Name, matriculation number_____

Examination: 20029 – Corporate Finance **Summer Term 2011**
Examiner: Prof. Dr. Peter Reichling
Time available: 60 minutes

Aids permitted: non-programmable pocket calculators;
English dictionaries without any markings.

The examination comprises **four** problems. Answer to these problems must be given in **English. Good luck!**

Problems (60 Points):

Write your solutions to the problems in the corresponding boxes. Any writings, not presented in the boxes, will not be evaluated. The numbers must be rounded to 2 decimal places (percentage must be also rounded to 2 decimal places).

For each right answer you get 5 points, for the last task you get 10 points.

1. Consider the following data for portfolio F and the market portfolio:

	Expected return	Volatility	Beta
Portfolio F	11%	16%	0.9
Market portfolio M	8%	13%	1.0

The risk-free rate of return amounts to 3%. Apply Fama's framework of net selectivity.

a) Selectivity of the Portfolio F amounts to:

b) Net selectivity of the Portfolio F amounts to:

c) The diversification component of the Portfolio F amounts to:

d) Appraisal ratio of the Portfolio F amounts to:

2. Consider an exponential utility function. The rates of return are normally distributed with expected value of 10% and standard deviation of 20%. The Arrow-Pratt measure of absolute risk aversion is 4.

The certainty equivalent amounts to:

[ ]

3. A company has to pay back a bullet loan (zero-bond-style) of 40,000 euro in three years. Assume that the company has only this debt position. The assets of the corporation are worth 100,000 euro. The volatility of the assets is 30% and their continuously compounded expected rate of return amounts to 8% p.a. The risk-free rate is 3% p.a. Apply Merton's model.

a) The probability of default of this loan is:

[ ]

b) The expected loss of this loan is:

[ ]

c) The cost of equity of the corresponding unlevered firm is 10%. Considering leverage and credit risk of the company, the cost of equity is:

[ ]

4. A cross-sectional CAPM-Test in Excel based on excess returns produces the following results:

Multiple correlation coefficient	0.723
Coefficient of determination	0.623
Adjusted coefficient of determination	0.567
Standard error	0.003
Observations	100

ANOVA

	Degrees of freedom	*Squere sum*	*Mean squere sum*	*F-Value*	*F critical*
Regression	1	0.000	0,000	6,408	0,045
Residuals	98	0.000	0.000		
Total	99	0.000			

	Coefficients	*Standard error*	*t-Statistic*	*P-Value*	*Lower bound 95%*
Intersection	0.003	0,008	1,834	0,822	-0,042
X Variable 1	0.155	0,009	2,678	0,000	0,000

a) The R^2 of the regression is:

b) Has the hypothesis, that the CAPM holds, to be rejected at the common confidence level (please answer with yes or no):

c) Write down the corresponding regression equation and null hypotheses for the CAPM cross sectional analysis. Explain, whether the null hypotheses are rejected and at what significance level.

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Cumulative Standard Normal Distribution

x	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7034	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9773	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9983	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9990	0.9993	0.9995	0.9997	0.9998	0.9998	0.9999	0.9999	1.0000

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