9,521139	-1,24661	0,00025	0,02177	1,820551	-0,53636	-0,00050	0,03082	9,89845	-1,41177
26	DEKSPEZ	-0,00031	0,02546	14,95756	-1,76661	-0,00006	0,02109	1,378852	-0,33068	-0,00049	0,02899	16,81675	-2,21797
27	DI7S	-0,00020	0,03031	19,37682	-2,13358	0,00123	0,02163	1,64476	-0,56297	-0,00146	0,03669	16,69954	-2,18093
28	DI7Y	-0,00031	0,03182	18,03786	-2,06426	0,00098	0,02446	2,228506	-0,6601	-0,00145	0,03746	17,38738	-2,25135
29	DITEURA	-0,00029	0,03147	18,99611	-2,16089	0,00097	0,02439	2,268779	-0,66643	-0,00142	0,03693	18,62213	-2,38794
30	DITVERE	-0,00019	0,02976	20,6359	-2,25705	0,00120	0,02155	1,690814	-0,56907	-0,00145	0,03583	18,25968	-2,35158
31	DITVERM	-0,00022	0,02705	17,33684	-1,99006	0,00051	0,02229	1,579299	-0,21178	-0,00083	0,03087	19,20408	-2,52095
32	DJF5	-0,00025	0,02884	18,32732	-2,12097	0,00082	0,02097	1,8601	-0,45468	-0,00122	0,03468	16,22634	-2,24335
33	DJFG	-0,00031	0,02507	16,69302	-1,88893	0,00054	0,01924	1,220687	-0,30653	-0,00105	0,02958	16,09782	-2,13152
34	DJFH	0,00061	0,03299	9,365372	-1,2452	0,00137	0,02705	4,002237	-0,87081	0,00001	0,03776	9,35618	-1,30103
35	DJFP	-0,00023	0,02729	16,71198	-1,98599	0,00051	0,02195	1,723374	-0,19541	-0,00086	0,03153	17,55559	-2,43502
36	DJL1	0,00232	0,06475	22,85539	-0,86387	0,00530	0,05677	12,45706	0,186962	0,00044	0,07302	23,56516	-1,09023
37	DJL5	0,00169	0,06776	19,84068	-0,79923	0,00622	0,06203	11,87227	-0,08555	-0,00162	0,07429	21,73651	-0,93946
38	DJL6	0,00152	0,03705	13,53962	-1,67432	0,00478	0,02733	1,796392	-0,71299	-0,00159	0,04413	12,03892	-1,64869
39	DKD	-0,00058	0,02650	12,83436	-1,60548	-0,00066	0,02286	1,775073	-0,07309	-0,00046	0,02952	15,64675	-2,25219
40	DPEUAKT	-0,00027	0,02327	12,25785	-1,66699	0,00055	0,02139	2,473897	-0,46514	-0,00102	0,02485	16,96451	-2,37849
41	DVGEMM K	0,00125	0,03365	11,19641	-1,45603	0,00308	0,02808	1,398343	-0,54455	-0,00043	0,03813	12,44015	-1,69329
42	DWSEATO	0,00010	0,03134	12,95549	-1,60401	0,00139	0,02362	1,579494	-0,53875	-0,00106	0,03717	11,95808	-1,69760
43	DWW9	0,00124	0,03365	6,476288	-1,11587	0,00302	0,02798	1,655294	-0,58076	-0,00044	0,03817	6,78698	-1,21989
44	DWWB	0,00011	0,03054	3,610181	-0,92827	0,00139	0,02432	1,617056	-0,65291	-0,00107	0,03539	3,11595	-0,91474
45	EZTD	-0,00057	0,02496	6,357402	-0,98824	0,00017	0,02007	1,552609	-0,47801	-0,00119	0,02883	6,23595	-1,07199
46	FGQF	-0,00005	0,03045	3,807827	-0,68436	0,00081	0,02492	2,229492	-0,48364	-0,00073	0,03491	3,40516	-0,69555
47	FGUD	0,00011	0,03106	2,850321	-0,78237	0,00082	0,02767	2,292427	-0,75015	-0,00047	0,03393	2,80890	-0,77358
48	FK8T	-0,00017	0,02771	8,76031	-1,19427	0,00025	0,02276	3,133868	-0,12183	-0,00051	0,03168	8,91044	-1,50938
49	FKTF	0,00145	0,02984	6,824398	-1,00672	0,00306	0,02327	1,385836	-0,36523	0,00010	0,03495	6,28613	-1,06286

50	FNDS	-0,00062	0,02616	12,91313	-1,50399	-0,00019	0,02253	1,364208	-0,24158	-0,00097	0,02917	15,69927	-2,00985
51	FRTINSP	-0,00056	0,02494	13,77514	-1,69022	0,00017	0,01991	1,668289	-0,50517	-0,00116	0,02890	14,15216	-1,93982
52	G4MF	0,00005	0,01904	1,850712	-0,59382	-0,00050	0,01866	1,402428	-0,29557	0,00065	0,01933	2,36038	-0,87178
53	GENEUUN	0,00010	0,02249	10,94937	-1,50579	0,00114	0,02010	2,544261	-0,66707	-0,00088	0,02446	13,94198	-1,90175
54	HANSASC	0,00079	0,03053	12,78801	-1,58694	0,00237	0,02109	2,734484	-0,67111	-0,00068	0,03731	10,14634	-1,50822
55	HANSEUI	-0,00055	0,02841	9,472044	-1,36328	0,00075	0,02129	2,958628	-0,64312	-0,00172	0,03377	8,22146	-1,37622
56	HG4H	0,00169	0,03632	8,142976	-0,66593	0,00320	0,02499	1,565704	-0,56018	0,00029	0,04448	6,25403	-0,55101
57	HJ3E	0,00080	0,03070	12,78653	-1,61141	0,00243	0,02078	2,494199	-0,81749	-0,00071	0,03773	9,89371	-1,48550
58	HJ3F	-0,00052	0,02859	9,294406	-1,43277	0,00082	0,02088	3,254882	-0,82732	-0,00174	0,03429	7,67917	-1,38214
59	HJUB	-0,00031	0,02311	2,334622	-0,58093	-0,00052	0,02338	1,27601	-0,29045	0,00009	0,02290	3,47990	-0,88188
60	HJVC	-0,00009	0,03350	7,765121	-1,18155	0,00053	0,03113	2,944227	-0,65172	-0,00057	0,03556	10,28611	-1,51304
61	HJVE	-0,00092	0,03514	12,24147	-1,35659	0,00070	0,02450	3,158342	-0,22501	-0,00241	0,04283	9,78320	-1,36026
62	HV8R	-0,00001	0,02878	11,30705	-1,33546	0,00074	0,02225	2,116369	-0,09126	-0,00066	0,03381	10,74358	-1,55855
63	HV8S	0,00009	0,02874	11,01556	-1,35147	0,00079	0,02211	2,285251	-0,1209	-0,00054	0,03384	10,31745	-1,56005
64	HYPTWEL	-0,00023	0,02574	13,3707	-1,65493	0,00014	0,02080	1,746572	-0,10644	-0,00052	0,02967	14,09832	-2,07194
65	IUGM	0,00110	0,09826	8,615175	-0,14729	0,00308	0,08837	5,039719	-0,00211	-0,00068	0,10658	9,84955	-0,21136
66	IUGN	0,00122	0,09480	8,351008	0,059488	0,00412	0,08274	6,175804	0,130763	-0,00149	0,10475	8,55156	0,05250
67	IUVD	0,00142	0,09548	9,602638	-0,22222	0,00388	0,07468	7,654568	0,017466	-0,00062	0,11166	8,19214	-0,25014
68	IWMI	0,00026	0,03287	11,12794	-1,54402	0,00111	0,02698	2,599025	-0,68421	-0,00042	0,03761	11,69707	-1,75495
69	IWT5	0,00109	0,03984	20,88105	-0,90238	0,00502	0,02725	1,886255	-0,67017	-0,00269	0,04859	17,56577	-0,70061
70	IWTC	0,00137	0,03739	15,37488	-1,36159	0,00511	0,02727	1,895465	-0,67129	-0,00222	0,04464	13,73525	-1,26886
71	J7N4	-0,00063	0,02336	10,25719	-1,02427	-0,00039	0,01953	3,951897	-0,05405	-0,00078	0,02648	10,80703	-1,35507
72	LH4A	0,00010	0,03129	3,892279	-0,70342	0,00091	0,02660	3,555421	-0,98745	-0,00052	0,03517	3,42821	-0,54290
73	LIGAPAU	-0,00032	0,02722	8,08043	-1,01631	0,00057	0,02194	2,370358	-0,43803	-0,00113	0,03138	8,00304	-1,11860
74	M3AG	0,00029	0,03484	9,183809	-0,94187	0,00119	0,02905	3,2611	-0,72839	-0,00041	0,03955	9,64007	-0,96443
75	MATAPAC	0,00146	0,02957	6,917746	-1,00188	0,00306	0,02320	1,243247	-0,44478	0,00009	0,03453	6,51316	-1,04138

76	MIAKPRE	-0,00045	0,02767	8,718095	-1,15515	0,00012	0,02214	1,062062	-0,35518	-0,00093	0,03204	8,87527	-1,32546
77	MONGRMY	0,00030	0,03452	9,257351	-0,89721	0,00119	0,02914	3,191022	-0,70492	-0,00039	0,03894	9,99616	-0,92281
78	NORINRK	0,00027	0,03268	11,19495	-1,46179	0,00111	0,02688	2,653846	-0,70222	-0,00039	0,03736	11,81026	-1,64492
79	NORISFD	-0,00023	0,02940	11,3926	-1,57707	0,00042	0,02620	4,461946	-0,82731	-0,00075	0,03210	13,66641	-1,93147
80	NURNADA	-0,00024	0,03151	7,01108	-1,21459	0,00072	0,02853	2,870346	-0,71966	-0,00106	0,03404	8,57903	-1,46462
81	OD5B	-0,00059	0,03005	5,706	-0,49051	0,00080	0,02711	12,48317	0,138259	-0,00188	0,03249	2,16413	-0,80513
82	OPJ3	0,00091	0,02097	18,41788	-1,82834	0,00154	0,01886	4,219309	-0,22985	0,00035	0,02276	23,93049	-2,66279
83	OPPFGLB	0,00097	0,01680	14,41447	-1,73378	0,00095	0,01447	3,385481	-0,50006	0,00105	0,01872	17,05605	-2,23937
84	OXMC	0,00096	0,01751	11,97731	-1,54825	0,00095	0,01454	3,309611	-0,49909	0,00101	0,01991	12,92453	-1,88274
85	PBAE	-0,00003	0,02884	16,24509	-1,8386	0,00092	0,01940	1,534102	-0,46488	-0,00088	0,03556	12,85867	-1,80245
86	RIXD	0,00031	0,03197	25,39957	-2,57901	0,00180	0,02594	5,17849	-0,37296	-0,00107	0,03671	26,76812	-3,15912
87	RK1W	0,00026	0,02392	3,0756	-0,4347	0,00124	0,02215	1,065217	0,105626	-0,00062	0,02542	3,98418	-0,75764
88	RK1X	-0,00051	0,02771	6,110478	-0,50055	-0,00052	0,02493	2,16619	0,022863	-0,00044	0,03007	7,59553	-0,78597
89	SGRWSAV	0,00015	0,03075	3,531837	-0,78437	0,00082	0,02748	2,409353	-0,76304	-0,00040	0,03352	3,73332	-0,77230
90	SMHINTL	-0,00009	0,02364	6,648992	-0,72977	0,00017	0,02052	2,993091	0,08642	-0,00030	0,02623	7,33313	-1,08086
91	SMHSPZ1	0,00033	0,03355	7,792241	-1,14757	0,00133	0,02823	2,946697	-0,67646	-0,00049	0,03790	8,20279	-1,26788
92	SRVL	0,00225	0,09112	7,020456	0,046982	0,00456	0,09848	3,564402	0,177771	0,00017	0,08562	11,74611	-0,13613
93	SRVM	0,00227	0,09093	7,310857	-0,08212	0,00461	0,09896	3,542633	0,18234	0,00015	0,08470	12,72320	-0,46895
94	SRVN	0,00238	0,09086	7,00317	0,014847	0,00462	0,09867	3,56341	0,160633	0,00028	0,08511	11,77102	-0,21254
95	THESAUR	0,00066	0,03282	8,896902	-1,06624	0,00143	0,02749	3,691859	-0,84146	0,00007	0,03716	9,27014	-1,09427
96	U1IE	-0,00025	0,02818	3,293437	-0,66499	0,00069	0,02221	3,192362	-0,61153	-0,00109	0,03284	2,41530	-0,60158
97	U1II	0,00015	0,02627	4,807073	-0,38542	0,00039	0,02364	1,902123	0,20165	-0,00004	0,02850	5,83940	-0,69912
98	UI3L	-0,00011	0,02620	6,527754	-1,10751	-0,00015	0,02356	2,847978	-0,38253	0,00000	0,02845	7,87449	-1,49626
99	UIB5	0,00032	0,03247	3,16261	-0,74464	0,00136	0,02891	2,564303	-0,53821	-0,00051	0,03553	3,06743	-0,81554
100	UIV1	-0,00008	0,02996	8,467206	-1,27666	0,00157	0,02085	1,597967	-0,3835	-0,00158	0,03652	6,54391	-1,23040
101	UIV2	-0,00005	0,03048	10,77024	-1,47408	0,00160	0,02099	1,599962	-0,4183	-0,00155	0,03728	8,43760	-1,42663

102	UNACATI	0,00067	0,02481	2,259711	-0,01171	0,00157	0,02254	1,247749	-0,00269	-0,00013	0,02673	2,60316	0,00548
103	UNIEURP	-0,00025	0,02901	8,0601	-1,01474	0,00069	0,02157	2,009145	-0,40781	-0,00110	0,03460	6,92988	-1,03324
104	UNIONGL	0,00017	0,02413	8,924194	-0,91265	0,00045	0,02042	2,105882	-0,07956	-0,00004	0,02717	10,00332	-1,21301
105	UO1D	-0,00027	0,02325	12,00415	-1,7274	0,00055	0,02133	2,532347	-0,45892	-0,00103	0,02487	16,43182	-2,46848
106	UQ2E	-0,00014	0,02563	22,10497	-2,40406	0,00028	0,01988	0,65376	-0,28044	-0,00043	0,03012	22,18840	-2,81508
107	ZGS7	0,00213	0,03529	3,362755	-0,3631	0,00388	0,02974	1,144794	-0,42836	0,00048	0,03977	3,48469	-0,27075
108	ZPJF	0,00020	0,02856	11,37088	-1,3281	0,00090	0,02232	2,138375	-0,09517	-0,00042	0,03339	11,02839	-1,57153
109	ZPJK	0,00001	0,02746	2,669543	-0,48736	0,00076	0,02211	2,332137	-0,11812	-0,00065	0,03169	2,02163	-0,55365
110	DKDP	-0,00040	0,02703	3,322414	-0,2922	0,00033	0,02772	0,375084	0,133312	-0,00096	0,02629	6,78466	-0,79299
111	DWSJPOP	-0,00020	0,02796	2,74553	-0,57617	0,00041	0,03298	1,528299	-0,50131	-0,00061	0,02206	4,51990	-0,79780
112	DWSVDYN	0,00026	0,01964	13,3756	-1,7313	0,00134	0,01669	1,927773	-0,64141	-0,00072	0,02201	15,53111	-2,08863
113	DWW4	-0,00021	0,02892	1,538109	-0,40439	0,00044	0,03268	1,068349	-0,39357	-0,00062	0,02479	1,77215	-0,45435
114	DWWN	0,00198	0,03667	2,279192	-0,46708	0,00455	0,03045	1,006265	-0,48633	-0,00040	0,04157	2,10609	-0,36797
115	DZ7I	0,00025	0,01924	3,171374	-0,81613	0,00133	0,01664	1,970536	-0,63044	-0,00072	0,02137	3,11256	-0,83393
116	EUROAKT	-0,00042	0,02889	9,860836	-1,42367	0,00114	0,02206	2,123473	-0,51127	-0,00185	0,03405	8,99631	-1,49791
117	FGUC	-0,00052	0,03161	9,04216	-1,36157	0,00055	0,02949	2,380387	-0,61821	-0,00140	0,03344	12,65892	-1,83764
118	FHUK	-0,00032	0,02530	3,111759	-0,35667	0,00056	0,02210	3,639555	-0,24603	-0,00112	0,02795	2,53972	-0,37272
119	FK8V	-0,00078	0,03481	13,34511	-1,46693	0,00076	0,02602	2,96758	-0,26098	-0,00215	0,04143	11,94459	-1,58592
120	FK8W	-0,00076	0,03393	13,89542	-1,72677	0,00077	0,02608	2,962025	-0,26823	-0,00214	0,03993	13,03500	-1,94818
121	HV8A	-0,00008	0,03040	10,89355	-1,68518	0,00245	0,01930	1,778875	-0,36224	-0,00251	0,03791	7,58798	-1,51441
122	IWT4	0,00077	0,03457	6,994891	-1,53222	0,00527	0,02291	2,819473	-0,76691	-0,00343	0,04239	4,66745	-1,30312
123	IWTF	0,00115	0,03463	7,039732	-1,4981	0,00551	0,02287	2,896933	-0,78821	-0,00290	0,04255	4,68666	-1,26425
124	KAKDEKA	-0,00076	0,03370	14,47659	-1,82244	0,00077	0,02508	1,71493	-0,66639	-0,00213	0,04017	13,11779	-1,89340
125	KLNAKTD	-0,00077	0,03347	14,61263	-1,79896	0,00076	0,02499	1,714492	-0,66333	-0,00214	0,03985	13,32185	-1,87222
126	M3AH	-0,00047	0,03324	8,722722	-1,1991	0,00090	0,02578	2,868516	-0,75961	-0,00170	0,03898	7,99157	-1,19475
127	MONEULD	-0,00046	0,03238	9,135333	-1,22303	0,00090	0,02588	2,784206	-0,74386	-0,00168	0,03746	8,91863	-1,26258

128	S4WD	-0,00041	0,02859	3,016461	-0,82192	0,00114	0,02196	2,162041	-0,53348	-0,00183	0,03362	2,15632	-0,77645
129	SRVK	-0,00033	0,02863	3,057977	-0,7968	0,00225	0,01963	1,695371	-0,40082	-0,00279	0,03493	1,71812	-0,64714
130	U1IG	-0,00026	0,03099	2,958478	-0,74934	0,00089	0,02591	3,188303	-0,77122	-0,00129	0,03510	2,30726	-0,67485
131	U1IJ	-0,00035	0,02676	0,730265	-0,14505	0,00049	0,02779	0,296288	0,031724	-0,00105	0,02565	1,25042	-0,38986
132	UNIJAPN	-0,00034	0,02664	3,302409	-0,52614	0,00053	0,02768	0,314944	-0,05915	-0,00102	0,02558	7,11134	-1,12113
133	UNIONEL	-0,00026	0,03070	5,690216	-0,9609	0,00091	0,02495	2,103029	-0,55597	-0,00130	0,03526	5,49537	-1,01202
134	UPKB	0,00049	0,02813	15,61472	-1,68042	0,00213	0,02213	4,33552	-0,47358	-0,00100	0,03275	15,14975	-1,87562
135	VERVALR	-0,00051	0,03251	9,422013	-1,28181	0,00055	0,02936	2,45312	-0,62397	-0,00140	0,03519	12,14635	-1,61592
136	ZJP3	-0,00019	0,03013	10,87969	-1,57794	0,00234	0,01955	1,642627	-0,35099	-0,00261	0,03736	7,82787	-1,43280
137	ASTRAFD	0,00074	0,01937	3,825407	-0,99436	0,00201	0,01774	2,956634	-0,97891	-0,00035	0,02076	4,03971	-0,95669
138	DED5	-0,00082	0,02944	14,13096	-1,69874	0,00038	0,02234	1,497208	-0,53063	-0,00191	0,03483	13,27748	-1,82345
139	DJLD	0,00009	0,05805	34,22579	-1,575	0,00121	0,04748	25,34492	0,422969	0,00006	0,06865	29,41666	-1,75854
140	DKDI	-0,00078	0,03327	8,313391	-1,26781	0,00051	0,02555	1,984337	-0,7244	-0,00193	0,03919	7,57445	-1,27937
141	DKDJ	-0,00071	0,03368	9,565378	-1,40736	0,00053	0,02556	1,968118	-0,73151	-0,00183	0,03985	8,66355	-1,43176
142	DKDM	0,00033	0,03543	12,31398	-1,55347	0,00138	0,02864	2,673938	-0,44744	-0,00051	0,04085	12,62039	-1,81188
143	EURAKTS	0,00052	0,02771	10,19602	-1,41385	0,00285	0,01838	1,766672	-0,74139	-0,00172	0,03415	7,54202	-1,22928
144	EZTQ	0,00083	0,01798	1,371542	-0,36151	0,00193	0,01705	1,429013	-0,6552	-0,00011	0,01879	1,38095	-0,12665
145	FGMD	0,00038	0,02932	26,1775	-1,20448	0,00126	0,02056	1,971573	-0,26489	-0,00044	0,03568	22,56821	-1,21624
146	FMMFNDS	0,00084	0,01750	1,641165	-0,57125	0,00193	0,01695	1,936161	-0,76819	-0,00008	0,01797	1,49012	-0,39985
147	FMUD	0,00007	0,02726	3,181301	-0,64415	0,00194	0,02136	4,044579	-0,10826	-0,00165	0,03178	2,03198	-0,67880
148	FPJA	0,00052	0,02581	2,902419	-0,88514	0,00285	0,01881	1,882701	-0,72914	-0,00172	0,03085	1,82451	-0,71952
149	GGV	0,00082	0,03131	3,326838	-0,75696	0,00162	0,02882	5,31699	-0,71613	0,00014	0,03342	2,13039	-0,76715
150	HJUK	0,00030	0,03279	2,849974	-0,67122	0,00130	0,02950	2,465108	-0,47203	-0,00054	0,03557	2,76588	-0,75424
151	LXFA	0,00053	0,02514	12,94713	-1,60881	0,00090	0,01889	1,173107	-0,34615	0,00019	0,02987	12,03160	-1,77534
152	MEAGEIN	0,00008	0,02630	3,931391	-0,68358	0,00194	0,02133	4,063382	-0,09832	-0,00162	0,03017	2,97578	-0,77184
153	MIAKPRW	-0,00091	0,02674	4,44334	-0,74547	-0,00127	0,02579	0,929902	-0,4268	-0,00046	0,02758	7,11342	-1,01008

154	OE7A	0,00026	0,02490	8,849798	-1,21648	0,00165	0,01844	3,282154	-0,90927	-0,00101	0,02971	7,44389	-1,11767
155	OXSA	0,00077	0,09866	8,344383	-0,23713	0,00261	0,09128	4,582143	0,001775	-0,00093	0,10493	10,25461	-0,37717
156	RINGAKF	0,00031	0,03338	8,564423	-1,27072	0,00127	0,02919	2,655128	-0,49877	-0,00050	0,03687	10,03564	-1,59070
157	RK11	0,00204	0,03998	14,60793	-0,54887	0,00479	0,02801	2,960841	-1,07076	-0,00063	0,04855	12,27019	-0,29211
158	RK1B	-0,00042	0,02538	6,442685	-0,75906	0,00010	0,02225	3,178532	0,035732	-0,00087	0,02798	7,12443	-1,11320
159	RK1P	-0,00043	0,03006	3,757997	-0,78318	0,00089	0,02286	6,480972	-0,21993	-0,00163	0,03551	2,13783	-0,81716
160	RK1U	0,00195	0,03506	9,210098	-0,78253	0,00381	0,02738	1,328262	-0,85905	0,00011	0,04094	9,00939	-0,64022
161	ROC	-0,00037	0,02580	5,692413	-0,86785	0,00022	0,02197	4,114269	0,280583	-0,00087	0,02893	5,43680	-1,30670
162	TDLB	0,00056	0,02807	8,755839	-1,16115	0,00160	0,02260	1,763326	-0,58086	-0,00039	0,03237	8,86183	-1,25009
163	UI3B	-0,00008	0,02857	4,117084	-0,64404	0,00098	0,02225	2,927151	-0,58399	-0,00106	0,03345	3,28055	-0,57402
164	UI3F	-0,00016	0,02988	14,39165	-1,6968	0,00009	0,02398	2,85757	-0,64988	-0,00037	0,03457	14,77787	-1,93039
165	UI3G	-0,00012	0,02941	9,893552	-1,36225	0,00013	0,02400	3,243455	-0,72505	-0,00033	0,03375	10,07341	-1,50707
166	UI4L	0,00025	0,02410	5,3693	-0,66816	0,00056	0,02191	2,407279	-0,14904	-0,00003	0,02596	6,55912	-0,95418
167	UI4M	0,00021	0,03188	2,601855	-0,47914	0,00126	0,02897	3,332997	-0,63346	-0,00064	0,03437	2,07446	-0,36960
168	UI4R	-0,00026	0,02535	4,441033	-0,44312	-0,00026	0,02322	2,630027	-0,31931	-0,00019	0,02720	5,18235	-0,51785
169	UIV7	0,00168	0,03102	9,045615	-1,13989	0,00287	0,02300	1,242269	-0,62414	0,00062	0,03706	7,91378	-1,11415
170	UIVA	0,00169	0,02961	3,039098	-0,48647	0,00288	0,02261	1,101594	-0,57823	0,00059	0,03495	2,39049	-0,37512
171	UNI21JH	-0,00025	0,02504	7,440872	-0,9225	-0,00027	0,02200	2,138241	-0,2168	-0,00017	0,02759	8,95513	-1,25162
172	UNIFDSN	0,00022	0,03310	5,221106	-0,75398	0,00127	0,02815	2,553822	-0,41587	-0,00063	0,03718	5,34049	-0,84451
173	UNIGLBN	0,00025	0,02416	9,009931	-0,90135	0,00059	0,02056	2,199125	-0,05751	-0,00002	0,02713	10,18882	-1,21419
174	AKKMULA	0,00032	0,02452	13,70462	-1,56031	0,00109	0,02015	2,108877	-0,27673	-0,00037	0,02801	14,81315	-1,91894
175	ARIDEKA	-0,00055	0,02841	12,61924	-1,57455	0,00035	0,02223	1,557885	-0,50338	-0,00134	0,03321	12,44956	-1,75105
176	BFGINVA	0,00007	0,03486	7,303759	-1,06375	0,00066	0,02937	6,020167	-0,6518	-0,00034	0,03936	6,75641	-1,17937
177	BWKDSEU	0,00023	0,02823	14,7892	-1,8855	0,00215	0,01989	3,044397	-0,53309	-0,00156	0,03424	12,14181	-1,86890
178	CONCENT	0,00053	0,03397	10,42112	-1,46599	0,00098	0,02916	3,393627	-0,81051	0,00025	0,03797	11,75916	-1,70081
179	DI7R	0,00178	0,03003	9,842696	-1,45117	0,00328	0,02029	2,783627	-0,67293	0,00038	0,03696	7,31601	-1,33961

180	DI7T	-0,00026	0,02834	12,85725	-1,31432	0,00076	0,02186	1,689931	-0,52141	-0,00118	0,03333	12,35374	-1,39790
181	DI7U	0,00051	0,03410	10,40344	-1,32174	0,00099	0,02899	3,459821	-0,81547	0,00022	0,03833	11,47160	-1,47978
182	DI7X	0,00078	0,02832	8,736007	-1,17239	0,00068	0,02339	1,878942	-0,52776	0,00091	0,03228	9,41006	-1,36574
183	DITSPZ2	0,00179	0,03020	10,40589	-1,59626	0,00328	0,02057	3,00971	-0,74745	0,00040	0,03708	7,84716	-1,48975
184	DITWEUR	0,00079	0,02778	8,872348	-1,20561	0,00071	0,02344	1,880257	-0,53161	0,00093	0,03133	10,01115	-1,44264
185	DJFA	0,00050	0,03361	11,35797	-1,64276	0,00160	0,02752	3,697514	-0,84712	-0,00045	0,03848	11,62397	-1,81539
186	DJFB	-0,00014	0,02529	12,44461	-1,39531	0,00034	0,02116	1,350418	-0,19485	-0,00050	0,02868	14,08065	-1,78607
187	DPROVST	0,00013	0,03129	8,673064	-1,59497	0,00220	0,02126	3,306738	-0,88404	-0,00170	0,03842	6,26817	-1,44627
188	DTVERMG	0,00051	0,03412	10,7294	-1,49738	0,00163	0,02790	3,446944	-0,81249	-0,00042	0,03911	10,93032	-1,63368
189	DWSAKDE	0,00121	0,03629	10,63002	-1,44038	0,00264	0,02797	3,517649	-0,18674	-0,00006	0,04268	9,67797	-1,63713
190	DWSEURO	-0,00019	0,03103	12,51721	-1,59113	0,00104	0,02330	1,644177	-0,5067	-0,00131	0,03686	11,43816	-1,68453
191	EZTC	0,00007	0,03320	4,067028	-0,70314	0,00090	0,02827	2,844223	-0,62905	-0,00057	0,03729	3,85886	-0,69276
192	FHUA	0,00022	0,02807	3,799928	-0,55433	0,00215	0,02011	2,860661	-0,4829	-0,00157	0,03385	2,52741	-0,42018
193	FONDAKI	0,00060	0,03265	13,64014	-1,73888	0,00220	0,02464	2,097786	-0,6896	-0,00081	0,03871	12,52132	-1,81112
194	FTFREFF	0,00008	0,03356	10,27967	-1,38225	0,00090	0,02794	3,035307	-0,63643	-0,00055	0,03814	10,92188	-1,58715
195	HJU8	0,00018	0,02779	3,859611	-0,25175	0,00099	0,02399	2,046324	-0,35285	-0,00055	0,03092	4,04414	-0,17481
196	HJUD	-0,00016	0,02332	5,166627	-0,9628	0,00019	0,01920	1,503608	-0,15297	-0,00042	0,02664	5,22522	-1,20134
197	HJUI	0,00120	0,03518	3,349928	-0,58761	0,00262	0,02845	3,374721	-0,23048	-0,00009	0,04049	2,54156	-0,63254
198	HJUL	0,00012	0,03534	3,029163	-0,56757	0,00098	0,03007	2,288691	-0,37846	-0,00060	0,03967	2,75830	-0,60872
199	HJUQ	0,00012	0,03083	4,062229	-1,01975	0,00216	0,02140	2,746952	-0,75273	-0,00170	0,03760	2,53438	-0,87237
200	HJUU	0,00110	0,02917	2,761434	-0,29389	0,00215	0,02604	1,722058	-0,32492	0,00019	0,03180	2,96723	-0,25029
201	HJVD	0,00059	0,03282	13,30046	-1,65488	0,00220	0,02488	1,964329	-0,64794	-0,00083	0,03884	12,30966	-1,73042
202	HV82	-0,00867	1,55660	7,495158	-0,03889	-0,01673	1,95389	3,644896	-0,02662	-0,00065	1,11422	18,23838	-0,01220
203	HV8B	0,00029	0,02941	9,251545	-1,35002	0,00188	0,02150	2,845904	-0,39734	-0,00118	0,03527	7,65765	-1,37032
204	ZPJN	0,00025	0,02891	10,72126	-1,47168	0,00189	0,02189	3,183071	-0,52643	-0,00127	0,03419	9,54255	-1,53403

TABLE 7 AUSTRIAN MUTUAL FUNDS BETAS (+ TSTATS) CALCULATED WITH THE SINGLE INDEX MODEL AND TREYNOR RATIO

		AUSTRIA OVERALL PERIOD			AUSTRIA SUBPERIOD ONE			AUSTRIA SUBPERIOD TWO		
#	NAME	BETA	TREYNOR	BETA TSTAT	BETA	TREYNOR	BETA TSTAT	BETA	TREYNOR	BETA TSTAT
1	INTRGLD	0,47235	0,01691	4,1	0,77317	0,00268	7,1	0,41180	0,03313	3,0
2	BAWSPAK	0,22771	0,02217	6,7	0,41291	-0,00330	7,6	0,18982	0,05902	4,3
3	AIBCGVA	0,34114	0,01576	9,9	0,36158	-0,00166	7,0	0,33771	0,03291	8,4
4	SIRIU29	0,12040	0,04976	6,9	0,27698	-0,00285	5,3	0,08839	0,14143	6,3
5	AIBCGEF	0,34101	0,01566	9,9	0,36158	-0,00166	7,0	0,33744	0,03273	8,3
6	P2FUNDS	0,01805	0,34262	2,0	0,06796	-0,01565	2,4	0,00833	1,57190	1,3
7	BAWGSPC	-0,00846	-0,73531	-1,0	-0,01326	0,06677	-0,6	-0,00765	-1,69664	-1,0
8	EKAKO17	0,03446	0,18091	2,5	0,10325	-0,00559	5,4	0,01957	0,65076	1,3
9	EKAKO13	0,02279	0,27145	2,5	0,10785	-0,00829	4,5	0,00528	2,45110	0,4
10	PACTRST	0,25190	0,02394	8,7	0,37745	-0,00062	6,3	0,22608	0,05312	7,8
11	CIENGSV	0,46289	0,01406	11,9	0,63617	0,00119	11,0	0,42851	0,02815	9,5
12	CIENGST	0,46219	0,01406	12,0	0,63487	0,00119	11,0	0,42790	0,02815	9,4
13	P1FUNDS	-0,02181	-0,29356	-2,2	0,00411	-0,27244	0,2	-0,02623	-0,51672	-2,6
14	EKAKM14	-0,01660	-0,38987	-2,0	-0,02831	0,03568	-1,4	-0,01321	-1,02859	-1,6
15	RENGAKA	0,59536	0,01168	13,0	0,55306	0,00318	8,9	0,60606	0,01981	11,5
16	SIRIU37	0,05703	0,11288	9,0	0,04325	-0,01346	3,0	0,06036	0,21750	8,3
17	RENGAKT	0,59473	0,01190	13,0	0,55340	0,00339	8,8	0,60524	0,02005	11,5
18	3BV1FND	0,01168	0,55747	1,7	0,03408	-0,01584	2,1	0,00694	1,90605	0,9
19	3BOBK14	0,05666	0,11289	7,0	0,08460	-0,00928	4,3	0,05188	0,25549	6,1
20	3BKBTV1	0,05446	0,12641	10,0	0,08865	-0,00214	7,1	0,04790	0,28449	5,6
21	GUTEUPO	0,44974	0,01323	16,0	0,46985	0,00072	9,3	0,44664	0,02541	15,3
22	3BKOBK4	0,06439	0,10089	9,0	0,10139	-0,00646	6,0	0,05771	0,23091	7,0
23	3BKOBK5	0,06536	0,09915	9,0	0,10199	-0,00651	6,0	0,05875	0,22644	7,4
24	ESXTJAP	0,21497	0,02687	7,0	0,39794	-0,00057	5,3	0,17616	0,06567	5,0
25	A14FUND	0,04898	0,13098	7,0	0,09962	-0,00785	5,6	0,03937	0,33737	4,8
26	TSERL1T	0,07413	0,08749	9,0	0,07802	-0,01195	4,4	0,07526	0,17999	7,5
27	BTVAVMK	0,04704	0,13699	6,0	0,07987	-0,00963	4,1	0,04114	0,32381	5,0
28	CAPIN14	0,68395	0,01064	20,0	0,74342	0,00486	16,7	0,66894	0,01614	17,4
29	PUMAFND	0,67263	0,01098	13,0	0,78869	0,00290	9,7	0,65094	0,01893	10,6
30	PUMAFUN	0,67389	0,01147	13,0	0,78647	0,00345	10,5	0,65264	0,01927	10,7
31	KLMEGAA	0,50452	0,01090	17,0	0,48778	-0,00031	7,4	0,51029	0,02155	17,8
32	KLMEGAT	0,50770	0,01144	17,0	0,49201	0,00022	7,5	0,51346	0,02211	18,0

33	DWSAV48	0,12740	0,05051	13,0	0,20685	-0,00198	8,4	0,11175	0,11628	10,5
34	POBAAKE	0,41698	0,01435	19,0	0,43098	0,00020	8,4	0,41581	0,02808	18,0
35	ESUMWSA	0,48054	0,01272	12,0	0,47994	0,00128	8,7	0,48195	0,02369	9,9
36	ESUMWST	0,48054	0,01272	12,0	0,47994	0,00128	8,7	0,48195	0,02369	9,9
37	SUP4AKT	0,47570	0,01108	18,0	0,43321	-0,00241	7,3	0,48847	0,02325	17,2
38	SPORTVA	0,26369	0,02237	17,0	0,31491	-0,00165	5,1	0,25419	0,04735	18,6
39	NOVEUII	0,32770	0,01889	12,0	0,42524	-0,00020	7,2	0,30876	0,03943	11,0
40	CPEEURP	0,62638	0,01206	17,0	0,61255	0,00586	9,6	0,62699	0,01811	15,0
41	CPEEURT	0,62661	0,01243	18,0	0,61747	0,00603	9,7	0,62657	0,01864	15,7
42	GLBLCHI	0,51107	0,01075	17,0	0,37535	-0,00118	6,4	0,54231	0,02061	18,3
43	APOLOST	0,49384	0,01058	14,0	0,50707	-0,00154	7,6	0,49425	0,02232	12,4
44	SAPEURT	0,49718	0,01142	13,0	0,52197	-0,00084	8,0	0,49557	0,02336	11,8
45	BTVAVMD	0,13333	0,04831	11,0	0,20087	-0,00239	7,0	0,12038	0,10843	8,9
46	CONML27	0,29945	0,02285	14,0	0,40213	0,00207	7,2	0,27841	0,04529	13,3
47	EQTYINV	0,60657	0,01333	28,0	0,60544	0,00731	13,6	0,60329	0,01925	24,0
48	JPNTRND	0,23184	0,02795	7,0	0,32280	0,00010	4,7	0,21387	0,05926	5,7
49	ALLINVT	0,51126	0,01193	14,0	0,51629	0,00024	8,2	0,51344	0,02311	12,9
50	ALLINVA	0,52139	0,01107	14,0	0,51535	-0,00014	8,2	0,52559	0,02172	12,4
51	PSKEUST	0,43481	0,01394	14,0	0,49617	-0,00042	6,5	0,42517	0,02845	13,5
52	PSKEURO	0,43252	0,01316	14,0	0,49754	-0,00103	6,5	0,42187	0,02766	13,4
53	VNNAINV	0,71942	0,00993	23,0	0,83970	0,00533	20,9	0,68898	0,01414	21,5
54	VIENINT	0,72469	0,01039	24,0	0,84153	0,00557	20,7	0,69557	0,01477	22,6
55	FINANST	0,62918	0,00885	13,0	0,44379	0,00111	7,5	0,66959	0,01570	13,1
56	FINANSA	0,62557	0,00824	13,0	0,43717	0,00091	7,4	0,66552	0,01473	12,9
57	DWSAVER	0,37857	0,01695	17,0	0,44080	0,00003	8,7	0,36832	0,03408	15,3
58	NEWGENR	0,55798	0,00894	16,0	0,67859	-0,00279	7,6	0,53982	0,02158	16,3
59	NEWGENT	0,55556	0,00912	16,0	0,67886	-0,00271	7,6	0,53686	0,02187	16,4
60	GUTAKTN	0,34581	0,01771	11,0	0,41567	-0,00172	7,7	0,33506	0,03787	10,4
61	3BKESKA	0,52584	0,01015	16,0	0,57842	-0,00115	7,1	0,51852	0,02151	14,6
62	3BKEURT	0,52709	0,01161	16,0	0,54317	0,00042	8,5	0,52702	0,02244	14,7
63	RQEUEQA	0,44584	0,01182	12,0	0,47318	-0,00143	8,3	0,44238	0,02486	11,0
64	RQEUEQT	0,44682	0,01462	13,0	0,48193	0,00171	9,5	0,44089	0,02727	11,3
65	BADVANS	0,28344	0,02153	11,0	0,32665	-0,00267	5,9	0,27771	0,04593	13,6
66	CPBMEDR	0,26645	0,02533	12,0	0,20656	0,00776	5,9	0,27602	0,04230	11,6
67	KLASSAK	0,44692	0,01451	20,0	0,42923	0,00141	8,4	0,45255	0,02681	17,8

68	KLAKTIT	0,44880	0,01495	20,0	0,43193	0,00174	8,4	0,45454	0,02735	18,0
69	VOLKAME	0,39741	0,01491	10,0	0,38605	-0,00282	6,4	0,40499	0,03129	9,0
70	DANBINV	0,61709	0,01209	16,0	0,61881	0,00677	9,5	0,61131	0,01714	13,9
71	DANBINT	0,62095	0,01247	16,0	0,62037	0,00688	9,5	0,61636	0,01776	14,1
72	GUTUSPO	0,41696	0,01342	11,0	0,37595	-0,00453	6,7	0,43193	0,02918	10,4
73	R67FUND	0,43145	0,01348	20,0	0,44868	-0,00082	7,9	0,43067	0,02733	19,9
74	VIENSTK	0,63514	0,01223	30,0	0,64841	0,00616	12,7	0,62978	0,01816	26,7
75	VIENAUS	0,63192	0,01203	30,0	0,64367	0,00599	12,5	0,62673	0,01793	27,0
76	3BKESTM	0,43288	0,01396	14,0	0,41593	-0,00008	7,5	0,43876	0,02704	12,5
77	3BKOEKG	0,44689	0,01420	20,0	0,48248	-0,00015	9,2	0,44335	0,02828	17,5
78	ESPGDYN	0,32177	0,01935	10,0	0,41203	-0,00002	6,9	0,30436	0,04014	7,5
79	SBESTIN	0,30116	0,01916	12,0	0,45113	-0,00339	6,7	0,27483	0,04666	11,9
80	OSTEUSA	0,59474	0,01339	16,0	0,61283	0,00669	10,0	0,58839	0,02004	13,8
81	OSTEUST	0,59674	0,01370	16,0	0,61452	0,00697	10,1	0,59058	0,02036	14,0
82	OSTVLRF	0,67548	0,01243	17,0	0,67472	0,00587	10,8	0,67549	0,01869	15,4
83	SPGOLDR	0,37750	0,01704	19,0	0,42581	0,00034	7,1	0,36978	0,03374	18,1
84	SIEQWEE	0,45130	0,01431	17,0	0,44355	0,00153	7,1	0,45455	0,02642	14,8
85	JMEURSC	0,47993	0,01497	8,0	0,55939	0,00274	9,8	0,46502	0,02715	7,2
86	SCHAKTT	0,38308	0,01533	12,0	0,36003	-0,00287	7,4	0,39263	0,03192	10,3
87	SKWBAKT	0,38611	0,01483	11,0	0,35899	-0,00323	7,4	0,39648	0,03119	10,2
88	KEPGLBT	0,43290	0,01380	20,0	0,44268	-0,00066	7,6	0,43395	0,02766	19,2
89	KEPGLBA	0,43308	0,01316	20,0	0,43785	-0,00143	7,5	0,43539	0,02707	19,2
90	CPBFRSA	0,37519	0,01710	18,0	0,48530	-0,00014	8,2	0,35521	0,03559	15,7
91	OBRBSMX	0,39900	0,01495	17,0	0,45193	-0,00083	8,9	0,39117	0,03097	16,3
92	BESTEMT	0,49947	0,01445	14,0	0,53495	0,00311	9,9	0,49374	0,02551	11,6
93	BESTEMA	0,49735	0,01399	14,0	0,52749	0,00285	9,7	0,49238	0,02488	11,5
94	VIFVERI	0,45863	0,01004	18,0	0,49695	-0,00367	6,3	0,45419	0,02359	17,8
95	VIFVERT	0,45657	0,01259	19,0	0,47131	-0,00168	7,5	0,45738	0,02614	18,5
96	KLASAEA	0,47498	0,01278	15,0	0,49834	0,00058	7,1	0,47202	0,02462	13,7
97	KLASAET	0,47936	0,01351	15,0	0,50268	0,00103	7,3	0,47705	0,02556	13,8
98	OSTINDT	0,48497	0,01644	13,0	0,50135	0,00509	8,6	0,48238	0,02731	11,8
99	EKASAMA	0,43494	0,01217	11,0	0,37216	-0,00534	5,6	0,45484	0,02707	10,5
100	ESTOAME	0,43942	0,01281	11,0	0,37835	-0,00453	5,7	0,45921	0,02767	10,6
101	INTSTAU	0,40969	0,01415	19,0	0,41278	-0,00224	6,8	0,41335	0,02964	18,0
102	INTRSTK	0,41126	0,01448	19,0	0,41706	-0,00192	6,9	0,41447	0,03001	18,6

103	EUAKTIT	0,51684	0,01190	18,0	0,45647	0,00056	8,0	0,53237	0,02221	15,7
104	EURAKVT	0,51535	0,01201	18,0	0,45659	0,00059	8,0	0,53060	0,02239	15,6
105	RAFEAPS	0,52419	0,01133	18,0	0,45538	0,00025	7,9	0,54135	0,02132	15,9
106	AMERSTT	0,53884	0,01175	11,0	0,38187	0,00015	7,3	0,57607	0,02143	10,9
107	AMERSTO	0,53657	0,01118	11,0	0,38273	-0,00066	8,3	0,57304	0,02092	10,7
108	BAWGSTK	0,48079	0,01179	18,0	0,55850	-0,00134	9,6	0,46896	0,02532	19,2
109	BASTOCT	0,48213	0,01288	19,0	0,54546	-0,00027	9,5	0,47310	0,02612	19,7
110	EUPROPA	0,46473	0,01439	15,0	0,39734	0,00742	9,2	0,47396	0,02176	13,4
111	EUPROPT	0,47071	0,01527	16,0	0,38995	0,00841	9,5	0,48337	0,02270	13,4
112	RAIFOST	0,72690	0,01059	22,0	0,78612	0,00510	13,8	0,71276	0,01581	20,0
113	3BKGSFD	0,35809	0,01681	9,0	0,47232	-0,00089	8,0	0,33701	0,03627	7,9
114	OSTAKTT	0,72876	0,01078	22,0	0,79138	0,00525	14,0	0,71398	0,01603	19,7
115	ROSTAVT	0,72986	0,01089	22,0	0,79571	0,00539	14,2	0,71425	0,01608	19,7
116	ALINOST	0,69772	0,01140	13,0	0,66355	0,00536	10,6	0,70472	0,01719	11,1
117	ALLIOST	0,70581	0,01106	12,0	0,66208	0,00527	10,5	0,71466	0,01664	10,4
118	SIEQPAR	0,32235	0,02159	12,0	0,38734	0,00070	6,3	0,31162	0,04288	10,9
119	ESXTEUR	0,45120	0,01440	16,0	0,44640	0,00126	6,5	0,45435	0,02684	14,1
120	EUPROST	0,44487	0,01735	16,0	0,39801	0,00950	10,1	0,45012	0,02560	13,9
121	EUPROSA	0,43985	0,01617	16,0	0,38564	0,00874	9,5	0,44594	0,02407	13,9
122	RUSEQUA	0,39960	0,01377	13,0	0,40169	-0,00505	6,8	0,40618	0,03137	11,1
123	RUSEQUT	0,40008	0,01542	12,0	0,40886	-0,00257	6,8	0,40418	0,03241	10,8
124	GOLDEUR	0,41994	0,01618	17,0	0,48165	0,00179	7,6	0,40868	0,03054	16,2
125	COLSTKT	0,48407	0,01321	18,0	0,37437	-0,00028	6,6	0,51140	0,02464	17,9
126	CIAMESV	0,48654	0,01352	18,0	0,38990	0,00075	7,1	0,51066	0,02474	17,8
127	COLMBST	0,48253	0,01247	17,0	0,37696	-0,00128	6,6	0,50900	0,02403	17,4
128	EKSTAMR	0,52820	0,01128	15,0	0,40271	-0,00142	7,3	0,55982	0,02187	14,2
129	EKSTAMT	0,53265	0,01181	15,0	0,40914	-0,00074	7,5	0,56411	0,02240	14,3
130	NIPPORT	0,46480	0,01369	14,0	0,44749	0,00339	6,9	0,46737	0,02371	12,8
131	I2STOCK	0,40533	0,01491	16,0	0,32294	-0,00110	6,6	0,42567	0,02861	13,6
132	VOLKEUR	0,56636	0,01067	22,0	0,50869	0,00051	9,5	0,58166	0,01997	19,5
133	SELECTA	0,44195	0,01450	15,0	0,48068	0,00004	8,3	0,43740	0,02866	14,7
134	SECLTFV	0,44290	0,01482	15,0	0,48331	0,00073	8,7	0,43766	0,02875	14,7
135	SELCTFD	0,44028	0,01374	15,0	0,48061	-0,00066	8,4	0,43532	0,02793	14,7
136	SMPORT4	0,43700	0,01546	21,0	0,42427	0,00128	8,4	0,44253	0,02872	20,3
137	PAZFKAA	0,28565	0,02313	10,0	0,37836	0,00124	6,5	0,26700	0,04687	8,0

138	PAZFKAT	0,28259	0,02388	10,0	0,37822	0,00152	6,5	0,26339	0,04817	7,9
139	PAZFKVT	0,28206	0,02398	10,0	0,37846	0,00152	6,5	0,26275	0,04840	7,9
140	TECHNOA	0,34143	0,01673	12,0	0,39396	-0,00513	4,9	0,33755	0,03903	12,5
141	TECHNOT	0,34145	0,01673	12,0	0,39396	-0,00513	4,9	0,33757	0,03903	12,5
142	PHARMSA	0,14479	0,04384	5,0	0,22631	-0,00467	4,6	0,13060	0,10268	5,9
143	PHARMST	0,14545	0,04486	5,0	0,22631	-0,00467	4,6	0,13200	0,10420	6,1
144	GLBLEQU	0,45889	0,01203	14,0	0,43236	-0,00152	7,6	0,46753	0,02449	12,5
145	GLOBEQT	0,45891	0,01298	14,0	0,42577	-0,00073	7,6	0,46923	0,02552	12,5
146	SEITEMU	0,40433	0,01578	10,0	0,53596	0,00030	6,6	0,37935	0,03257	9,3
147	SIEEEMK	0,50781	0,01520	17,0	0,59131	0,00291	9,4	0,49345	0,02730	14,3
148	BTVAVMW	0,33675	0,01951	16,0	0,43409	0,00002	7,5	0,31914	0,04032	14,4
149	LNTMVTR	0,39926	0,01738	13,0	0,26800	0,00103	6,1	0,43067	0,03095	13,9
150	RTECAKT	0,43917	0,01362	12,0	0,46204	-0,00233	5,2	0,44065	0,02911	11,6
151	RTECAKA	0,44038	0,01332	12,0	0,46372	-0,00250	5,3	0,44165	0,02870	11,6
152	USAKTNT	0,38975	0,01526	12,0	0,37369	-0,00328	5,4	0,39866	0,03218	10,7
153	USAKTNA	0,39080	0,01499	12,0	0,37443	-0,00346	5,4	0,39972	0,03182	10,8
154	USAKTVT	0,38967	0,01527	12,0	0,37394	-0,00328	5,4	0,39851	0,03220	10,7
155	RGLAKVT	0,41120	0,01481	17,0	0,40339	-0,00140	6,7	0,41687	0,02992	15,9
156	GLOAKTT	0,41175	0,01476	17,0	0,40332	-0,00142	6,7	0,41752	0,02982	15,9
157	RAIFAKT	0,41437	0,01435	17,0	0,40243	-0,00168	6,7	0,42084	0,02921	15,7
158	TOPPHAT	0,16667	0,03684	3,0	0,21330	-0,00733	3,8	0,16116	0,08376	3,3
159	TOPPHAV	0,16835	0,03720	3,0	0,22051	-0,00615	4,0	0,16128	0,08374	3,3
160	TOPASIT	0,29821	0,02170	10,0	0,39942	-0,00054	5,7	0,27971	0,04606	8,5
161	PACFSTK	0,29602	0,02058	10,0	0,40363	-0,00149	5,7	0,27617	0,04531	8,1
162	TOPPHAA	0,16674	0,03598	3,0	0,21437	-0,00815	3,9	0,16115	0,08314	28,7
163	VIENNAT	0,66796	0,01221	34,0	0,66869	0,00708	17,1	0,66424	0,01723	28,7
164	VIENTPF	0,66666	0,01190	34,0	0,67251	0,00684	170,6	0,66155	0,01683	28,7
165	VOLKPAC	0,32343	0,02305	10,0	0,43515	0,00262	7,6	0,30205	0,04488	8,3
166	BESTHET	0,12555	0,04705	3,0	0,20432	-0,00902	3,5	0,11297	0,11794	3,4
167	BESTHEA	0,12293	0,04609	4,0	0,19547	-0,01036	3,4	0,11141	0,11689	3,3
168	ESISTSA	0,63748	0,01206	10,0	0,75676	0,00266	5,4	0,62081	0,02123	9,1
169	ESISTST	0,63974	0,01241	10,0	0,76322	0,00277	5,4	0,62272	0,02179	9,2
170	CONAUST	0,60868	0,01177	25,0	0,54515	0,00544	12,4	0,62046	0,01810	21,4
171	AUSQUIT	0,60941	0,01199	25,0	0,54437	0,00569	12,0	0,62155	0,01831	21,4
172	OSTAKVT	0,67365	0,01278	12,0	0,67590	0,00627	10,4	0,67247	0,01891	10,8

173	OSTEAKT	0,67231	0,01269	12,0	0,67212	0,00617	10,3	0,67168	0,01884	10,7
174	RAIFOSE	0,67081	0,01253	12,0	0,66789	0,00601	10,2	0,67077	0,01869	10,7
175	KONAKTV	0,49570	0,01723	11,0	0,56741	0,00599	8,5	0,48017	0,02784	9,0
176	KONAKTA	0,49538	0,01676	11,0	0,57381	0,00530	8,6	0,47885	0,02766	8,9
177	KONAKTT	0,49510	0,01717	11,0	0,56811	0,00591	8,5	0,47930	0,02781	8,9
178	TIGFOND	0,36900	0,01900	11,0	0,41464	0,00026	5,9	0,36367	0,03747	9,7
179	TIGERFD	0,36654	0,01805	11,0	0,41097	-0,00085	5,6	0,36165	0,03675	9,6
180	TOPSWSF	0,41374	0,01593	17,0	0,47549	-0,00010	6,5	0,40484	0,03200	18,1
181	TOPSWST	0,41440	0,01642	17,0	0,47299	0,00045	6,5	0,40604	0,03234	18,2
182	STKIDXU	0,46810	0,01429	14,0	0,32563	-0,00011	6,2	0,50284	0,02608	14,4
183	EREALFD	0,53105	0,01173	19,0	0,39221	0,00567	9,2	0,55698	0,01815	17,7
184	AMERIDX	0,45683	0,01380	14,0	0,33276	-0,00114	6,5	0,48756	0,02606	12,3
185	KEPUSAT	0,51227	0,01232	13,0	0,36292	-0,00027	7,2	0,54798	0,02270	13,1
186	KEPUSAK	0,51274	0,01210	13,0	0,36134	-0,00073	7,1	0,54907	0,02255	13,2
187	COREEUT	0,56451	0,01216	15,0	0,49670	0,00153	9,9	0,58325	0,02194	12,7
188	COREEUR	0,56294	0,01173	15,0	0,49669	0,00071	9,7	0,58175	0,02176	12,7
189	ESXTUSA	0,50430	0,01372	14,0	0,37569	0,00114	7,3	0,53583	0,02448	14,2
190	SIEEQNA	0,44667	0,01411	11,0	0,35515	-0,00202	6,1	0,47163	0,02766	10,4
191	OSTAKTV	0,69217	0,01157	13,0	0,65365	0,00530	9,6	0,70019	0,01750	11,3
192	ACEMERT	0,51054	0,01560	16,0	0,57359	0,00286	9,8	0,50164	0,02797	13,5
193	OSTAKTI	0,69302	0,01191	13,0	0,65034	0,00575	6,6	0,70184	0,01779	11,4
194	ACEMERA	0,51054	0,01540	16,0	0,57456	0,00270	9,9	0,50139	0,02775	13,5
195	ASIACAP	0,36905	0,02066	10,0	0,37973	0,00399	5,8	0,36835	0,03658	8,2
196	TURYGEA	0,69727	0,00835	12,0	0,53210	-0,00127	6,5	0,73922	0,01635	12,0
197	TURYGET	0,69235	0,00848	13,0	0,53210	-0,00127	6,5	0,73338	0,01661	12,2
198	EUROTST	0,28486	0,02496	14,0	0,32518	-0,00037	6,8	0,28051	0,04990	13,3
199	GUTUSSP	0,48913	0,01594	16,0	0,40034	0,00387	9,7	0,51161	0,02700	15,0
200	TURYGOA	0,49728	0,01427	11,0	0,51088	0,00311	6,3	0,49521	0,02482	7,5
201	TURYGOT	0,49800	0,01445	11,0	0,51420	0,00341	6,5	0,49519	0,02489	7,5
202	WALCAPT	0,62446	0,00964	15,0	0,44223	-0,00253	6,8	0,67119	0,01918	14,1
203	BIOTECA	0,26567	0,02625	6,0	0,36016	-0,00234	5,3	0,25260	0,05772	7,9
204	BIOTECT	0,26583	0,02624	6,0	0,36107	-0,00234	5,3	0,25261	0,05771	7,9

TABLE 8 FRENCH MUTUAL FUNDS BETAS (+TSTATS) CALCULATED WITH THE SINGLE INDEX MODEL AND TREYNOR RATIOS

		FRANCE OVERALL PERIOD			FRANCE SUBPERIOD ONE			FRANCE SUBPERIOD TWO		
#	NAME	BETA	TREYNOR	BETA TSTAT	BETA	TREYNOR	BETA TSTAT	BETA	TREYNOR	BETA TSTAT
1	CHI2000	0,14013	0,05365	2,1	0,23275	0,01189	3,0	0,10032	0,12048	1,5
2	PCEUROP	-0,04282	-0,16529	-1,4	0,01561	0,08839	0,6	-0,06971	-0,17853	-2,3
3	SLFAEUR	-0,06259	-0,09868	-1,1	0,03452	0,02248	0,4	-0,10519	-0,10680	-1,9
4	PCEUROD	-0,04084	-0,17081	-1,3	0,01994	0,06472	0,7	-0,06864	-0,17968	-2,2
5	CAIVEFR	-0,07337	-0,08400	-1,2	0,07607	0,00391	1,0	-0,13491	-0,08641	-2,3
6	CAIVEFI	-0,06903	-0,08602	-1,1	0,07786	0,00273	1,0	-0,12988	-0,08699	-2,2
7	INDIEUR	-0,06299	-0,09138	-1,0	0,14121	-0,00026	1,7	-0,14500	-0,07728	-2,4
8	CIFRANC	-0,04582	-0,13506	-0,7	0,14128	0,00269	2,0	-0,12114	-0,09609	-2,0
9	UAEURO	0,05414	0,11339	0,9	0,14899	0,00401	2,7	0,01341	0,84640	0,2
10	OFIMLEA	-0,05403	-0,11157	-0,9	0,13231	-0,00179	2,0	-0,12801	-0,09316	-2,4
11	AXAINEC	-0,08832	-0,07076	-2,0	0,02574	0,01329	0,3	-0,13618	-0,08670	-2,3
12	ECURLLE	-0,04344	-0,13186	-0,7	0,12514	-0,00075	1,9	-0,11198	-0,09993	-2,0
13	NRWFRNC	-0,10391	-0,06078	-2,4	-0,02201	-0,02245	-0,3	-0,13999	-0,08406	-2,3
14	EXPEXDU	-0,02303	-0,28209	-0,4	0,15748	0,00403	2,6	-0,09615	-0,12466	-2,0
15	ELNCLDS	-0,06383	-0,09019	-1,0	0,11579	-0,00068	1,6	-0,13661	-0,08222	-2,3
16	BPEUCRS	-0,06910	-0,08067	-1,2	0,04270	-0,03595	0,4	-0,11305	-0,10924	-2,0
17	MONCFRE	0,11571	0,05696	2,9	0,23718	0,00324	5,0	0,06619	0,18240	1,3
18	CDCINSE	0,05572	0,10815	1,1	0,16784	-0,00059	2,4	0,00980	1,20065	0,2
19	CDCEUAC	-0,04241	-0,14053	-0,6	0,14032	-0,00068	1,2	-0,11583	-0,10066	-2,0
20	SOGNFRN	-0,06966	-0,09106	-1,1	0,08423	0,00631	1,1	-0,13287	-0,08873	-2,3
21	LGSTCAC	-0,09647	-0,06105	-2,2	-0,04597	-0,00389	-0,5	-0,12104	-0,09287	-2,0
22	BALCANI	-0,08856	-0,08325	-1,8	0,04880	0,03012	1,1	-0,14433	-0,08950	-2,0
23	AGFEUAC	-0,08777	-0,07147	-2,0	-0,01667	-0,00859	-0,2	-0,11904	-0,10125	-2,0
24	FEDEPAC	-0,05830	-0,10528	-0,9	0,08356	0,00494	1,5	-0,11659	-0,09871	-1,9
25	EURF50C	-0,10080	-0,06093	-2,2	0,00134	0,14650	0,0	-0,14411	-0,08145	-2,4
26	AXAAGEU	-0,07999	-0,07348	-1,2	0,02719	0,01189	0,3	-0,12612	-0,08791	-2,2
27	POETHIC	-0,05018	-0,12944	-0,8	0,15507	0,00384	2,4	-0,13216	-0,09112	-2,3
28	AXAEFEA	-0,10389	-0,05383	-2,5	-0,04519	0,01304	-0,6	-0,13052	-0,08730	-2,3
29	SCV5000	-0,04989	-0,11562	-0,8	0,11873	0,00145	1,7	-0,11883	-0,09286	-2,0
30	ECURINV	-0,06399	-0,09231	-1,0	0,11270	0,00079	1,7	-0,13584	-0,08362	-2,3
31	AGFOPID	-0,07727	-0,08224	-1,3	0,01047	0,04248	0,1	-0,11514	-0,10352	-2,0

32	VIACTEC	-0,09508	-0,06362	-1,5	0,04004	0,01158	0,5	-0,15148	-0,07455	-2,6
33	AZUACFR	-0,09600	-0,06616	-2,4	-0,02646	-0,01359	-0,3	-0,12708	-0,09409	-2,3
34	BNPAIFC	-0,04445	-0,14227	-0,7	0,20791	0,00212	1,9	-0,14454	-0,08191	-2,4
35	SOGEPEA	-0,05969	-0,09720	-1,0	0,11619	-0,00289	1,7	-0,12976	-0,08937	-1,8
36	TRICOLO	-0,09149	-0,07246	-1,5	-0,02860	-0,02448	-0,4	-0,12042	-0,10096	-2,1
37	UNIFRAN	-0,05940	-0,09517	-0,9	0,08953	-0,00228	1,3	-0,12040	-0,09280	-2,0
38	BALSWII	-0,09002	-0,07493	-1,7	0,07367	0,01133	0,8	-0,15666	-0,07837	-2,0
39	BNPPADD	-0,06581	-0,10492	-1,3	0,05179	0,02993	1,6	-0,11587	-0,10275	-1,7
40	AGFEACD	-0,10231	-0,05929	-2,5	-0,02133	-0,00423	-0,3	-0,13777	-0,08473	-2,5
41	SICEURS	-0,06981	-0,08958	-1,1	0,02929	0,01695	0,4	-0,11250	-0,10362	-1,9
42	ETVALUE	0,03637	0,17562	0,6	0,19870	0,00351	2,9	-0,02984	-0,39265	-0,4
43	BNPNAV3	0,00303	1,94554	0,1	0,26132	-0,00299	2,5	-0,09650	-0,12654	-1,9
44	FRUFRAD	0,04763	0,12970	0,8	0,16128	0,00309	2,6	-0,00018	-62,55819	0,0
45	FRUFRAC	0,07518	0,08486	1,2	0,28494	0,00219	3,0	-0,00858	-1,37256	-0,1
46	AXAAGIA	-0,05828	-0,09956	-1,1	0,15369	-0,00463	2,3	-0,14081	-0,08510	-2,4
47	EMRGPSD	-0,03959	-0,15052	-0,7	0,16107	-0,00166	2,4	-0,11921	-0,09913	-2,0
48	FRNCGAN	-0,06247	-0,10343	-1,1	0,09251	0,00714	1,3	-0,12606	-0,09438	-2,4
49	FRUVEUR	-0,04611	-0,13572	-0,8	0,15583	0,00134	2,2	-0,12642	-0,09455	-1,9
50	AGFEACC	-0,10054	-0,06269	-2,4	-0,02076	-0,00916	-0,3	-0,13526	-0,08900	-2,5
51	BNPAPEU	-0,01714	-0,32981	-0,3	0,21965	-0,00186	2,2	-0,11075	-0,10250	-2,0
52	SYCEURO	-0,06444	-0,10493	-1,1	0,06795	0,01688	0,9	-0,11935	-0,10096	-2,0
53	BNPAIFD	-0,04064	-0,14552	-0,6	0,21379	0,00060	2,4	-0,14169	-0,08002	-2,3
54	AMPTMND	-0,01567	-0,38212	-0,3	0,13254	-0,00632	2,1	-0,07316	-0,17082	-1,8
55	AMPTMNC	-0,01160	-0,53205	-0,2	0,13974	-0,00461	2,3	-0,07029	-0,18030	-1,7
56	VINCACT	-0,09364	-0,06658	-1,5	0,04459	0,01233	0,6	-0,15098	-0,07668	-2,6
57	EXACFRD	-0,10938	-0,05492	-2,5	-0,03833	-0,00669	-0,5	-0,14181	-0,08037	-2,4
58	RICHINV	0,02506	0,27108	0,6	0,17319	0,00985	3,8	-0,03542	-0,32953	-0,8
59	EXACFRC	-0,11051	-0,05780	-1,7	-0,04278	-0,01351	-0,5	-0,14158	-0,08357	-2,3
60	BALJPNI	0,05662	0,11097	1,0	0,12880	0,01034	2,1	0,02436	0,45394	0,4
61	AXAVALF	-0,09936	-0,05917	-2,4	-0,02346	0,01149	-0,3	-0,13264	-0,08776	-2,4
62	SPGPSMC	0,12318	0,06093	2,9	0,30739	0,00979	7,0	0,04799	0,24512	1,1
63	SGEUROP	-0,00524	-1,24638	-0,1	0,20572	0,00284	3,0	-0,08901	-0,13613	-1,8
64	BDFREPA	0,00203	2,91444	0,0	0,14123	0,00053	2,0	-0,05504	-0,20746	-1,0
65	BNPATRM	-0,02854	-0,22522	-0,4	0,22982	0,00193	2,0	-0,13073	-0,09194	-2,0
66	ABFEUR1	-0,07216	-0,08928	-1,2	0,04135	0,01715	0,5	-0,12027	-0,09834	-2,0

67	SGSOTEM	-0,01789	-0,29617	-0,3	0,20404	-0,00923	1,9	-0,10290	-0,11809	-2,0
68	BNPFVST	0,00062	9,89808	0,0	0,28225	0,00134	2,4	-0,11072	-0,10412	-1,9
69	MACTIEU	-0,00911	-0,68976	-0,2	0,16084	0,00016	2,5	-0,07670	-0,15893	-1,2
70	SLVAFRN	-0,06286	-0,08966	-1,0	0,11312	-0,00057	1,6	-0,13465	-0,08157	-2,3
71	BALEURI	-0,07397	-0,08738	-1,2	0,02808	0,02509	0,4	-0,11768	-0,10089	-1,8
72	INDVARE	-0,09512	-0,06799	-1,5	0,00975	0,07964	0,1	-0,14036	-0,08386	-2,5
73	LIVRBRS	0,08582	0,06850	1,4	0,15505	-0,00052	2,2	0,05546	0,20648	0,8
74	AFERFLO	0,12271	0,05026	3,2	0,24123	-0,00037	4,0	0,07577	0,15953	2,0
75	EURRENC	-0,06993	-0,10225	-1,5	-0,00629	-0,18456	-0,1	-0,09768	-0,13089	-1,8
76	MMAEUAC	-0,07632	-0,08137	-1,3	0,00115	0,09633	0,0	-0,11016	-0,10837	-2,0
77	MEDIACT	-0,06641	-0,09333	-1,1	0,11975	0,00275	1,3	-0,14173	-0,08257	-2,5
78	POABLTD	-0,05516	-0,11166	-0,9	0,12904	0,00198	1,9	-0,12946	-0,09033	-2,2
79	VHCAACT	0,04470	0,14917	0,8	0,17302	0,00262	2,4	-0,00760	-1,64685	-0,1
80	POAMPLT	-0,06244	-0,10560	-1,0	0,12570	0,00458	1,9	-0,13801	-0,08866	-2,4
81	PTONI10	-0,01111	-0,54685	-0,2	0,18799	-0,00135	3,0	-0,08927	-0,13527	-1,9
82	LGMFRNC	-0,07218	-0,08923	-1,3	0,02867	0,00971	0,4	-0,11451	-0,10679	-2,0
83	STHOPME	0,05369	0,12850	1,1	0,23293	0,00765	5,0	-0,01967	-0,59545	-0,4
84	EURREDD	-0,07755	-0,08772	-1,7	-0,00667	-0,13676	-0,1	-0,10823	-0,11405	-1,9
85	SGFROPC	-0,02369	-0,26750	-0,4	0,17880	0,00399	2,6	-0,10492	-0,11084	-1,9
86	AXAINVT	-0,05644	-0,09907	-1,1	0,03245	-0,02535	0,4	-0,09291	-0,12586	-2,0
87	MDMVALR	-0,07984	-0,07857	-1,6	-0,01203	-0,00454	-0,2	-0,10948	-0,11080	-2,0
88	ATTFUTC	-0,06996	-0,09021	-1,1	0,07985	0,00551	1,1	-0,13161	-0,08980	-2,0
89	ATTFUTD	-0,07649	-0,07408	-1,2	0,07461	0,00168	1,0	-0,13931	-0,07796	-2,0
90	SSTRFRC	-0,08218	-0,08090	-1,9	-0,01955	-0,05979	-0,2	-0,11180	-0,10546	-1,9
91	SSTRFRN	-0,07892	-0,07962	-1,3	-0,02019	-0,04320	-0,2	-0,10718	-0,10600	-1,9
92	FEDCA40	-0,08530	-0,07429	-1,3	0,00801	0,04912	0,1	-0,12545	-0,09489	-2,0
93	MMAOF30	-0,03769	-0,16776	-0,9	0,03318	-0,00798	0,6	-0,06688	-0,18795	-1,8
94	GPINFRA	-0,06156	-0,11024	-1,1	0,08956	0,00922	1,3	-0,12337	-0,10031	-2,3
95	EURDNSV	-0,05533	-0,11196	-1,0	0,09704	0,00057	1,6	-0,11682	-0,10253	-1,8
96	UNICNP1	-0,04912	-0,12430	-1,0	0,05443	-0,00895	1,3	-0,09047	-0,13697	-2,0
97	BDFPLAS	-0,03345	-0,19757	-0,5	0,16433	0,00343	2,3	-0,11222	-0,10951	-2,0
98	CGNVASI	0,10115	0,07762	2,0	0,16298	0,01405	2,8	0,07406	0,17771	1,4
99	LPOAMAD	-0,03927	-0,15197	-0,8	0,10938	-0,01026	1,5	-0,09619	-0,13252	-1,8
100	LPOAMAM	-0,04164	-0,14789	-0,8	0,10897	-0,00875	1,5	-0,09926	-0,13055	-1,8
101	HSBEUAD	-0,06901	-0,08807	-1,1	0,01732	0,01029	0,2	-0,10602	-0,10960	-1,8

102	HSBEUAC	-0,06756	-0,09343	-1,1	0,01663	0,02052	0,2	-0,10363	-0,11505	-1,8
103	ATOUSEL	-0,06741	-0,08820	-1,2	0,08587	-0,00414	1,2	-0,12906	-0,09205	-2,5
104	ATHCRIN	0,06214	0,09700	1,4	0,10134	-0,00685	1,5	0,04568	0,27206	0,9
105	AXAEUNC	-0,06655	-0,09664	-1,2	0,01381	0,00669	0,2	-0,10072	-0,12305	-1,9
106	INOSVAC	-0,07324	-0,09106	-1,2	0,08731	0,00631	1,2	-0,13831	-0,08970	-2,5
107	INOVAFD	-0,07407	-0,08241	-1,2	0,07758	0,00160	1,0	-0,13607	-0,08608	-2,5
108	AXAEUND	-0,06602	-0,09402	-1,1	0,01272	-0,00682	0,2	-0,09966	-0,12169	-1,9
109	BNPAERP	-0,04371	-0,14434	-0,8	0,13265	-0,00041	1,7	-0,11372	-0,10823	-1,7
110	EPRGUNI	-0,06277	-0,08991	-1,1	0,06652	-0,00720	1,1	-0,11524	-0,09924	-2,2
111	FONCINV	-0,02000	-0,37086	-0,4	0,11969	0,02577	2,5	-0,08265	-0,13768	-1,4
112	BPOFOIC	-0,01723	-0,45848	-0,3	0,11841	0,02913	2,4	-0,07812	-0,15320	-1,4
113	PVALFRE	0,08806	0,08286	1,7	0,26384	0,00841	6,0	0,01638	0,73779	0,2
114	CNPAVLA	-0,05613	-0,10468	-1,0	0,13238	-0,00253	1,9	-0,13122	-0,08936	-2,0
115	ETOPPOR	0,03167	0,20080	0,6	0,17289	0,00608	3,0	-0,02720	-0,41665	-0,4
116	UNIVACT	-0,02556	-0,23056	-0,5	0,11592	-0,00684	1,8	-0,08080	-0,15185	-1,8
117	MDMEURP	-0,07785	-0,07975	-1,4	-0,01122	0,00715	-0,2	-0,10683	-0,11353	-1,6
118	HSBCAED	-0,06880	-0,08972	-1,2	0,02458	0,00234	0,3	-0,10821	-0,11016	-1,7
119	HSBCAEC	-0,06620	-0,09650	-1,2	0,03130	0,00776	0,4	-0,10710	-0,11358	-1,7
120	SSTREUR	-0,07781	-0,08386	-1,3	0,00202	0,38568	0,0	-0,11293	-0,10564	-1,6
121	LIVRPRT	0,03025	0,21046	0,6	0,18368	-0,00303	2,8	-0,02914	-0,44302	-0,4
122	AGFACIP	0,06417	0,09098	1,4	0,11063	-0,01051	1,6	0,04558	0,27443	0,9
123	LOBETHQ	-0,05327	-0,12573	-0,9	0,08328	0,00721	1,3	-0,10887	-0,11410	-2,0
124	ELNUSAS	-0,03263	-0,17489	-0,6	0,12848	-0,00990	2,0	-0,09431	-0,13092	-1,6
125	AZUACAM	-0,06846	-0,09101	-1,4	0,05190	-0,02398	0,7	-0,11386	-0,11751	-2,6
126	SOLELIN	-0,02878	-0,20875	-0,6	0,11259	-0,00844	1,7	-0,08357	-0,15121	-2,0
127	SGMOPCD	0,00547	1,21021	0,1	0,18319	0,00299	3,0	-0,06493	-0,19075	-1,4
128	BNPEPST	-0,03276	-0,19429	-0,6	0,17288	-0,00024	2,0	-0,11367	-0,10912	-1,7
129	INVAEUR	-0,09104	-0,07031	-1,6	0,02998	0,01436	0,5	-0,14103	-0,08520	-2,2
130	AREUACT	-0,08233	-0,08253	-1,5	-0,00581	-0,23754	-0,2	-0,11712	-0,10139	-2,0
131	INDFONC	-0,02651	-0,26458	-0,5	0,07257	0,03257	1,4	-0,07356	-0,15288	-1,3
132	CGMONDE	0,01416	0,47837	0,4	0,09508	-0,00108	1,7	-0,01781	-0,74719	-0,5
133	PRIMEURP	0,03687	0,20172	0,7	0,23044	0,01280	4,0	-0,04382	-0,26546	-0,8
134	ULYSSED	0,04555	0,14632	0,9	0,19042	0,00713	4,0	-0,01406	-0,82959	-0,3
135	ULYSSEC	0,04464	0,15372	0,9	0,18254	0,00866	3,0	-0,01242	-0,95244	-0,2
136	CROSIMB	-0,04896	-0,15558	-1,0	0,05806	0,04912	1,6	-0,09768	-0,12297	-1,9

137	SOGMIFR	0,01537	0,43466	0,2	0,30875	0,00331	4,0	-0,10035	-0,11933	-1,8
138	OBJVALE	-0,05109	-0,12745	-0,9	0,09094	0,00319	1,5	-0,10837	-0,11407	-2,0
139	SPACTCO	0,08938	0,07632	2,1	0,30498	0,00199	5,0	0,00533	2,38377	0,2
140	TOCHLDP	0,01728	0,39610	0,4	0,18912	0,00570	4,0	-0,05180	-0,23670	-1,3
141	AXAVEUC	-0,06906	-0,09665	-1,1	0,03673	0,01228	0,5	-0,11312	-0,11070	-2,0
142	AXAVEUD	-0,07519	-0,08320	-1,2	0,02665	-0,00267	0,3	-0,11753	-0,10385	-2,0
143	SYCMICP	0,00738	1,05274	0,1	0,21017	0,01479	4,6	-0,07510	-0,16217	-1,5
144	OBJACEU	-0,03953	-0,16847	-0,7	0,08890	0,00586	1,4	-0,09196	-0,13525	-1,8
145	FQCADEU	-0,06004	-0,10948	-1,1	0,04655	0,00936	0,6	-0,10431	-0,11840	-2,0
146	UNIHOCC	-0,05628	-0,12101	-1,0	0,11896	0,00147	1,9	-0,12565	-0,10376	-2,0
147	UNIHOCD	-0,05939	-0,10987	-1,0	0,11462	0,00003	1,8	-0,12854	-0,09838	-2,0
148	MMAMUSE	-0,03483	-0,18175	-0,7	0,08763	-0,00551	1,2	-0,08298	-0,15439	-1,5
149	MDMIMMB	-0,03775	-0,20357	-0,6	0,03113	0,10331	0,7	-0,07335	-0,16059	-1,2
150	OBJSMAR	0,13219	0,05450	3,3	0,23039	0,00850	5,0	0,09059	0,13458	2,0
151	EURPATR	-0,02339	-0,31441	-0,5	0,11966	0,01754	3,7	-0,08276	-0,14860	-1,7
152	MMATRAN	-0,08626	-0,07269	-1,6	-0,02539	0,01157	-0,4	-0,11209	-0,11111	-2,2
153	AGFFONC	-0,01003	-0,77045	-0,2	0,08780	0,03889	2,2	-0,05683	-0,20535	-1,0
154	ALOPERI	0,04684	0,14412	0,9	0,24884	0,00415	3,0	-0,03378	-0,35933	-0,8
155	MEESVAL	-0,02775	-0,23436	-0,4	0,12109	0,00225	1,3	-0,08756	-0,14137	-1,7
156	CICEUOP	0,08549	0,07574	1,6	0,32942	0,00107	5,0	-0,01039	-1,17453	-0,2
157	VICAMRC	-0,05016	-0,11766	-0,9	0,11738	-0,01236	1,4	-0,11331	-0,11411	-1,8
158	EURVALD	-0,02571	-0,26459	-0,5	0,04815	0,01660	0,6	-0,05772	-0,21566	-1,2
159	ODEVEPP	0,19016	0,03832	3,1	0,44443	0,00606	4,0	0,08827	0,13153	1,5
160	AMRGNSV	-0,06791	-0,08241	-1,2	0,08059	-0,02454	0,9	-0,12378	-0,10375	-25,0
161	INVEMER	0,05540	0,15038	0,8	0,22049	0,01224	2,6	-0,01122	-1,22289	-2,5
162	ETOINUS	-0,06457	-0,09135	-1,2	0,08964	-0,01439	1,2	-0,12340	-0,10339	-0,2
163	ATOUTEM	0,03377	0,24641	0,5	0,14132	0,01889	2,0	-0,01120	-1,22605	-2,5
164	EURVALC	-0,02959	-0,23925	-0,6	0,04850	0,02286	0,6	-0,06329	-0,20061	-0,2
165	BALWLDI	-0,03728	-0,19043	-0,7	0,06564	0,01761	1,4	-0,07999	-0,15905	-1,3
166	UCRMAIT	0,10682	0,05976	1,8	0,32316	0,00008	4,0	0,02221	0,55546	-1,3
167	UCAPCRO	0,10433	0,06115	1,8	0,29981	0,00003	4,0	0,02757	0,44774	0,4
168	ROLP	0,03911	0,15242	0,6	0,10718	-0,00597	1,4	0,01151	1,06650	0,4
169	AXASMAC	0,04138	0,17555	0,8	0,18930	0,00948	4,0	-0,01949	-0,63575	0,1
170	AXASECM	0,03690	0,18809	0,8	0,18127	0,00821	4,0	-0,02268	-0,53146	-0,5
171	AAADSVI	-0,03828	-0,18045	-1,0	0,12320	0,00200	2,4	-0,10190	-0,12939	-0,5

172	AAACSVI	-0,03688	-0,19630	-0,9	0,11694	0,00458	2,3	-0,09754	-0,13899	-2,7
173	AGFFIDA	-0,00681	-1,02566	-0,1	0,11394	0,00918	1,6	-0,05504	-0,22884	-2,5
174	UCROPME	0,10453	0,06108	1,8	0,29858	0,00006	5,0	0,02831	0,43602	-1,2
175	CARFNOM	0,09518	0,06902	2,1	0,28909	0,00025	4,0	0,01888	0,67105	0,5
176	BNPAADN	-0,06250	-0,09561	-1,1	0,07899	-0,01466	1,2	-0,11685	-0,10978	0,5
177	EUROPME	0,01806	0,39978	0,3	0,12782	0,01681	2,4	-0,02984	-0,40107	-2,0
178	HSBMIDD	-0,00565	-1,30400	-0,1	0,13332	0,01610	2,8	-0,06418	-0,19076	-0,5
179	HSBMIDC	-0,00582	-1,27882	-0,1	0,12950	0,01734	2,7	-0,06302	-0,19525	-1,0
180	FIDEURO	-0,04041	-0,17694	-0,7	0,07096	0,01794	0,9	-0,08734	-0,14546	-1,0
181	BMMCAPD	0,03465	0,22574	1,0	0,08444	0,03515	2,9	0,00858	1,43453	0,2
182	RENSEUR	-0,04724	-0,15213	-1,2	0,02954	0,00184	0,5	-0,07832	-0,17718	-2,0
183	STHOVIE	-0,05568	-0,12096	-1,3	-0,00001	34,86670	0,0	-0,07809	-0,17234	-2,0
184	VENSEEU	-0,01908	-0,37135	-0,4	0,12439	0,00730	2,6	-0,07755	-0,16604	-1,5
185	EURPMDC	-0,01614	-0,44133	-0,3	0,14360	0,00884	1,9	-0,08173	-0,15353	-1,5
186	CAREMER	0,04469	0,18988	1,1	0,14646	0,02205	2,4	0,00107	12,67982	0,0
187	BALUSAI	-0,05663	-0,12030	-1,1	0,05244	0,00705	0,8	-0,10037	-0,12881	-1,9
188	CDCMEDI	0,06632	0,10707	1,3	0,29320	0,00515	5,0	-0,02390	-0,51672	-0,5
189	CAIVESL	0,03158	0,22633	0,6	0,22271	0,00499	4,0	-0,04473	-0,28633	-1,0
190	ODDGEND	-0,01764	-0,39501	-0,3	0,15738	0,00437	2,9	-0,08747	-0,14701	-1,6
191	ROTHMAR	-0,04949	-0,12951	-0,9	0,07597	-0,00172	1,3	-0,09867	-0,12821	-1,4
192	ROTHAMR	-0,04879	-0,13392	-0,9	0,07314	0,00045	1,3	-0,09672	-0,13168	-1,4
193	ATOUTCR	0,00439	1,55561	0,1	0,16856	0,00855	3,0	-0,06327	-0,18776	-1,0
194	ODDGENC	-0,01961	-0,35928	-0,4	0,16281	0,00449	3,0	-0,09216	-0,14072	-1,6
195	QUANUSD	-0,04572	-0,14816	-0,8	0,09869	0,00433	1,4	-0,10304	-0,12461	-1,6
196	MDMOPPI	-0,04235	-0,15656	-0,7	0,04863	0,01041	0,7	-0,08081	-0,15310	-1,2
197	MDMPERS	0,04663	0,14325	0,8	0,24471	0,00300	4,0	-0,03189	-0,38549	-0,6
198	ECHAPEA	0,02282	0,33247	0,5	0,16582	0,01260	4,0	-0,03593	-0,35491	-0,6
199	ECHAGRE	0,01558	0,48903	0,3	0,12851	0,01567	4,0	-0,03148	-0,40946	-0,6
200	ODDAVED	0,01404	0,57598	0,3	0,18443	0,01304	4,0	-0,05466	-0,24580	-1,3
201	ODDAVEC	0,01235	0,66127	0,3	0,18089	0,01368	4,0	-0,05565	-0,24294	-1,3
202	AXAESCC	0,02023	0,37433	0,4	0,14874	0,01492	3,0	-0,03398	-0,37001	-0,6
203	ODEUMIC	0,02013	0,39871	0,4	0,20754	0,01139	4,0	-0,05524	-0,24166	-1,2
204	AXAESCD	0,01708	0,43030	0,3	0,14502	0,01496	3,0	-0,03727	-0,32703	-0,7

TABLE 9 GERMAN MUTUAL FUNDS BETAS (+TSTATS) CALCULATED WITH THE SINGLE INDEX MODEL AND TREYNOR RATIOS

		GERMANY OVERALL PERIOD			GERMANY SUBPERIOD ONE			GERMANY SUBPERIOD TWO		
#	NAME	BETA	TREYNOR	BETA TSTAT	BETA	TREYNOR	BETA TSTAT	BETA	TREYNOR	BETA TSTAT
1	4N43	0,39708	0,01877	10,8	0,314966	0,00362	6,50	0,44607	0,03041	10,00
2	ADIF	0,85656	0,00732	33,0	0,901939	-0,00027	23,00	0,82927	0,01518	23,00
3	ADIGCON	0,59411	0,00929	16,6	0,577611	-0,00245	19,00	0,60474	0,02019	11,00
4	ADIGEPV	0,70450	0,00793	18,6	0,641503	0,00026	21,00	0,74162	0,01460	14,00
5	ADIVERF	0,78019	0,00698	16,9	0,641858	-0,00011	16,00	0,86258	0,01247	15,00
6	AKTROHS	0,65803	0,01224	7,4	0,341264	0,00712	7,00	0,85008	0,01586	8,00
7	ALLAKEU	0,69615	0,00877	14,9	0,563251	0,00007	19,00	0,77604	0,01538	14,00
8	ALLZAKT	0,54946	0,01102	14,0	0,470171	-0,00060	15,00	0,59718	0,02029	12,00
9	ALTLEIP	0,83765	0,00771	28,4	0,763937	0,00017	22,00	0,88273	0,01432	26,00
10	BHWEURF	0,77896	0,00734	20,7	0,634152	-0,00033	21,00	0,86630	0,01323	23,00
11	BINEURF	0,73973	0,00779	23,8	0,627204	0,00005	11,45	0,80623	0,01397	28,00
12	BWKASDT	0,88302	0,00722	30,0	0,839031	0,00017	23,00	0,90950	0,01367	22,00
13	CXWB	0,67174	0,00830	24,3	0,642631	0,00026	21,00	0,68829	0,01570	16,00
14	CXWC	0,62608	0,00912	14,4	0,561028	-0,00171	15,00	0,66564	0,01824	12,00
15	CXWE	0,63141	0,00871	15,9	0,578857	-0,00245	19,00	0,66388	0,01834	12,00
16	CXWP	0,81394	0,00749	23,2	0,821754	-0,00006	22,00	0,80878	0,01491	16,00
17	D6R6	0,53762	0,01134	17,7	0,482835	-0,00089	14,00	0,57115	0,02168	25,00
18	DBIMERF	0,83059	0,00760	19,7	0,704987	-0,00001	19,00	0,90642	0,01374	19,00
19	DED2	0,78151	0,01074	7,6	0,390484	0,01003	6,70	1,01637	0,01246	6,00
20	DED3	0,75435	0,01130	7,9	0,390158	0,01039	6,72	0,97298	0,01314	6,00
21	DED4	0,67510	0,00899	20,1	0,552156	0,00014	16,00	0,74873	0,01578	21,00
22	DED6	0,66106	0,00919	20,3	0,552875	0,00016	16,00	0,72577	0,01627	19,00
23	DED7	0,57841	0,01183	14,6	0,480484	0,00116	11,00	0,63797	0,02028	14,00
24	DEKBAVF	0,51751	0,01181	17,6	0,48203	-0,00089	15,00	0,53935	0,02302	14,00
25	DEKEURS	0,64244	0,00963	19,6	0,569403	-0,00092	15,00	0,68691	0,01841	18,00
26	DEKSPEZ	0,58087	0,01039	15,3	0,512315	-0,00162	14,00	0,62275	0,02031	13,00
27	DI7S	0,75462	0,00815	14,8	0,568422	0,00080	18,00	0,86743	0,01346	16,00
28	DI7Y	0,81104	0,00745	18,3	0,681961	0,00031	18,00	0,88906	0,01314	16,00
29	DITEURA	0,78557	0,00771	17,0	0,679156	0,00029	19,00	0,84950	0,01379	14,00
30	DITVERE	0,72146	0,00854	14,3	0,566332	0,00076	18,00	0,81497	0,01435	14,00
31	DITVERM	0,59443	0,01032	14,2	0,526068	-0,00049	15,00	0,63605	0,01935	11,00

32	DJF5	0,70406	0,00866	16,9	0,556032	0,00009	17,00	0,79332	0,01502	17,00
33	DJFG	0,57029	0,01059	13,4	0,465359	-0,00050	15,00	0,63452	0,01906	12,00
34	DJFH	0,87819	0,00793	32,5	0,775241	0,00077	21,00	0,94042	0,01398	38,00
35	DJFP	0,60812	0,01006	14,3	0,516459	-0,00050	15,00	0,66385	0,01850	12,00
36	DJL1	0,48328	0,01793	7,2	0,291322	0,01553	3,00	0,59787	0,02272	8,00
37	DJL5	0,65307	0,01231	7,9	0,325636	0,01672	3,60	0,84793	0,01358	11,00
38	DJL6	0,69820	0,01127	9,1	0,384234	0,01044	8,00	0,88611	0,01303	10,00
39	DKD	0,51849	0,01113	12,7	0,471808	-0,00304	12,00	0,54745	0,02317	9,27
40	DPEUAKT	0,54023	0,01126	16,1	0,572419	-0,00039	17,00	0,51956	0,02333	10,46
41	DVGEMMK	0,67314	0,01129	11,4	0,546341	0,00422	9,73	0,74983	0,01695	9,83
42	DWSEATO	0,76997	0,00838	18,0	0,62933	0,00099	19,00	0,85410	0,01414	16,00
43	DWW9	0,66046	0,01149	14,1	0,537696	0,00418	12,00	0,73360	0,01731	13,00
44	DWWB	0,72756	0,00888	26,0	0,66411	0,00093	20,00	0,76456	0,01578	17,00
45	EZTD	0,57604	0,01004	19,7	0,519104	-0,00117	17,00	0,61055	0,01957	15,00
46	FGQF	0,75448	0,00835	20,0	0,701388	0,00006	19,00	0,78737	0,01576	13,00
47	FGUD	0,76553	0,00845	26,2	0,760742	0,00007	17,00	0,76813	0,01650	20,00
48	FK8T	0,67834	0,00911	23,4	0,574609	-0,00091	14,00	0,74140	0,01703	21,00
49	FKTF	0,54882	0,01422	12,1	0,415325	0,00552	8,92	0,62995	0,02101	13,00
50	FNDS	0,59198	0,00967	15,6	0,558892	-0,00171	15,00	0,61219	0,01988	12,00
51	FRTINSP	0,58401	0,00992	15,5	0,523798	-0,00116	18,00	0,62052	0,01930	12,00
52	G4MF	0,36862	0,01736	15,5	0,399432	-0,00318	11,00	0,35098	0,03928	12,00
53	GENEUUN	0,55016	0,01172	18,8	0,518413	0,00072	15,00	0,56816	0,02157	15,00
54	HANSASC	0,69533	0,01027	12,4	0,491544	0,00326	11,65	0,81807	0,01523	14,00
55	HANSEUI	0,66537	0,00873	17,4	0,55123	-0,00004	16,00	0,73337	0,01557	17,00
56	HG4H	0,64258	0,01251	8,1	0,334829	0,00726	6,70	0,82916	0,01619	8,00
57	HJ3E	0,74070	0,00966	13,7	0,483532	0,00343	16,00	0,89576	0,01387	18,00
58	HJ3F	0,70039	0,00832	21,0	0,543362	0,00009	16,00	0,79434	0,01434	22,00
59	HJUB	0,44048	0,01371	16,0	0,500175	-0,00258	10,70	0,40582	0,03261	13,00
60	HJVC	0,89800	0,00697	41,3	0,904216	-0,00027	24,00	0,89445	0,01405	33,00
61	HJVE	0,80382	0,00676	16,1	0,643525	-0,00011	16,00	0,89950	0,01193	14,00
62	HV8R	0,70601	0,00899	19,6	0,560956	-0,00006	17,00	0,79349	0,01573	22,00
63	HV8S	0,70771	0,00910	19,7	0,555578	0,00003	17,00	0,79965	0,01576	22,00
64	HYPTWEL	0,58894	0,01040	17,1	0,511382	-0,00123	16,00	0,63600	0,01984	15,00
65	IUGM	0,57574	0,01295	7,6	0,581064	0,00397	4,00	0,57141	0,02179	6,00
66	IUGN	0,75447	0,01004	7,0	0,400997	0,00836	3,00	0,96669	0,01205	9,00

67	IUVD	0,76115	0,01020	8,3	0,626917	0,00496	5,00	0,84408	0,01483	7,00
68	IWMI	0,86273	0,00766	28,2	0,761519	0,00045	19,00	0,92440	0,01376	27,00
69	IWT5	0,68891	0,01081	7,0	0,318374	0,01336	5,84	0,90981	0,01149	7,00
70	IWTC	0,64083	0,01205	7,4	0,318604	0,01361	5,84	0,83263	0,01311	8,00
71	J7N4	0,50393	0,01135	14,1	0,447367	-0,00259	15,00	0,53829	0,02296	10,16
72	LH4A	0,81183	0,00794	25,1	0,76936	0,00017	22,00	0,83796	0,01506	17,00
73	LIGAPAU	0,71854	0,00839	25,8	0,609035	-0,00034	18,00	0,78434	0,01532	31,00
74	M3AG	0,93582	0,00710	29,5	0,829165	0,00050	22,00	1,00067	0,01272	34,00
75	MATAPAC	0,54633	0,01430	11,7	0,423274	0,00541	8,00	0,62114	0,02129	11,00
76	MIAKPRE	0,75519	0,00782	35,5	0,676813	-0,00096	38,00	0,80252	0,01522	49,00
77	MONGRMY	0,90134	0,00738	27,5	0,84284	0,00050	22,00	0,93699	0,01360	23,00
78	NORINRK	0,83941	0,00789	26,7	0,764399	0,00044	19,00	0,88521	0,01441	24,00
79	NORISFD	0,73729	0,00830	25,7	0,707687	-0,00050	18,00	0,75498	0,01641	20,00
80	NURNADA	0,79872	0,00765	26,9	0,819075	-0,00006	22,00	0,78598	0,01537	19,00
81	OD5B	0,68351	0,00843	23,1	0,62522	0,00005	12,00	0,71715	0,01570	18,00
82	OPJ3	0,44008	0,01649	11,0	0,435678	0,00176	13,00	0,44203	0,03052	7,00
83	OPPFGLB	0,30332	0,02415	18,8	0,269475	0,00065	12,00	0,32445	0,04372	15,00
84	OXMC	0,31224	0,02340	8,9	0,267241	0,00066	11,00	0,34011	0,04160	7,00
85	PBAE	0,68840	0,00918	14,0	0,446288	0,00033	11,50	0,83491	0,01469	22,00
86	RIXD	0,71934	0,00926	11,4	0,616331	0,00167	14,00	0,77990	0,01547	9,00
87	RK1W	0,34923	0,01892	9,4	0,304137	0,00155	8,00	0,37533	0,03336	8,00
88	RK1X	0,56227	0,01039	13,1	0,514803	-0,00251	10,33	0,59123	0,02147	9,83
89	SGRWSAV	0,73940	0,00879	19,3	0,766017	0,00007	18,00	0,72274	0,01762	14,00
90	SMHINTL	0,54539	0,01147	20,4	0,481778	-0,00126	15,00	0,58413	0,02198	19,00
91	SMHSPZ1	0,92231	0,00724	38,0	0,818849	0,00068	22,00	0,98489	0,01284	45,00
92	SRVL	0,71474	0,01203	6,9	0,569255	0,00665	4,00	0,78210	0,01701	6,00
93	SRVM	0,69615	0,01238	6,1	0,56353	0,00680	4,00	0,75566	0,01759	4,46
94	SRVN	0,69220	0,01261	5,8	0,562627	0,00684	4,00	0,74820	0,01794	4,40
95	THESAUR	0,85697	0,00818	27,2	0,790318	0,00083	22,00	0,89766	0,01471	24,00
96	U1IE	0,70491	0,00865	30,1	0,585251	-0,00014	17,00	0,77737	0,01549	23,00
97	U1II	0,52500	0,01238	16,3	0,457862	-0,00084	12,00	0,56571	0,02315	14,00
98	UI3L	0,61898	0,01008	24,3	0,573196	-0,00160	13,00	0,64705	0,02031	25,00
99	UIB5	0,84706	0,00788	22,8	0,831445	0,00071	22,00	0,85741	0,01473	15,00
100	UIV1	0,74883	0,00838	19,8	0,551167	0,00145	14,00	0,86788	0,01331	35,00
101	UIV2	0,76858	0,00819	16,5	0,548523	0,00151	14,00	0,90122	0,01286	25,00

102	UNACATI	0,55943	0,01256	13,9	0,535817	0,00149	11,89	0,57327	0,02269	11,00
103	UNIEURP	0,76783	0,00794	24,2	0,598433	-0,00013	17,00	0,87002	0,01383	52,00
104	UNIONGL	0,58320	0,01119	20,5	0,521674	-0,00061	16,00	0,62070	0,02110	29,00
105	UO1D	0,54302	0,01119	17,7	0,563499	-0,00040	17,00	0,52946	0,02288	12,00
106	UQ2E	0,55702	0,01115	11,3	0,445632	-0,00110	11,21	0,62543	0,02033	10,38
107	ZGS7	0,48553	0,01747	9,0	0,361057	0,00860	6,07	0,56033	0,02431	9,00
108	ZPJF	0,70404	0,00931	19,4	0,559549	0,00023	17,00	0,79130	0,01608	22,00
109	ZPJK	0,64679	0,00983	21,3	0,54727	-0,00002	17,00	0,70680	0,01767	14,00
110	DKDP	0,39129	0,01520	13,6	0,409538	-0,00108	7,39	0,38096	0,03195	11,00
111	DWSJPOP	0,26679	0,02306	6,7	0,327873	-0,00110	4,97	0,23119	0,05419	4,00
112	DWSVDYN	0,46039	0,01436	15,1	0,424088	0,00133	16,00	0,48140	0,02580	11,00
113	DWW4	0,28942	0,02123	7,6	0,32462	-0,00102	4,97	0,27012	0,04636	5,45
114	DWWN	0,54283	0,01535	12,3	0,429574	0,00880	7,05	0,60841	0,02094	11,00
115	DZ7I	0,40673	0,01622	12,7	0,417423	0,00134	16,00	0,39913	0,03110	8,00
116	EUROAKT	0,68813	0,00863	11,9	0,57814	0,00063	15,00	0,75342	0,01498	19,00
117	FGUC	0,76299	0,00765	15,3	0,826846	-0,00027	17,00	0,72338	0,01623	9,00
118	FHUK	0,60392	0,00998	21,3	0,565619	-0,00037	16,00	0,62645	0,01918	15,00
119	FK8V	0,89156	0,00625	18,7	0,691828	-0,00001	15,00	1,01175	0,01086	26,00
120	FK8W	0,85679	0,00652	17,9	0,691039	-0,00001	15,00	0,95636	0,01151	24,00
121	HV8A	0,70025	0,00896	15,8	0,452134	0,00372	16,00	0,84795	0,01253	19,00
122	IWT4	0,57783	0,01233	9,9	0,196442	0,02292	3,00	0,80512	0,01206	19,00
123	IWTF	0,59072	0,01270	10,1	0,196607	0,02409	3,00	0,82615	0,01239	16,00
124	KAKDEKA	0,84120	0,00665	19,4	0,6883	-0,00001	16,00	0,93298	0,01180	22,00
125	KLNAKTD	0,83868	0,00666	19,4	0,687557	-0,00001	16,00	0,92942	0,01183	21,00
126	M3AH	0,85460	0,00688	27,1	0,706663	0,00018	18,00	0,94345	0,01212	36,00
127	MONEULD	0,81568	0,00723	25,2	0,721982	0,00017	19,00	0,87163	0,01315	23,00
128	S4WD	0,67050	0,00887	17,4	0,581625	0,00062	15,00	0,72239	0,01565	11,00
129	SRVK	0,62121	0,00969	16,5	0,460724	0,00320	16,00	0,71581	0,01446	10,25
130	U1IG	0,78917	0,00772	24,4	0,700147	0,00016	15,00	0,84258	0,01406	17,00
131	U1IJ	0,33616	0,01784	10,7	0,393281	-0,00071	6,00	0,30134	0,04012	9,00
132	UNIJAPN	0,33778	0,01778	8,2	0,414626	-0,00059	7,49	0,29227	0,04146	5,71
133	UNIONEL	0,82758	0,00736	29,6	0,710308	0,00020	15,00	0,89790	0,01318	27,00
134	UPKB	0,61216	0,01117	11,9	0,504293	0,00269	14,00	0,67605	0,01795	10,32
135	VERVALR	0,78576	0,00743	14,0	0,836714	-0,00027	19,00	0,75459	0,01556	8,00
136	ZJP3	0,68909	0,00894	14,0	0,460311	0,00341	17,00	0,82512	0,01276	15,00

137	ASTRAFD	0,39118	0,01813	11,8	0,404124	0,00305	10,00	0,38359	0,03334	8,00
138	DED5	0,72953	0,00758	16,5	0,598555	-0,00066	16,00	0,80786	0,01390	16,00
139	DJLD	0,56833	0,01133	7,8	0,363877	0,00119	7,00	0,69183	0,01908	8,00
140	DKDI	0,85908	0,00649	26,8	0,706275	-0,00038	15,00	0,95096	0,01179	31,00
141	DKDJ	0,86907	0,00649	24,7	0,705358	-0,00034	15,00	0,96765	0,01169	30,00
142	DKDM	0,92603	0,00722	25,1	0,814321	0,00074	20,00	0,99389	0,01271	21,00
143	EURAKTS	0,68671	0,01000	15,6	0,458259	0,00453	12,47	0,82261	0,01388	27,00
144	EZTQ	0,34414	0,02086	9,3	0,381983	0,00304	11,20	0,32166	0,04049	6,00
145	FGMD	0,59262	0,01135	13,0	0,470721	0,00103	13,00	0,66578	0,01908	11,00
146	FMMFNDS	0,33488	0,02149	8,5	0,392363	0,00296	11,57	0,30049	0,04345	6,00
147	FMUD	0,63626	0,01009	22,7	0,543503	0,00214	17,00	0,69146	0,01662	16,00
148	FPJA	0,59931	0,01146	20,0	0,462714	0,00449	12,00	0,67912	0,01681	16,00
149	GGV	0,73190	0,00980	11,9	0,765804	0,00111	19,00	0,71036	0,01869	8,00
150	HJUK	0,82930	0,00802	20,4	0,825551	0,00064	19,00	0,83139	0,01515	14,00
151	LXFA	0,40952	0,01681	7,1	0,0917	0,00142	1,70	0,60190	0,02215	13,00
152	MEAGEIN	0,57692	0,01115	15,7	0,555886	0,00210	17,00	0,58863	0,01956	10,00
153	MIAKPRW	0,66634	0,00817	31,4	0,718006	-0,00285	25,00	0,63631	0,01993	23,00
154	OE7A	0,51937	0,01273	11,9	0,37263	0,00235	9,00	0,60747	0,01996	14,00
155	OXSA	0,64152	0,01110	8,2	0,52367	0,00352	4,00	0,71144	0,01716	8,00
156	RINGAKF	0,85782	0,00776	30,5	0,816403	0,00062	18,00	0,88232	0,01432	26,00
157	RK11	0,69582	0,01206	8,4	0,349195	0,01150	7,00	0,90297	0,01385	9,00
158	RK1B	0,56203	0,01055	20,4	0,508241	-0,00133	13,00	0,59393	0,02066	23,00
159	RK1P	0,68242	0,00868	23,3	0,535154	0,00021	15,00	0,77014	0,01495	18,00
160	RK1U	0,59537	0,01394	9,3	0,39599	0,00768	7,23	0,71356	0,01857	9,00
161	ROC	0,49083	0,01219	15,2	0,467217	-0,00118	10,63	0,50484	0,02430	12,00
162	TDLB	0,71463	0,00967	23,6	0,616498	0,00134	20,00	0,77326	0,01648	24,00
163	UI3B	0,71798	0,00873	27,6	0,590729	0,00035	17,00	0,79436	0,01521	24,00
164	UI3F	0,74059	0,00836	14,8	0,618044	-0,00110	16,00	0,81549	0,01565	13,00
165	UI3G	0,72990	0,00854	19,2	0,609833	-0,00105	15,00	0,80310	0,01594	20,00
166	UI4L	0,55837	0,01183	20,0	0,534799	-0,00039	15,00	0,57221	0,02291	15,00
167	UI4M	0,82020	0,00800	21,2	0,803755	0,00060	19,00	0,83028	0,01505	14,00
168	UI4R	0,57679	0,01057	21,6	0,546896	-0,00189	13,00	0,59581	0,02174	19,00
169	UIV7	0,58289	0,01378	10,2	0,435103	0,00483	9,46	0,67304	0,02044	9,08
170	UIVA	0,49026	0,01640	16,3	0,418037	0,00505	9,24	0,53362	0,02572	11,00
171	UNI21JH	0,59044	0,01034	20,5	0,541848	-0,00191	14,00	0,62054	0,02090	18,00

172	UNIFDSN	0,91755	0,00716	41,7	0,820321	0,00061	20,00	0,97680	0,01281	56,00
173	UNIGLBN	0,58394	0,01130	20,4	0,523293	-0,00035	16,00	0,62094	0,02112	17,00
174	AKKMULA	0,58308	0,01144	18,2	0,514021	0,00062	17,00	0,62460	0,02045	16,00
175	ARIDEKA	0,69603	0,00833	18,9	0,595185	-0,00071	16,00	0,75658	0,01559	17,00
176	BFGINVA	0,90109	0,00713	28,8	0,739782	-0,00015	15,00	0,99875	0,01281	41,00
177	BWKDSEU	0,71693	0,00918	18,0	0,525239	0,00263	18,00	0,83160	0,01392	21,00
178	CONCENT	0,87182	0,00789	27,8	0,841589	0,00025	23,00	0,89073	0,01503	20,00
179	DI7R	0,67921	0,01197	15,3	0,460458	0,00544	11,35	0,81141	0,01666	17,00
180	DI7T	0,69907	0,00871	16,7	0,572874	-0,00001	17,00	0,77533	0,01543	17,00
181	DI7U	0,90763	0,00756	34,0	0,840282	0,00026	23,00	0,94933	0,01407	31,00
182	DI7X	0,69547	0,01025	21,9	0,623739	-0,00014	17,00	0,73883	0,01901	19,00
183	DITSPZ2	0,66987	0,01215	14,0	0,468275	0,00535	11,38	0,79170	0,01709	15,00
184	DITWEUR	0,66681	0,01071	21,0	0,624223	-0,00011	17,00	0,69296	0,02030	16,00
185	DJFA	0,87921	0,00779	26,5	0,782953	0,00106	20,00	0,93708	0,01354	22,00
186	DJFB	0,56604	0,01098	13,7	0,498054	-0,00087	14,00	0,60818	0,02079	11,00
187	DPROVST	0,71785	0,00903	16,3	0,516636	0,00277	14,00	0,83935	0,01363	25,00
188	DTVERMG	0,87182	0,00788	23,4	0,795961	0,00108	21,00	0,91793	0,01385	18,00
189	DWSAKDE	0,91047	0,00830	21,9	0,758231	0,00246	16,00	1,00210	0,01305	23,00
190	DWSEURO	0,76606	0,00804	18,2	0,6204	0,00043	17,00	0,85332	0,01386	20,00
191	EZTC	0,86057	0,00746	28,7	0,821788	0,00016	25,00	0,88450	0,01421	19,00
192	FHUA	0,67962	0,00968	19,6	0,523134	0,00264	16,00	0,77295	0,01496	15,00
193	FONDAKI	0,83134	0,00836	19,5	0,685828	0,00208	20,00	0,91893	0,01342	18,00
194	FTFREFF	0,87597	0,00734	27,6	0,821918	0,00016	27,00	0,90915	0,01384	21,00
195	HJU8	0,65278	0,01000	25,0	0,645089	0,00034	20,00	0,65657	0,01917	18,00
196	HJUD	0,51052	0,01212	20,5	0,472671	-0,00122	16,00	0,53367	0,02383	15,00
197	HJUI	0,86353	0,00874	19,5	0,766548	0,00241	16,00	0,92128	0,01416	14,00
198	HJUL	0,89855	0,00721	17,4	0,857902	0,00024	19,00	0,92277	0,01359	11,00
199	HJUQ	0,68916	0,00939	19,2	0,518257	0,00269	14,00	0,79153	0,01445	22,00
200	HJUU	0,53450	0,01393	17,9	0,498311	0,00276	9,57	0,55603	0,02397	17,00
201	HJVD	0,85650	0,00810	21,9	0,69025	0,00207	19,00	0,95663	0,01287	24,00
202	HV82	-0,04560	0,05081	0,0	1,741589	-0,01005	0,88	-1,50619	-0,00829	-0,75
203	HV8B	0,72810	0,00912	18,8	0,543803	0,00203	16,00	0,83897	0,01425	19,00
204	ZPJN	0,69724	0,00947	16,2	0,54178	0,00207	15,00	0,79012	0,01502	15,00

TABLE 20 AUSTRIAN MUTUAL FUNDS JENSEN AND TREYNOR-MAZUY REGRESSIONS PARAMETERS AND T STATISTICS

	OVERALL PERIOD								SUBPERIOD ONE								SUBPERIOD TWO							
#	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C
1	0,0014	0,7	-0,0002	0,78	0,46	-0,1	10,0	2,0	-0,0015	-0,6	0,0008	0,81	-3,52	0,3	8,9	-2,1	0,0045	1,2	0,0014	0,78	0,46	0,4	9,0	2,0
2	-0,0009	-0,7	-0,0026	0,70	0,50	-2,2	12,0	5,0	-0,0038	-3,1	-0,0048	0,53	1,57	-3,6	11,3	1,8	0,0027	1,4	-0,0003	0,71	0,45	-0,2	12,0	4,0
3	-0,0008	-0,7	-0,0023	0,74	0,41	-2,0	15,0	4,0	-0,0028	-2,5	-0,0037	0,49	1,30	-3,0	11,3	1,6	0,0022	1,2	-0,0002	0,77	0,35	-0,1	14,0	4,0
4	0,0002	0,2	-0,0018	0,66	0,60	-1,5	9,0	3,0	-0,0028	-3,0	-0,0034	0,45	0,92	-3,0	9,0	1,0	0,0042	1,9	0,0006	0,68	0,55	0,3	8,0	3,0
5	-0,0009	-0,8	-0,0023	0,74	0,41	-2,1	15,0	4,0	-0,0028	-2,5	-0,0037	0,49	1,30	-3,0	11,3	1,6	0,0021	1,1	-0,0003	0,77	0,35	-0,1	14,0	4,0
6	0,0007	0,4	-0,0016	0,62	0,64	1,3	8,0	4,0	-0,0027	-2,8	-0,0053	0,35	3,93	-5,3	10,0	6,1	0,0051	2,2	0,0013	0,65	0,57	0,6	10,0	3,0
7	0,0007	0,5	-0,0015	0,61	0,65	-1,2	8,0	4,0	-0,0024	-2,5	-0,0051	0,31	4,13	-5,1	8,9	6,5	0,0050	1,9	0,0011	0,64	0,58	0,5	10,0	3,0
8	0,0006	0,4	-0,0016	0,63	0,64	-1,3	8,0	4,0	-0,0023	-2,9	-0,0044	0,36	3,24	-5,2	12,3	6,0	0,0046	1,9	0,0007	0,66	0,58	0,3	8,0	3,0
9	0,0006	0,4	-0,0015	0,62	0,63	-1,2	8,0	4,0	-0,0026	-3,2	-0,0048	0,36	3,32	-5,4	8,0	5,0	0,0050	2,0	0,0012	0,65	0,56	0,5	8,0	3,0
10	0,0000	0,0	-0,0017	0,71	0,50	-1,3	11,0	3,0	-0,0024	-2,0	-0,0025	0,48	0,19	-2,0	10,0	0,2	0,0033	1,5	0,0003	0,73	0,45	0,1	11,0	3,0
11	-0,0001	-0,1	-0,0013	0,81	0,34	-1,1	19,0	4,0	-0,0023	-1,8	-0,0011	0,70	-1,85	-0,8	14,4	-2,1	0,0027	1,7	0,0006	0,82	0,31	0,3	18,0	4,4
12	-0,0001	-0,1	-0,0013	0,81	0,34	-1,1	19,0	4,0	-0,0023	-1,8	-0,0011	0,70	-1,88	-0,8	14,4	-2,1	0,0027	1,7	0,0006	0,82	0,32	0,3	18,0	4,4
13	0,0009	0,6	-0,0014	0,61	0,66	1,0	10,0	4,0	-0,0027	-2,7	-0,0048	0,33	3,28	-4,6	8,9	4,8	0,0056	2,2	0,0017	0,64	0,59	0,7	9,0	3,0
14	0,0010	0,6	-0,0012	0,61	0,65	-1,0	21,0	3,0	-0,0024	-2,3	-0,0053	0,30	4,31	-4,4	6,0	5,0	0,0056	2,3	0,0018	0,64	0,57	0,8	10,0	3,0
15	0,0001	0,1	-0,0009	0,84	0,28	-1,2	11,0	4,9	-0,0013	-1,1	-0,0014	0,66	0,11	-1,1	14,6	0,1	0,0023	1,4	0,0006	0,86	0,25	0,3	21,0	3,4
16	0,0008	0,6	-0,0013	0,64	0,61	1,1	21,0	3,0	-0,0021	-2,5	-0,0042	0,33	3,18	-4,5	7,0	4,0	0,0050	2,2	0,0014	0,67	0,54	0,7	11,0	3,0
17	0,0002	0,3	-0,0007	0,84	0,28	-1,0	8,0	4,0	-0,0012	-1,0	-0,0012	0,66	0,09	-0,9	14,6	0,1	0,0024	1,5	0,0008	0,86	0,25	0,4	21,0	3,4
18	0,0010	0,6	-0,0012	0,62	0,62	-1,0	9,0	4,0	-0,0021	-2,2	-0,0045	0,33	3,66	-4,3	7,0	5,0	0,0052	2,0	0,0015	0,65	0,56	0,7	8,0	3,0
19	0,0008	0,5	-0,0013	0,63	0,61	-1,1	9,0	4,0	-0,0025	-3,0	-0,0046	0,36	3,20	-5,3	11,9	5,8	0,0051	2,0	0,0015	0,66	0,54	0,7	11,0	3,0
20	0,0013	0,9	-0,0008	0,64	0,60	-0,7	9,0	4,0	-0,0018	-2,5	-0,0039	0,36	3,06	-5,0	13,2	6,2	0,0055	2,2	0,0019	0,67	0,54	0,9	11,0	3,0
21	-0,0005	-0,5	-0,0019	0,77	0,41	-2,4	15,0	4,0	-0,0021	-1,9	-0,0021	0,56	-0,07	-1,7	13,0	-0,1	0,0022	1,4	-0,0003	0,79	0,37	-0,2	14,0	3,0
22	0,0009	0,6	-0,0012	0,64	0,60	-1,0	9,0	4,0	-0,0024	-3,0	-0,0045	0,37	3,20	-5,5	12,9	6,1	0,0052	2,3	0,0016	0,67	0,54	0,8	9,0	3,0
23	0,0009	0,6	-0,0012	0,64	0,60	-1,0	9,0	4,0	-0,0024	-3,0	-0,0045	0,37	3,20	-5,5	12,9	6,1	0,0052	2,3	0,0016	0,67	0,53	0,7	9,0	3,0
24	-0,0003	-0,2	-0,0021	0,70	0,54	-1,4	11,0	4,0	-0,0026	-1,5	-0,0023	0,53	-0,44	-1,2	8,2	-0,4	0,0029	1,2	-0,0005	0,72	0,51	-0,2	11,0	4,0
25	0,0008	0,5	-0,0013	0,63	0,62	-1,1	9,0	4,0	-0,0024	-3,0	-0,0041	0,35	2,57	-5,1	12,5	5,0	0,0052	2,0	0,0015	0,66	0,56	0,7	8,0	3,0
26	0,0008	0,6	-0,0013	0,64	0,62	-1,2	11,0	4,0	-0,0025	-3,0	-0,0047	0,34	3,35	-5,9	10,0	5,0	0,0053	2,2	0,0016	0,67	0,55	0,8	11,0	3,0
27	0,0008	0,6	-0,0013	0,63	0,61	-1,1	9,0	4,0	-0,0024	-2,9	-0,0043	0,35	2,95	-5,1	11,6	5,4	0,0052	2,1	0,0016	0,66	0,54	0,7	8,0	3,0
28	0,0002	0,4	-0,0006	0,88	0,23	-1,0	22,0	2,0	0,0000	0,0	0,0004	0,81	-0,57	0,7	26,0	-1,0	0,0008	0,9	-0,0007	0,89	0,22	-0,4	20,0	2,0
29	0,0004	0,4	-0,0002	0,88	0,17	-0,1	25,0	2,0	-0,0011	-0,7	-0,0005	0,76	-0,96	-0,3	12,0	-1,0	0,0024	1,5	0,0015	0,90	0,14	0,7	24,0	2,0
30	0,0007	0,7	0,0001	0,88	0,19	0,1	25,0	2,5	-0,0007	-0,4	0,0000	0,76	-1,04	0,0	12,0	-1,0	0,0027	1,6	0,0016	0,90	0,16	1,0	24,0	2,0
31	-0,0011	-1,1	-0,0023	0,81	0,32	-2,0	19,0	3,0	-0,0027	-2,1	-0,0027	0,58	-0,06	-1,9	11,5	-0,1	0,0015	1,0	-0,0003	0,84	0,27	-0,2	19,0	3,0
32	-0,0008	-0,8	-0,0019	0,82	0,31	-1,9	19,0	3,0	-0,0025	-1,9	-0,0026	0,58	0,18	-1,8	10,5	0,2	0,0018	1,3	0,0001	0,84	0,27	0,0	19,0	3,0
33	0,0007	0,5	-0,0013	0,66	0,58	-1,2	9,0	3,0	-0,0024	-3,0	-0,0036	0,43	1,88	-4,6	9,7	2,3	0,0047	2,0	0,0012	0,68	0,53	0,6	9,0	3,0
34	-0,0004	-0,4	-0,0018	0,76	0,41	-2,0	15,0	4,0	-0,0023	-2,0	-0,0024	0,52	0,23	-1,9	12,0	0,3	0,0025	1,5	0,0001	0,79	0,36	0,1	15,0	3,0
35	-0,0004	-0,4	-0,0015	0,80	0,30	-1,4	19,0	4,0	-0,0020	-1,8	-0,0021	0,58	0,14	-1,7	13,2	0,2	0,0021	1,4	0,0004	0,82	0,26	0,2	19,0	4,1
36	-0,0004	-0,4	-0,0015	0,80	0,30	-1,4	19,0	4,0	-0,0020	-1,7	-0,0021	0,58	0,14	-1,7	13,2	0,2	0,0021	1,4	0,0004	0,82	0,26	0,2	19,0	4,1
37	-0,0012	-1,3	-0,0026	0,79	0,38	-3,0	17,0	3,0	-0,0034	-2,9	-0,0040	0,53	0,80	-3,0	10,0	0,9	0,0020	1,4	-0,0001	0,81	0,32	-0,1	16,0	3,0
38	-0,0001	-0,1	-0,0019	0,71	0,50	-2,1	12,0	4,0	-0,0026	-2,7	-0,0036	0,45	1,57	-3,6	8,0	2,0	0,0033	1,9	0,0004	0,73	0,44	0,2	12,0	3,0
39	0,0000	0,0	-0,0016	0,73	0,46	-1,4	13,0	4,0	-0,0025	-2,0	-0,0031	0,54	0,89	-2,4	11,0	1,0	0,0033	1,7	0,0005	0,75	0,42	0,3	12,0	3,0

40	0,0007	0,8	-0,0004	0,84	0,31	-0,3	21,0	3,0	0,0004	0,3	0,0012	0,72	-1,25	0,8	13,1	-1,2	0,0016	1,2	-0,0004	0,86	0,30	-0,2	19,0	3,0
41	0,0009	1,0	-0,0002	0,85	0,31	-0,1	21,0	3,0	0,0005	0,4	0,0013	0,72	-1,22	0,9	13,2	-1,2	0,0019	1,5	0,0000	0,86	0,29	0,0	19,0	3,0
42	-0,0011	-1,1	-0,0022	0,80	0,33	-2,2	18,0	3,0	-0,0027	-2,2	-0,0036	0,49	1,49	-2,8	10,0	1,8	0,0017	1,2	0,0000	0,83	0,26	0,0	18,0	3,0
43	-0,0013	-1,2	-0,0027	0,78	0,42	-3,0	15,0	3,0	-0,0032	-2,3	-0,0031	0,55	-0,11	-2,0	9,9	-0,1	0,0017	1,2	-0,0007	0,80	0,37	-0,4	14,0	3,0
44	-0,0008	-0,8	-0,0023	0,78	0,41	-2,5	15,0	3,0	-0,0030	-2,1	-0,0030	0,56	0,02	-1,9	10,4	0,0	0,0023	1,5	-0,0002	0,81	0,36	-0,1	14,0	3,0
45	0,0006	0,5	-0,0013	0,67	0,56	-1,1	10,0	4,0	-0,0023	-2,9	-0,0036	0,40	1,96	-4,2	13,3	3,5	0,0047	2,1	0,0014	0,69	0,50	0,7	10,0	3,0
46	0,0007	0,6	-0,0009	0,72	0,48	-0,9	12,0	4,0	-0,0015	-1,4	-0,0023	0,52	1,21	-1,9	12,2	1,5	0,0038	1,8	0,0010	0,74	0,43	0,5	12,0	3,0
47	0,0012	2,0	0,0004	0,86	0,24	0,4	22,0	2,0	0,0012	2,0	0,0012	0,71	0,04	1,7	21,0	0,1	0,0018	1,8	0,0003	0,87	0,22	0,2	21,0	2,0
48	0,0004	0,3	-0,0013	0,72	0,50	-0,9	12,0	4,0	-0,0021	-1,4	-0,0027	0,48	0,83	-1,6	8,1	0,8	0,0039	1,7	0,0009	0,74	0,44	0,4	12,0	3,0
49	-0,0005	-0,5	-0,0019	0,79	0,41	-2,2	15,0	3,0	-0,0025	-1,8	-0,0028	0,57	0,51	-2,6	10,0	0,7	0,0025	1,6	0,0000	0,81	0,36	0,0	15,0	3,0
50	-0,0008	-0,8	-0,0022	0,80	0,40	-2,6	15,0	3,0	-0,0026	-1,9	-0,0030	0,57	0,46	-2,7	10,0	0,7	0,0020	1,3	-0,0004	0,82	0,35	-0,2	15,0	3,0
51	-0,0004	-0,3	-0,0019	0,76	0,44	-2,2	14,0	3,0	-0,0027	-2,7	-0,0026	0,56	-0,13	-2,6	10,0	-0,2	0,0029	1,8	0,0003	0,79	0,40	0,2	13,0	3,0
52	-0,0007	-0,7	-0,0023	0,77	0,44	-2,0	14,0	3,0	-0,0030	-3,0	-0,0030	0,56	-0,09	-2,9	10,0	-0,1	0,0025	1,5	-0,0002	0,79	0,40	-0,1	13,0	3,0
53	0,0000	0,0	-0,0007	0,90	0,19	-0,7	26,0	2,0	0,0005	1,0	0,0008	0,89	-0,47	1,2	27,0	-0,8	-0,0003	-0,3	-0,0016	0,90	0,20	-1,4	24,0	1,7
54	0,0004	0,7	-0,0003	0,90	0,19	-0,3	26,0	1,8	0,0007	1,3	0,0011	0,89	-0,51	1,7	27,0	-0,9	0,0002	0,2	-0,0011	0,90	0,20	-0,6	24,0	1,7
55	-0,0012	-1,3	-0,0023	0,84	0,30	-2,1	24,0	4,0	-0,0020	-1,5	-0,0030	0,53	1,49	-2,1	10,6	1,6	0,0007	0,5	-0,0009	0,87	0,24	-0,5	25,0	3,0
56	-0,0016	-1,6	-0,0025	0,84	0,26	-2,2	24,0	3,0	-0,0021	-1,5	-0,0031	0,53	1,51	-2,1	10,5	1,6	0,0001	0,0	-0,0013	0,87	0,20	-0,7	25,0	2,0
57	0,0001	0,1	-0,0014	0,75	0,45	-1,4	14,0	4,0	-0,0025	-2,2	-0,0032	0,55	1,12	-2,6	12,5	1,4	0,0035	1,9	0,0009	0,77	0,40	0,5	14,0	3,0
58	-0,0018	-1,4	-0,0029	0,83	0,34	-2,1	19,0	3,0	-0,0049	-2,5	-0,0045	0,67	-0,57	-2,1	8,9	-0,4	0,0020	1,5	0,0001	0,84	0,29	0,0	18,0	2,5
59	-0,0017	-1,3	-0,0029	0,83	0,34	-2,1	19,0	3,0	-0,0048	-2,4	-0,0045	0,67	-0,53	-2,1	8,9	-0,4	0,0021	1,6	0,0002	0,84	0,30	0,1	18,0	2,5
60	-0,0001	-0,1	-0,0017	0,74	0,47	-1,6	12,0	3,0	-0,0031	-2,8	-0,0038	0,53	1,05	-3,0	11,0	1,2	0,0038	2,0	0,0010	0,76	0,42	0,5	12,0	3,0
61	-0,0012	-1,3	-0,0026	0,79	0,40	-2,3	16,0	3,0	-0,0035	-2,8	-0,0035	0,63	0,10	-2,8	10,0	0,1	0,0018	1,3	-0,0006	0,81	0,36	-0,4	15,0	3,0
62	-0,0005	-0,5	-0,0018	0,79	0,40	-2,1	16,0	3,0	-0,0024	-1,8	-0,0025	0,60	0,04	-1,6	11,1	0,0	0,0024	1,9	0,0001	0,81	0,35	0,0	15,0	3,0
63	-0,0012	-1,1	-0,0026	0,77	0,41	-2,4	14,0	3,0	-0,0032	-2,5	-0,0034	0,55	0,31	-2,4	11,5	0,3	0,0018	1,0	-0,0007	0,80	0,37	-0,4	14,0	3,0
64	0,0001	0,1	-0,0013	0,78	0,41	-1,3	14,0	3,0	-0,0017	-1,8	-0,0016	0,55	-0,12	-1,8	12,0	-0,1	0,0028	1,7	0,0003	0,80	0,37	0,2	14,0	3,0
65	0,0000	0,0	-0,0015	0,72	0,45	-1,3	12,0	4,0	-0,0030	-2,4	-0,0043	0,46	1,97	-3,0	10,0	2,3	0,0040	2,0	0,0014	0,75	0,39	0,8	12,0	3,0
66	0,0006	0,6	-0,0010	0,73	0,47	-0,9	14,0	4,0	-0,0004	-0,4	-0,0017	0,42	2,07	-1,9	10,0	2,4	0,0028	1,5	0,0000	0,76	0,41	0,0	13,0	3,0
67	0,0000	0,0	-0,0014	0,78	0,41	-1,5	16,0	4,0	-0,0018	-2,0	-0,0021	0,53	0,52	-2,6	12,0	0,9	0,0028	1,8	0,0004	0,80	0,36	0,3	15,0	3,0
68	0,0002	0,3	-0,0012	0,78	0,41	-1,2	16,0	4,0	-0,0016	-2,0	-0,0021	0,53	0,65	-2,6	12,0	1,0	0,0032	2,0	0,0007	0,80	0,36	0,5	15,0	3,0
69	-0,0004	-0,3	-0,0017	0,76	0,39	-1,5	20,0	4,0	-0,0035	-2,0	-0,0049	0,52	2,24	-3,2	10,0	2,2	0,0036	1,8	0,0014	0,78	0,33	0,8	20,0	3,0
70	0,0005	0,5	-0,0005	0,85	0,29	-0,3	22,0	3,0	0,0010	0,7	0,0020	0,72	-1,57	1,3	12,9	-1,5	0,0006	0,4	-0,0012	0,87	0,28	-0,6	20,0	3,0
71	0,0008	0,8	-0,0002	0,86	0,28	-0,1	22,0	3,0	0,0011	0,7	0,0021	0,72	-1,58	1,3	12,9	-1,5	0,0011	0,7	-0,0007	0,87	0,27	-0,3	21,0	3,0
72	-0,0007	-0,6	-0,0020	0,76	0,37	-1,7	21,0	4,0	-0,0040	-3,0	-0,0052	0,50	1,90	-3,7	10,3	2,1	0,0036	1,8	0,0016	0,79	0,30	0,8	16,0	3,0
73	-0,0006	-0,6	-0,0019	0,77	0,38	-2,1	16,0	3,0	-0,0029	-2,3	-0,0036	0,55	1,21	-2,6	10,0	1,1	0,0026	1,6	0,0004	0,80	0,33	0,2	16,0	3,0
74	0,0008	1,6	0,0000	0,86	0,24	0,0	24,0	2,4	0,0007	1,1	0,0009	0,75	-0,31	1,2	22,0	-0,4	0,0016	1,8	0,0001	0,88	0,23	0,1	22,0	2,0
75	0,0007	1,3	-0,0002	0,86	0,25	-0,2	24,0	2,4	0,0005	0,9	0,0007	0,75	-0,26	1,0	21,0	-0,4	0,0014	1,6	-0,0001	0,87	0,23	-0,1	22,0	2,0
76	-0,0004	-0,4	-0,0018	0,78	0,41	-2,1	14,0	3,0	-0,0023	-1,9	-0,0025	0,51	0,29	-1,9	10,8	0,3	0,0026	1,6	0,0002	0,80	0,35	0,1	14,0	2,5
77	-0,0001	-0,1	-0,0013	0,78	0,36	-1,3	17,0	3,0	-0,0026	-2,4	-0,0027	0,56	0,15	-2,2	12,0	0,2	0,0034	2,1	0,0013	0,80	0,31	0,8	16,0	3,0
78	0,0000	0,0	-0,0016	0,74	0,45	-1,3	15,0	4,0	-0,0023	-2,4	-0,0024	0,51	0,12	-2,3	10,0	0,1	0,0033	1,9	0,0006	0,76	0,40	0,3	14,0	4,0
79	-0,0004	-0,3	-0,0020	0,73	0,46	-1,6	13,0	3,0	-0,0038	-2,6	-0,0039	0,51	0,10	-2,3	9,0	0,1	0,0040	2,1	0,0013	0,75	0,40	0,6	12,0	3,0
80	0,0010	1,1	0,0000	0,85	0,29	0,0	20,0	3,0	0,0006	0,5	0,0016	0,73	-1,54	1,1	13,8	-1,6	0,0020	1,5	0,0002	0,86	0,28	0,1	19,0	2,4
81	0,0013	1,3	0,0002	0,85	0,29	0,2	20,0	3,0	0,0008	0,6	0,0018	0,73	-1,56	1,2	13,9	-1,6	0,0023	1,7	0,0004	0,86	0,28	0,2	19,0	2,4
82	0,0014	1,5	0,0006	0,87	0,23	0,5	25,0	3,0	0,0006	0,4	0,0021	0,77	-2,31	1,4	14,4	-2,3	0,0027	2,0	0,0013	0,88	0,22	0,7	24,0	3,0
83	0,0001	0,1	-0,0014	0,76	0,43	-1,3	15,0	4,0	-0,0022	-2,3	-0,0023	0,52	0,13	-2,4	11,0	0,1	0,0034	2,0	0,0008	0,78	0,38	0,5	14,0	3,0
84	0,0000	0,0	-0,0015	0,78	0,42	-1,9	15,0	3,0	-0,0017	-2,0	-0,0020	0,54	0,44	-2,4	11,0	0,6	0,0027	1,8	0,0002	0,80	0,37	0,1	14,0	2,6

85	0,0006	0,5	-0,0010	0,79	0,46	-1,1	12,0	2,0	-0,0012	-1,0	-0,0010	0,61	-0,31	-0,7	12,7	-0,3	0,0032	1,9	0,0003	0,80	0,43	0,2	11,0	2,0
86	-0,0004	-0,3	-0,0017	0,76	0,38	-1,6	16,0	4,0	-0,0033	-2,9	-0,0043	0,49	1,52	-3,5	11,5	1,9	0,0035	2,0	0,0014	0,78	0,32	0,8	16,0	3,6
87	-0,0006	-0,5	-0,0019	0,76	0,38	-1,9	16,0	4,0	-0,0034	-3,0	-0,0044	0,49	1,46	-3,5	11,4	1,8	0,0034	1,9	0,0012	0,79	0,32	0,7	16,0	3,6
88	-0,0005	-0,5	-0,0019	0,77	0,41	-2,1	16,0	4,0	-0,0028	-2,3	-0,0034	0,55	0,94	-2,6	11,0	1,0	0,0028	1,7	0,0004	0,80	0,36	0,2	16,0	3,2
89	-0,0007	-0,7	-0,0022	0,77	0,41	-2,1	16,0	4,0	-0,0031	-2,6	-0,0037	0,54	0,98	-2,9	11,0	1,0	0,0026	1,6	0,0002	0,80	0,36	0,1	15,0	3,3
90	0,0001	0,1	-0,0013	0,76	0,41	-1,3	14,0	4,0	-0,0026	-2,3	-0,0032	0,57	0,85	-2,5	13,0	1,1	0,0036	2,1	0,0012	0,78	0,36	0,7	14,0	3,0
91	-0,0004	-0,4	-0,0019	0,76	0,43	-2,0	14,0	3,0	-0,0028	-2,5	-0,0033	0,55	0,69	-2,6	12,6	0,9	0,0030	1,8	0,0005	0,78	0,38	0,3	14,0	3,0
92	0,0005	0,5	-0,0008	0,81	0,37	-0,7	20,0	5,0	-0,0012	-1,0	-0,0007	0,62	-0,77	-0,5	13,4	-0,9	0,0030	2,0	0,0008	0,83	0,33	0,4	20,0	4,9
93	0,0002	0,3	-0,0010	0,81	0,37	-0,9	20,0	5,0	-0,0014	-1,0	-0,0009	0,62	-0,72	-0,7	13,3	-0,8	0,0027	1,7	0,0004	0,83	0,34	0,2	20,0	4,9
94	-0,0019	-1,7	-0,0033	0,78	0,41	-2,8	15,0	4,0	-0,0043	-2,8	-0,0039	0,55	-0,56	-2,5	9,0	-2,6	0,0014	0,9	-0,0010	0,80	0,36	-0,5	15,0	3,0
95	-0,0007	-0,6	-0,0021	0,78	0,40	-2,0	16,0	4,0	-0,0031	-2,3	-0,0030	0,52	-0,15	-2,0	10,0	-0,2	0,0027	1,5	0,0003	0,81	0,35	0,2	15,0	3,0
96	-0,0004	-0,5	-0,0019	0,78	0,42	-2,4	15,0	3,0	-0,0022	-2,3	-0,0020	0,56	-0,32	-2,2	11,0	-0,5	0,0023	1,5	-0,0002	0,80	0,38	-0,1	14,0	3,0
97	0,0000	0,0	-0,0015	0,78	0,42	-1,9	15,0	3,0	-0,0020	-2,2	-0,0020	0,57	-0,08	-2,3	11,0	-0,1	0,0029	1,9	0,0004	0,80	0,37	0,2	14,0	3,0
98	0,0013	1,2	0,0001	0,81	0,34	0,1	19,0	4,0	-0,0004	-0,3	0,0003	0,66	-1,07	0,2	12,9	-1,1	0,0037	2,3	0,0016	0,83	0,31	1,0	18,0	3,7
99	-0,0011	-0,9	-0,0024	0,77	0,37	-2,0	20,0	4,0	-0,0042	-3,0	-0,0054	0,49	1,74	-3,5	9,2	1,8	0,0032	1,7	0,0011	0,80	0,30	0,6	16,0	4,0
100	-0,0008	-0,6	-0,0020	0,77	0,37	-1,7	20,0	4,0	-0,0040	-2,9	-0,0051	0,50	1,69	-3,4	9,4	1,7	0,0035	1,9	0,0015	0,80	0,30	0,8	16,0	4,5
101	-0,0005	-0,5	-0,0019	0,76	0,40	-2,0	14,0	4,0	-0,0032	-2,5	-0,0038	0,51	0,93	-2,7	10,1	1,0	0,0032	1,9	0,0009	0,79	0,34	0,5	15,0	3,0
102	-0,0004	-0,3	-0,0018	0,76	0,40	-1,6	14,0	4,0	-0,0031	-2,4	-0,0038	0,51	0,97	-2,6	10,0	1,1	0,0034	2,0	0,0011	0,79	0,34	0,6	15,0	3,0
103	-0,0005	-0,5	-0,0018	0,81	0,38	-2,2	17,0	3,0	-0,0021	-1,7	-0,0023	0,53	0,35	-1,7	11,0	0,4	0,0023	1,7	0,0001	0,83	0,33	0,0	16,0	2,4
104	-0,0005	-0,5	-0,0018	0,81	0,38	-2,1	17,0	3,0	-0,0021	-1,7	-0,0023	0,53	0,35	-1,7	11,0	0,4	0,0023	1,8	0,0001	0,83	0,33	0,1	16,0	2,4
105	-0,0007	-0,8	-0,0020	0,81	0,38	-2,5	17,0	3,0	-0,0023	-1,8	-0,0024	0,53	0,29	-1,8	10,9	0,3	0,0019	1,5	-0,0002	0,84	0,32	-0,1	16,0	2,3
106	-0,0002	-0,3	-0,0014	0,81	0,32	-1,4	22,0	4,0	-0,0023	-2,2	-0,0040	0,51	2,59	-3,5	12,7	3,5	0,0029	2,2	0,0012	0,84	0,25	0,7	23,0	3,7
107	-0,0006	-0,6	-0,0017	0,81	0,32	-1,9	22,0	4,0	-0,0026	-2,4	-0,0043	0,51	2,62	-3,8	12,7	3,5	0,0025	1,8	0,0008	0,84	0,25	0,5	23,0	3,6
108	-0,0009	-0,9	-0,0022	0,79	0,40	-2,1	16,0	3,0	-0,0034	-2,7	-0,0032	0,60	-0,41	-2,3	12,4	-0,5	0,0025	1,7	0,0002	0,81	0,35	0,1	15,0	3,0
109	-0,0003	-0,3	-0,0017	0,79	0,39	-1,9	16,0	3,0	-0,0028	-2,2	-0,0025	0,59	-0,44	-1,8	12,3	-0,5	0,0030	1,7	0,0007	0,81	0,35	0,4	16,0	3,0
110	0,0001	0,1	-0,0012	0,79	0,40	-1,1	17,0	3,0	0,0005	0,4	0,0003	0,56	0,28	0,2	14,0	0,4	0,0009	0,5	-0,0016	0,81	0,37	-0,8	16,0	3,0
111	0,0006	0,5	-0,0008	0,80	0,39	-0,7	17,0	3,0	0,0008	0,8	0,0006	0,55	0,25	0,6	14,4	0,4	0,0015	0,9	-0,0009	0,82	0,36	-0,5	16,0	2,5
112	0,0005	1,1	-0,0002	0,90	0,22	-0,2	25,0	2,0	0,0003	0,4	0,0011	0,84	-1,26	1,6	24,0	-2,2	0,0012	1,4	-0,0003	0,90	0,22	-0,2	23,0	1,7
113	-0,0003	-0,2	-0,0019	0,75	0,46	-2,0	12,0	3,0	-0,0029	-2,3	-0,0033	0,56	0,55	-2,3	11,1	0,6	0,0032	1,8	0,0004	0,77	0,42	0,2	11,0	2,7
114	0,0007	1,4	-0,0001	0,90	0,22	-0,1	25,0	2,0	0,0004	0,6	0,0011	0,85	-1,17	1,7	25,0	-1,4	0,0013	1,6	-0,0001	0,90	0,21	-0,1	23,0	1,7
115	0,0008	1,6	0,0000	0,90	0,22	0,0	25,0	2,0	0,0005	0,9	0,0013	0,85	-1,16	1,9	25,0	-1,4	0,0014	1,6	-0,0001	0,90	0,21	0,0	23,0	1,7
116	0,0008	0,9	0,0001	0,89	0,21	0,1	25,0	3,0	0,0002	0,1	0,0014	0,76	-1,87	0,9	14,2	-1,9	0,0020	1,4	0,0007	0,91	0,19	0,3	25,0	2,2
117	0,0007	0,7	-0,0001	0,90	0,21	0,0	26,0	2,5	0,0001	0,1	0,0014	0,76	-1,89	0,9	14,1	-1,9	0,0018	1,2	0,0005	0,91	0,19	0,2	25,0	2,1
118	0,0007	0,5	-0,0009	0,74	0,47	-0,7	13,0	4,0	-0,0021	-1,5	-0,0019	0,53	-0,30	-1,2	98,4	-0,3	0,0044	2,2	0,0016	0,77	0,42	0,7	13,0	3,0
119	0,0000	0,0	-0,0015	0,77	0,44	-1,4	14,0	3,0	-0,0018	-2,0	-0,0020	0,53	0,27	-2,2	10,0	0,3	0,0029	1,8	0,0003	0,80	0,39	0,2	14,0	3,0
120	0,0012	1,2	-0,0002	0,79	0,40	-0,2	17,0	3,0	0,0013	1,4	0,0012	0,55	0,13	1,2	15,1	0,2	0,0021	1,2	-0,0004	0,81	0,37	-0,2	16,0	2,7
121	0,0006	0,6	-0,0006	0,79	0,35	-0,6	16,0	2,5	0,0009	0,9	0,0008	0,55	0,22	0,7	14,5	0,3	0,0014	0,8	-0,0008	0,81	0,32	-0,4	16,0	2,1
122	-0,0008	-0,6	-0,0020	0,76	0,36	-1,7	20,0	3,0	-0,0044	-3,3	-0,0051	0,52	1,17	-3,6	10,2	1,3	0,0038	1,9	0,0018	0,79	0,30	0,9	33,5	4,3
123	-0,0001	-0,1	-0,0014	0,76	0,36	-1,1	20,0	3,0	-0,0034	-2,7	-0,0040	0,52	0,88	-2,8	10,5	1,0	0,0041	2,1	0,0021	0,79	0,30	1,1	33,5	4,3
124	0,0004	0,4	-0,0011	0,77	0,43	-1,1	15,0	3,0	-0,0017	-1,8	-0,0016	0,57	-0,14	-1,8	12,8	-0,2	0,0033	2,1	0,0007	0,79	0,38	0,4	14,0	2,8
125	-0,0001	-0,1	-0,0013	0,79	0,35	-1,2	18,0	4,0	-0,0024	-2,1	-0,0040	0,51	2,35	-3,1	11,4	2,9	0,0033	2,4	0,0014	0,82	0,28	1,2	18,0	3,0
126	0,0001	0,1	-0,0011	0,79	0,34	-1,1	18,0	4,0	-0,0022	-2,0	-0,0036	0,52	2,21	-3,1	12,6	2,9	0,0034	2,5	0,0015	0,82	0,28	1,2	18,0	3,0
127	-0,0005	-0,5	-0,0016	0,79	0,34	-1,6	18,0	4,0	-0,0028	-2,4	-0,0044	0,51	2,37	-3,4	11,4	2,9	0,0029	2,1	0,0011	0,82	0,28	0,7	18,0	3,0
128	-0,0006	-0,6	-0,0017	0,81	0,31	-1,6	20,0	4,0	-0,0030	-2,6	-0,0041	0,53	1,73	-3,3	12,2	2,2	0,0028	2,1	0,0011	0,84	0,25	0,7	20,0	3,0
129	-0,0003	-0,3	-0,0014	0,81	0,31	-1,3	20,0	4,0	-0,0027	-2,5	-0,0038	0,53	1,69	-3,1	12,5	2,1	0,0032	2,4	0,0016	0,84	0,24	1,3	20,0	3,0

130	-0,0002	-0,1	-0,0016	0,79	0,40	-1,1	17,0	3,0	-0,0010	-0,7	-0,0006	0,57	0,00	0,0	9,7	-0,6	0,0017	1,0	-0,0007	0,81	0,37	-0,3	17,0	3,0
131	-0,0004	-0,3	-0,0019	0,76	0,44	-2,0	14,0	3,0	-0,0026	-2,2	-0,0036	0,49	1,51	-2,8	11,0	1,9	0,0030	1,8	0,0004	0,79	0,38	0,2	13,0	2,6
132	-0,0007	-0,8	-0,0018	0,82	0,33	-2,0	19,0	3,0	-0,0023	-2,0	-0,0026	0,57	0,45	-2,0	12,7	0,5	0,0020	1,6	0,0001	0,85	0,28	0,1	18,0	2,2
133	0,0000	0,0	-0,0015	0,77	0,43	-1,4	15,0	3,0	-0,0025	-2,0	-0,0025	0,55	0,00	-1,8	11,4	0,0	0,0033	2,1	0,0007	0,79	0,39	0,4	14,0	3,0
134	0,0001	0,1	-0,0014	0,77	0,44	-1,3	14,0	3,0	-0,0022	-1,8	-0,0022	0,56	-0,09	-1,6	12,0	-0,1	0,0033	2,1	0,0007	0,79	0,39	0,4	14,0	3,0
135	-0,0004	-0,4	-0,0018	0,77	0,41	-2,0	14,0	3,0	-0,0028	-2,3	-0,0029	0,56	0,07	-2,1	11,5	0,1	0,0030	1,9	0,0006	0,79	0,36	0,3	14,0	2,5
136	0,0003	0,3	-0,0010	0,78	0,39	-1,0	17,0	4,0	-0,0019	-1,8	-0,0024	0,54	0,78	-2,1	13,5	1,1	0,0034	2,2	0,0012	0,81	0,33	0,7	16,0	3,0
137	0,0004	0,3	-0,0014	0,73	0,50	-1,1	13,0	4,0	-0,0019	-1,7	-0,0023	0,52	0,59	-2,0	10,2	0,6	0,0036	1,9	0,0005	0,76	0,45	0,2	13,0	4,0
138	0,0005	0,4	-0,0012	0,73	0,50	-1,0	13,0	4,0	-0,0018	-1,7	-0,0023	0,53	0,71	-2,0	10,3	0,8	0,0038	2,0	0,0007	0,75	0,46	0,3	13,0	4,0
139	0,0005	0,4	-0,0012	0,73	0,50	-0,9	13,0	4,0	-0,0018	-1,7	-0,0023	0,53	0,71	-1,6	10,3	0,8	0,0038	2,0	0,0007	0,75	0,46	0,3	13,0	4,0
140	-0,0005	-0,4	-0,0021	0,74	0,46	-1,6	16,0	4,0	-0,0042	-2,4	-0,0053	0,49	1,61	-2,7	7,5	1,3	0,0042	2,0	0,0015	0,77	0,40	0,8	13,0	3,4
141	-0,0005	-0,4	-0,0022	0,74	0,46	-1,6	16,0	4,0	-0,0042	-2,4	-0,0053	0,49	1,61	-2,7	7,5	1,3	0,0042	2,0	0,0015	0,77	0,40	0,8	13,0	3,4
142	0,0005	0,4	-0,0014	0,67	0,55	-1,1	14,0	4,0	-0,0030	-2,5	-0,0047	0,42	2,58	-3,7	9,3	3,1	0,0050	2,2	0,0018	0,70	0,48	0,8	13,0	3,5
143	0,0007	0,5	-0,0012	0,67	0,55	-0,9	14,0	4,0	-0,0030	-2,5	-0,0047	0,42	2,58	-3,7	9,3	3,1	0,0054	2,3	0,0022	0,70	0,48	1,0	13,0	4,0
144	-0,0010	-1,0	-0,0023	0,78	0,39	-2,2	17,0	4,0	-0,0031	-2,6	-0,0038	0,54	1,06	-2,9	11,9	1,3	0,0021	1,4	-0,0001	0,81	0,33	0,0	16,0	3,0
145	-0,0005	-0,5	-0,0019	0,79	0,38	-2,0	17,0	4,0	-0,0027	-2,3	-0,0035	0,53	1,20	-2,7	11,8	1,5	0,0027	1,7	0,0005	0,81	0,33	0,3	17,0	3,0
146	-0,0001	-0,1	-0,0016	0,77	0,45	-1,4	12,0	3,0	-0,0025	-2,3	-0,0023	0,60	-0,24	-2,2	11,2	-0,2	0,0031	1,9	0,0004	0,79	0,41	0,2	12,0	2,3
147	0,0010	0,9	-0,0002	0,82	0,35	-0,2	19,0	4,0	-0,0011	-0,8	-0,0005	0,64	-0,98	-0,3	12,1	-1,0	0,0039	2,4	0,0018	0,84	0,31	1,2	19,0	3,2
148	0,0003	0,3	-0,0013	0,75	0,46	-1,1	13,0	4,0	-0,0023	-2,3	-0,0023	0,51	0,07	-2,2	11,2	0,1	0,0038	2,2	0,0011	0,77	0,41	0,6	13,0	3,1
149	0,0007	0,6	-0,0007	0,76	0,38	-0,6	16,0	4,0	-0,0018	-1,7	-0,0036	0,46	2,70	-3,1	11,3	3,6	0,0043	2,7	0,0022	0,79	0,31	1,6	15,0	3,0
150	-0,0005	-0,3	-0,0019	0,77	0,41	-1,4	19,0	4,0	-0,0036	-1,9	-0,0053	0,55	2,57	-2,5	7,7	1,9	0,0036	1,9	0,0012	0,80	0,35	0,6	16,0	3,5
151	-0,0006	-0,4	-0,0020	0,78	0,41	-1,5	19,0	5,0	-0,0037	-1,9	-0,0054	0,55	2,58	-2,5	7,4	1,9	0,0034	1,8	0,0011	0,80	0,35	0,6	16,0	3,5
152	-0,0003	-0,3	-0,0017	0,76	0,39	-1,4	20,0	4,0	-0,0036	-2,4	-0,0056	0,52	3,07	-3,5	9,3	2,9	0,0038	2,0	0,0016	0,78	0,33	0,9	19,0	3,2
153	-0,0004	-0,3	-0,0018	0,76	0,39	-1,5	20,0	4,0	-0,0037	-2,5	-0,0056	0,51	2,97	-3,5	9,1	2,9	0,0037	1,9	0,0015	0,78	0,33	0,8	19,0	3,0
154	-0,0003	-0,3	-0,0017	0,76	0,39	-1,4	20,0	4,0	-0,0036	-2,4	-0,0056	0,52	3,07	-3,5	9,1	2,9	0,0038	2,0	0,0016	0,78	0,33	0,9	19,0	3,0
155	-0,0003	-0,3	-0,0018	0,77	0,42	-1,6	16,0	4,0	-0,0029	-2,3	-0,0040	0,52	1,65	-2,8	10,6	1,8	0,0033	1,9	0,0009	0,79	0,36	0,5	15,0	4,0
156	-0,0003	-0,3	-0,0018	0,77	0,42	-1,6	16,0	4,0	-0,0029	-2,3	-0,0040	0,52	1,65	-2,9	10,6	1,8	0,0033	1,9	0,0009	0,79	0,36	0,5	15,0	4,0
157	-0,0005	-0,4	-0,0019	0,77	0,41	-1,9	16,0	4,0	-0,0030	-2,4	-0,0041	0,52	1,59	-2,9	10,5	1,8	0,0031	1,8	0,0007	0,80	0,35	0,4	15,0	4,0
158	0,0003	0,2	-0,0014	0,69	0,49	-1,1	15,0	4,0	-0,0034	-2,6	-0,0054	0,40	3,03	-3,8	8,2	3,3	0,0050	2,0	0,0022	0,72	0,42	1,0	11,0	4,0
159	0,0004	0,3	-0,0013	0,69	0,49	-1,0	11,0	5,0	-0,0032	-2,5	-0,0052	0,41	3,00	-3,7	8,3	3,3	0,0050	2,0	0,0022	0,72	0,42	1,0	11,0	4,0
160	0,0002	0,2	-0,0015	0,74	0,49	-1,1	13,0	4,0	-0,0025	-2,0	-0,0024	0,52	-0,25	-1,8	8,8	-0,2	0,0039	2,1	0,0010	0,76	0,44	0,5	13,0	4,0
161	-0,0002	-0,1	-0,0019	0,74	0,49	-1,4	13,0	4,0	-0,0030	-2,3	-0,0028	0,53	-0,28	-2,0	8,8	-0,3	0,0036	1,9	0,0006	0,76	0,44	0,3	13,0	4,0
162	0,0001	0,1	-0,0016	0,69	0,49	-1,2	15,0	4,0	-0,0036	-2,7	-0,0056	0,41	3,01	-3,9	8,0	3,2	0,0049	2,0	0,0021	0,72	0,42	1,0	11,0	4,0
163	0,0011	2,4	0,0003	0,88	0,23	0,4	27,0	2,3	0,0013	2,7	0,0013	0,77	0,04	2,0	28,9	0,1	0,0015	1,9	0,0000	0,89	0,22	0,0	25,0	2,0
164	0,0009	1,9	0,0001	0,88	0,23	0,1	27,0	2,3	0,0012	2,4	0,0011	0,77	0,05	1,8	28,7	0,1	0,0012	1,5	-0,0003	0,89	0,22	-0,2	25,0	1,9
165	0,0011	0,9	-0,0005	0,76	0,47	-0,4	14,0	4,0	-0,0014	-1,1	-0,0012	0,57	-0,23	-0,9	11,4	-0,3	0,0044	2,3	0,0016	0,78	0,43	1,0	13,0	3,3
166	0,0001	0,1	-0,0017	0,67	0,54	-1,3	10,0	4,0	-0,0036	-2,7	-0,0047	0,37	1,80	-3,3	7,4	1,9	0,0050	2,1	0,0019	0,70	0,47	0,8	10,0	3,6
167	-0,0001	-0,1	-0,0019	0,67	0,52	-1,4	10,0	4,0	-0,0037	-2,8	-0,0049	0,37	1,83	-3,4	7,3	1,9	0,0047	2,0	0,0018	0,70	0,44	0,8	10,0	3,0
168	0,0009	0,4	0,0000	0,84	0,26	0,0	24,4	2,5	-0,0014	-0,5	0,0012	0,78	-3,96	0,4	6,6	-1,8	0,0036	1,3	0,0020	0,85	0,24	0,7	24,0	2,3
169	0,0011	0,5	0,0001	0,84	0,28	0,1	24,3	2,8	-0,0013	-0,4	0,0013	0,78	-3,97	0,4	6,7	-1,8	0,0040	1,4	0,0022	0,85	0,27	0,7	23,9	2,6
170	0,0003	0,4	-0,0006	0,86	0,24	-0,6	25,0	3,0	-0,0001	-0,1	-0,0003	0,68	0,30	-0,3	23,1	0,6	0,0014	1,4	0,0000	0,88	0,21	0,0	24,0	2,0
171	0,0004	0,7	-0,0004	0,86	0,24	-0,5	25,0	3,0	0,0001	0,1	-0,0001	0,67	0,28	-0,2	23,1	0,5	0,0015	1,5	0,0001	0,88	0,21	0,1	24,0	2,1
172	0,0016	1,6	0,0007	0,88	0,23	0,6	26,0	3,0	0,0008	0,6	0,0023	0,78	-2,26	1,5	14,1	-2,2	0,0027	1,9	0,0013	0,89	0,22	0,6	24,0	2,9
173	0,0015	1,5	0,0007	0,88	0,24	0,5	26,0	3,0	0,0007	0,5	0,0022	0,77	-2,23	1,4	14,0	-2,2	0,0027	1,8	0,0012	0,89	0,22	0,6	25,0	2,9
174	0,0014	1,4	0,0005	0,88	0,24	0,4	26,0	3,0	0,0006	0,4	0,0020	0,77	-2,19	1,3	13,9	-2,1	0,0026	1,8	0,0011	0,89	0,22	0,5	25,0	2,9

175	0,0018	1,5	0,0007	0,83	0,32	0,5	20,0	4,0	0,0004	0,2	0,0010	0,69	-0,92	0,6	12,0	-0,9	0,0038	2,1	0,0018	0,84	0,30	1,0	19,0	3,8
176	0,0015	1,3	0,0004	0,83	0,32	0,3	20,0	4,0	-0,0001	0,0	0,0006	0,70	-1,05	0,4	12,1	-1,0	0,0037	2,0	0,0017	0,84	0,30	0,7	19,0	3,8
177	0,0017	1,5	0,0006	0,83	0,32	0,5	20,0	4,0	0,0003	0,2	0,0009	0,69	-0,91	0,6	12,0	-0,9	0,0037	2,1	0,0017	0,84	0,30	1,0	19,0	3,8
178	0,0006	0,5	-0,0012	0,76	0,50	-0,8	14,0	4,0	-0,0022	-1,7	-0,0022	0,51	-0,04	-1,6	8,8	0,0	0,0044	2,4	0,0014	0,78	0,45	0,6	14,0	4,0
179	0,0002	0,2	-0,0015	0,76	0,49	-1,1	14,0	4,0	-0,0026	-2,0	-0,0027	0,51	0,06	-2,1	8,8	0,1	0,0041	2,2	0,0012	0,78	0,43	0,5	14,0	3,0
180	0,0002	0,2	-0,0012	0,77	0,41	-1,1	16,0	4,0	-0,0025	-1,8	-0,0022	0,55	-0,43	-1,5	10,5	-0,4	0,0038	2,3	0,0014	0,80	0,35	1,0	15,0	3,0
181	0,0004	0,4	-0,0010	0,77	0,41	-0,9	16,0	4,0	-0,0022	-1,6	-0,0019	0,55	-0,44	-1,3	10,5	-0,5	0,0040	2,5	0,0016	0,79	0,35	1,2	15,0	3,0
182	0,0003	0,3	-0,0010	0,78	0,35	-0,9	19,0	4,0	-0,0022	-2,0	-0,0039	0,47	2,65	-3,3	11,3	3,4	0,0039	2,7	0,0020	0,81	0,28	1,5	19,0	4,9
183	-0,0005	-0,6	-0,0017	0,83	0,34	-1,9	21,0	3,0	-0,0002	-0,2	-0,0005	0,55	0,33	-0,4	14,1	0,5	0,0004	0,2	-0,0017	0,85	0,31	-1,0	20,0	2,6
184	-0,0001	-0,1	-0,0015	0,77	0,40	-1,5	15,0	3,0	-0,0026	-2,4	-0,0043	0,48	2,59	-3,6	11,6	3,4	0,0035	2,4	0,0013	0,80	0,33	1,0	15,0	2,5
185	-0,0002	-0,2	-0,0014	0,80	0,32	-1,3	20,0	4,0	-0,0024	-2,2	-0,0038	0,50	2,18	-3,3	12,3	2,9	0,0030	2,2	0,0013	0,83	0,26	1,0	20,0	3,4
186	-0,0003	-0,4	-0,0015	0,80	0,33	-1,4	20,0	4,0	-0,0025	-2,4	-0,0040	0,50	2,22	-3,4	12,1	2,9	0,0030	2,2	0,5824	4,02	5,22	1,0	20,0	3,4
187	0,0001	0,1	-0,0012	0,82	0,37	-1,1	18,0	3,0	-0,0019	-1,7	-0,0017	0,58	-0,21	-1,4	13,6	-0,3	0,0032	2,3	0,0010	0,84	0,32	0,6	17,0	2,6
188	-0,0001	-0,1	-0,0014	0,82	0,37	-1,3	18,0	3,0	-0,0022	-2,0	-0,0021	0,58	-0,19	-1,7	13,3	-0,2	0,0030	2,2	0,0009	0,84	0,32	0,7	17,0	2,6
189	0,0004	0,4	-0,0008	0,79	0,34	-0,8	20,0	4,0	-0,0019	-1,8	-0,0034	0,51	2,30	-2,9	12,6	3,1	0,0038	2,7	0,0020	0,82	0,27	1,6	20,0	3,4
190	-0,0001	-0,1	-0,0013	0,78	0,34	-1,2	18,0	4,0	-0,0029	-2,2	-0,0044	0,48	2,23	-3,1	9,6	2,4	0,0038	2,1	0,0021	0,81	0,26	1,3	18,0	3,0
191	0,0009	0,9	0,0002	0,89	0,19	0,2	27,0	2,0	0,0002	0,1	0,0019	0,75	-2,64	1,2	13,0	-2,5	0,0022	1,4	0,0010	0,91	0,17	0,5	27,0	2,1
192	0,0012	1,1	-0,0001	0,82	0,39	-0,1	19,0	4,0	-0,0012	-1,0	-0,0007	0,65	-0,80	-0,5	13,1	-0,9	0,0044	2,7	0,0021	0,84	0,35	1,4	18,0	3,3
193	0,0011	1,1	0,0004	0,89	0,21	0,3	27,0	3,0	0,0005	0,3	0,0022	0,74	-2,70	1,4	12,9	-2,5	0,0024	1,5	0,0011	0,91	0,19	0,5	27,0	2,5
194	0,0011	1,0	-0,0002	0,82	0,39	-0,2	19,0	4,0	-0,0013	-1,0	-0,0008	0,65	-0,77	-0,6	13,1	-0,8	0,0043	2,6	0,0020	0,84	0,35	1,3	19,0	3,3
195	0,0012	1,0	-0,0004	0,76	0,47	-0,3	14,0	4,0	-0,0007	-0,6	-0,0006	0,50	-0,15	-0,4	9,7	-0,2	0,0042	2,2	0,0014	0,79	0,42	0,6	13,0	3,0
196	-0,0011	-1,1	-0,0018	0,86	0,22	-1,8	26,0	3,0	-0,0033	-2,1	-0,0029	0,59	-0,56	-1,8	10,2	-0,5	0,0022	1,7	0,0012	0,89	0,16	0,6	27,0	2,4
197	-0,0010	-1,0	-0,0018	0,86	0,22	-1,8	26,0	3,0	-0,0033	-2,1	-0,0029	0,59	-0,56	-1,8	10,2	-0,5	0,0023	1,8	0,0013	0,89	0,16	1,0	27,0	2,3
198	0,0010	0,8	-0,0007	0,72	0,48	-0,6	13,0	4,0	-0,0023	-2,1	-0,0032	0,49	1,40	-2,6	11,2	1,8	0,0052	2,7	0,0024	0,75	0,42	1,5	12,0	3,2
199	0,0013	1,2	0,0001	0,80	0,34	0,1	17,0	3,0	-0,0010	-1,0	-0,0024	0,56	2,19	-2,3	14,8	3,2	0,0045	2,7	0,0026	0,82	0,28	1,8	16,0	2,6
200	0,0004	0,3	-0,0007	0,82	0,33	-0,4	19,0	4,0	-0,0011	-0,7	0,0000	0,60	-1,60	0,0	8,7	-1,3	0,0027	1,1	0,0008	0,84	0,29	0,3	19,0	3,2
201	0,0005	0,4	-0,0006	0,82	0,33	-0,4	19,0	4,0	-0,0009	-0,6	0,0000	0,61	-1,47	0,0	8,8	-1,2	0,0028	1,2	0,0008	0,84	0,29	0,3	19,0	3,2
202	-0,0008	-0,7	-0,0017	0,84	0,28	-1,5	21,0	3,0	-0,0037	-2,5	-0,0051	0,57	2,06	-3,2	10,2	2,0	0,0031	1,9	0,0018	0,87	0,21	1,0	20,0	1,9
203	0,0010	0,7	-0,0005	0,71	0,44	-0,4	16,0	3,0	-0,0032	-2,0	-0,0049	0,51	2,61	-2,8	8,2	2,3	0,0060	2,6	0,0035	0,73	0,38	1,6	26,7	4,7
204	0,0010	0,7	-0,0005	0,71	0,44	-0,4	16,0	3,0	-0,0032	-2,0	-0,0049	0,51	2,61	-2,8	8,2	2,3	0,0060	2,6	0,0035	0,73	0,38	1,6	26,7	4,7

TABLE 11 FRENCH MUTUAL FUNDS JENSEN AND TREYNOR-MAZUY REGRESSIONS PARAMETERS AND T STATISTICS

	OVERALL PERIOD								SUBPERIOD ONE								SUBPERIOD TWO							
#	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C
1	0,0024	1,8	0,0013	0,75	0,38	0,7	12,0	2,7	0,0025	1,6	0,0010	0,4	2,4	0,7	5,0	1,9	0,0022	1,0	0,0005	0,79	0,32	0,2	12,0	2,0
2	0,0022	2,3	0,0008	0,69	0,49	0,6	9,0	3,0	0,0012	1,4	-0,0002	0,3	2,3	-0,2	5,0	3,0	0,0030	1,8	0,0009	0,74	0,41	0,4	9,0	2,0
3	0,0014	1,5	-0,0001	0,67	0,51	-0,1	9,0	3,0	0,0006	0,5	-0,0012	0,3	2,9	-0,7	4,0	2,0	0,0019	1,3	-0,0003	0,72	0,43	-0,1	9,0	2,0
4	0,0021	2,2	0,0007	0,69	0,49	0,5	9,0	3,0	0,0011	1,3	-0,0003	0,3	2,3	-0,3	5,0	3,0	0,0029	1,7	0,0007	0,74	0,41	0,3	9,0	2,0
5	0,0014	1,5	-0,0003	0,66	0,56	-0,2	9,0	3,0	0,0001	0,1	-0,0015	0,3	2,6	-0,8	3,0	1,5	0,0023	1,5	-0,0002	0,71	0,48	-0,1	9,0	3,0
6	0,0012	1,3	-0,0005	0,66	0,56	-0,3	9,0	3,0	0,0000	0,0	-0,0016	0,3	2,6	-0,9	3,0	1,5	0,0020	1,3	-0,0005	0,71	0,48	-0,2	9,0	3,0
7	0,0009	0,9	-0,0008	0,67	0,57	-0,4	9,0	3,0	-0,0003	-0,2	-0,0017	0,3	2,3	-0,9	4,0	1,3	0,0019	1,2	-0,0008	0,70	0,51	-0,3	9,0	3,0
8	0,0014	1,5	-0,0003	0,67	0,55	-0,2	9,0	3,0	0,0002	0,1	-0,0012	0,3	2,2	-0,7	4,0	1,0	0,0023	1,5	-0,0002	0,71	0,49	-0,1	9,0	3,0
9	0,0011	1,3	-0,0005	0,71	0,53	-0,3	9,0	3,0	0,0004	0,4	-0,0010	0,3	2,2	-0,7	5,0	1,7	0,0016	1,7	-0,0008	0,75	0,46	-0,3	9,0	3,0
10	0,0012	1,3	-0,0004	0,67	0,53	-0,2	9,0	3,0	-0,0004	-0,4	-0,0020	0,3	2,5	-1,7	5,0	1,8	0,0026	1,6	0,0002	0,71	0,46	0,1	9,0	2,5
11	0,0015	1,5	-0,0003	0,66	0,58	-0,2	9,0	4,0	0,0002	0,1	-0,0022	0,3	3,8	-1,5	3,0	3,0	0,0024	1,1	-0,0002	0,71	0,50	-0,1	9,0	3,0
12	0,0009	0,9	-0,0007	0,68	0,53	-0,4	9,0	3,0	-0,0003	-0,3	-0,0020	0,3	2,7	-1,6	5,0	1,8	0,0018	1,6	-0,0007	0,72	0,47	-0,2	9,0	3,0
13	0,0016	1,6	-0,0002	0,65	0,59	-0,1	8,0	4,0	0,0004	0,3	-0,0021	0,2	3,9	-1,2	3,0	3,0	0,0025	1,7	-0,0001	0,70	0,50	0,0	9,0	3,0
14	0,0016	1,8	0,0002	0,69	0,49	0,1	9,0	3,0	0,0004	0,3	-0,0009	0,3	2,1	-0,5	4,0	1,3	0,0026	1,2	0,0003	0,73	0,43	0,1	9,0	2,0
15	0,0010	1,0	-0,0007	0,66	0,57	-0,4	9,0	3,0	-0,0003	-0,2	-0,0020	0,3	2,7	-1,1	4,0	1,5	0,0019	1,9	-0,0007	0,70	0,50	-0,2	9,0	3,0
16	0,0008	0,7	-0,0010	0,66	0,59	-0,6	8,0	3,0	-0,0017	-1,0	-0,0048	0,3	4,9	-2,3	4,0	3,0	0,0030	1,9	0,0004	0,71	0,50	0,1	8,0	2,5
17	0,0015	2,1	0,0003	0,74	0,41	0,2	12,0	4,0	0,0005	0,7	-0,0008	0,5	2,1	-0,7	7,0	1,6	0,0023	1,7	0,0005	0,77	0,35	0,2	12,0	3,0
18	0,0011	1,4	-0,0003	0,71	0,46	-0,2	11,0	4,0	-0,0003	-0,4	-0,0015	0,4	1,9	-0,9	5,0	1,3	0,0022	1,4	0,0001	0,75	0,40	0,0	11,0	3,0
19	0,0011	1,1	-0,0005	0,69	0,53	-0,3	9,0	3,0	-0,0004	-0,4	-0,0006	0,5	0,4	-0,3	2,0	0,1	0,0023	1,6	-0,0002	0,71	0,49	-0,1	9,0	3,0
20	0,0016	1,7	-0,0001	0,66	0,56	-0,1	9,0	3,0	0,0003	0,3	-0,0012	0,3	2,4	-0,6	4,0	1,3	0,0025	1,6	-0,0001	0,71	0,49	0,0	9,0	3,0
21	0,0011	1,2	-0,0006	0,65	0,57	-0,3	9,0	4,0	0,0001	0,0	-0,0023	0,2	3,7	-1,2	2,0	3,0	0,0019	1,2	-0,0006	0,71	0,48	-0,2	9,0	3,0
22	0,0026	2,7	0,0011	0,66	0,52	1,0	8,0	3,0	0,0013	1,2	-0,0001	0,3	2,2	-0,1	4,0	1,7	0,0037	2,2	0,0014	0,71	0,45	0,5	8,0	2,5
23	0,0014	1,5	-0,0004	0,67	0,61	-0,2	8,0	4,0	0,0000	0,0	-0,0023	0,2	3,6	-1,2	3,0	3,0	0,0025	1,7	-0,0002	0,72	0,52	-0,1	9,0	3,0
24	0,0014	1,4	-0,0003	0,67	0,54	-0,1	9,0	3,0	0,0002	0,2	-0,0013	0,3	2,5	-0,8	4,0	1,8	0,0022	1,3	-0,0003	0,71	0,47	-0,1	9,0	3,0
25	0,0014	1,4	-0,0004	0,65	0,59	-0,2	8,0	3,0	0,0000	0,0	-0,0021	0,2	3,5	-1,1	3,0	2,0	0,0024	1,5	-0,0002	0,70	0,51	-0,1	9,0	3,0
26	0,0011	1,2	-0,0006	0,66	0,57	-0,3	9,0	3,0	0,0002	0,2	-0,0004	0,2	0,9	-0,2	1,5	0,5	0,0017	1,1	-0,0008	0,71	0,49	-0,3	9,0	3,0
27	0,0017	1,8	0,0000	0,67	0,55	0,0	9,0	3,0	0,0004	0,3	-0,0012	0,4	2,5	-0,7	5,0	2,1	0,0027	1,7	0,0001	0,71	0,49	0,0	9,0	3,0
28	0,0009	0,9	-0,0008	0,65	0,56	-0,5	9,0	3,0	-0,0007	-0,5	-0,0032	0,2	4,0	-1,7	2,0	3,1	0,0021	1,3	-0,0003	0,71	0,47	-0,1	9,0	3,0
29	0,0009	1,0	-0,0007	0,68	0,54	-0,4	9,0	3,0	0,0000	0,0	-0,0016	0,3	2,5	-0,9	4,0	1,6	0,0016	1,0	-0,0008	0,72	0,47	-0,3	9,0	3,0
30	0,0011	1,2	-0,0006	0,67	0,56	-0,3	9,0	3,0	-0,0001	-0,1	-0,0018	0,3	2,7	-1,0	4,0	1,5	0,0020	1,2	-0,0005	0,71	0,49	-0,2	9,0	3,0
31	0,0015	1,6	-0,0003	0,67	0,60	-0,2	8,0	4,0	0,0003	0,2	-0,0018	0,2	3,4	-1,0	3,0	2,0	0,0023	1,5	-0,0003	0,73	0,51	-0,1	9,0	3,0
32	0,0013	1,4	-0,0005	0,66	0,58	-0,3	8,0	4,0	0,0003	0,2	-0,0015	0,3	2,9	-0,9	4,0	2,0	0,0019	1,2	-0,0007	0,70	0,51	-0,2	9,0	3,0
33	0,0016	1,7	-0,0001	0,66	0,57	-0,1	9,0	3,0	0,0002	0,2	-0,0021	0,2	3,7	-1,2	2,0	3,1	0,0026	1,7	0,0001	0,71	0,47	0,0	9,0	3,0
34	0,0015	1,6	-0,0001	0,67	0,55	-0,1	9,0	3,0	0,0002	0,2	-0,0015	0,4	2,6	-0,8	4,0	1,3	0,0025	1,6	0,0000	0,70	0,50	0,0	9,0	3,0
35	0,0010	1,1	-0,0007	0,66	0,56	-0,4	9,0	3,0	-0,0005	-0,5	-0,0024	0,3	2,9	-1,3	4,0	1,9	0,0023	1,6	-0,0003	0,71	0,49	-0,1	9,0	3,0
36	0,0019	1,9	0,0002	0,66	0,56	0,1	9,0	3,0	0,0006	0,5	-0,0015	0,2	3,3	-0,8	3,0	2,0	0,0028	1,7	0,0003	0,71	0,47	0,1	9,0	3,0
37	0,0008	0,9	-0,0008	0,67	0,55	-0,5	9,0	3,0	-0,0004	-0,4	-0,0018	0,3	2,2	-1,0	4,0	1,0	0,0018	1,1	-0,0007	0,72	0,48	-0,2	9,0	3,0

38	0,0020	2,0	0,0003	0,66	0,55	0,2	7,0	3,0	0,0007	0,6	-0,0011	0,3	2,9	-0,7	3,0	2,0	0,0030	1,8	0,0005	0,70	0,48	0,2	7,0	2,0
39	0,0021	2,4	0,0005	0,66	0,55	0,3	9,0	3,0	0,0014	1,6	-0,0003	0,3	2,7	-0,3	4,0	2,0	0,0026	1,7	0,0001	0,71	0,48	0,0	9,0	3,0
40	0,0013	1,4	-0,0005	0,66	0,60	-0,3	8,0	4,0	0,0000	0,0	-0,0024	0,2	3,7	-1,3	2,0	3,0	0,0022	1,5	-0,0004	0,72	0,50	-0,1	9,0	3,0
41	0,0015	1,6	-0,0002	0,66	0,56	-0,1	9,0	3,0	0,0003	0,3	-0,0016	0,2	3,1	-0,9	3,0	2,0	0,0023	1,5	-0,0002	0,71	0,48	-0,1	9,0	3,0
42	0,0014	1,6	-0,0001	0,70	0,50	0,0	10,0	3,0	0,0005	0,4	-0,0007	0,4	1,8	-0,4	5,0	1,0	0,0021	1,4	-0,0002	0,74	0,44	-0,1	9,0	3,0
43	0,0010	1,1	-0,0005	0,69	0,51	-0,3	9,0	3,0	-0,0011	-1,0	-0,0024	0,5	2,0	-1,3	4,0	1,0	0,0029	1,9	0,0005	0,71	0,46	0,2	9,0	3,0
44	0,0012	1,4	-0,0002	0,70	0,48	-0,1	10,0	3,0	0,0003	0,2	-0,0010	0,3	2,1	-0,6	5,0	1,0	0,0019	1,3	-0,0003	0,75	0,42	-0,1	10,0	3,0
45	0,0014	1,6	-0,0001	0,72	0,48	0,0	10,0	3,0	0,0003	0,3	-0,0012	0,5	2,4	-0,7	6,0	1,7	0,0022	1,5	-0,0001	0,74	0,43	0,0	10,0	3,0
46	0,0010	1,1	-0,0006	0,66	0,56	-0,4	8,0	3,0	-0,0009	-0,9	-0,0031	0,3	3,5	-2,0	5,0	3,0	0,0027	1,7	0,0002	0,70	0,49	0,1	9,0	3,0
47	0,0011	1,2	-0,0005	0,68	0,54	-0,3	9,0	3,0	-0,0005	-0,4	-0,0021	0,4	2,5	-1,1	5,0	2,0	0,0024	1,6	-0,0001	0,72	0,48	0,0	9,0	3,0
48	0,0017	1,9	0,0001	0,66	0,54	0,1	9,0	3,0	0,0005	0,4	-0,0009	0,3	2,2	-0,5	4,0	1,0	0,0026	1,8	0,0002	0,71	0,47	0,1	9,0	3,0
49	0,0014	1,6	-0,0002	0,68	0,53	-0,1	9,0	3,0	0,0000	0,0	-0,0019	0,4	3,0	-1,3	5,0	2,0	0,0026	1,8	0,0002	0,71	0,47	0,1	9,0	3,0
50	0,0015	1,6	-0,0003	0,66	0,60	-0,2	8,0	3,0	0,0001	0,1	-0,0023	0,2	3,7	-1,3	3,0	3,0	0,0026	1,7	0,0000	0,72	0,50	0,0	9,0	3,0
51	0,0008	0,8	-0,0008	0,68	0,53	-0,5	9,0	3,0	-0,0007	-0,7	-0,0024	0,4	2,8	-1,3	4,0	1,5	0,0020	1,3	-0,0005	0,71	0,48	-0,2	9,0	3,0
52	0,0019	2,1	0,0002	0,66	0,58	0,1	9,0	3,0	0,0010	0,8	-0,0005	0,3	2,4	-0,3	4,0	1,9	0,0026	1,7	0,0000	0,71	0,50	0,0	9,0	3,0
53	0,0011	1,2	-0,0006	0,67	0,55	-0,3	9,0	3,0	-0,0002	-0,2	-0,0019	0,4	2,7	-1,0	4,0	1,4	0,0020	1,3	-0,0006	0,70	0,50	-0,2	9,0	3,0
54	0,0011	1,2	-0,0004	0,68	0,53	-0,3	9,0	3,0	-0,0010	-1,0	-0,0029	0,3	2,9	-1,8	5,0	3,0	0,0031	2,0	0,0008	0,72	0,45	0,3	9,0	3,0
55	0,0013	1,4	-0,0002	0,68	0,52	-0,2	9,0	3,0	-0,0008	-0,8	-0,0028	0,3	3,1	-2,0	5,0	2,9	0,0032	2,0	0,0009	0,72	0,45	0,4	9,0	3,0
56	0,0015	1,6	-0,0003	0,66	0,58	-0,2	8,0	4,0	0,0004	0,3	-0,0015	0,3	3,0	-0,9	2,0	2,0	0,0022	1,5	-0,0004	0,70	0,51	-0,1	9,0	3,0
57	0,0013	1,3	-0,0005	0,65	0,59	-0,3	8,0	4,0	0,0001	0,1	-0,0022	0,2	3,7	-1,2	2,0	2,0	0,0021	1,3	-0,0005	0,70	0,50	-0,2	9,0	3,0
58	0,0019	2,2	0,0005	0,70	0,47	0,3	10,0	3,0	0,0015	1,5	0,0006	0,4	1,4	0,5	5,0	1,0	0,0021	1,5	0,0000	0,74	0,42	0,0	10,0	3,0
59	0,0017	1,7	-0,0001	0,65	0,59	0,0	8,0	4,0	0,0005	0,4	-0,0018	0,2	3,6	-1,0	2,0	2,0	0,0025	1,6	-0,0001	0,70	0,49	0,0	9,0	3,0
60	0,0013	1,1	-0,0001	0,71	0,46	0,0	10,0	3,0	0,0011	0,8	0,0001	0,3	1,6	0,0	4,0	1,0	0,0014	0,8	-0,0007	0,76	0,39	-0,2	10,0	2,0
61	0,0012	1,2	-0,0005	0,65	0,56	-0,3	8,0	3,0	-0,0004	-0,3	-0,0028	0,2	3,9	-1,6	2,0	2,0	0,0024	1,5	0,0000	0,71	0,47	0,0	9,0	3,0
62	0,0025	2,9	0,0012	0,72	0,42	1,4	11,0	3,0	0,0027	2,3	0,0023	0,5	0,6	1,9	7,0	0,5	0,0021	1,6	0,0001	0,75	0,38	0,1	10,0	2,0
63	0,0017	1,9	0,0001	0,68	0,52	0,1	10,0	3,0	0,0003	0,3	-0,0009	0,4	2,0	-0,6	6,0	1,7	0,0027	1,9	0,0003	0,72	0,46	0,1	10,0	3,0
64	0,0011	1,2	-0,0006	0,68	0,54	-0,3	9,0	3,0	-0,0001	-0,1	-0,0015	0,3	2,2	-0,8	4,0	1,2	0,0020	1,3	-0,0005	0,72	0,48	-0,2	9,0	3,0
65	0,0016	1,7	0,0000	0,68	0,53	0,0	9,0	3,0	0,0002	0,1	-0,0015	0,4	2,7	-0,8	4,0	1,2	0,0027	1,8	0,0002	0,71	0,48	0,1	9,0	3,0
66	0,0016	1,8	0,0000	0,67	0,56	0,0	9,0	3,0	0,0005	0,4	-0,0017	0,3	3,6	-0,9	3,0	2,0	0,0024	1,6	-0,0001	0,71	0,48	0,0	9,0	3,0
67	0,0004	0,3	-0,0012	0,68	0,54	-0,6	9,0	3,0	-0,0021	-1,0	-0,0045	0,4	3,8	-2,0	4,0	1,8	0,0027	1,7	0,0003	0,72	0,47	0,1	9,0	3,0
68	0,0012	1,4	-0,0003	0,69	0,51	-0,2	9,0	3,0	0,0001	0,1	-0,0014	0,5	2,4	-0,8	5,0	1,3	0,0021	1,5	-0,0003	0,72	0,47	-0,1	9,0	3,0
69	0,0014	1,6	-0,0001	0,68	0,53	-0,1	9,0	3,0	-0,0002	-0,2	-0,0019	0,3	2,8	-1,1	5,0	2,0	0,0028	1,9	0,0004	0,72	0,46	0,1	9,0	3,0
70	0,0008	0,8	-0,0008	0,67	0,55	-0,4	9,0	3,0	-0,0003	-0,2	-0,0017	0,3	2,3	-0,9	4,0	1,3	0,0016	1,0	-0,0009	0,71	0,48	-0,3	9,0	3,0
71	0,0017	1,8	0,0000	0,66	0,56	0,0	9,0	3,0	0,0005	0,4	-0,0013	0,2	3,0	-0,8	3,0	2,0	0,0025	1,7	0,0000	0,71	0,48	0,0	9,0	3,0
72	0,0017	1,8	0,0000	0,66	0,56	0,0	9,0	3,0	0,0006	0,5	-0,0009	0,2	2,4	-0,5	3,0	1,0	0,0024	1,6	-0,0001	0,71	0,48	0,0	9,0	3,0
73	0,0009	1,1	-0,0004	0,72	0,44	-0,3	12,0	4,0	-0,0003	-0,3	-0,0016	0,4	2,0	-0,9	4,0	1,0	0,0018	1,3	-0,0002	0,76	0,37	-0,1	12,0	3,0
74	0,0011	1,3	-0,0002	0,73	0,43	-0,1	11,0	3,0	-0,0003	-0,3	-0,0015	0,4	1,9	-1,1	7,0	1,9	0,0023	1,7	0,0004	0,77	0,36	0,2	11,0	2,0
75	0,0024	2,7	0,0007	0,66	0,57	0,5	8,0	3,0	0,0010	1,0	-0,0007	0,2	2,7	-0,5	4,0	2,0	0,0035	2,0	0,0009	0,71	0,49	0,4	8,0	2,0
76	0,0014	1,5	-0,0002	0,67	0,55	-0,1	9,0	3,0	0,0000	0,0	-0,0021	0,2	3,2	-1,1	3,0	2,0	0,0025	1,7	0,0001	0,72	0,46	0,0	9,0	3,0
77	0,0014	1,5	-0,0003	0,66	0,56	-0,1	9,0	3,0	0,0001	0,1	-0,0009	0,3	1,6	-0,5	3,0	1,0	0,0024	1,6	-0,0002	0,70	0,50	-0,1	9,0	3,0
78	0,0013	1,5	-0,0003	0,67	0,55	-0,2	9,0	3,0	0,0000	0,0	-0,0015	0,3	2,4	-0,8	4,0	1,8	0,0024	1,5	-0,0002	0,71	0,49	-0,1	9,0	3,0
79	0,0016	1,8	0,0001	0,72	0,50	0,1	10,0	3,0	0,0002	0,2	-0,0013	0,4	2,4	-0,7	5,0	1,6	0,0027	1,9	0,0005	0,76	0,43	0,2	10,0	3,0
80	0,0018	1,9	0,0001	0,67	0,55	0,1	9,0	3,0	0,0004	0,3	-0,0011	0,3	2,3	-0,6	4,0	1,7	0,0029	1,9	0,0004	0,71	0,49	0,1	9,0	3,0
81	0,0012	1,4	-0,0004	0,68	0,52	-0,2	9,0	3,0	-0,0005	-0,5	-0,0019	0,4	2,3	-1,2	5,0	2,0	0,0027	1,8	0,0003	0,72	0,46	0,1	9,0	3,0
82	0,0017	1,8	0,0001	0,66	0,54	0,1	9,0	3,0	0,0001	0,0	-0,0022	0,2	3,7	-1,3	3,0	2,0	0,0029	1,9	0,0006	0,71	0,45	0,2	9,0	3,0

83	0,0020	2,2	0,0006	0,70	0,47	0,4	11,0	3,0	0,0015	1,2	0,0005	0,4	1,6	0,4	6,0	1,6	0,0021	1,5	0,0000	0,74	0,42	0,0	11,0	3,0
84	0,0021	2,3	0,0003	0,65	0,58	0,2	8,0	3,0	0,0008	0,8	-0,0010	0,2	2,8	-0,7	3,0	2,0	0,0030	2,0	0,0005	0,70	0,49	0,2	8,0	2,5
85	0,0015	1,6	-0,0001	0,68	0,54	-0,1	9,0	3,0	0,0005	0,4	-0,0005	0,4	1,7	-0,3	5,0	1,0	0,0022	1,5	-0,0002	0,71	0,48	-0,1	9,0	3,0
86	0,0008	0,8	-0,0008	0,67	0,54	-0,5	9,0	3,0	-0,0010	-0,8	-0,0027	0,3	2,7	-2,0	3,0	2,0	0,0023	1,5	-0,0001	0,72	0,45	0,0	9,0	3,0
87	0,0015	1,6	-0,0001	0,66	0,53	0,0	9,0	3,0	-0,0001	-0,1	-0,0022	0,2	3,4	-1,4	3,0	3,0	0,0028	1,8	0,0005	0,72	0,44	0,2	9,0	3,0
88	0,0015	1,6	-0,0001	0,66	0,56	-0,1	9,0	3,0	0,0003	0,2	-0,0013	0,3	2,4	-0,7	4,0	1,4	0,0025	1,6	0,0000	0,71	0,49	0,0	9,0	3,0
89	0,0009	1,0	-0,0008	0,65	0,57	-0,4	9,0	4,0	-0,0001	-0,1	-0,0016	0,3	2,5	-0,9	4,0	1,4	0,0016	1,0	-0,0010	0,69	0,50	-0,3	9,0	3,0
90	0,0019	2,0	0,0002	0,66	0,57	0,1	9,0	3,0	0,0010	0,8	-0,0012	0,2	3,7	-0,7	2,0	3,0	0,0024	1,5	-0,0001	0,71	0,48	0,0	9,0	3,0
91	0,0015	1,6	-0,0002	0,66	0,57	-0,1	9,0	3,0	0,0007	0,6	-0,0015	0,2	3,6	-0,8	2,0	2,0	0,0020	1,2	-0,0005	0,71	0,48	-0,2	9,0	3,0
92	0,0016	1,6	-0,0002	0,65	0,58	-0,1	9,0	4,0	0,0003	0,2	-0,0021	0,2	3,8	-1,2	3,0	3,0	0,0026	1,6	0,0000	0,71	0,49	0,0	9,0	3,0
93	0,0015	1,7	0,0000	0,68	0,51	0,0	9,0	3,0	-0,0004	-0,4	-0,0023	0,3	3,0	-2,0	5,0	3,0	0,0031	2,0	0,0009	0,73	0,42	0,4	10,0	3,0
94	0,0020	2,3	0,0004	0,67	0,54	0,2	9,0	3,0	0,0006	0,6	-0,0008	0,3	2,3	-0,5	4,0	1,0	0,0031	2,0	0,0006	0,71	0,47	0,2	9,0	3,0
95	0,0014	1,6	-0,0003	0,67	0,55	-0,2	9,0	3,0	-0,0001	-0,1	-0,0020	0,3	3,0	-1,3	4,0	2,0	0,0026	1,8	0,0001	0,71	0,48	0,1	9,0	3,0
96	0,0013	1,4	-0,0003	0,67	0,54	-0,2	9,0	3,0	-0,0007	-0,6	-0,0025	0,3	3,0	-2,0	4,0	3,0	0,0030	2,0	0,0007	0,72	0,45	0,2	9,0	3,0
97	0,0018	2,0	0,0002	0,67	0,54	0,1	9,0	3,0	0,0003	0,3	-0,0011	0,3	2,3	-0,8	5,0	1,4	0,0029	1,9	0,0004	0,71	0,48	0,1	9,0	3,0
98	0,0028	2,8	0,0017	0,73	0,38	1,6	12,0	3,0	0,0021	1,7	0,0010	0,4	1,7	0,7	6,0	1,6	0,0034	2,0	0,0018	0,78	0,31	0,7	13,0	3,0
99	0,0012	1,1	-0,0005	0,67	0,54	-0,3	9,0	3,0	-0,0013	-1,0	-0,0035	0,3	3,5	-2,8	4,0	5,0	0,0034	1,9	0,0010	0,72	0,45	0,4	9,0	3,0
100	0,0014	1,3	-0,0003	0,67	0,54	-0,2	9,0	3,0	-0,0011	-1,0	-0,0033	0,3	3,5	-2,8	4,0	5,0	0,0036	2,0	0,0013	0,72	0,45	0,5	9,0	3,0
101	0,0013	1,4	-0,0004	0,66	0,57	-0,2	9,0	4,0	0,0000	0,0	-0,0019	0,2	3,1	-1,4	3,0	2,0	0,0022	2,0	-0,0003	0,71	0,49	-0,1	9,0	3,0
102	0,0015	1,6	-0,0002	0,66	0,57	-0,1	9,0	4,0	0,0002	0,1	-0,0018	0,2	3,1	-1,2	3,0	2,0	0,0025	1,4	0,0000	0,71	0,48	0,0	9,0	3,0
103	0,0012	1,3	-0,0005	0,66	0,56	-0,3	9,0	3,0	-0,0006	-0,5	-0,0023	0,3	2,7	-1,6	4,0	1,7	0,0026	1,8	0,0001	0,70	0,49	0,0	9,0	3,0
104	0,0010	1,2	-0,0003	0,72	0,44	-0,2	11,0	3,0	-0,0009	-0,8	-0,0025	0,3	2,6	-2,0	4,0	2,5	0,0027	1,9	0,0009	0,77	0,36	0,4	12,0	3,0
105	0,0016	1,8	0,0000	0,67	0,54	0,0	9,0	3,0	-0,0001	-0,1	-0,0020	0,2	3,1	-1,5	3,0	3,0	0,0030	2,0	0,0006	0,72	0,45	0,2	9,0	3,0
106	0,0019	2,1	0,0002	0,66	0,56	0,1	9,0	3,0	0,0004	0,3	-0,0012	0,3	2,5	-0,8	4,0	1,4	0,0031	2,0	0,0006	0,71	0,49	0,2	9,0	3,0
107	0,0013	1,4	-0,0004	0,66	0,56	-0,2	9,0	3,0	-0,0001	-0,1	-0,0016	0,3	2,5	-1,0	4,0	1,3	0,0024	1,5	-0,0001	0,71	0,49	0,0	9,0	3,0
108	0,0014	1,6	-0,0002	0,67	0,54	-0,1	9,0	3,0	-0,0002	-0,2	-0,0022	0,2	3,1	-1,7	3,0	3,0	0,0027	1,9	0,0004	0,72	0,45	0,1	9,0	3,0
109	0,0015	1,7	-0,0001	0,67	0,54	-0,1	9,0	3,0	-0,0003	-0,3	-0,0021	0,3	2,8	-1,8	5,0	2,0	0,0030	2,0	0,0005	0,71	0,47	0,2	9,0	3,0
110	0,0008	0,9	-0,0008	0,67	0,55	-0,5	9,0	3,0	-0,0007	-0,6	-0,0024	0,3	2,9	-1,9	4,0	2,0	0,0020	1,3	-0,0004	0,71	0,47	-0,1	9,0	3,0
111	0,0026	2,6	0,0012	0,69	0,47	1,0	9,0	3,0	0,0029	2,8	0,0018	0,3	1,7	1,6	5,0	1,1	0,0020	1,1	-0,0002	0,73	0,42	-0,1	9,0	2,0
112	0,0031	3,1	0,0017	0,69	0,47	1,5	9,0	3,0	0,0032	3,2	0,0022	0,3	1,7	1,9	5,0	1,0	0,0026	1,5	0,0004	0,73	0,41	0,1	9,0	2,0
113	0,0023	2,7	0,0009	0,72	0,47	1,0	9,0	3,0	0,0019	2,1	0,0012	0,5	1,2	1,1	6,0	0,7	0,0025	1,6	0,0003	0,75	0,42	0,1	9,0	2,0
114	0,0011	1,2	-0,0006	0,67	0,55	-0,3	9,0	3,0	-0,0006	-0,6	-0,0023	0,4	2,8	-1,9	4,0	1,9	0,0024	1,6	-0,0001	0,71	0,48	0,0	9,0	3,0
115	0,0014	1,6	-0,0001	0,70	0,49	0,0	9,0	3,0	0,0008	0,8	-0,0002	0,4	1,6	-0,2	6,0	1,2	0,0017	1,1	-0,0005	0,74	0,43	-0,2	9,0	2,0
116	0,0011	1,1	-0,0005	0,68	0,53	-0,3	9,0	3,0	-0,0010	-0,9	-0,0030	0,3	3,2	-2,4	4,0	3,0	0,0029	1,8	0,0006	0,72	0,45	0,2	9,0	3,0
117	0,0014	1,6	-0,0002	0,66	0,55	-0,1	9,0	3,0	-0,0002	-0,2	-0,0024	0,2	3,4	-1,7	3,0	2,0	0,0028	1,8	0,0004	0,72	0,46	0,1	9,0	3,0
118	0,0014	1,5	-0,0003	0,66	0,57	-0,2	9,0	4,0	-0,0001	-0,1	-0,0023	0,2	3,5	-1,7	3,0	3,0	0,0025	1,7	0,0000	0,71	0,48	0,0	9,0	3,0
119	0,0016	1,7	-0,0001	0,66	0,57	-0,1	9,0	3,0	0,0001	0,1	-0,0020	0,2	3,4	-1,5	3,0	3,0	0,0028	1,8	0,0003	0,71	0,48	0,1	9,0	3,0
120	0,0018	1,9	0,0001	0,65	0,58	0,0	9,0	3,0	0,0006	0,6	-0,0013	0,2	3,2	-1,3	3,0	3,0	0,0026	1,7	0,0000	0,71	0,49	0,0	9,0	3,0
121	0,0014	1,5	0,0000	0,70	0,47	0,0	9,0	3,0	-0,0008	-0,8	-0,0027	0,4	3,1	-2,3	5,0	3,0	0,0034	2,0	0,0013	0,74	0,39	0,5	9,0	2,0
122	0,0009	0,9	-0,0005	0,72	0,45	-0,3	11,0	3,0	-0,0014	-1,1	-0,0030	0,3	2,7	-2,4	5,0	3,0	0,0028	2,0	0,0010	0,77	0,36	0,4	11,0	3,0
123	0,0019	2,1	0,0002	0,67	0,55	0,1	9,0	3,0	0,0004	0,4	-0,0013	0,3	2,7	-1,0	5,0	2,0	0,0030	2,0	0,0005	0,71	0,48	0,2	9,0	3,0
124	0,0009	0,8	-0,0007	0,68	0,53	-0,5	9,0	3,0	-0,0015	-1,2	-0,0036	0,3	3,5	-2,8	5,0	3,0	0,0030	1,7	0,0006	0,72	0,45	0,2	9,0	3,0
125	0,0015	1,3	-0,0001	0,66	0,54	-0,1	9,0	3,0	-0,0014	-1,0	-0,0033	0,3	3,1	-2,5	4,0	3,0	0,0041	2,0	0,0018	0,71	0,44	0,7	9,0	2,0
126	0,0012	1,3	-0,0004	0,67	0,53	-0,3	9,0	3,0	-0,0011	-1,0	-0,0030	0,3	3,0	-2,5	5,0	3,0	0,0033	2,0	0,0009	0,72	0,45	0,4	9,0	3,0
127	0,0018	1,9	0,0003	0,69	0,49	0,2	24,0	6,0	0,0003	0,3	-0,0012	0,4	2,4	-1,0	6,0	2,0	0,0030	1,9	0,0008	0,73	0,42	0,3	10,0	3,0

128	0,0015	1,7	-0,0001	0,67	0,54	0,0	9,0	3,0	-0,0003	-0,3	-0,0020	0,4	2,8	-1,8	5,0	2,0	0,0031	2,0	0,0006	0,71	0,47	0,2	9,0	3,0
129	0,0016	1,7	-0,0002	0,65	0,61	-0,1	8,0	3,0	0,0003	0,2	-0,0018	0,2	3,4	-1,4	4,0	3,0	0,0027	1,7	-0,0001	0,70	0,53	0,0	8,0	3,0
130	0,0020	2,2	0,0004	0,66	0,56	0,2	9,0	3,0	0,0012	1,5	-0,0006	0,2	2,8	-0,6	4,0	3,0	0,0025	1,7	0,0000	0,71	0,48	0,0	9,0	3,0
131	0,0022	2,1	0,0007	0,68	0,50	0,4	9,0	3,0	0,0022	1,9	0,0008	0,3	2,2	0,6	4,0	1,4	0,0018	1,0	-0,0004	0,73	0,43	-0,1	9,0	2,0
132	0,0019	2,0	0,0004	0,70	0,49	0,3	10,0	3,0	-0,0003	-0,3	-0,0017	0,3	2,3	-1,8	5,0	3,0	0,0037	2,4	0,0017	0,75	0,40	0,7	10,0	3,0
133	0,0025	2,6	0,0011	0,71	0,45	1,0	10,0	3,0	0,0027	2,2	0,0023	0,4	0,7	1,5	7,0	0,6	0,0021	1,2	0,0000	0,74	0,41	0,0	10,0	3,0
134	0,0018	2,1	0,0003	0,70	0,48	0,2	10,0	3,0	0,0011	1,2	0,0000	0,4	1,7	0,0	6,0	1,0	0,0021	1,4	-0,0001	0,74	0,42	0,0	10,0	3,0
135	0,0019	2,3	0,0005	0,70	0,48	0,3	10,0	3,0	0,0013	1,4	0,0003	0,4	1,7	0,2	6,0	1,0	0,0023	1,6	0,0001	0,74	0,42	0,0	10,0	3,0
136	0,0028	2,7	0,0013	0,68	0,51	1,2	9,0	3,0	0,0027	2,5	0,0012	0,3	2,4	0,9	5,0	1,7	0,0026	1,6	0,0003	0,73	0,44	0,1	9,0	2,0
137	0,0018	1,6	0,0003	0,69	0,51	0,1	10,0	3,0	0,0008	0,5	0,0004	0,4	0,6	0,2	6,0	0,4	0,0025	1,6	0,0001	0,72	0,47	0,0	10,0	3,0
138	0,0017	1,9	0,0000	0,66	0,58	0,0	9,0	3,0	0,0001	0,1	-0,0017	0,3	2,9	-1,2	5,0	2,0	0,0030	2,0	0,0003	0,71	0,51	0,1	9,0	3,0
139	0,0018	2,2	0,0005	0,72	0,44	0,4	11,0	3,0	0,0003	0,3	-0,0005	0,4	1,3	-0,4	7,0	1,0	0,0031	2,0	0,0011	0,75	0,38	0,5	10,0	2,0
140	0,0020	2,4	0,0005	0,69	0,49	0,4	10,0	3,0	0,0008	1,0	-0,0002	0,4	1,6	-0,1	7,0	1,4	0,0028	2,0	0,0006	0,73	0,43	0,2	10,0	3,0
141	0,0019	2,0	0,0003	0,67	0,54	0,2	9,0	3,0	0,0003	0,3	-0,0016	0,2	3,1	-0,9	3,0	2,0	0,0031	2,0	0,0008	0,72	0,45	0,3	9,0	3,0
142	0,0015	1,5	-0,0001	0,67	0,54	-0,1	9,0	3,0	-0,0002	-0,2	-0,0022	0,3	3,2	-1,3	3,0	2,0	0,0028	1,8	0,0005	0,72	0,45	0,2	9,0	3,0
143	0,0029	3,2	0,0014	0,69	0,51	1,3	9,0	3,0	0,0029	2,7	0,0023	0,4	0,9	1,9	6,0	0,7	0,0027	1,8	0,0003	0,73	0,46	0,1	9,0	3,0
144	0,0018	2,1	0,0002	0,68	0,54	0,1	9,0	3,0	0,0003	0,3	-0,0014	0,3	2,8	-0,9	5,0	2,0	0,0030	2,0	0,0006	0,72	0,47	0,2	9,0	3,0
145	0,0018	1,9	0,0002	0,67	0,54	0,1	9,0	3,0	0,0003	0,3	-0,0023	0,2	4,1	-1,4	3,0	3,0	0,0030	2,0	0,0006	0,72	0,45	0,2	9,0	3,0
146	0,0020	2,2	0,0004	0,67	0,55	0,2	9,0	3,0	0,0000	0,0	-0,0019	0,3	2,9	-1,0	4,0	1,7	0,0037	2,0	0,0013	0,71	0,47	0,4	9,0	3,0
147	0,0017	1,8	0,0001	0,67	0,55	0,1	9,0	3,0	-0,0002	-0,2	-0,0020	0,3	2,9	-1,1	4,0	1,7	0,0033	2,0	0,0009	0,71	0,47	0,3	9,0	3,0
148	0,0015	1,5	-0,0001	0,68	0,52	-0,1	9,0	3,0	-0,0007	-0,6	-0,0025	0,3	2,9	-1,6	4,0	1,4	0,0033	2,0	0,0011	0,73	0,44	0,4	9,0	3,0
149	0,0029	2,7	0,0014	0,68	0,50	1,2	9,0	3,0	0,0031	2,7	0,0017	0,3	2,2	1,2	4,0	2,6	0,0024	1,3	0,0001	0,73	0,43	0,0	9,0	2,0
150	0,0022	2,7	0,0009	0,73	0,42	1,0	12,0	3,0	0,0017	1,7	0,0005	0,4	2,0	0,4	7,0	1,4	0,0025	1,9	0,0006	0,76	0,37	0,3	12,0	3,0
151	0,0025	2,9	0,0010	0,69	0,49	1,1	10,0	3,0	0,0019	2,0	0,0005	0,3	2,1	0,5	6,0	1,7	0,0028	1,9	0,0006	0,73	0,43	0,2	10,0	3,0
152	0,0015	1,6	-0,0001	0,65	0,56	-0,1	8,0	3,0	-0,0004	-0,4	-0,0027	0,2	3,7	-2,1	3,0	3,0	0,0031	2,0	0,0007	0,71	0,46	0,3	9,0	3,0
153	0,0028	2,7	0,0014	0,69	0,49	1,2	9,0	3,0	0,0032	3,0	0,0019	0,3	2,2	1,5	5,0	1,4	0,0021	1,2	-0,0001	0,74	0,42	0,0	9,0	2,0
154	0,0018	1,9	0,0003	0,71	0,48	0,2	10,0	3,0	0,0008	0,6	-0,0001	0,4	1,4	-0,1	6,0	1,0	0,0025	1,7	0,0003	0,75	0,43	0,1	10,0	3,0
155	0,0017	1,6	0,0001	0,67	0,53	0,1	9,0	3,0	0,0001	0,0	-0,0022	0,3	3,7	-1,1	4,0	2,0	0,0030	2,0	0,0007	0,72	0,45	0,2	9,0	3,0
156	0,0015	1,6	0,0001	0,72	0,45	0,1	11,0	3,0	0,0000	0,0	-0,0008	0,5	1,4	-0,5	7,0	1,0	0,0026	1,9	0,0005	0,75	0,41	0,2	11,0	3,0
157	0,0011	0,9	-0,0006	0,66	0,57	-0,4	9,0	3,0	-0,0016	-1,2	-0,0038	0,3	3,4	-2,7	4,0	2,6	0,0036	2,0	0,0010	0,71	0,49	0,4	9,0	3,0
158	0,0020	2,3	0,0004	0,68	0,52	0,3	9,0	3,0	0,0006	0,5	-0,0011	0,3	2,8	-0,7	4,0	1,7	0,0030	2,0	0,0007	0,73	0,43	0,3	12,0	3,0
159	0,0022	2,1	0,0011	0,75	0,37	0,7	13,0	3,0	0,0023	1,5	0,0023	0,6	0,0	1,3	6,0	0,0	0,0019	1,2	0,0001	0,77	0,34	0,0	13,0	3,0
160	0,0008	0,7	-0,0008	0,66	0,56	-0,5	8,0	3,0	-0,0021	-1,6	-0,0039	0,3	2,9	-2,9	3,0	3,0	0,0035	1,9	0,0011	0,71	0,47	0,4	8,0	3,0
161	0,0033	2,8	0,0020	0,72	0,43	1,6	11,0	3,0	0,0024	1,6	0,0012	0,4	2,0	0,6	6,0	1,7	0,0040	2,0	0,0021	0,76	0,37	0,7	11,0	3,0
162	0,0011	1,0	-0,0005	0,66	0,55	-0,3	8,0	3,0	-0,0015	-1,1	-0,0040	0,3	4,1	-3,0	3,0	3,0	0,0034	1,9	0,0011	0,71	0,45	0,4	9,0	3,0
163	0,0033	2,8	0,0020	0,72	0,44	1,6	11,0	4,0	0,0024	1,6	0,0018	0,4	1,0	0,9	4,0	0,8	0,0041	2,0	0,0021	0,76	0,37	0,7	11,0	3,0
164	0,0023	2,6	0,0007	0,68	0,52	0,5	10,0	3,0	0,0009	0,8	-0,0008	0,3	2,7	-0,5	3,0	1,7	0,0033	2,0	0,0010	0,73	0,43	0,4	10,0	3,0
165	0,0023	2,5	0,0008	0,68	0,51	0,5	9,0	3,0	0,0010	0,9	-0,0009	0,3	3,0	-0,6	5,0	3,0	0,0033	2,0	0,0011	0,72	0,43	0,4	9,0	3,0
166	0,0013	1,5	-0,0002	0,72	0,50	-0,1	10,0	3,0	-0,0003	-0,2	-0,0005	0,5	0,4	-0,4	7,0	0,3	0,0026	1,8	0,0003	0,75	0,45	0,1	10,0	3,0
167	0,0013	1,5	-0,0002	0,71	0,50	-0,1	10,0	3,0	-0,0003	-0,2	-0,0008	0,4	0,9	-0,6	7,0	0,7	0,0026	1,8	0,0003	0,75	0,45	0,1	10,0	3,0
168	0,0011	1,1	-0,0003	0,70	0,46	-0,2	10,0	3,0	-0,0008	-0,7	-0,0026	0,3	2,9	-1,6	4,0	3,0	0,0027	1,7	0,0008	0,75	0,37	0,3	10,0	2,0
169	0,0023	2,7	0,0009	0,70	0,47	1,0	10,0	3,0	0,0016	1,3	0,0006	0,3	1,6	0,4	5,0	1,4	0,0028	1,9	0,0007	0,74	0,41	0,3	10,0	3,0
170	0,0020	2,3	0,0006	0,70	0,47	0,4	10,0	3,0	0,0013	1,0	0,0003	0,3	1,6	0,2	5,0	1,5	0,0025	1,7	0,0004	0,74	0,41	0,1	10,0	3,0
171	0,0021	2,3	0,0006	0,68	0,51	0,4	9,0	3,0	0,0000	0,1	-0,0014	0,3	2,3	-1,2	5,0	2,5	0,0038	2,0	0,0016	0,72	0,43	0,6	9,0	3,0
172	0,0024	2,6	0,0009	0,68	0,51	1,0	9,0	3,0	0,0003	0,4	-0,0012	0,3	2,4	-1,0	5,0	2,5	0,0042	2,0	0,0020	0,72	0,43	0,8	9,0	2,0

173	0,0020	2,4	0,0005	0,69	0,53	0,3	9,0	3,0	0,0008	0,7	-0,0008	0,3	2,6	-0,5	5,0	2,0	0,0030	2,0	0,0006	0,74	0,45	0,2	10,0	3,0
174	0,0013	1,5	-0,0002	0,72	0,50	-0,1	10,0	3,0	-0,0003	-0,2	-0,0008	0,4	0,9	-0,6	7,0	0,7	0,0026	1,8	0,0003	0,75	0,45	0,1	10,0	3,0
175	0,0016	1,5	0,0003	0,72	0,44	0,2	12,0	3,0	-0,0002	-0,1	-0,0013	0,4	1,8	-0,9	7,0	1,9	0,0030	2,0	0,0011	0,76	0,37	0,5	12,0	3,0
176	0,0012	1,0	-0,0004	0,67	0,53	-0,2	8,0	3,0	-0,0013	-1,0	-0,0038	0,2	3,9	-2,5	3,0	4,0	0,0035	1,9	0,0013	0,72	0,43	0,4	8,0	2,0
177	0,0023	2,3	0,0009	0,70	0,47	0,5	10,0	3,0	0,0019	1,6	0,0008	0,3	1,9	0,5	5,0	2,0	0,0023	1,4	0,0003	0,75	0,40	0,1	11,0	3,0
178	0,0025	2,5	0,0010	0,69	0,49	1,0	10,0	3,0	0,0019	1,7	0,0008	0,4	1,7	0,6	6,0	1,3	0,0027	1,6	0,0005	0,73	0,43	0,2	10,0	3,0
179	0,0026	2,6	0,0011	0,69	0,49	1,0	10,0	3,0	0,0020	1,8	0,0010	0,3	1,7	0,7	6,0	1,3	0,0028	1,7	0,0006	0,73	0,42	0,2	10,0	3,0
180	0,0023	2,5	0,0008	0,68	0,52	0,5	9,0	3,0	0,0011	0,8	-0,0008	0,3	3,0	-0,5	4,0	1,7	0,0033	2,0	0,0010	0,72	0,45	0,3	10,0	3,0
181	0,0029	3,3	0,0015	0,71	0,45	1,7	7,0	3,0	0,0028	2,8	0,0014	0,3	2,2	1,4	5,0	1,5	0,0026	1,9	0,0007	0,76	0,37	0,3	10,0	2,0
182	0,0024	2,6	0,0009	0,68	0,50	1,0	9,0	3,0	-0,0001	-0,1	-0,0020	0,2	3,0	-1,4	4,0	3,0	0,0045	3,0	0,0023	0,73	0,41	0,9	9,0	2,0
183	0,0019	1,8	0,0004	0,67	0,53	0,3	9,0	3,0	-0,0005	-0,5	-0,0021	0,2	2,6	-1,5	4,0	3,0	0,0041	2,0	0,0018	0,72	0,43	0,7	9,0	2,0
184	0,0022	2,5	0,0007	0,69	0,50	0,4	10,0	3,0	0,0007	0,6	-0,0008	0,3	2,4	-0,6	5,0	2,0	0,0033	2,0	0,0011	0,74	0,42	0,4	10,0	3,0
185	0,0022	2,4	0,0007	0,69	0,50	0,4	10,0	3,0	0,0011	1,0	-0,0002	0,3	1,9	-0,1	5,0	1,9	0,0030	1,9	0,0008	0,74	0,43	0,3	10,0	3,0
186	0,0035	3,0	0,0023	0,72	0,42	1,8	11,0	3,0	0,0030	2,0	0,0015	0,4	2,4	0,8	6,0	3,0	0,0039	2,0	0,0020	0,76	0,35	0,7	11,0	3,0
187	0,0020	2,1	0,0005	0,67	0,52	0,3	9,0	3,0	0,0002	0,2	-0,0018	0,3	3,2	-1,2	5,0	3,1	0,0036	2,0	0,0013	0,72	0,44	0,5	9,0	3,0
188	0,0021	2,3	0,0008	0,72	0,45	0,5	11,0	3,0	0,0012	1,1	0,0004	0,5	1,2	0,3	8,0	1,0	0,0028	1,8	0,0007	0,75	0,40	0,2	10,0	3,0
189	0,0022	2,5	0,0008	0,70	0,47	0,5	10,0	3,0	0,0009	0,7	-0,0006	0,4	2,3	-0,4	6,0	1,8	0,0033	2,0	0,0012	0,74	0,40	0,4	10,0	3,0
190	0,0021	2,4	0,0005	0,68	0,53	0,3	9,0	3,0	0,0005	0,5	-0,0009	0,3	2,2	-0,6	5,0	1,4	0,0034	2,0	0,0010	0,72	0,46	0,3	9,0	3,0
191	0,0016	1,5	-0,0001	0,67	0,56	0,0	9,0	3,0	-0,0003	-0,3	-0,0022	0,3	3,0	-1,5	5,0	2,0	0,0033	1,8	0,0008	0,71	0,48	0,3	9,0	3,0
192	0,0017	1,6	0,0001	0,67	0,56	0,0	9,0	3,0	-0,0002	-0,1	-0,0020	0,3	2,9	-1,4	5,0	2,0	0,0034	1,8	0,0009	0,71	0,48	0,3	9,0	3,0
193	0,0019	2,1	0,0004	0,70	0,49	0,3	10,0	3,0	0,0012	1,1	0,0005	0,3	1,1	0,4	6,0	1,0	0,0023	1,5	0,0001	0,74	0,42	0,0	10,0	3,0
194	0,0022	2,4	0,0006	0,68	0,53	0,4	9,0	3,0	0,0005	0,5	-0,0009	0,3	2,3	-0,6	5,0	1,5	0,0035	2,0	0,0011	0,72	0,46	0,4	9,0	3,0
195	0,0020	1,9	0,0005	0,68	0,50	0,3	9,0	3,0	0,0002	0,2	-0,0027	0,3	4,7	-1,6	4,0	4,0	0,0035	2,0	0,0013	0,72	0,41	0,5	8,0	2,0
196	0,0018	1,8	0,0002	0,68	0,53	0,1	9,0	3,0	0,0003	0,3	-0,0016	0,3	3,1	-1,0	4,0	2,0	0,0029	1,8	0,0006	0,73	0,45	0,2	10,0	3,0
197	0,0018	1,8	0,0004	0,70	0,47	0,2	10,0	3,0	0,0005	0,4	-0,0004	0,4	1,4	-0,2	6,0	1,3	0,0028	1,8	0,0007	0,74	0,40	0,2	10,0	3,0
198	0,0027	1,8	0,0012	0,69	0,49	1,2	10,0	3,0	0,0019	1,8	0,0005	0,3	2,1	0,4	6,0	1,8	0,0033	2,0	0,0010	0,73	0,43	0,4	10,0	3,0
199	0,0027	3,1	0,0013	0,69	0,49	1,3	10,0	3,0	0,0018	1,8	0,0003	0,3	2,4	0,3	6,0	2,0	0,0034	2,0	0,0012	0,73	0,42	0,4	10,0	3,0
200	0,0032	3,7	0,0018	0,70	0,46	1,9	10,0	3,0	0,0022	2,0	0,0007	0,4	2,3	0,5	6,0	1,5	0,0040	3,0	0,0019	0,74	0,39	0,7	10,0	3,0
201	0,0033	3,9	0,0019	0,70	0,46	2,1	10,0	3,0	0,0022	2,0	0,0008	0,4	2,3	0,6	6,0	1,5	0,0041	3,0	0,0020	0,74	0,39	0,8	10,0	3,0
202	0,0026	2,8	0,0012	0,70	0,47	1,2	10,0	4,0	0,0020	1,6	0,0007	0,3	2,0	0,5	6,0	2,0	0,0030	1,9	0,0009	0,74	0,41	0,3	11,0	3,0
203	0,0031	3,5	0,0018	0,70	0,45	1,8	10,0	3,0	0,0021	1,9	0,0008	0,4	2,1	0,6	6,0	1,5	0,0039	3,0	0,0019	0,74	0,39	0,7	10,0	3,0
204	0,0024	2,5	0,0010	0,70	0,47	1,0	11,0	4,0	0,0020	1,6	0,0007	0,3	2,0	0,5	5,0	2,0	0,0026	1,7	0,0005	0,75	0,40	0,2	11,0	3,0

TABLE 32 GERMAN MUTUAL FUNDS JENSEN AND TREYNOR-MAZUY REGRESSIONS PARAMETERS AND T STATISTICS

	OVERALL PERIOD								SUBPERIOD ONE								SUBPERIOD TWO							
#	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C	JEN A	T A	TR-MAZ A	TR-MAZ B	TR-MAZ C	T STAT A	T B	T C
1	0,0014	1,3	0,0005	0,82	0,29	0,46	17,2	2,9	0,0008	0,6	0,0012	0,41	-0,38	0,8	9,3	-0,5	0,0014	0,9	0,0005	0,89	0,18	0,3	20,0	1,9
2	-0,0005	-1,5	-0,0007	0,96	0,06	-1,99	47,5	1,5	-0,0009	-1,9	-0,0004	0,91	-0,56	-0,4	24,0	-1,2	-0,0002	-0,5	-0,0005	0,97	0,04	-0,5	45,0	1,2
3	-0,0008	-1,2	-0,0014	0,87	0,20	-2,03	26,3	3,0	-0,0019	-2,6	-0,0020	0,63	0,16	-2,1	19,0	0,3	0,0000	-0,1	-0,0007	0,91	0,13	-0,6	29,0	2,2
4	-0,0010	-1,4	-0,0014	0,91	0,13	-2,03	32,7	2,4	-0,0003	-0,5	-0,0003	0,68	-0,08	-0,3	20,0	-0,2	-0,0018	-1,6	-0,0022	0,95	0,07	-1,7	38,0	1,4
5	-0,0012	-1,6	-0,0015	0,94	0,08	-1,93	36,7	1,5	-0,0006	-0,7	-0,0005	0,69	-0,11	-0,5	19,0	-0,2	-0,0022	-1,7	-0,0023	0,98	0,02	-1,5	44,0	0,4
6	0,0017	1,6	0,0013	0,88	0,14	1,19	24,2	1,8	0,0021	1,7	0,0024	0,43	-0,31	1,5	8,0	-0,4	0,0008	0,5	0,0006	0,97	0,02	0,3	38,0	0,3
7	-0,0005	-0,7	-0,0008	0,91	0,13	-1,42	31,8	2,1	-0,0004	-0,5	-0,0007	0,61	0,30	-0,8	18,0	0,7	-0,0009	-0,9	-0,0011	0,97	0,05	-0,9	45,0	1,0
8	-0,0002	-0,3	-0,0009	0,85	0,21	-1,19	24,3	3,1	-0,0007	-0,9	-0,0008	0,55	0,13	-0,8	14,0	0,3	-0,0001	-0,1	-0,0008	0,91	0,13	-0,6	30,0	2,3
9	-0,0003	-1,0	-0,0005	0,95	0,07	-1,62	39,0	1,3	-0,0005	-1,0	0,0001	0,80	-0,59	0,1	23,0	-0,9	-0,0003	-0,7	-0,0005	0,98	0,03	-0,5	43,0	0,7
10	-0,0009	-1,8	-0,0013	0,93	0,13	-2,57	35,0	2,3	-0,0007	-1,2	-0,0006	0,67	-0,11	-0,7	20,0	-0,3	-0,0014	-1,9	-0,0018	0,97	0,06	-1,6	44,0	1,5
11	-0,0008	-1,5	-0,0012	0,92	0,13	-2,15	40,2	3,2	-0,0005	-0,5	0,0004	0,67	-0,87	0,3	13,0	-0,9	-0,0015	-1,7	-0,0019	0,96	0,07	-1,6	71,0	2,1
12	-0,0005	-1,4	-0,0005	0,97	0,01	-1,54	79,7	0,4	-0,0005	-1,1	0,0001	0,87	-0,64	0,1	25,0	-1,0	-0,0005	-1,1	-0,0005	0,99	-0,01	-0,7	104,0	-0,5
13	-0,0008	-1,3	-0,0013	0,89	0,14	-1,80	26,3	2,0	-0,0003	-0,5	-0,0003	0,68	-0,08	-0,3	20,0	-0,2	-0,0016	-1,4	-0,0021	0,93	0,09	-1,5	25,0	1,1
14	-0,0007	-0,9	-0,0012	0,88	0,16	-1,61	30,2	3,1	-0,0014	-1,8	-0,0015	0,62	0,04	-1,7	16,0	0,1	-0,0002	-0,2	-0,0007	0,93	0,09	-0,6	45,0	1,8
15	-0,0009	-1,2	-0,0013	0,88	0,16	-1,92	32,6	3,5	-0,0019	-2,7	-0,0020	0,63	0,16	-2,1	19,0	0,3	-0,0001	-0,1	-0,0006	0,92	0,09	-0,5	49,0	2,1
16	-0,0006	-1,5	-0,0008	0,95	0,07	-2,00	58,9	3,7	-0,0007	-1,2	-0,0001	0,84	-0,56	-0,1	25,0	-0,9	-0,0007	-1,1	-0,0010	0,97	0,04	-0,9	61,0	2,4
17	-0,0001	-0,2	-0,0008	0,85	0,22	-1,08	25,9	4,0	-0,0008	-1,1	-0,0012	0,55	0,32	-1,0	14,0	0,6	0,0003	0,1	-0,0005	0,90	0,14	-0,4	40,0	2,8
18	-0,0005	-1,2	-0,0007	0,97	0,04	-1,59	40,6	0,8	-0,0006	-1,1	-0,0005	0,75	-0,06	-0,5	20,0	-0,1	-0,0007	-1,1	-0,0006	1,01	-0,02	-0,6	51,0	-0,4
19	0,0017	1,3	0,0016	0,95	0,03	1,22	21,4	0,3	0,0036	2,1	0,0052	0,50	-1,73	2,8	9,2	-2,0	-0,0006	-0,4	-0,0003	1,03	-0,07	-0,2	25,0	-1,0
20	0,0019	1,5	0,0016	0,93	0,09	1,31	22,4	1,3	0,0037	2,2	0,0053	0,50	-1,71	2,9	9,2	-2,0	-0,0004	-0,2	-0,0004	1,01	-0,01	-0,2	31,0	-0,1
21	-0,0004	-0,7	-0,0008	0,90	0,14	-1,44	38,8	3,3	-0,0004	0,6	-0,0005	0,61	0,09	-0,5	17,0	0,2	-0,0008	-0,9	-0,0012	0,95	0,06	-1,1	57,0	2,2
22	-0,0004	-0,7	-0,0008	0,90	0,14	-1,43	34,8	3,4	-0,0004	-0,5	-0,0005	0,61	0,10	-0,5	17,0	0,2	-0,0008	-0,9	-0,0012	0,95	0,07	-1,1	47,0	2,2
23	0,0005	0,5	-0,0001	0,87	0,21	-0,15	24,7	3,0	0,0001	0,1	0,0005	0,56	-0,41	0,4	10,0	-0,6	0,0005	0,3	-0,0002	0,92	0,13	-0,1	28,0	2,0
24	-0,0001	-0,1	-0,0008	0,84	0,24	-1,10	22,5	3,4	-0,0008	-1,1	-0,0012	0,55	0,33	-1,1	15,0	0,7	0,0003	0,2	-0,0005	0,89	0,16	-0,4	26,0	2,6
25	-0,0003	-0,4	-0,0008	0,89	0,18	-1,28	30,8	2,9	-0,0010	-1,4	-0,0014	0,63	0,45	-1,4	16,0	1,0	0,0001	0,1	-0,0004	0,94	0,10	-0,4	38,0	2,0
26	-0,0003	-0,4	-0,0009	0,86	0,20	-1,27	25,5	3,0	-0,0013	-1,7	-0,0011	0,58	-0,12	-1,1	15,0	-0,3	0,0003	0,2	-0,0003	0,92	0,12	-0,2	32,0	2,2
27	-0,0005	-0,8	-0,0008	0,93	0,09	-1,32	35,1	1,6	0,0000	0,0	0,0001	0,62	-0,14	0,1	17,0	-0,3	-0,0013	-1,4	-0,0014	0,99	0,01	-1,3	52,0	0,2
28	-0,0007	-1,4	-0,0010	0,95	0,08	-2,02	38,6	1,4	-0,0003	-0,6	0,0000	0,72	-0,34	0,0	19,0	-0,8	-0,0014	-1,7	-0,0015	1,00	0,02	-1,5	49,0	0,4
29	-0,0007	-1,2	-0,0009	0,94	0,08	-1,82	34,1	1,2	-0,0003	-0,6	0,0000	0,72	-0,34	0,0	19,0	-0,8	-0,0012	-1,5	-0,0014	0,98	0,02	-1,2	41,0	0,4
30	-0,0004	-0,7	-0,0008	0,92	0,11	-1,32	29,7	1,7	0,0000	0,0	0,0001	0,62	-0,14	0,1	17,0	-0,3	-0,0012	-1,3	-0,0014	0,98	0,03	-1,2	40,0	0,7
31	-0,0002	-0,3	-0,0008	0,87	0,18	-1,09	26,6	2,8	-0,0007	-0,8	-0,0005	0,60	-0,18	-0,5	15,0	-0,3	-0,0001	-0,1	-0,0006	0,92	0,11	-0,5	33,0	2,1
32	-0,0005	-0,8	-0,0008	0,92	0,11	-1,37	38,1	2,2	-0,0004	-0,6	-0,0005	0,60	0,08	-0,5	18,0	0,2	-0,0009	-1,0	-0,0011	0,97	0,03	-0,9	60,0	0,6
33	-0,0003	-0,4	-0,0008	0,86	0,19	-1,15	26,9	3,1	-0,0006	-0,8	-0,0007	0,55	0,03	-0,7	14,0	0,1	-0,0002	-0,3	-0,0008	0,92	0,10	-0,6	37,0	2,1
34	0,0002	0,8	0,0001	0,96	0,04	0,33	81,1	1,9	0,0000	0,0	0,0006	0,80	-0,60	0,6	23,0	-0,9	0,0003	0,5	0,0002	0,98	0,00	0,3	128,0	-0,1
35	-0,0003	-0,3	-0,0007	0,88	0,15	-0,97	30,5	2,7	-0,0007	-0,8	-0,0005	0,59	-0,22	-0,4	15,0	-0,4	-0,0001	-0,1	-0,0005	0,93	0,07	-0,4	40,0	1,6
36	0,0023	1,3	0,0017	0,87	0,21	0,94	18,8	2,5	0,0042	1,9	0,0050	0,43	-0,77	2,0	5,0	-0,4	0,0009	0,3	0,0004	0,95	0,10	0,1	24,0	1,2
37	0,0016	1,0	0,0013	0,90	0,10	0,78	23,1	1,7	0,0051	2,5	0,0062	0,44	-1,12	3,0	5,0	-0,6	-0,0014	-0,6	-0,0014	0,99	-0,01	-0,4	35,0	-0,1

38	0,0014	1,2	0,0011	0,90	0,10	0,91	25,5	1,2	0,0037	2,3	0,0050	0,49	-1,36	3,0	9,6	-1,7	-0,0012	-0,7	-0,0013	0,97	0,01	-0,8	33,0	0,1
39	-0,0004	-0,5	-0,0010	0,84	0,20	-1,15	23,6	3,1	-0,0018	-1,9	-0,0019	0,55	0,02	-1,4	13,0	0,0	0,0006	0,4	0,0000	0,90	0,11	0,0	29,0	2,3
40	-0,0002	-0,2	-0,0008	0,85	0,20	-1,13	24,3	3,1	-0,0007	-1,1	-0,0012	0,62	0,50	-1,3	19,0	1,2	0,0000	0,0	-0,0007	0,90	0,14	-0,5	26,0	2,7
41	0,0010	1,0	0,0007	0,91	0,12	0,66	26,9	1,7	0,0019	1,3	0,0030	0,60	-1,16	2,0	11,0	-1,6	-0,0001	-0,1	-0,0004	0,97	0,05	-0,2	36,0	0,7
42	-0,0003	-0,4	-0,0005	0,95	0,08	-0,89	40,0	1,7	0,0001	0,2	0,0000	0,68	0,11	0,0	20,0	0,2	-0,0010	-1,0	-0,0011	0,99	0,02	-0,9	56,0	0,4
43	0,0011	1,0	0,0007	0,91	0,11	0,65	35,2	1,9	0,0018	1,3	0,0031	0,60	-1,31	2,0	13,1	-1,8	0,0000	-0,1	-0,0003	0,97	0,04	-0,2	42,0	0,6
44	-0,0002	-0,3	-0,0006	0,92	0,13	-0,92	33,4	2,8	0,0001	0,1	0,0003	0,70	-0,20	0,3	22,0	-0,5	-0,0007	-0,9	-0,0012	0,96	0,08	-0,9	31,0	1,5
45	-0,0005	-0,8	-0,0011	0,87	0,20	-1,61	23,9	2,7	-0,0010	-1,5	-0,0010	0,59	0,00	-1,1	18,0	0,0	-0,0003	-0,3	-0,0010	0,92	0,12	-0,8	25,0	1,6
46	-0,0004	-0,9	-0,0007	0,93	0,12	-1,70	29,5	1,9	-0,0005	-1,0	-0,0004	0,74	-0,11	-0,4	20,0	-0,3	-0,0004	-0,6	-0,0008	0,96	0,07	-0,7	27,0	1,0
47	-0,0001	-0,2	-0,0004	0,92	0,10	-0,80	40,4	2,2	-0,0005	-0,8	-0,0002	0,77	-0,30	-0,2	16,0	-0,6	0,0001	0,1	-0,0002	0,95	0,06	-0,2	40,0	1,4
48	-0,0003	-0,5	-0,0008	0,90	0,15	-1,24	39,4	3,6	-0,0010	-1,4	-0,0014	0,63	0,42	-1,3	15,0	0,8	0,0001	0,0	-0,0004	0,95	0,07	-0,3	53,0	2,3
49	0,0014	1,5	0,0008	0,87	0,20	0,86	23,7	3,4	0,0019	1,5	0,0022	0,51	-0,34	1,6	12,1	-0,5	0,0007	0,4	0,0001	0,94	0,10	0,1	31,0	2,3
50	-0,0006	-0,8	-0,0012	0,87	0,19	-1,64	25,9	2,9	-0,0014	-1,8	-0,0015	0,61	0,04	-1,4	16,0	0,1	-0,0001	-0,1	-0,0008	0,91	0,12	-0,6	31,0	2,3
51	-0,0006	-0,8	-0,0011	0,87	0,19	-1,61	26,2	2,9	-0,0010	-1,5	-0,0011	0,59	0,04	-1,2	19,0	0,1	-0,0004	-0,4	-0,0010	0,92	0,12	-0,8	32,0	2,4
52	0,0004	0,5	-0,0006	0,79	0,33	-0,67	15,4	3,2	-0,0016	-1,8	-0,0022	0,48	0,58	-2,3	12,0	1,1	0,0021	1,3	0,0009	0,84	0,24	0,6	15,0	2,2
53	0,0002	0,2	-0,0005	0,85	0,21	-0,63	33,9	3,2	-0,0001	-0,1	-0,0005	0,58	0,45	-0,5	16,0	0,8	0,0001	0,0	-0,0007	0,90	0,14	-0,6	39,0	2,5
54	0,0006	0,9	0,0002	0,91	0,12	0,31	26,6	1,5	0,0012	1,2	0,0013	0,56	-0,15	1,2	17,4	-0,3	-0,0004	-0,5	-0,0006	0,98	0,03	-0,5	39,0	0,6
55	-0,0007	-1,2	-0,0012	0,89	0,17	-1,98	28,4	2,2	-0,0005	-0,8	0,0001	0,60	-0,60	0,1	19,0	-1,1	-0,0012	-1,5	-0,0017	0,95	0,09	-1,3	37,0	1,3
56	0,0017	1,7	0,0012	0,87	0,17	1,15	23,5	2,5	0,0021	1,7	0,0024	0,42	-0,24	1,4	7,0	-0,3	0,0009	0,6	0,0006	0,95	0,06	0,3	29,0	0,8
57	0,0006	1,0	0,0003	0,92	0,09	0,56	37,7	2,0	0,0012	1,2	0,0015	0,56	-0,30	1,4	17,4	-0,6	-0,0004	-0,6	-0,0005	0,98	0,00	-0,4	68,0	0,0
58	-0,0007	-1,2	-0,0011	0,90	0,14	-1,94	41,6	3,8	-0,0004	-0,7	0,0004	0,60	-0,77	0,4	19,0	-1,8	-0,0012	-1,6	-0,0016	0,95	0,06	-1,5	61,0	2,4
59	0,0000	0,0	-0,0009	0,81	0,30	-1,11	17,4	3,3	-0,0017	-0,7	-0,0019	0,58	0,19	-1,5	12,0	0,3	0,0015	1,0	0,0003	0,85	0,24	0,2	17,0	2,5
60	-0,0006	-1,8	-0,0006	0,97	0,03	-2,00	82,4	1,4	-0,0009	-1,9	-0,0004	0,91	-0,56	-0,4	24,0	-0,9	-0,0003	-0,7	-0,0004	0,98	0,01	-0,5	94,0	0,4
61	-0,0012	-1,6	-0,0014	0,94	0,07	-1,88	41,1	1,5	-0,0006	-0,7	-0,0005	0,69	-0,11	-0,5	19,0	-0,2	-0,0021	-1,7	-0,0022	0,98	0,01	-1,4	49,0	0,1
62	-0,0002	-0,4	-0,0006	0,91	0,12	-1,04	40,4	3,0	-0,0005	-0,7	-0,0005	0,61	-0,02	-0,4	18,0	-0,1	-0,0003	-0,4	-0,0005	0,97	0,04	-0,5	60,0	1,0
63	-0,0002	-0,3	-0,0005	0,92	0,13	-0,98	38,4	3,0	-0,0004	-0,6	-0,0005	0,61	0,02	-0,4	18,0	0,0	-0,0002	-0,4	-0,0005	0,97	0,05	-0,5	59,0	1,2
64	-0,0002	-0,3	-0,0008	0,87	0,20	-1,15	26,5	3,1	-0,0011	-1,3	-0,0013	0,58	0,23	-1,2	16,0	0,5	0,0003	0,2	-0,0004	0,92	0,12	-0,3	33,0	2,4
65	0,0010	0,5	0,0005	0,89	0,17	0,23	16,6	1,8	0,0018	0,7	0,0040	0,72	-2,34	1,4	4,5	-1,3	0,0001	0,0	-0,0007	0,92	0,14	-0,1	17,0	1,3
66	0,0009	0,4	0,0008	0,95	0,03	0,39	20,2	0,3	0,0030	1,2	0,0055	0,57	-2,63	1,8	3,7	-1,5	-0,0016	-0,5	-0,0013	1,02	-0,06	-0,2	26,0	-0,3
67	0,0011	0,5	0,0010	0,01	0,03	0,47	21,8	0,5	0,0026	1,1	0,0046	0,70	-2,04	1,7	5,1	-1,3	-0,0005	-0,1	-0,0004	1,00	-0,02	-0,1	23,0	-0,1
68	-0,0001	-0,4	-0,0002	0,96	0,03	-0,67	66,8	0,9	-0,0002	-0,5	0,0003	0,79	-0,54	0,3	21,0	-0,9	-0,0002	-0,4	-0,0001	0,99	-0,02	-0,2	87,0	-0,5
69	0,0009	0,7	0,0006	0,91	0,11	0,42	21,9	1,2	0,0039	2,4	0,0051	0,43	-1,23	2,8	8,1	-1,5	-0,0026	-1,3	-0,0027	1,00	0,01	-1,3	27,0	0,1
70	0,0013	1,0	0,0009	0,90	0,12	0,70	23,4	1,3	0,0040	2,5	0,0052	0,43	-1,24	2,9	8,1	-1,5	-0,0020	-1,0	-0,0021	0,98	0,01	-1,1	30,0	0,2
71	-0,0004	-0,5	-0,0010	0,83	0,22	-1,34	22,6	3,2	-0,0015	-1,8	-0,0015	0,52	-0,04	-1,4	15,0	-0,1	0,0004	0,3	-0,0003	0,89	0,13	-0,2	34,0	2,4
72	-0,0002	-0,7	-0,0005	0,93	0,10	-1,60	35,0	1,7	-0,0005	-1,0	0,0001	0,80	-0,61	0,1	23,0	-0,9	-0,0001	-0,3	-0,0005	0,96	0,07	-0,5	32,0	1,0
73	-0,0005	-1,0	-0,0010	0,91	0,14	-1,92	42,7	3,6	-0,0007	-1,0	-0,0009	0,67	0,21	-1,0	19,0	0,5	-0,0007	-0,9	-0,0011	0,95	0,08	-1,4	47,0	2,8
74	-0,0002	-0,8	-0,0003	0,97	0,02	-1,06	72,1	0,9	-0,0002	-0,5	0,0002	0,84	-0,40	0,2	21,0	-0,9	-0,0003	-0,9	-0,0003	1,00	-0,01	-0,4	80,0	-0,5
75	0,0015	1,5	0,0009	0,86	0,20	0,92	23,8	3,1	0,0019	1,5	0,0021	0,51	-0,23	1,5	9,0	-0,4	0,0008	0,5	0,0002	0,93	0,11	0,1	32,0	2,2
76	-0,0007	-1,4	-0,0011	0,92	0,11	-2,08	64,2	3,0	-0,0012	-2,0	-0,0014	0,72	0,18	-2,1	29,0	0,6	-0,0005	-0,7	-0,0008	0,96	0,06	-1,1	80,0	2,0
77	-0,0002	-0,8	-0,0004	0,97	0,05	-1,27	47,4	1,2	-0,0002	-0,5	0,0001	0,87	-0,37	0,1	22,0	-0,8	-0,0003	-0,7	-0,0004	0,99	0,02	-0,4	49,0	0,6
78	-0,0002	-0,5	-0,0004	0,96	0,05	-0,94	44,5	1,2	-0,0003	-0,5	0,0003	0,80	-0,54	0,3	21,0	-1,0	-0,0002	-0,5	-0,0003	0,99	0,01	-0,3	52,0	0,3
79	-0,0005	-1,1	-0,0008	0,92	0,11	-1,82	39,7	2,2	-0,0009	-1,7	-0,0004	0,75	-0,56	-0,3	19,0	-0,7	-0,0003	-0,4	-0,0006	0,95	0,06	-0,6	46,0	1,6
80	-0,0006	-1,4	-0,0009	0,94	0,08	-1,98	44,2	2,3	-0,0007	-1,2	-0,0001	0,84	-0,56	-0,1	25,0	-1,2	-0,0007	-1,0	-0,0010	0,96	0,06	-0,9	44,0	1,6
81	-0,0007	-1,2	-0,0012	0,89	0,17	-2,00	28,7	2,6	-0,0005	-0,6	0,0004	0,67	-0,86	0,3	14,0	-1,4	-0,0013	-1,5	-0,0019	0,93	0,12	-1,5	28,0	1,6

82	0,0012	1,4	0,0004	0,82	0,24	0,57	20,7	3,5	0,0004	0,5	0,0001	0,50	0,35	0,1	13,0	0,7	0,0016	1,1	0,0008	0,88	0,16	0,5	25,0	2,8
83	0,0015	1,5	0,0005	0,77	0,34	0,49	19,4	3,2	-0,0001	-0,1	-0,0008	0,38	0,75	-0,8	8,0	1,0	0,0026	1,6	0,0015	0,84	0,23	0,9	22,0	2,5
84	0,0015	1,5	0,0005	0,77	0,32	0,51	15,8	3,6	-0,0001	-0,1	-0,0008	0,38	0,73	-0,8	8,0	1,0	0,0026	1,5	0,0015	0,84	0,21	0,9	24,0	2,5
85	-0,0002	-0,3	-0,0005	0,90	0,13	-0,91	35,7	2,7	-0,0002	-0,3	-0,0004	0,53	0,21	-0,4	13,0	0,4	-0,0005	-0,7	-0,0007	0,97	0,03	-0,6	74,0	1,0
86	0,0001	0,1	-0,0002	0,93	0,07	-0,27	27,9	0,9	0,0005	0,7	0,0009	0,66	-0,39	0,7	15,0	-0,7	-0,0007	-0,7	-0,0008	0,98	0,00	-0,6	31,0	0,1
87	0,0007	0,7	-0,0003	0,79	0,33	-0,34	16,5	3,4	0,0002	0,1	-0,0002	0,39	0,43	-0,2	9,0	0,6	0,0007	0,4	-0,0004	0,86	0,22	-0,2	19,0	2,5
88	-0,0004	-0,4	-0,0010	0,85	0,19	-1,06	24,6	2,7	-0,0017	-1,6	-0,0015	0,59	-0,24	-1,1	13,0	-0,4	0,0006	0,4	0,0000	0,90	0,11	0,0	33,0	1,7
89	-0,0001	-0,2	-0,0005	0,92	0,12	-0,89	32,8	2,4	-0,0005	-0,9	-0,0001	0,79	-0,49	-0,1	20,0	-0,8	0,0002	0,1	-0,0003	0,94	0,09	-0,2	30,0	1,6
90	-0,0001	-0,1	-0,0007	0,86	0,22	-0,96	24,8	3,0	-0,0010	-1,3	-0,0009	0,56	-0,08	-0,9	15,0	-0,2	0,0005	0,3	-0,0002	0,91	0,13	-0,1	38,0	2,1
91	-0,0002	-0,9	-0,0003	0,98	0,02	-1,22	89,6	1,0	-0,0001	-0,1	0,0006	0,84	-0,65	0,6	22,0	-1,5	-0,0005	-2,0	-0,0005	1,01	-0,02	-1,0	184,0	-1,6
92	0,0019	1,0	0,0018	0,94	0,06	0,95	20,9	0,9	0,0033	1,2	0,0053	0,64	-2,08	0,8	5,0	-1,8	0,0004	0,1	0,0003	0,99	0,00	0,1	24,0	0,0
93	0,0019	1,0	0,0018	0,95	0,05	0,93	18,4	0,5	0,0034	1,2	0,0054	0,63	-2,13	0,8	5,0	-1,8	0,0002	0,0	0,0002	1,01	-0,02	0,0	21,0	-0,1
94	0,0020	1,0	0,0019	0,95	0,05	0,99	18,0	0,5	0,0034	1,2	0,0054	0,63	-2,10	0,8	5,0	-1,8	0,0004	0,1	0,0004	1,00	-0,02	0,1	21,0	-0,1
95	0,0002	0,6	0,0000	0,96	0,06	0,02	44,5	1,4	0,0001	0,1	0,0006	0,82	-0,54	0,6	23,0	-0,8	0,0002	0,3	0,0001	0,99	0,02	0,1	50,0	0,6
96	-0,0005	-0,9	-0,0010	0,90	0,19	-2,00	31,3	3,1	-0,0006	-0,9	-0,0006	0,64	0,05	-0,6	19,0	0,1	-0,0007	-0,9	-0,0013	0,95	0,12	-1,3	32,0	1,8
97	0,0004	0,4	-0,0003	0,84	0,22	-0,35	23,0	3,2	-0,0008	-0,7	-0,0005	0,53	-0,29	-0,4	14,0	-0,5	0,0011	0,7	0,0004	0,89	0,13	0,3	45,0	2,4
98	-0,0002	-0,3	-0,0007	0,89	0,18	-1,05	30,7	3,1	-0,0014	-1,5	-0,0010	0,65	-0,45	-0,8	16,0	-0,8	0,0007	0,6	0,0001	0,93	0,11	0,1	41,0	1,9
99	-0,0001	-0,2	-0,0003	0,95	0,07	-0,81	37,9	1,3	0,0000	-0,1	0,0005	0,85	-0,59	0,5	22,0	-1,0	-0,0001	-0,4	-0,0004	0,97	0,04	-0,4	33,0	0,7
100	-0,0004	-0,7	-0,0007	0,93	0,10	-1,23	43,4	2,9	0,0003	0,5	0,0001	0,62	0,22	0,1	15,0	0,5	-0,0014	-1,9	-0,0016	0,99	0,02	-1,6	83,0	1,2
101	-0,0004	-0,6	-0,0006	0,93	0,09	-1,12	41,1	2,3	0,0004	0,5	0,0002	0,61	0,22	0,2	15,0	0,5	-0,0014	-1,9	-0,0015	0,99	0,01	-1,6	78,0	0,2
102	0,0008	1,0	0,0001	0,84	0,24	0,09	18,9	2,2	0,0004	0,3	0,0008	0,59	-0,47	0,7	14,0	-0,9	0,0009	0,6	0,0000	0,89	0,17	0,0	18,0	1,5
103	-0,0006	-1,1	-0,0010	0,93	0,13	-2,02	46,9	3,3	-0,0006	-0,9	-0,0007	0,65	0,19	-0,8	18,0	0,5	-0,0009	-1,3	-0,0012	0,98	0,06	-1,7	87,0	2,1
104	0,0002	0,2	-0,0004	0,87	0,20	-0,62	27,1	3,0	-0,0008	-1,0	-0,0008	0,59	0,08	-0,9	17,0	0,2	0,0008	0,6	0,0001	0,92	0,12	0,1	41,0	2,7
105	-0,0001	-0,2	-0,0007	0,85	0,18	-1,02	27,2	3,7	-0,0007	-1,0	-0,0011	0,61	0,46	-1,2	18,0	1,1	0,0001	0,0	-0,0005	0,89	0,12	-0,4	30,0	2,4
106	-0,0001	-0,1	-0,0006	0,87	0,17	-0,76	24,6	2,6	-0,0009	-1,0	-0,0009	0,52	0,05	-0,8	11,0	0,1	0,0004	0,3	0,0000	0,93	0,07	0,0	35,0	1,4
107	0,0022	1,7	0,0016	0,85	0,21	1,23	20,2	2,7	0,0028	1,7	0,0037	0,48	-1,01	2,0	6,7	-1,1	0,0013	0,6	0,0006	0,92	0,12	0,3	26,0	1,5
108	0,0000	0,0	-0,0004	0,91	0,11	-0,63	40,9	2,9	-0,0003	-0,5	-0,0003	0,61	-0,06	-0,3	18,0	-0,1	0,0000	-0,1	-0,0003	0,97	0,03	-0,3	62,0	1,3
109	-0,0001	-0,1	-0,0007	0,88	0,22	-1,29	23,4	2,7	-0,0005	-0,7	-0,0005	0,60	0,07	-0,5	18,0	0,1	0,0000	-0,1	-0,0008	0,93	0,14	-0,7	23,0	1,6
110	0,0000	0,0	-0,0009	0,79	0,30	-0,74	20,9	3,0	-0,0008	-0,5	-0,0008	0,50	0,03	-0,5	7,0	0,0	0,0006	0,3	-0,0006	0,84	0,22	-0,3	34,0	3,3
111	0,0004	0,3	-0,0006	0,75	0,35	-0,45	18,3	3,4	-0,0007	-0,3	-0,0001	0,43	-0,55	-0,1	6,7	-0,5	0,0013	0,6	-0,0001	0,81	0,26	0,0	20,0	2,8
112	0,0005	0,6	-0,0003	0,83	0,25	-0,40	21,1	3,5	0,0002	0,2	-0,0005	0,50	0,77	-0,6	14,0	1,6	0,0004	0,2	-0,0005	0,89	0,16	-0,3	25,0	2,6
113	0,0004	0,3	-0,0006	0,76	0,33	-0,43	18,0	3,1	-0,0006	-0,3	0,0001	0,43	-0,76	0,0	6,8	-0,8	0,0012	0,6	0,0000	0,82	0,24	0,0	15,0	2,4
114	0,0019	1,3	0,0014	0,88	0,16	0,98	33,6	2,1	0,0034	1,9	0,0022	0,51	1,28	1,1	9,0	1,4	0,0002	0,0	-0,0002	0,95	0,07	-0,1	31,0	0,8
115	0,0006	0,7	-0,0003	0,80	0,30	-0,48	16,1	3,2	0,0002	0,2	-0,0005	0,49	0,73	-0,6	14,0	1,5	0,0006	0,4	-0,0005	0,86	0,22	-0,3	16,0	2,1
116	-0,0006	-1,0	-0,0011	0,91	0,14	-1,79	29,2	2,5	-0,0001	-0,2	-0,0003	0,64	0,24	-0,4	16,0	0,5	-0,0015	-1,6	-0,0019	0,96	0,07	-1,5	36,0	1,6
117	-0,0007	-1,3	-0,0009	0,92	0,07	-1,70	39,6	1,7	-0,0008	1,4	-0,0006	0,83	-0,20	-0,6	17,0	-0,4	-0,0006	-0,7	-0,0009	0,94	0,04	-0,7	39,0	1,1
118	-0,0003	-0,5	-0,0011	0,86	0,24	-1,90	22,8	2,9	-0,0007	-1,0	-0,0007	0,62	0,08	-0,7	18,0	0,2	-0,0003	-0,3	-0,0012	0,90	0,18	-1,0	22,0	1,9
119	-0,0012	-2,4	-0,0013	0,97	0,03	-2,81	46,9	0,6	-0,0006	-0,9	-0,0002	0,74	-0,40	-0,2	17,0	-0,8	-0,0021	-2,9	-0,0020	1,01	-0,03	-2,1	58,0	-0,8
120	-0,0011	-2,1	-0,0012	0,95	0,03	-2,52	48,2	0,5	-0,0005	-0,9	-0,0002	0,73	-0,35	-0,2	17,0	-0,7	-0,0019	-2,5	-0,0018	0,99	-0,03	-2,6	59,0	-0,7
121	-0,0002	-0,3	-0,0006	0,91	0,12	-0,84	38,9	2,8	0,0013	1,6	0,0012	0,54	0,11	1,1	14,0	0,2	-0,0022	-2,2	-0,0024	0,97	0,03	-2,3	53,0	0,9
122	0,0008	0,7	0,0004	0,88	0,13	0,34	25,4	2,3	0,0043	2,9	0,0051	0,33	-0,85	3,1	6,7	-1,1	-0,0031	-2,0	-0,0032	0,98	0,01	-2,0	58,0	0,2
123	0,0011	0,9	0,0008	0,88	0,13	0,64	25,4	2,2	0,0045	3,0	0,0054	0,33	-0,91	3,2	6,8	-1,2	-0,0027	-1,7	-0,0027	0,99	0,00	-1,6	62,0	0,0
124	-0,0012	-2,2	-0,0013	0,95	0,06	-2,69	36,5	1,0	-0,0005	-0,9	-0,0002	0,73	-0,32	-0,2	18,0	-0,7	-0,0020	-2,6	-0,0021	0,99	0,00	-2,8	43,0	0,1
125	-0,0012	-2,2	-0,0013	0,95	0,06	-2,76	36,5	1,0	-0,0005	-1,0	-0,0002	0,73	-0,36	-0,2	18,0	-0,8	-0,0020	-2,6	-0,0021	0,99	0,00	-2,8	43,0	0,1
126	-0,0008	-1,7	-0,0011	0,94	0,08	-2,29	61,4	2,6	-0,0004	-0,7	-0,0002	0,73	-0,28	-0,2	18,0	-0,6	-0,0014	-2,2	-0,0016	0,98	0,03	-2,4	73,0	1,0

127	-0,0008	-1,7	-0,0011	0,93	0,10	-2,34	40,6	2,4	-0,0004	-0,8	-0,0002	0,76	-0,25	-0,2	19,0	-0,6	-0,0013	-2,0	-0,0017	0,97	0,06	-2,4	46,0	1,4
128	-0,0005	-0,8	-0,0011	0,88	0,20	-1,76	24,7	2,7	-0,0001	-0,2	-0,0003	0,64	0,23	-0,3	16,0	0,5	-0,0011	-1,2	-0,0018	0,92	0,14	-1,9	23,0	1,7
129	-0,0003	-0,4	-0,0009	0,86	0,20	-1,23	25,4	3,5	0,0011	1,3	0,0009	0,54	0,15	0,9	14,0	0,3	-0,0021	-2,0	-0,0027	0,92	0,13	-2,5	24,0	1,8
130	-0,0005	-1,2	-0,0009	0,92	0,12	-1,99	35,4	2,2	-0,0004	-0,7	0,0002	0,75	-0,65	0,2	17,0	-1,3	-0,0009	-1,4	-0,0013	0,96	0,08	-2,0	32,0	1,2
131	0,0002	0,2	-0,0009	0,76	0,35	-0,74	14,7	2,9	-0,0006	-0,4	-0,0007	0,49	0,08	-0,4	8,2	0,1	0,0007	0,4	-0,0007	0,81	0,27	-0,3	15,0	2,2
132	0,0002	0,1	-0,0008	0,78	0,31	-0,68	15,1	3,1	-0,0006	-0,4	-0,0007	0,50	0,12	-0,4	8,6	0,1	0,0007	0,3	-0,0005	0,82	0,24	-0,3	16,0	2,4
133	-0,0006	-1,5	-0,0009	0,94	0,09	-2,24	61,2	4,2	-0,0004	-0,7	-0,0001	0,75	-0,35	-0,1	17,0	-0,8	-0,0010	-2,0	-0,0013	0,98	0,04	-2,4	83,0	2,4
134	0,0005	0,7	0,0002	0,89	0,10	0,28	28,9	1,6	0,0009	1,1	0,0012	0,56	-0,27	1,1	14,0	-0,5	-0,0003	-0,2	-0,0004	0,94	0,02	40,0	48,0	0,3
135	-0,0008	-1,4	-0,0010	0,93	0,07	-1,74	35,8	1,6	-0,0009	-1,5	-0,0004	0,85	-0,44	-0,4	21,0	-0,7	-0,0007	-0,7	-0,0010	0,94	0,05	-1,0	34,0	1,1
136	-0,0003	-0,4	-0,0007	0,90	0,12	-0,91	35,9	2,7	0,0012	1,4	0,0011	0,54	0,11	1,0	14,0	0,2	-0,0022	-2,2	-0,0024	0,97	0,03	-2,3	47,0	0,9
137	0,0011	1,4	0,0002	0,79	0,29	0,32	16,1	3,3	0,0009	1,0	0,0010	0,48	-0,08	1,0	11,0	-0,2	0,0011	0,7	0,0000	0,85	0,21	0,0	17,0	2,4
138	-0,0011	-1,7	-0,0014	0,92	0,10	-2,33	39,4	2,4	-0,0009	-1,4	-0,0010	0,66	0,08	-1,0	18,0	0,2	-0,0016	-1,7	-0,0018	0,97	0,04	-2,0	59,0	1,1
139	0,0001	0,1	-0,0003	0,88	0,15	-0,26	23,4	2,1	0,0001	0,1	-0,0001	0,46	0,21	0,0	10,0	0,3	0,0007	0,2	0,0005	0,95	0,02	0,1	32,0	0,2
140	-0,0013	-2,6	-0,0015	0,96	0,08	-3,22	58,6	2,6	-0,0008	-1,4	-0,0004	0,75	-0,42	-0,4	17,0	-0,9	-0,0019	-3,0	-0,0021	1,00	0,03	-3,1	87,0	1,1
141	-0,0012	-2,5	-0,0014	0,97	0,06	-2,99	56,0	1,8	-0,0008	-1,4	-0,0004	0,75	-0,40	-0,4	17,0	-0,9	-0,0019	-2,7	-0,0020	1,01	0,01	-2,9	81,0	0,3
142	-0,0002	-0,6	-0,0002	0,99	-0,02	-0,50	63,4	-0,4	0,0000	0,0	0,0002	0,85	-0,24	0,2	21,0	-0,5	-0,0005	-0,9	-0,0003	1,01	-0,05	-0,3	67,0	-1,5
143	0,0003	0,5	-0,0001	0,90	0,15	-0,17	33,5	3,2	0,0017	2,1	0,0016	0,53	0,10	1,8	12,0	0,2	-0,0014	-1,6	-0,0018	0,97	0,06	-1,9	77,0	2,2
144	0,0013	1,5	0,0002	0,77	0,34	0,32	12,9	2,8	0,0008	1,0	0,0010	0,46	-0,17	1,0	11,0	-0,4	0,0014	0,9	0,0001	0,83	0,26	0,1	13,0	2,0
145	0,0004	0,5	-0,0001	0,88	0,16	-0,17	26,1	2,9	0,0001	0,1	0,0002	0,54	-0,10	0,2	15,0	-0,2	0,0002	0,1	-0,0002	0,94	0,07	-0,1	35,0	1,7
146	0,0013	1,5	0,0003	0,77	0,35	0,36	13,0	3,0	0,0008	1,0	0,0010	0,47	-0,15	1,0	11,0	-0,3	0,0016	0,9	0,0002	0,82	0,27	0,1	13,0	2,1
147	0,0001	0,2	-0,0003	0,87	0,15	-0,53	26,9	2,4	0,0007	1,1	0,0006	0,59	0,10	0,6	18,0	0,2	-0,0007	-0,9	-0,0012	0,92	0,08	-0,9	27,0	1,1
148	0,0005	0,7	-0,0001	0,87	0,19	-0,12	24,2	3,0	0,0017	2,0	0,0016	0,54	0,05	1,7	12,0	0,1	-0,0011	-1,1	-0,0017	0,93	0,12	-1,4	26,0	1,6
149	0,0006	1,3	0,0002	0,91	0,14	0,36	23,3	1,8	0,0003	0,4	0,0003	0,80	-0,04	0,2	19,0	-0,1	0,0008	1,1	0,0002	0,93	0,11	0,2	20,0	1,2
150	-0,0001	-0,3	-0,0004	0,95	0,09	-0,89	32,8	1,6	-0,0001	-0,2	0,0001	0,85	-0,19	0,1	19,0	-0,4	-0,0002	-0,4	-0,0006	0,97	0,06	-0,5	29,0	0,9
151	0,0008	1,0	0,0001	0,82	0,24	0,13	20,0	3,3	0,0000	0,0	-0,0005	0,24	0,42	-0,3	4,5	0,6	0,0011	0,9	0,0006	0,92	0,08	0,4	37,0	2,1
152	0,0001	0,2	-0,0004	0,86	0,19	-0,72	20,3	2,3	0,0007	1,2	0,0006	0,60	0,12	0,6	15,0	0,3	-0,0007	-0,7	-0,0014	0,91	0,12	-0,9	20,0	1,4
153	-0,0011	-1,4	-0,0015	0,90	0,15	-2,13	42,6	2,6	-0,0026	-2,9	-0,0027	0,76	0,08	-2,7	26,0	0,2	0,0003	0,2	-0,0003	0,92	0,11	-0,2	41,0	1,9
154	0,0004	0,6	-0,0002	0,84	0,21	-0,26	23,8	3,3	0,0005	0,6	0,0009	0,46	-0,37	0,8	10,0	-0,7	-0,0001	-0,1	-0,0007	0,91	0,11	-0,5	31,0	1,9
155	0,0005	0,3	0,0003	0,93	0,07	0,17	21,7	1,0	0,0013	0,5	0,0037	0,70	-2,50	0,6	4,5	-1,5	-0,0005	-0,2	-0,0007	0,97	0,02	-0,1	25,0	0,2
156	-0,0002	-0,5	-0,0003	0,97	0,04	-0,78	52,7	1,1	-0,0001	-0,2	0,0000	0,84	-0,10	0,0	19,0	-0,2	-0,0004	-0,6	-0,0005	0,99	0,01	-0,5	61,0	0,2
157	0,0019	1,4	0,0015	0,90	0,13	1,08	27,0	1,9	0,0037	2,2	0,0051	0,48	-1,44	2,7	8,8	-1,7	-0,0004	-0,2	-0,0006	0,98	0,03	-0,3	33,0	0,6
158	-0,0004	-0,5	-0,0010	0,86	0,22	-1,41	24,2	3,1	-0,0011	-1,3	-0,0009	0,58	-0,26	-0,7	14,0	-0,5	0,0000	-0,1	-0,0008	0,91	0,14	-0,6	35,0	2,1
159	-0,0005	-0,9	-0,0010	0,89	0,15	-1,56	31,4	2,7	-0,0003	-0,4	0,0002	0,58	-0,57	0,2	17,0	-1,1	-0,0011	-1,3	-0,0015	0,95	0,07	-1,2	32,0	1,2
160	0,0019	1,4	0,0015	0,90	0,13	1,12	29,0	1,7	0,0027	1,7	0,0042	0,52	-1,58	2,4	8,0	-1,9	0,0005	0,2	0,0003	0,97	0,04	0,1	37,0	0,5
161	-0,0002	-0,2	-0,0010	0,83	0,26	-1,18	21,0	3,5	-0,0009	-1,0	-0,0008	0,52	-0,18	-0,6	13,0	-0,3	0,0002	0,1	-0,0007	0,89	0,18	-0,4	24,0	2,5
162	0,0004	0,7	0,0000	0,91	0,12	0,09	48,8	3,9	0,0003	0,5	0,0003	0,66	0,05	0,3	18,0	0,1	0,0002	0,1	-0,0001	0,95	0,05	-0,1	71,0	2,5
163	-0,0003	-0,6	-0,0008	0,90	0,17	-1,57	33,3	2,9	-0,0003	-0,5	-0,0003	0,65	-0,01	-0,3	19,0	0,0	-0,0006	-0,9	-0,0012	0,95	0,11	-1,2	34,0	1,7
164	-0,0005	-0,8	-0,0008	0,94	0,09	-1,34	38,1	1,9	-0,0012	-1,4	-0,0011	0,68	-0,11	-1,0	19,0	-0,2	-0,0001	-0,2	-0,0003	0,98	0,02	-0,3	49,0	0,6
165	-0,0004	-0,7	-0,0008	0,93	0,12	-1,33	43,5	2,9	-0,0011	-1,3	-0,0009	0,67	-0,27	-0,8	17,0	-0,5	0,0000	-0,1	-0,0003	0,97	0,05	-0,3	70,0	1,4
166	0,0003	0,4	-0,0004	0,85	0,22	-0,52	22,8	2,9	-0,0007	-0,8	-0,0004	0,61	-0,31	-0,3	17,0	-0,6	0,0009	0,7	0,0001	0,90	0,15	0,1	24,0	1,9
167	-0,0002	-0,6	-0,0005	0,94	0,09	-1,50	33,9	1,6	-0,0001	-0,3	0,0006	0,84	-0,72	0,5	19,0	-1,0	-0,0003	-0,7	-0,0007	0,96	0,07	-0,7	30,0	1,0
168	-0,0002	-0,3	-0,0008	0,86	0,21	-1,14	26,6	3,0	-0,0015	-1,7	-0,0013	0,61	-0,22	-1,1	17,8	-0,4	0,0008	0,6	0,0000	0,90	0,14	0,0	28,0	2,0
169	0,0016	1,5	0,0010	0,89	0,18	1,01	23,8	2,7	0,0017	1,4	0,0024	0,52	-0,70	1,9	9,0	-1,0	0,0010	0,6	0,0005	0,96	0,09	0,3	33,0	1,7
170	0,0017	1,7	0,0009	0,85	0,28	0,87	17,2	2,9	0,0017	1,4	0,0023	0,51	-0,59	1,7	9,5	-0,9	0,0013	0,8	0,0003	0,91	0,19	0,2	18,0	1,9
171	-0,0003	-0,4	-0,0008	0,88	0,17	-1,01	35,0	2,6	-0,0015	-1,7	-0,0016	0,61	0,12	-1,5	17,0	0,2	0,0006	0,4	0,0001	0,93	0,09	0,1	39,0	1,6

172	-0,0003	-1,5	-0,0004	0,98	0,03	-1,99	88,7	1,8	-0,0001	-0,3	0,0003	0,85	-0,41	0,3	20,0	-0,9	-0,0006	-2,9	-0,0006	1,00	0,00	-2,2	147,0	0,1
173	0,0002	0,3	-0,0003	0,87	0,19	-0,50	27,2	3,0	-0,0006	-0,8	-0,0007	0,59	0,04	-0,7	17,0	0,1	0,0008	0,6	0,0001	0,92	0,12	0,1	41,0	2,0
174	0,0003	0,5	-0,0002	0,87	0,19	-0,35	27,4	3,2	-0,0001	-0,1	-0,0003	0,59	0,14	-0,3	17,0	0,3	0,0005	0,4	-0,0001	0,92	0,11	-0,1	34,0	2,0
175	-0,0008	-1,3	-0,0012	0,91	0,13	-2,11	33,3	2,7	-0,0009	-1,5	-0,0011	0,65	0,22	-1,2	18,0	0,5	-0,0009	-1,1	-0,0013	0,96	0,07	-1,1	43,0	1,7
176	-0,0004	-1,2	-0,0006	0,97	0,04	-1,45	68,7	1,4	-0,0007	-1,1	0,0002	0,78	-0,91	0,1	17,0	-1,0	-0,0004	-0,8	-0,0003	1,01	-0,02	-0,5	134,0	-1,2
177	0,0001	0,2	-0,0003	0,90	0,13	-0,59	40,6	3,3	0,0009	1,5	0,0014	0,59	-0,45	2,1	19,0	-0,8	-0,0011	-1,6	-0,0014	0,96	0,05	-1,6	79,0	2,3
178	0,0000	0,0	-0,0001	0,97	0,03	-0,20	49,1	0,6	-0,0004	-0,9	0,0001	0,86	-0,60	0,2	22,0	-0,9	0,0004	0,5	0,0003	0,99	0,00	0,3	53,0	-0,1
179	0,0016	2,1	0,0014	0,91	0,07	1,91	35,1	1,6	0,0021	2,2	0,0022	0,55	-0,15	2,4	13,0	-0,3	0,0008	0,6	0,0008	0,98	-0,02	0,6	58,0	-1,0
180	-0,0004	-0,7	-0,0008	0,90	0,14	-1,37	40,5	3,3	-0,0005	-0,7	-0,0006	0,62	0,11	-0,6	17,0	0,2	-0,0007	-0,7	-0,0010	0,95	0,06	-1,0	61,0	1,9
181	0,0000	-0,1	-0,0001	0,98	0,03	-0,44	71,1	1,0	-0,0004	-0,8	0,0002	0,86	-0,61	0,2	22,0	-1,0	0,0003	0,4	0,0002	1,00	0,00	0,3	89,0	-0,1
182	0,0006	1,0	0,0002	0,90	0,14	0,35	41,1	3,3	-0,0006	-0,8	-0,0007	0,66	0,08	-0,7	18,0	0,2	0,0015	1,5	0,0012	0,94	0,07	1,0	53,0	2,1
183	0,0016	2,0	0,0013	0,92	0,09	1,74	30,1	1,5	0,0021	2,2	0,0022	0,55	-0,14	2,4	13,0	-0,3	0,0007	0,5	0,0007	0,98	-0,01	0,5	48,0	-0,1
184	0,0006	1,0	0,0001	0,90	0,17	0,21	32,1	2,8	-0,0006	-0,8	-0,0006	0,66	0,09	-0,7	18,0	0,2	0,0015	1,4	0,0010	0,94	0,10	0,8	38,0	2,0
185	0,0000	-0,1	-0,0001	0,97	0,04	-0,37	54,1	1,0	0,0002	0,4	0,0009	0,82	-0,67	0,9	23,0	-1,0	-0,0004	-0,8	-0,0005	1,00	0,00	-0,5	66,0	0,0
186	-0,0001	-0,1	-0,0007	0,86	0,20	-0,89	26,5	3,4	-0,0009	-1,0	-0,0008	0,56	-0,09	-0,7	15,0	-0,2	0,0004	0,2	-0,0002	0,91	0,11	-0,2	41,0	2,1
187	-0,0001	-0,2	-0,0005	0,92	0,12	-0,63	34,6	2,3	0,0010	1,3	0,0016	0,59	-0,60	1,5	16,0	-1,2	-0,0015	-1,1	-0,0017	0,98	0,04	-1,3	53,0	0,8
188	0,0000	0,0	-0,0001	0,97	0,03	-0,24	41,1	0,7	0,0002	0,5	0,0008	0,83	-0,63	0,9	23,0	-1,0	-0,0003	-0,5	-0,0004	1,00	0,00	-0,4	45,0	-0,1
189	0,0006	1,2	0,0006	0,99	0,01	1,23	42,6	0,1	0,0013	1,8	0,0013	0,78	-0,06	1,2	18,0	-0,1	-0,0002	-0,3	0,0000	1,02	-0,04	0,0	52,0	-1,0
190	-0,0005	-0,9	-0,0008	0,94	0,09	-1,40	39,2	1,9	-0,0002	-0,3	-0,0004	0,67	0,19	-0,4	18,0	0,4	-0,0011	-1,3	-0,0013	0,99	0,02	-1,1	55,0	0,5
191	-0,0004	-1,1	-0,0006	0,95	0,07	-1,55	40,7	1,4	-0,0005	-1,1	-0,0002	0,84	-0,31	-0,2	26,0	-0,7	-0,0003	-0,7	-0,0005	0,97	0,04	-0,5	36,0	0,7
192	0,0002	0,4	-0,0004	0,87	0,19	-0,67	30,0	3,5	0,0009	1,5	0,0013	0,59	-0,37	1,9	18,0	-0,9	-0,0009	-1,1	-0,0015	0,93	0,12	-1,4	30,0	1,9
193	0,0001	0,3	0,0000	0,96	0,04	0,04	37,0	0,8	0,0009	1,5	0,0012	0,73	-0,29	1,8	20,0	-0,7	-0,0008	-1,2	-0,0008	1,01	-0,02	-0,7	47,0	-0,4
194	-0,0004	-1,3	-0,0006	0,97	0,04	-1,72	46,4	1,0	-0,0005	-1,1	-0,0003	0,84	-0,20	-0,3	27,0	-0,5	-0,0004	-0,9	-0,0005	0,99	0,01	-0,5	50,0	0,2
195	0,0000	0,1	-0,0006	0,89	0,21	-1,09	24,4	2,6	-0,0003	-0,5	-0,0004	0,69	0,11	-0,4	21,0	0,2	0,0001	0,0	-0,0007	0,92	0,15	-0,5	23,0	1,7
196	0,0000	0,0	-0,0008	0,84	0,25	-1,03	20,9	3,3	-0,0010	-1,2	-0,0014	0,54	0,44	-1,4	16,0	1,0	0,0007	0,5	-0,0002	0,89	0,17	-0,1	21,0	2,2
197	0,0008	1,6	0,0006	0,96	0,06	1,16	34,3	1,0	0,0013	1,8	0,0015	0,79	-0,22	1,3	17,0	-0,4	0,0001	0,1	0,0000	0,99	0,02	0,0	31,0	0,2
198	-0,0004	-1,0	-0,0006	0,96	0,09	-1,60	31,8	1,4	-0,0004	-0,9	-0,0003	0,87	-0,17	-0,3	20,0	-0,3	-0,0004	-0,7	-0,0008	0,98	0,06	-0,7	28,0	0,8
199	-0,0001	-0,1	-0,0005	0,90	0,15	-0,69	30,3	2,7	0,0010	1,2	0,0016	0,59	-0,67	1,5	15,0	-1,3	-0,0014	-1,2	-0,0018	0,96	0,08	-1,2	33,0	1,3
200	0,0011	1,2	0,0004	0,86	0,23	0,46	20,9	2,9	0,0010	0,7	0,0014	0,56	-0,45	0,9	8,8	-0,7	0,0010	0,7	0,0002	0,91	0,16	0,1	23,0	2,0
201	0,0002	0,4	0,0002	0,96	0,01	0,42	52,3	0,2	0,0009	1,5	0,0012	0,73	-0,28	1,9	20,0	-0,6	-0,0007	-1,2	-0,0005	1,00	-0,05	-0,6	74,0	-1,6
202	-0,0081	-0,3	-0,0089	0,77	0,28	-0,34	1,4	0,3	-0,0186	-0,4	-0,0124	1,50	-6,37	-0,1	0,7	-0,3	0,0037	0,1	0,0009	0,61	0,48	0,0	1,1	0,6
203	0,0001	0,2	-0,0002	0,92	0,10	-0,36	44,2	3,0	0,0007	0,9	0,0011	0,60	-0,41	1,0	16,0	-0,6	-0,0008	-1,2	-0,0009	0,97	0,02	-0,9	69,0	0,9
204	0,0001	0,1	-0,0003	0,91	0,12	-0,52	39,8	3,4	0,0007	0,9	0,0010	0,59	-0,33	1,0	15,0	-0,5	-0,0009	-1,3	-0,0011	0,97	0,04	-1,0	63,0	1,9

TABLE 43 AUSTRIAN MUTUAL FUNDS PERFORMANCE MEASURES RANKINGS

AUSTRIA OVERALL PERIOD						AUSTRIA SUBPERIOD ONE						AUSTRIA SUBPERIOD TWO					
SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ
58	7	94	94	58	94	26	13	58	122	26	152	1	7	53	53	1	183
59	14	58	56	59	58	14	18	59	26	14	154	53	14	56	56	53	53
168	13	59	37	168	59	13	6	122	25	13	162	70	13	54	183	70	110
169	56	56	63	169	43	25	16	94	9	25	153	168	53	183	54	168	56
196	196	43	42	196	2	7	26	140	33	7	158	56	56	70	110	56	70
56	197	55	43	56	61	16	167	141	72	16	99	200	54	55	55	200	54
1	55	37	58	1	63	19	27	99	23	19	151	201	55	28	70	201	94
197	58	61	61	197	37	27	19	72	22	27	140	169	112	110	94	169	55
94	59	63	5	94	56	6	166	100	87	6	141	117	114	71	121	117	111
202	202	31	2	202	99	23	9	79	19	23	6	71	115	112	28	71	121
55	53	99	144	55	144	22	162	2	2	22	150	54	28	164	71	54	43
200	94	196	31	200	5	9	25	167	27	9	14	191	196	114	111	191	71
201	61	42	3	201	55	167	158	202	45	167	72	116	197	115	63	116	130
61	54	197	59	61	52	18	23	151	86	18	159	193	117	121	31	193	63
43	43	144	99	43	3	122	22	153	99	122	122	55	164	170	130	55	28
151	112	2	55	151	31	166	159	162	6	166	100	196	70	75	5	196	61
150	28	108	108	150	44	162	8	154	8	162	7	183	116	94	43	183	24
99	132	5	89	99	108	99	99	152	37	99	202	197	163	31	3	197	50
130	42	32	122	130	50	72	140	150	167	72	167	112	191	111	2	112	40
29	114	3	72	29	42	8	141	166	13	8	69	114	71	163	61	114	120
44	115	50	87	44	89	158	122	61	100	158	204	115	193	171	164	115	2
31	31	44	44	31	141	100	142	69	94	100	203	174	75	40	42	174	31
50	29	202	52	50	24	94	143	37	60	94	2	28	170	74	170	28	21
100	117	122	32	100	140	140	100	158	16	140	13	173	40	130	75	173	164
63	50	100	95	63	95	141	72	108	4	141	9	40	183	42	24	40	112
117	37	89	50	117	100	159	94	123	162	159	166	172	74	43	40	172	5
30	107	105	73	30	105	2	153	87	166	2	26	29	171	63	112	29	96
191	128	95	100	191	122	87	79	196	14	87	142	130	41	117	21	130	105
141	105	52	101	141	151	79	2	197	18	79	143	164	174	61	32	164	3
140	116	72	107	140	79	142	152	86	20	142	19	30	82	47	37	30	52
70	44	132	128	70	72	143	154	43	7	143	18	41	173	32	35	41	44
62	32	128	105	62	32	86	87	101	128	86	58	15	172	41	36	15	37
37	30	107	132	37	73	58	86	159	158	58	23	80	29	105	50	80	75
42	191	73	86	42	101	153	4	204	142	153	59	202	202	50	171	202	114
32	62	151	196	32	150	59	69	203	143	59	22	17	47	132	144	17	144
116	15	87	21	116	157	152	58	63	144	152	8	163	30	116	120	163	115
122	183	141	145	122	96	154	59	95	123	154	190	82	15	37	114	82	41
132	188	145	88	132	21	37	65	102	108	37	87	110	132	80	66	110	42
193	106	140	127	193	131	123	123	60	3	123	127	81	80	58	163	81	66
105	170	183	197	105	49	69	202	144	5	69	27	170	17	35	74	170	170
49	108	101	91	49	88	4	151	89	89	4	107	171	81	36	44	171	49

15	129	103	34	15	113	202	37	157	159	202	184	75	42	120	115	75	163
108	63	49	157	108	91	45	45	52	91	45	86	58	107	5	105	58	32
24	164	88	102	24	51	33	203	142	79	33	65	111	168	144	58	111	103
128	17	21	131	128	87	65	204	143	107	65	16	74	105	59	96	74	62
72	103	150	96	72	38	101	150	128	77	101	128	59	106	21	52	59	58
183	193	157	38	183	145	20	101	65	129	20	25	47	61	191	41	47	74
71	49	104	69	71	167	60	20	161	63	60	157	61	31	3	34	61	132
17	171	62	153	17	161	102	190	44	184	102	156	121	58	196	59	121	104
53	104	127	79	53	4	151	33	113	101	151	155	132	50	103	80	132	34
107	75	96	135	107	132	150	102	156	186	150	186	43	188	44	132	43	171
95	144	153	76	95	76	190	60	155	69	190	123	31	110	81	10	31	59
144	168	76	35	144	62	95	157	190	127	95	37	50	169	15	47	50	89
153	40	35	36	153	103	144	95	73	65	144	106	107	128	96	200	107	108
103	70	36	140	103	196	203	3	91	38	203	125	188	59	104	117	188	80
52	186	79	141	52	34	204	5	135	102	204	182	105	187	197	201	105	76
104	187	86	186	104	153	3	38	3	145	3	94	187	32	193	73	187	84
40	99	91	103	40	104	5	43	5	202	5	79	128	103	17	89	128	51
188	163	34	51	188	135	108	144	4	185	108	20	94	43	62	76	94	119
152	74	69	156	152	197	157	161	127	88	157	129	176	104	29	62	176	10
154	185	102	49	154	156	43	89	109	153	43	101	32	129	49	38	32	64
129	169	135	155	129	102	63	63	88	157	63	185	62	62	52	49	62	95
179	41	131	62	179	155	89	128	129	131	89	60	42	186	107	103	42	47
174	82	51	152	174	202	128	156	31	42	128	144	177	111	34	108	177	85
54	71	186	104	54	60	38	155	51	152	38	102	106	185	108	12	106	35
41	127	152	154	41	69	156	108	6	154	156	89	44	49	89	15	44	36
173	174	154	202	173	10	155	127	145	52	155	3	175	37	174	11	175	97
96	95	156	167	96	86	196	196	42	156	196	5	93	44	76	81	93	38
106	173	109	113	106	166	197	197	13	95	197	42	103	94	73	104	103	73
12	35	155	109	12	183	127	42	50	155	127	73	129	35	145	116	129	88
11	36	129	60	11	128	61	61	179	106	61	126	49	36	95	95	49	146
186	172	113	151	186	107	161	184	90	90	161	33	35	130	30	145	35	131
35	96	24	106	35	152	52	131	184	190	52	149	36	127	173	78	36	67
36	100	106	183	36	154	42	52	9	140	42	45	104	121	12	39	104	81
127	109	185	129	127	109	184	113	107	141	184	38	120	189	93	64	120	113
172	145	130	185	172	127	131	179	77	39	131	131	186	144	2	17	186	93
69	89	161	184	69	146	91	44	131	73	91	61	92	96	11	84	92	145
190	52	38	65	190	8	113	91	24	135	113	145	185	125	84	191	185	91
161	125	188	77	161	39	44	73	38	57	44	189	96	126	172	88	96	117
187	21	60	39	187	162	73	129	160	198	73	4	63	200	200	51	63	137
109	151	184	24	109	78	129	145	39	113	129	88	12	63	82	4	12	39
112	47	123	4	112	130	145	186	26	109	145	63	11	93	88	113	11	4
51	80	12	123	51	6	186	107	186	182	186	113	98	201	66	91	98	12
80	72	190	150	80	133	135	88	32	43	135	91	99	108	64	107	99	135
185	73	11	125	185	65	88	135	146	125	88	198	144	21	201	196	144	11
89	97	146	166	89	9	107	10	180	126	107	57	37	92	128	135	37	161

123	126	77	10	123	7	179	24	57	34	179	90	194	145	67	161	194	78
145	150	167	78	145	119	10	160	133	51	10	108	147	97	97	93	147	15
28	130	125	190	28	184	51	51	49	61	51	43	127	120	106	8	127	138
135	81	133	67	135	97	160	198	19	67	160	39	100	184	119	48	100	109
82	189	97	162	82	179	24	31	62	148	24	56	192	182	24	137	192	124
178	135	84	161	178	84	198	125	14	78	198	95	21	109	51	131	21	116
114	122	53	84	114	160	31	109	125	196	31	52	85	95	127	29	85	133
79	184	78	133	79	186	109	185	25	197	109	44	151	84	186	67	151	139
76	88	10	90	76	35	185	39	10	96	185	55	97	67	135	197	97	157
101	51	39	57	101	36	125	77	27	31	125	50	108	119	131	99	108	68
21	76	119	97	21	158	39	90	33	21	39	196	179	199	188	97	179	8
73	93	67	146	73	57	77	50	23	58	77	197	150	76	91	119	150	134
115	12	65	83	115	188	90	182	185	188	90	135	189	89	185	193	189	17
93	11	64	119	93	67	50	180	22	44	50	49	145	99	109	101	145	200
81	190	83	126	81	83	182	76	7	132	182	161	125	85	92	146	125	92
157	101	134	158	157	134	180	78	76	76	180	48	126	64	157	1	126	107
110	77	90	64	110	137	76	148	198	59	76	31	190	147	202	157	190	201
102	200	126	9	102	129	78	57	45	136	78	77	195	98	146	9	195	83
97	182	162	6	97	13	148	133	12	189	148	179	72	73	99	7	72	188
125	84	57	8	125	123	57	48	11	133	57	51	178	68	187	138	178	57
170	157	15	188	170	142	133	106	132	149	133	32	76	190	68	128	76	156
160	34	187	134	160	106	48	34	78	68	48	132	52	52	101	87	52	101
156	110	110	12	156	185	106	32	148	83	106	76	95	88	129	139	95	155
88	119	166	7	88	64	178	49	106	10	178	10	109	176	85	127	109	48
5	92	180	11	5	26	34	105	8	97	34	109	84	100	113	168	84	46
155	201	179	159	155	48	32	178	34	134	32	62	199	194	156	174	199	60
48	102	4	130	48	19	105	146	105	32	105	133	184	177	78	167	184	160
92	133	28	33	92	33	49	83	134	105	49	105	119	175	124	6	119	187
133	67	160	45	133	25	146	62	188	50	146	199	122	135	155	46	122	191
146	64	68	142	146	90	83	181	181	204	83	34	64	192	133	83	64	127
3	156	17	68	3	77	181	132	182	203	181	136	182	34	125	109	182	174
2	155	93	182	2	148	62	103	96	180	62	160	24	12	39	30	24	102
113	134	158	19	113	159	103	96	83	161	103	78	135	11	38	156	135	151
10	87	182	180	10	45	126	104	178	35	126	103	51	77	134	102	51	99
171	69	170	148	171	12	118	118	126	36	118	146	89	51	10	173	89	148
87	131	148	25	87	16	132	188	21	187	132	104	123	131	77	155	123	193
34	91	136	16	34	11	104	21	48	84	104	148	34	133	87	160	34	128
184	68	124	27	184	27	134	134	18	103	134	46	153	151	102	72	153	7
147	85	137	26	147	190	96	126	103	104	96	83	67	136	126	86	67	9
176	153	54	23	176	125	56	56	16	119	56	24	133	134	83	57	133	196
85	147	48	136	85	14	21	149	104	49	21	137	134	150	151	92	134	106
204	152	159	160	204	110	188	97	118	179	188	138	152	72	136	18	152	33
180	111	181	22	180	180	149	55	56	146	149	139	154	157	184	33	154	90
203	154	171	110	203	138	55	189	97	64	55	180	88	101	100	124	88	179
126	86	29	13	126	23	137	12	55	181	137	134	131	156	86	79	131	173

134	194	189	143	134	22	189	11	35	62	189	178	69	155	57	186	69	136
194	123	200	48	194	139	97	137	36	56	97	188	73	102	161	106	73	87
91	136	92	14	91	68	138	119	189	12	138	21	77	124	72	151	77	150
119	192	138	124	119	143	139	35	136	151	139	67	68	149	137	65	68	184
131	5	201	18	131	18	119	36	137	11	119	35	157	91	150	16	157	172
86	3	139	137	86	178	136	136	187	46	136	36	156	87	168	172	156	6
164	146	142	187	164	187	35	67	20	160	35	68	155	69	90	60	155	197
177	180	112	66	177	124	36	138	149	55	36	84	165	122	69	133	165	79
84	199	70	179	84	126	12	139	119	124	12	119	136	153	176	68	136	77
111	121	178	181	111	93	11	187	138	150	11	96	161	86	98	85	161	82
175	124	66	189	175	136	67	84	139	118	67	97	5	180	153	45	5	185
192	181	85	46	192	66	84	64	67	137	84	181	48	152	177	122	48	45
77	98	111	138	77	85	187	68	84	178	187	118	3	154	122	69	3	1
189	141	121	139	189	181	168	124	124	138	168	187	101	181	60	153	101	86
64	140	8	149	64	182	64	46	64	139	64	66	91	123	138	185	91	178
182	176	45	93	182	118	169	165	68	24	169	124	146	146	180	134	146	16
181	113	9	15	181	46	124	168	46	48	124	64	87	5	189	100	87	180
75	1	149	53	75	15	68	1	1	199	68	15	180	3	175	77	180	195
163	57	6	20	163	20	46	194	168	66	46	165	102	1	139	90	102	65
98	83	117	170	98	92	1	85	165	93	1	17	10	83	152	25	10	69
195	90	118	118	195	111	200	169	93	165	200	11	181	57	154	19	181	125
74	177	33	17	74	189	165	93	194	92	165	12	86	90	190	169	86	25
78	175	75	121	78	17	201	192	169	15	201	85	160	113	46	166	160	19
118	120	40	204	118	200	130	29	15	85	130	93	124	195	148	27	124	126
121	149	114	203	121	198	93	147	192	194	93	194	149	179	182	82	149	18
162	60	143	178	162	53	194	92	92	17	194	92	113	178	48	148	113	29
137	179	46	28	137	149	85	200	85	192	85	192	137	60	147	23	137	153
67	39	30	198	67	201	195	15	17	195	195	195	118	141	160	13	118	100
83	178	7	111	83	121	147	17	147	147	147	130	141	140	181	150	141	141
60	79	19	85	60	28	92	130	29	183	92	29	140	39	169	22	140	140
167	78	115	92	167	170	192	201	200	130	192	147	138	78	79	152	138	129
158	148	71	171	158	165	29	30	130	170	29	183	78	148	65	154	78	72
138	161	26	200	138	203	15	199	199	171	15	170	139	66	179	162	139	118
139	195	16	201	139	204	17	195	201	200	17	171	83	118	123	14	83	181
47	65	25	29	47	70	30	28	195	201	30	200	57	165	141	142	57	27
57	118	116	54	57	195	199	98	30	98	199	30	204	46	140	188	204	165
165	160	27	70	165	171	98	112	98	29	98	201	203	161	4	129	203	30
39	2	74	165	39	40	176	114	66	110	176	110	66	65	195	202	66	23
124	38	23	40	124	54	191	117	183	28	191	98	60	160	149	125	60	22
136	46	22	75	136	194	177	176	170	30	177	28	148	79	194	179	148	98
68	165	168	195	68	112	175	191	176	1	175	176	39	137	118	158	39	152
148	137	191	168	148	120	183	53	28	111	183	111	90	38	178	159	90	154
159	138	41	112	159	147	117	116	171	121	117	75	79	138	192	126	79	26
90	10	164	147	90	71	193	115	117	176	193	121	2	139	165	136	2	176
65	139	13	120	65	29	116	170	191	168	116	53	162	198	199	184	162	13

166	198	198	30	166	75	40	54	116	169	40	1	158	10	1	176	158	177
199	66	18	71	199	1	41	183	112	75	41	74	159	204	8	26	159	202
120	204	204	41	120	41	174	171	177	177	174	177	65	203	45	141	65	167
149	203	203	117	149	192	66	193	175	175	66	175	46	2	33	140	46	122
38	24	14	74	38	114	82	40	114	117	82	54	198	48	167	20	198	175
142	48	147	199	142	117	80	82	40	191	80	112	38	24	162	123	38	14
46	162	80	169	46	74	173	177	110	116	173	164	167	162	9	180	167	142
198	158	165	1	198	168	172	175	193	40	172	114	166	159	16	187	166	147
143	159	194	194	143	115	70	75	115	74	70	168	142	158	166	118	142	166
66	142	169	114	66	80	81	174	53	120	81	47	143	142	7	177	143	20
4	143	193	80	4	30	71	41	75	112	71	120	45	143	158	195	45	189
45	167	163	116	45	199	110	74	41	41	110	40	4	45	159	98	4	194
33	166	120	192	33	116	170	173	82	193	170	115	33	33	142	175	33	168
13	45	47	98	13	164	28	172	174	80	28	163	13	167	6	190	13	182
6	4	192	191	6	98	112	80	80	114	112	169	8	166	19	165	8	190
9	33	195	164	9	169	171	70	74	82	171	41	19	4	23	143	19	192
8	26	81	115	8	81	111	164	54	81	111	117	9	26	198	178	9	123
7	23	199	81	7	191	114	71	173	174	114	116	27	16	25	181	27	162
19	22	20	193	19	163	53	81	81	115	53	80	23	23	22	182	23	143
27	16	98	47	27	47	121	163	111	173	121	81	22	22	27	147	22	169
14	19	174	176	14	193	115	47	172	70	115	191	25	19	18	189	25	149
25	20	82	163	25	176	54	110	121	172	54	70	7	20	26	149	7	158
23	25	1	174	23	174	75	66	70	71	75	174	26	27	143	198	26	159
22	27	173	177	22	82	74	111	71	47	74	82	16	25	20	194	16	198
26	8	176	82	26	177	120	121	164	53	120	71	14	8	13	203	14	199
18	9	172	175	18	175	47	120	47	164	47	173	18	6	14	204	18	203
16	6	177	173	16	173	164	14	163	54	164	193	20	18	204	192	20	204
20	18	175	172	20	172	163	7	120	163	163	172	6	9	203	199	6	186

TABLE 14 FRENCH MUTUAL FUNDS PERFORMANCE MEASURES RANKINGS

FRANCE OVERALL PERIOD						FRANCE SUBPERIOD ONE						FRANCE SUBPERIO TWO					
SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ
67	178	67	67	67	67	160	130	160	160	160	16	89	44	60	89	89	89
89	179	16	86	89	16	157	75	67	157	157	67	24	79	9	70	24	70
7	63	51	16	7	160	124	84	16	124	124	162	15	45	70	60	15	29
70	173	86	160	70	86	125	90	157	122	125	160	7	163	29	29	7	26
15	153	37	28	15	28	122	91	124	162	122	176	57	161	89	26	57	9
19	69	70	110	19	37	162	16	162	125	162	157	70	156	26	37	70	7
26	81	160	51	26	110	16	86	125	16	16	124	21	135	115	12	21	37
51	55	110	70	51	70	67	160	122	67	67	99	53	134	12	7	53	32
37	112	122	37	37	51	99	36	176	99	99	125	26	132	73	3	26	15
53	185	28	124	53	89	126	125	99	126	126	100	32	169	37	131	32	12
28	190	124	89	28	7	176	13	126	176	176	28	1	83	131	15	1	60
57	54	12	12	57	15	100	176	100	100	100	46	30	170	159	21	30	21
21	184	73	122	21	124	54	162	43	54	54	122	92	188	7	32	92	53
30	111	29	29	30	12	86	33	54	116	86	126	29	121	21	6	29	91
29	194	89	15	29	29	116	59	86	86	116	116	59	115	44	115	59	30
12	51	7	7	12	35	104	157	116	46	104	54	6	199	15	9	6	115
25	151	15	46	25	46	46	122	46	104	46	61	37	177	3	53	37	6
6	67	35	35	6	157	55	99	104	43	55	55	25	42	32	51	25	51
168	14	43	73	168	26	43	124	55	55	43	152	91	197	91	91	91	57
64	85	46	116	64	114	168	67	168	168	168	121	19	202	51	30	19	64
24	158	104	114	24	30	121	50	121	121	121	195	56	154	111	111	56	40
11	131	168	43	11	53	28	96	28	148	28	86	11	198	6	28	11	131
34	164	19	61	34	21	96	100	51	96	96	168	12	58	64	57	12	110
92	155	114	162	92	64	148	23	148	110	148	96	111	204	30	64	111	56
35	116	116	157	35	40	110	126	96	28	110	104	34	189	53	110	34	3
101	65	53	26	101	47	183	93	110	183	183	148	13	133	110	73	13	31
8	126	64	21	8	116	93	110	114	93	93	110	8	200	57	44	8	28
61	149	18	30	61	43	51	104	103	114	51	51	149	201	28	24	149	101
68	97	157	64	68	162	114	116	35	51	114	117	131	203	133	68	131	68
5	172	47	53	5	19	152	108	47	81	152	43	101	140	153	56	101	44
78	128	9	103	78	61	103	57	81	35	103	40	5	173	42	35	5	24

77	165	30	6	77	103	35	54	183	152	35	35	20	158	134	159	20	35
73	148	26	99	73	6	81	168	10	103	81	114	88	64	68	101	88	85
32	171	74	168	32	57	61	148	93	10	61	93	51	153	58	85	51	8
47	180	162	47	47	122	47	46	152	47	47	103	41	164	62	133	41	19
59	124	54	54	59	9	10	55	37	132	10	145	78	179	83	8	78	41
20	4	21	176	20	32	37	87	19	74	37	118	68	178	45	61	68	25
107	144	99	19	107	99	191	40	61	191	191	21	115	127	24	5	115	23
88	93	6	126	88	73	132	103	18	61	132	23	90	93	18	41	90	77
16	2	61	104	16	54	74	21	74	37	74	50	77	193	1	19	77	111
91	196	103	18	91	101	18	121	191	18	18	142	102	55	40	134	102	73
102	136	126	57	102	23	12	43	73	167	12	155	64	4	101	40	64	78
23	182	176	10	23	126	108	35	12	128	108	87	28	2	85	153	28	11
65	99	81	32	65	25	117	142	132	174	117	11	9	182	56	58	9	5
56	47	10	81	56	176	73	114	15	166	73	108	168	183	41	78	168	42
41	195	44	40	41	10	19	37	128	109	19	82	66	54	35	77	66	107
40	100	68	101	40	81	15	51	109	12	15	191	44	184	19	86	44	13
13	53	40	96	13	107	142	10	167	73	142	57	71	143	8	107	71	114
43	109	32	107	43	31	109	191	166	108	109	25	112	149	193	42	112	20
110	34	101	9	110	118	70	47	174	117	70	92	72	165	86	114	72	90
137	19	57	24	137	96	128	81	70	192	128	13	3	69	135	25	3	47
103	49	96	68	103	78	7	132	7	15	7	183	130	148	74	83	130	129
160	8	60	25	160	18	147	12	142	175	147	33	107	185	31	13	107	66
44	192	55	74	44	168	167	19	108	142	167	76	85	112	5	72	85	45
142	12	107	100	142	50	174	15	117	70	174	109	73	196	17	149	73	72
114	191	166	78	114	11	69	18	69	19	69	47	153	131	177	20	153	134
76	27	167	5	76	56	166	70	175	182	166	95	65	116	149	90	65	153
31	138	174	55	31	104	192	73	147	7	192	10	42	126	78	45	42	86
176	123	78	118	176	68	95	109	53	69	95	147	35	151	61	18	35	59
85	96	24	44	85	5	87	74	192	147	87	119	27	190	107	11	27	88
10	146	100	3	10	8	118	7	95	95	118	12	61	180	77	88	61	34
66	183	45	8	66	24	64	128	64	118	64	128	40	155	47	59	40	50
157	187	8	95	157	77	182	167	30	87	182	105	137	194	25	47	137	61
45	157	118	77	45	100	175	147	182	64	175	192	80	172	90	62	80	133
155	29	5	108	155	95	30	174	118	30	30	182	52	111	72	66	52	71
80	95	25	117	80	55	40	166	87	105	40	15	45	96	114	34	45	58

50	78	95	76	50	76	105	69	89	53	105	101	60	63	66	135	60	83
97	10	23	125	97	117	76	175	107	40	76	49	31	81	11	71	31	102
72	94	115	56	72	44	107	192	105	171	107	69	120	144	13	130	120	92
71	147	77	11	71	41	89	64	40	76	89	81	23	99	20	92	23	52
42	145	3	41	42	108	53	95	76	107	53	53	36	192	113	103	36	130
3	80	76	142	3	91	23	53	29	89	23	146	47	124	23	193	47	118
27	24	108	49	27	129	29	30	49	49	29	31	178	75	170	48	178	120
90	52	69	23	90	102	146	156	146	29	146	129	142	100	154	102	142	103
9	39	49	152	9	13	21	68	23	146	21	187	179	171	150	39	179	159
162	114	42	87	162	74	101	49	101	23	101	59	97	187	71	31	97	39
124	48	121	91	124	49	25	29	6	101	25	37	118	191	88	118	118	193
118	75	117	69	118	92	50	146	78	21	50	30	50	43	130	10	50	135
33	46	142	60	33	167	6	107	171	50	6	102	33	86	102	120	33	137
108	86	41	50	108	166	155	89	25	6	155	138	114	14	76	76	114	27
1	3	31	88	1	174	78	182	156	119	78	132	110	195	59	49	110	76
106	35	11	102	106	142	49	65	50	25	49	66	76	105	118	33	76	18
60	141	56	13	60	88	57	78	21	138	57	70	196	136	137	112	196	33
36	105	125	109	36	69	26	139	68	78	26	7	10	108	34	137	10	149
95	119	148	34	95	34	119	171	155	57	119	141	129	137	92	95	129	95
86	176	156	92	86	152	82	34	138	82	82	89	141	145	112	177	141	62
141	37	93	20	141	109	5	45	119	155	5	107	177	67	14	46	177	49
109	108	109	85	109	125	77	155	77	5	77	6	133	125	136	65	133	48
46	102	50	148	46	20	11	118	5	156	11	29	119	102	50	14	119	46
117	77	34	93	117	3	156	79	82	77	156	196	49	157	39	129	49	10
147	30	85	33	147	85	102	8	57	187	102	41	106	123	120	136	106	65
115	7	102	31	115	33	68	6	65	102	68	73	159	138	204	27	159	154
128	162	87	115	128	119	8	77	8	11	8	18	95	84	33	50	95	113
119	106	91	128	119	59	138	63	34	26	138	65	109	119	10	52	109	177
196	20	88	59	196	148	33	127	11	68	33	32	48	117	103	23	48	81
105	125	128	121	105	128	92	197	187	33	92	91	108	152	49	1	108	119
49	88	17	45	49	115	34	44	102	8	34	64	128	85	52	170	128	67
120	15	152	119	120	191	65	138	26	24	65	5	161	87	48	81	161	136
48	110	175	42	48	42	171	17	79	92	171	74	163	141	156	113	163	63
52	118	20	129	52	87	88	137	195	129	88	36	197	118	95	108	197	166
129	70	65	167	129	60	31	97	24	195	31	56	136	176	166	63	136	167

82	41	92	166	82	45	79	42	33	145	79	78	123	101	174	117	123	174
69	66	13	174	69	138	24	27	92	65	24	34	103	97	167	36	103	143
99	82	33	191	99	93	195	5	88	34	195	144	191	16	181	119	191	138
79	103	191	65	79	66	141	85	145	88	141	68	113	128	129	87	113	14
18	101	119	105	18	71	187	9	44	79	187	171	94	76	27	67	94	36
197	84	79	66	197	65	145	14	129	141	145	175	105	109	81	142	105	16
146	71	129	82	146	27	44	154	141	31	44	120	144	3	143	154	144	117
191	6	105	71	191	105	20	195	31	32	20	71	155	82	65	143	155	170
195	5	66	72	195	72	41	190	32	44	41	24	138	91	63	80	138	80
81	120	14	48	81	121	32	194	45	13	32	79	39	120	67	17	39	108
156	22	27	27	156	120	97	172	127	41	97	88	192	90	104	69	192	69
116	142	63	155	116	192	129	80	144	196	129	123	143	68	168	204	143	112
166	130	59	156	166	48	13	24	41	172	13	90	117	142	79	43	117	74
94	107	71	14	94	147	106	189	172	144	106	8	134	146	46	178	134	97
152	160	82	138	152	82	196	188	196	20	196	45	147	160	178	82	147	142
14	31	138	120	14	63	80	88	63	127	80	3	195	41	108	97	195	84
100	76	72	147	100	155	59	140	20	56	59	106	193	31	117	156	193	43
174	90	155	192	174	156	56	144	97	106	56	127	180	162	188	168	180	204
167	16	48	63	167	79	45	159	139	97	45	20	63	39	119	74	63	79
123	117	192	80	123	80	27	115	106	80	27	27	79	95	69	38	79	109
192	91	147	145	192	97	144	20	80	63	144	172	82	51	87	109	82	17
138	87	134	97	138	14	14	106	13	59	14	38	67	130	197	179	67	38
144	38	154	36	144	145	127	105	27	9	127	158	135	23	36	197	135	87
159	92	197	196	159	90	63	187	9	27	63	97	185	36	140	116	185	156
63	89	127	90	63	36	48	134	56	123	48	80	190	52	179	151	190	178
145	26	120	175	145	196	85	48	123	139	85	44	204	71	122	140	204	123
96	152	145	106	96	144	42	117	14	45	42	9	194	19	169	138	194	1
87	36	97	127	87	106	123	123	42	14	123	84	145	94	142	196	145	106
180	23	137	141	180	52	66	184	59	48	66	63	43	12	151	150	43	116
131	11	196	137	131	123	9	83	48	190	9	194	166	110	4	145	166	140
54	129	80	144	54	137	71	119	190	36	71	165	152	47	116	94	152	150
125	72	144	79	125	175	36	170	17	42	36	48	174	24	43	106	174	196
121	56	139	17	121	141	139	113	85	71	139	14	188	147	196	124	188	144
190	33	132	123	190	154	72	150	197	66	72	190	165	66	82	155	165	82
161	32	36	197	161	134	197	193	194	85	197	77	46	8	80	128	46	128

38	50	123	134	38	17	190	135	66	194	190	72	167	92	97	105	167	124
148	21	141	52	148	127	3	185	71	197	3	17	14	49	124	16	14	179
194	25	58	38	194	38	137	173	36	72	137	94	146	48	109	84	146	151
163	13	106	195	163	84	194	94	3	3	194	173	38	33	16	188	38	94
130	40	90	94	130	130	91	145	72	120	91	180	69	10	145	166	69	145
122	61	193	183	122	183	158	169	158	158	158	167	202	21	173	123	202	173
154	59	52	130	154	146	94	82	94	17	94	174	157	29	2	174	157	105
178	57	183	154	178	197	172	62	120	94	172	156	176	37	138	167	176	96
177	28	135	146	177	94	120	58	38	38	120	184	86	103	127	144	86	188
127	159	140	158	127	132	38	101	184	91	38	164	184	65	202	127	184	155
55	74	195	187	55	158	154	60	91	84	154	75	124	27	38	96	124	181
179	1	83	84	179	193	90	196	137	184	173	42	18	78	105	152	18	197
158	150	158	193	158	58	17	38	84	137	90	19	151	88	96	169	151	169
126	17	38	132	126	173	184	203	154	173	17	189	83	106	158	181	83	4
193	166	94	58	193	187	164	61	173	154	184	130	187	22	144	4	187	152
185	62	130	135	185	195	173	152	115	164	164	85	162	35	175	141	162	158
187	174	170	39	187	39	84	32	140	115	84	166	87	114	185	158	87	54
111	167	146	140	111	140	52	1	189	90	52	52	81	50	123	185	81	185
149	73	187	139	149	135	180	26	164	52	180	139	156	20	155	79	156	141
133	175	173	83	133	139	189	161	165	189	189	197	154	80	84	54	154	191
135	156	84	190	135	190	115	141	52	75	115	26	198	26	128	104	198	127
134	139	171	171	134	83	60	56	75	165	60	39	170	61	94	2	170	168
104	98	190	170	104	171	185	198	90	140	185	4	127	28	139	147	127	147
165	113	188	131	165	194	165	133	185	180	165	2	186	6	106	202	186	2
184	45	39	173	184	170	75	28	180	185	75	115	22	11	54	191	22	104
164	122	4	194	164	4	140	200	60	60	140	140	199	5	93	173	199	192
188	104	194	164	188	75	193	11	134	4	193	185	160	107	141	180	160	202
204	188	150	184	204	184	170	201	4	130	170	22	189	129	152	93	189	93
189	18	184	4	189	131	188	98	2	134	188	154	158	46	55	122	158	55
173	60	159	165	173	164	134	129	188	2	134	134	169	40	198	192	169	75
83	9	131	180	83	185	135	143	130	193	135	60	96	13	189	165	96	126
113	83	189	185	113	165	22	202	193	22	22	170	116	72	164	126	116	122
112	44	185	188	112	180	83	204	170	170	83	135	164	30	191	164	164	180
39	197	2	75	39	188	169	199	22	135	169	199	173	59	126	162	173	164
170	154	164	189	170	2	161	178	135	188	161	137	99	77	180	55	99	190

202	134	165	2	202	189	1	158	39	39	1	188	16	15	147	99	16	99
153	79	177	177	153	182	159	177	58	83	159	150	148	34	165	195	148	198
175	161	113	182	175	177	163	52	83	169	163	193	100	70	184	198	100	157
22	168	180	178	22	172	177	41	169	58	177	83	84	25	148	176	84	165
84	135	169	172	84	113	204	66	150	177	204	198	98	57	192	190	98	148
169	169	182	169	169	150	202	179	199	204	202	151	121	53	121	160	121	175
186	42	75	159	186	169	98	151	198	178	98	169	203	38	199	75	203	162
143	170	1	22	143	151	178	165	151	202	178	58	58	89	99	148	58	139
136	186	204	204	136	204	130	180	178	199	130	204	75	7	190	175	75	160
198	115	172	113	198	178	4	163	113	198	4	200	54	56	98	189	54	194
75	133	178	111	75	159	179	102	177	179	179	202	140	32	162	184	140	184
98	121	151	151	98	22	58	186	204	98	58	177	55	1	75	22	55	189
151	181	133	179	151	179	39	3	202	150	39	201	125	159	195	157	125	199
93	189	62	150	93	133	198	164	179	163	198	203	150	150	176	139	150	176
183	163	179	1	183	111	2	71	98	151	2	131	126	74	194	187	126	100
199	58	111	133	199	198	203	111	203	131	203	178	200	98	160	194	200	146
139	198	22	202	139	202	113	112	200	161	113	179	104	17	157	199	104	187
140	202	202	149	140	62	131	39	131	1	131	98	201	73	100	146	201	195
74	140	198	136	74	199	150	22	201	203	150	1	122	62	187	100	122	121
17	203	199	198	17	136	186	131	159	113	186	136	62	104	22	121	62	22
203	177	136	199	203	1	200	181	161	200	200	161	17	122	146	171	17	171
58	204	98	153	58	143	133	153	163	159	133	113	175	174	132	98	175	132
171	137	153	62	171	149	201	31	1	201	201	181	93	167	171	125	93	125
132	132	149	143	132	153	199	136	136	186	199	186	183	60	186	203	183	183
182	199	143	112	182	181	151	92	133	133	151	149	171	166	203	200	171	98
200	200	181	98	200	112	62	4	62	136	62	111	139	175	200	186	139	203
150	201	112	181	150	98	111	72	181	149	111	163	172	113	161	132	172	200
62	143	203	203	62	203	149	2	143	111	149	153	181	9	163	161	181	172
201	127	200	163	201	200	143	76	111	181	143	112	182	168	183	183	182	201
172	193	201	161	172	201	136	149	186	62	136	133	132	18	201	163	132	186
4	43	161	200	4	163	112	25	149	143	112	143	4	181	125	201	4	161
2	64	163	201	2	161	153	120	153	153	153	159	2	139	172	172	2	163
181	68	186	186	181	186	181	183	112	112	181	62	74	186		182	74	182

TABLE 15 GERMAN MUTUAL FUNDS PERFORMANCE MEASURES RANKINGS

GERMANY OVERALL PERIOD						GERMANY SUBPERIOD ONE						GERMANY SUBPERIOD TWO					
SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ	SHARPE	JENSEN	TREYNOR	MM	IR	TR-MAZ
202	119	202	140	202	202	153	202	202	153	153	202	202	202	122	119	202	122
155	141	140	153	155	153	52	52	153	15	52	153	66	119	123	120	66	129
65	140	119	76	65	140	3	39	15	3	3	52	67	69	69	133	67	123
66	120	5	141	66	5	15	153	3	76	15	15	155	120	121	11	155	69
67	124	61	119	67	61	39	71	39	39	39	3	65	141	136	140	65	121
92	125	141	138	92	3	71	59	88	171	71	59	37	140	5	136	37	136
93	61	125	120	93	141	59	88	59	52	59	39	92	124	61	172	92	5
94	126	124	125	94	138	88	3	52	71	88	171	93	125	119	121	93	61
139	60	120	124	139	4	171	15	71	59	171	71	94	61	129	129	94	4
37	5	138	15	37	125	168	171	171	50	168	88	36	66	125	122	36	140
36	74	153	10	36	124	50	168	168	14	50	14	139	122	124	141	139	70
61	176	4	3	61	10	14	50	14	88	14	50	69	126	70	125	69	125
5	172	10	4	5	15	26	14	50	168	26	25	122	123	140	124	122	13
119	198	15	133	119	119	98	26	98	98	98	196	123	19	120	143	123	124
120	12	13	61	120	13	51	98	26	26	51	48	70	5	141	126	70	119
124	142	11	5	124	81	158	158	164	164	158	76	61	121	4	138	61	141
125	127	3	126	125	11	64	90	76	51	64	64	19	142	13	177	19	11
141	91	126	13	141	120	45	64	165	165	45	168	20	74	138	4	20	81
140	2	127	73	140	50	196	196	158	45	196	40	157	136	66	123	157	116
126	194	175	175	126	55	90	161	64	25	90	24	5	172	11	13	5	128
135	10	135	11	135	175	76	45	51	64	76	17	38	176	187	101	38	120
127	133	28	58	127	14	164	51	45	175	164	26	119	91	116	58	119	199
10	77	76	127	10	45	165	106	90	158	165	105	124	101	126	100	124	138
198	135	81	14	198	51	161	111	48	196	161	175	120	201	100	61	120	10
176	28	117	103	176	127	106	164	25	48	106	51	125	38	10	5	125	143
117	191	55	117	117	128	25	110	196	2	25	164	121	189	101	103	121	55
60	16	14	135	60	116	48	165	161	138	48	45	136	70	143	127	136	187
4	181	29	50	4	58	24	113	60	60	24	98	141	20	28	81	141	127
69	138	58	51	69	76	17	76	2	90	17	138	140	28	37	116	140	148
138	18	16	55	138	118	186	25	79	79	186	90	126	127	199	10	126	126
11	117	116	45	11	126	175	48	175	135	175	106	129	133	127	27	129	100

142	80	133	81	142	71	138	24	138	140	138	73	6	10	81	28	6	58
28	68	50	28	28	158	97	17	106	141	97	165	187	100	27	73	187	159
2	9	80	16	2	96	110	186	135	117	110	158	56	193	58	128	56	192
74	29	103	71	74	39	104	97	186	10	104	110	199	27	55	148	199	28
194	130	60	60	194	159	8	175	17	24	8	104	127	185	38	192	127	101
13	156	51	130	13	161	79	131	24	73	79	83	10	37	29	130	10	177
81	11	130	116	81	73	33	138	117	161	33	8	114	198	30	55	114	37
16	185	45	29	16	88	35	104	140	106	35	84	189	77	190	69	189	30
29	76	159	80	29	28	31	8	110	186	31	186	142	187	177	147	142	29
77	188	2	21	77	103	111	132	141	104	111	161	101	12	159	21	101	27
191	99	190	128	191	135	105	79	97	17	105	103	28	18	128	187	28	152
80	78	73	96	80	59	40	33	104	40	40	118	4	68	148	29	4	38
12	178	18	22	12	129	140	35	10	105	140	132	198	29	133	159	198	66
18	34	164	79	18	130	113	31	73	80	113	131	100	103	42	30	100	130
130	4	79	180	130	117	131	105	31	16	131	7	201	194	175	22	201	96
159	72	27	159	159	110	118	40	35	8	118	33	29	188	103	199	29	190
172	103	32	118	172	26	166	166	8	118	166	173	27	157	32	76	27	133
133	167	96	32	133	29	141	140	40	103	141	182	193	190	130	203	193	175
190	150	7	158	190	133	73	118	105	173	73	184	190	57	204	190	190	118
91	190	128	39	91	8	10	173	176	18	10	117	74	143	192	70	74	103
9	201	12	27	9	80	202	141	111	31	202	96	197	138	7	175	197	163
156	27	176	12	156	131	173	73	16	35	173	10	138	177	203	204	138	44
68	153	30	2	68	7	132	10	118	33	132	180	160	11	21	180	160	22
188	95	194	7	188	21	2	2	80	166	2	112	159	34	22	117	159	21
181	101	180	88	181	180	60	117	166	182	60	31	13	60	193	96	13	147
178	79	21	190	178	22	135	60	113	184	135	109	42	130	44	152	42	7
78	13	165	26	78	16	117	135	131	97	117	115	176	181	147	32	176	204
150	189	39	164	150	168	182	176	33	96	182	18	188	42	86	16	188	42
27	58	22	33	27	33	176	182	173	125	176	53	18	197	16	163	18	73
19	175	88	105	19	64	103	96	132	5	103	97	30	191	135	135	30	32
153	46	100	171	153	163	96	103	182	61	96	5	77	203	201	91	77	180
58	164	71	48	58	25	5	5	61	124	5	35	86	9	152	7	86	80
185	193	158	30	185	24	61	61	5	46	61	61	57	156	180	12	57	45
175	100	198	40	175	79	184	184	103	194	184	32	185	58	96	80	185	51
55	42	101	8	55	190	80	80	18	89	80	22	194	30	80	201	194	135

136	73	46	165	136	171	16	16	184	119	16	62	116	78	18	38	116	16
99	81	191	129	99	32	62	62	96	191	62	21	58	199	73	42	58	203
116	47	172	168	116	132	55	55	119	176	55	63	43	129	163	118	43	117
20	30	9	163	20	17	109	109	125	72	109	151	41	4	19	45	41	76
167	165	118	25	167	31	180	180	120	9	180	85	135	85	117	51	135	8
42	116	48	18	42	164	18	18	124	120	18	135	91	95	172	85	91	86
72	96	136	17	72	30	125	125	89	12	125	140	54	99	155	44	54	198
122	32	129	100	122	40	119	119	47	180	119	141	143	67	76	33	143	46
121	159	163	64	121	165	124	124	46	47	124	190	133	16	67	14	133	33
101	180	171	101	101	48	120	120	12	55	120	46	128	159	12	15	128	109
70	15	26	172	70	27	63	63	194	62	63	195	172	192	91	86	172	158
46	55	42	35	46	196	11	11	62	110	11	60	191	116	85	60	191	193
30	163	25	24	30	46	81	81	191	133	81	2	130	204	142	193	130	50
187	197	33	136	187	98	46	46	180	7	46	79	55	32	194	105	55	3
164	7	35	161	164	109	47	47	55	109	47	166	177	178	198	8	177	161
128	89	121	46	128	90	89	89	109	127	89	116	68	167	54	53	68	14
47	128	77	31	47	2	7	7	72	32	7	128	11	72	185	40	11	195
79	44	91	98	79	100	58	58	81	63	58	194	203	150	57	79	203	65
189	136	31	59	189	105	32	32	11	58	32	198	9	2	157	154	9	40
86	121	64	194	86	35	21	21	9	126	21	108	44	163	51	134	44	154
15	62	72	191	15	186	22	194	198	21	22	13	78	76	46	50	78	167
100	21	8	186	100	136	130	191	127	130	130	163	192	54	176	3	192	155
157	187	62	196	157	18	191	22	63	22	191	4	107	73	156	57	107	53
199	63	142	62	199	101	194	130	130	178	194	174	156	80	20	167	156	85
103	48	74	72	103	60	127	12	178	181	127	87	12	7	45	18	12	131
129	14	98	90	129	198	126	127	126	29	126	124	32	180	188	158	32	31
88	203	168	176	88	111	12	72	133	198	12	47	85	86	9	35	85	18
34	177	44	106	34	121	159	9	181	131	159	120	81	96	77	62	81	172
89	85	156	85	89	113	72	126	7	13	72	125	7	135	118	46	7	54
32	22	78	9	32	195	9	133	32	4	9	127	204	55	191	31	204	157
44	86	161	121	44	106	133	159	58	132	133	191	103	175	167	17	103	79
201	3	167	110	201	44	108	108	21	28	108	119	34	128	62	2	34	15
14	108	40	109	14	62	151	198	22	81	151	126	181	164	74	74	181	110
165	199	85	63	165	52	198	178	13	11	198	111	117	81	79	191	117	150
7	204	63	131	7	191	13	13	4	108	13	80	16	13	60	71	16	105

38	25	105	132	38	194	4	4	29	111	4	16	178	62	134	194	178	194
113	57	68	198	113	176	178	181	108	163	178	139	60	63	14	99	60	191
193	162	17	42	193	85	85	29	28	159	85	133	150	46	33	109	150	132
76	50	47	47	76	63	181	28	159	195	181	89	80	21	63	112	80	115
95	192	187	147	95	42	29	85	195	113	29	156	175	44	78	198	175	62
197	129	150	53	197	199	28	195	163	85	28	29	99	6	2	131	99	63
180	149	89	91	180	72	139	163	78	190	139	28	95	165	150	161	95	24
3	109	24	44	3	9	195	190	85	78	195	42	46	108	189	110	46	35
96	51	106	167	96	12	163	78	68	68	163	82	145	56	68	63	145	201
123	118	109	74	123	187	190	68	190	83	190	150	72	117	164	24	72	9
6	143	199	68	6	89	84	77	77	84	84	113	180	22	99	54	180	12
39	195	99	89	39	53	83	74	74	174	83	30	163	79	8	142	163	2
50	45	186	152	50	167	68	167	167	77	68	9	147	162	35	72	147	185
85	66	90	177	85	47	78	172	172	128	78	55	167	47	50	132	167	17
163	35	181	108	163	172	77	156	156	74	77	12	2	147	41	156	2	57
111	98	185	104	111	104	74	174	174	116	74	100	183	179	15	150	183	91
110	147	59	187	110	152	174	128	128	53	174	27	179	148	154	9	179	72
62	67	108	199	62	77	116	116	83	151	116	72	96	41	72	48	96	112
23	182	188	113	23	192	128	150	116	30	128	77	62	92	31	185	62	156
56	54	196	195	56	150	167	83	84	172	167	178	23	48	165	176	23	25
73	31	178	52	73	166	156	84	150	27	156	101	164	183	3	68	164	77
48	171	110	78	48	108	150	91	53	167	150	181	148	155	108	115	148	67
63	88	195	111	63	78	172	99	91	156	172	74	134	43	43	37	134	87
131	26	86	77	131	173	53	53	151	150	53	145	169	93	158	195	169	99
35	64	204	192	35	115	91	142	99	91	91	130	63	89	109	25	63	188
21	158	177	99	21	139	30	30	30	145	30	176	21	109	40	108	21	134
132	168	203	204	132	87	155	34	142	99	155	142	47	94	48	64	47	41
43	33	139	156	43	97	99	27	27	34	99	159	49	134	65	47	49	20
41	184	147	173	41	177	27	95	34	87	27	172	165	14	53	153	165	60
203	19	193	150	203	156	142	44	95	202	142	78	22	15	105	77	22	48
31	69	152	97	31	147	87	42	145	115	87	68	89	25	195	162	89	64
22	186	132	203	22	91	23	145	139	112	23	44	108	35	197	188	108	78
114	8	104	142	114	112	34	185	44	142	34	162	76	160	25	26	76	176
204	155	53	166	204	204	145	188	42	44	145	149	152	149	47	186	152	165
149	39	201	112	149	74	95	149	23	23	95	58	73	182	114	78	73	19

145	152	95	115	145	99	44	23	87	42	44	81	75	33	162	164	75	164
108	106	131	174	108	174	65	139	115	139	65	11	79	145	89	87	79	89
25	134	192	154	25	68	42	112	112	95	42	99	35	139	161	165	35	26
109	104	34	86	109	154	149	162	185	82	149	23	170	195	93	157	170	153
45	105	173	87	45	203	185	115	188	102	185	167	162	118	145	106	162	43
161	40	166	145	161	142	188	151	149	100	188	91	109	51	95	89	109	74
51	38	174	185	51	86	115	100	162	101	115	95	149	31	17	113	149	71
57	41	143	181	57	23	112	102	100	162	112	34	14	152	181	111	14	142
177	20	97	139	177	181	102	101	102	185	102	152	48	45	64	88	48	108
158	173	145	188	158	185	162	87	101	154	162	147	31	64	34	174	31	114
54	139	162	143	54	145	100	86	82	149	100	102	195	50	24	39	195	47
192	17	113	178	192	143	92	82	154	188	92	188	15	153	153	196	15	186
195	71	111	134	195	188	93	203	86	155	93	185	154	154	26	66	154	196
147	145	52	148	147	148	94	201	203	86	94	154	33	3	92	41	33	90
160	174	154	23	160	178	101	204	204	1	101	86	25	23	94	43	25	145
26	148	112	162	26	95	86	193	152	65	86	129	51	8	112	145	51	23
64	90	23	202	64	193	66	152	147	203	66	137	45	184	106	19	45	174
98	43	134	201	98	162	82	147	146	144	82	146	50	26	178	90	50	68
118	53	148	151	118	102	67	154	144	204	67	144	200	98	186	137	200	162
107	24	155	193	107	34	154	197	1	146	154	204	106	106	71	114	106	111
168	166	115	34	168	151	1	189	137	147	1	203	88	169	174	20	88	113
33	23	54	95	33	184	204	177	201	137	204	136	8	174	23	155	8	197
106	179	57	102	106	201	203	192	193	152	203	201	161	158	160	168	161	189
134	92	149	155	134	149	200	199	134	200	200	193	64	186	90	65	64	106
171	70	182	137	171	134	147	134	192	134	147	121	3	171	110	171	3	88
152	157	184	122	152	54	152	200	177	92	152	134	39	114	171	67	39	102
71	196	189	65	71	182	201	187	199	66	201	1	118	49	115	23	118	137
186	183	87	54	186	137	193	146	200	93	193	192	182	104	88	102	182	39
162	161	197	66	162	144	134	144	187	199	134	54	26	173	39	144	26	168
8	6	102	144	8	146	197	137	129	94	197	189	158	75	196	197	158	95
97	37	122	182	97	57	199	129	136	67	199	177	186	88	49	146	186	171
143	122	151	184	143	155	189	54	54	192	189	200	1	53	132	202	1	144
182	93	66	146	182	122	187	136	57	187	187	197	151	17	183	189	151	98
200	97	69	57	200	200	144	57	197	177	144	57	184	168	87	97	184	49
17	56	65	149	17	82	192	155	121	129	192	187	174	65	139	104	174	166

184	102	41	67	184	1	146	1	189	136	146	143	97	90	98	166	97	104
169	94	67	82	169	83	177	121	155	54	177	199	153	151	131	173	153	173
59	123	43	84	59	65	137	65	148	201	137	148	98	102	179	139	98	146
105	154	123	83	105	84	129	43	143	193	129	75	110	36	104	93	110	200
40	65	137	69	40	69	54	41	169	57	54	114	71	105	173	92	71	75
49	59	200	1	49	197	36	148	170	121	36	183	171	166	168	98	171	149
24	169	82	123	24	189	57	143	65	170	57	49	131	71	75	94	131	181
75	200	70	200	75	41	136	169	43	169	136	179	132	24	6	75	132	93
90	160	144	37	90	43	43	67	41	6	43	170	17	97	149	34	17	34
196	49	146	92	196	123	41	170	75	56	41	56	168	39	56	160	168	160
154	75	1	93	154	66	121	183	49	43	121	169	196	40	102	49	196	92
148	112	49	94	148	49	37	75	183	41	37	6	24	196	36	59	24	59
183	110	38	43	183	75	169	179	179	49	169	41	104	200	166	36	104	170
104	114	84	41	104	170	170	49	6	75	170	43	173	161	169	95	173	178
179	115	75	70	179	70	6	92	56	197	6	107	102	107	200	200	102	36
170	170	83	36	170	67	56	93	67	36	56	155	105	170	97	149	105	94
174	82	169	197	174	169	49	94	160	189	49	65	40	112	151	151	40	97
173	151	37	49	173	38	75	6	107	148	75	160	90	1	137	56	90	139
151	52	183	38	151	56	107	56	66	143	107	67	87	82	113	6	87	1
166	107	179	75	166	6	148	160	92	107	148	36	53	115	111	107	53	169
87	132	6	189	87	37	160	66	93	37	160	38	166	110	107	1	166	56
1	131	19	56	1	183	143	107	114	160	143	157	113	59	170	82	113	151
102	36	170	6	102	179	183	114	94	179	183	122	112	137	1	178	112	107
53	137	56	170	53	114	179	19	19	183	179	69	111	87	144	170	111	6
52	1	160	169	52	160	114	20	38	114	114	70	59	52	182	183	59	183
112	87	157	114	112	157	19	38	157	19	19	19	115	131	59	179	115	82
115	144	93	160	115	107	20	157	20	157	20	92	82	144	184	181	82	179
82	113	20	157	82	19	157	69	69	20	157	20	137	132	146	169	137	202
137	146	114	107	137	20	38	70	70	38	38	123	144	84	82	52	144	52
144	111	92	19	144	36	69	36	36	69	69	94	84	146	52	84	84	184
146	84	94	20	146	93	70	37	122	70	70	93	52	83	84	83	52	182
84	83	107	183	84	92	122	122	123	122	122	66	146	113	83	184	146	83
83	202	36	179	83	94	123	123	37	123	123	37	83	111	202	182	83	84

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