

LASTNAME :

STUDENT Id :

FIRSTNAME :

# Final Exam

## Form A

Tuesday 24 August 2010

### Indications

Please follow these indications:

1. The exam lasts 3 hours, all inclusive.
2. Please verify that your document contains exactly 7 pages.
3. There are more than 20 points. Only 20 must be perfectly completed for the max grade. Each question is worth one point unless otherwise stated.
4. Please write your first name and last name on the first page.
5. Good work!!!

## Problems

### P1 Asset pricing

You live in a world where there exist only two assets: a risk-free bond and the share of an index fund (which can be considered as the market portfolio). This world is quite myopic since investors limit their time horizon to one year, the economy being then in one of the following two states: "bad" or "good". Your banker wants to sell you a structured product whose expected value next year is stated in the table below. As the market for this kind of product is completely dried, he did not manage to find a market price, but proposes to sell it to you at 4,36 €.

	Market Value (t=0)	Expected Value (t=1)	
		Bad State	Good State
Real Probability		0,3	0,7
Risk-Free Bond	1	1,1	1,1
Index Fund	1	0,5	2
Structured Product	?	6	2

- Q1** Using the CAPM, determine your own estimate of the value of the structured product. Do you buy it at 4,36 € ?
- Q2** What's the beta of the structured product?
- Q3** Explain why the project's value is higher than its expected cash flow. (5 lines maximum, sanctions if more)

## P2 Cost of capital

We are in December 2010. Eric, a good friend of yours wants to sell the company inherited from his father. Knowing that your scores in finance courses were always better than his, he asks you to help him find the value of the company.

The company (Metalco Ltd.) has the following yearly income statement (the income statement will be the same every year until infinity):

Income Statement (Metalco Ltd.)	
	2011 $\rightarrow \infty$
EBITDA	150'000
Depreciation	70'000
EBIT	80'000
Interest	20'000
Pre-Tax Earnings	60'000
Taxes	24'000
Net Income	36'000

**Q4** If the cost of assets of Metalco is 10%, the tax rate is 40% and the debt level and ratio are constant until infinity ( $D/V = 0.18$ ), what is the value of Metalco in 2010?

Eric also wants to determine if a project which he is determined to start is valuable. To help you find the value of this project, Eric gathers some data which is summarized in the following tables (in kEuros):

<b>Tc</b>	40%
<b>ka</b>	11%
<b>kd</b>	7%
<b>tc</b>	40%

	2010	2011	2012
<b>EBITDA</b>	100	100	100
<b>Dep</b>	10	10	10
<b>Earnings before taxes</b>	90	90	90
<b>Taxes</b>			
<b>Net Income</b>			

You also know that after 2012 the project will be liquidated, that the debt level of the project is adjusted continuously and that the initial investment in (December 2010) is 25 000 €.

**Q5** Compute the value of the unlevered FCF.

**Q6** Compute the WACC associated to the project.

**Q7** Compute the value of the project for 2010, 2011 & 2012 (if you didn't manage to find a value for the previous question use  $WACC = 10\%$ , if you didn't manage to answer Q4 use 50 for 2011 and 110 for 2012).

Eric is not confident about your computations and asks you to check your result using the FTE method. To do it please follow the following steps:

**Q8** Compute the value of debt for 2010, 2011 & 2012.

**Q9** Compute the debt's value and interests paid each year.

**Q10** Compute the FTE.

**Q11** Compute the  $k_e$ .

**Q12** Compute the value of equity in 2010 (if you didn't manage to answer Q9 use the following values as FTE: 35 for 2010 40 for 2011 and 65 for 2012, for Q10 use  $k_e=13\%$ )

As you seem to be a real genius in finance, Eric has two last questions for you:

**Q13** In the paper "Estimating the cost of risky debt" by Cooper and Davydenko, can you explain how they estimate the cost of debt starting from the promised yield on newly issued debt. Explain why those corrections are necessary.

**Q14** In the article "Best Practices in Estimating the Cost of Capital: Survey and Synthesis" by Bruner et al., they say that the risk-free rate estimation can be based on 90-day T-bill or Treasury bond yields maturities of ten years or greater. Can you say what's the preferred choice of practitioners? Can you explain why?

### **P3 Real options**

Yesterday, your boss asks you to determine the value of an investment, after using the classical APV you obtain \$ -200 000 for the project. However during the night, you suddenly remember that you forgot to consider the options imbedded in this project. Indeed, you realize that if your company starts the project, it could launch a second and/or a third generation. The second generation must be launched after two years (in 2012 and only this year) and the value in 2012 of the expected cash-flows is \$ 18 000 000 for an investment of \$ 20 000 000. Independently of the second generation (you can start the third generation even if you didn't launch the second one), the third generation can be launched in 2014 (and only this year). The discounted value of the cash flows is \$ 18 000 000 (in 2012) for an investment of \$ 20 000 000. The continuous risk-free rate is 3%, the discount rate for such projects is 18%, and the volatility of the cash-flows' rate of evolution is 20%. Compute the total value of this project. State clearly any additional assumptions that you make.

**Q15 Q16 Q17** What are the value of those options and the total value of the project?

**Q18** If the third generation can be launched only if the second generation has been launched, explain how your reasoning would be changed (7 lines, sanctions if more)? Can you find a way to determine the value of the project in this case?

### **P4 Risky debt**

You have just been appointed CFO of Ford (the Motor Company). Due to the "subprime" crisis and years of bad management you are in a very sensitive situation. To finance its WCR, Ford needs some fresh money. The bond market being very cold today, you decide to call on the federal government of the USA asking a federal loan of 300 M Euros for 1 year (zero coupon loan with an interest of 6%). The government accepts to lend you this amount provided their debt will be reimbursed prior to every other debt. The market value of Ford's assets is 1000 M Euros today, and the company's current debt is a zero coupon with face value of 800 maturing in one year. The volatility of the assets of the company is 40%. The risk free rate is 5%.

**Q19** Will old debtholders accept the new loan (answer using a binomial tree)? Is the interest rate of the state's loan fair?

**Q20** Based on your answer question 19, compute the credit spread on the old debtholders' debt and the expected loss given default of the two loans. If you don't have a result for the previous question, please use a value of 620 for the old debt.

**Q21** If the state does not want to lend to Ford, the management has a rescue plan: invest massively in electrical cars. This project has a net present value of -50 but will increase the

volatility of Ford assets to 60%. Should they launch the new project (answer using a binomial tree)?

**Q22** Give and explain shortly 3 shareholder's behaviours that can reduce the value of the debt when the value of the equity is close to zero (max 7 lines, sanction if more)?

**$N(x)$  &  $N(-x)=1-N(x)$**

	<b>0.000</b>	<b>0.005</b>	<b>0.010</b>	<b>0.015</b>	<b>0.020</b>	<b>0.025</b>	<b>0.030</b>	<b>0.035</b>	<b>0.040</b>	<b>0.045</b>	<b>0.050</b>	<b>0.055</b>	<b>0.060</b>	<b>0.065</b>	<b>0.070</b>	<b>0.075</b>	<b>0.080</b>	<b>0.085</b>	<b>0.090</b>	<b>0.095</b>
<b>0.0</b>	0.5000	0.5020	0.5040	0.5060	0.5080	0.5100	0.5120	0.5140	0.5160	0.5179	0.5199	0.5219	0.5239	0.5259	0.5279	0.5299	0.5319	0.5339	0.5359	0.5378
<b>0.1</b>	0.5398	0.5418	0.5438	0.5458	0.5478	0.5497	0.5517	0.5537	0.5557	0.5576	0.5596	0.5616	0.5636	0.5655	0.5675	0.5695	0.5714	0.5734	0.5753	0.5773
<b>0.2</b>	0.5793	0.5812	0.5832	0.5851	0.5871	0.5890	0.5910	0.5929	0.5948	0.5968	0.5987	0.6006	0.6026	0.6045	0.6064	0.6083	0.6103	0.6122	0.6141	0.6160
<b>0.3</b>	0.6179	0.6198	0.6217	0.6236	0.6255	0.6274	0.6293	0.6312	0.6331	0.6350	0.6368	0.6387	0.6406	0.6424	0.6443	0.6462	0.6480	0.6499	0.6517	0.6536
<b>0.4</b>	0.6554	0.6573	0.6591	0.6609	0.6628	0.6646	0.6664	0.6682	0.6700	0.6718	0.6736	0.6754	0.6772	0.6790	0.6808	0.6826	0.6844	0.6862	0.6879	0.6897
<b>0.5</b>	0.6915	0.6932	0.6950	0.6967	0.6985	0.7002	0.7019	0.7037	0.7054	0.7071	0.7088	0.7106	0.7123	0.7140	0.7157	0.7174	0.7190	0.7207	0.7224	0.7241
<b>0.6</b>	0.7257	0.7274	0.7291	0.7307	0.7324	0.7340	0.7357	0.7373	0.7389	0.7405	0.7422	0.7438	0.7454	0.7470	0.7486	0.7502	0.7517	0.7533	0.7549	0.7565
<b>0.7</b>	0.7580	0.7596	0.7611	0.7627	0.7642	0.7658	0.7673	0.7688	0.7704	0.7719	0.7734	0.7749	0.7764	0.7779	0.7794	0.7808	0.7823	0.7838	0.7852	0.7867
<b>0.8</b>	0.7881	0.7896	0.7910	0.7925	0.7939	0.7953	0.7967	0.7981	0.7995	0.8009	0.8023	0.8037	0.8051	0.8065	0.8078	0.8092	0.8106	0.8119	0.8133	0.8146
<b>0.9</b>	0.8159	0.8173	0.8186	0.8199	0.8212	0.8225	0.8238	0.8251	0.8264	0.8277	0.8289	0.8302	0.8315	0.8327	0.8340	0.8352	0.8365	0.8377	0.8389	0.8401
<b>1.0</b>	0.8413	0.8426	0.8438	0.8449	0.8461	0.8473	0.8485	0.8497	0.8508	0.8520	0.8531	0.8543	0.8554	0.8566	0.8577	0.8588	0.8599	0.8610	0.8621	0.8632
<b>1.1</b>	0.8643	0.8654	0.8665	0.8676	0.8686	0.8697	0.8708	0.8718	0.8729	0.8739	0.8749	0.8760	0.8770	0.8780	0.8790	0.8800	0.8810	0.8820	0.8830	0.8840
<b>1.2</b>	0.8849	0.8859	0.8869	0.8878	0.8888	0.8897	0.8907	0.8916	0.8925	0.8934	0.8944	0.8953	0.8962	0.8971	0.8980	0.8988	0.8997	0.9006	0.9015	0.9023
<b>1.3</b>	0.9032	0.9041	0.9049	0.9057	0.9066	0.9074	0.9082	0.9091	0.9099	0.9107	0.9115	0.9123	0.9131	0.9139	0.9147	0.9154	0.9162	0.9170	0.9177	0.9185
<b>1.4</b>	0.9192	0.9200	0.9207	0.9215	0.9222	0.9229	0.9236	0.9244	0.9251	0.9258	0.9265	0.9272	0.9279	0.9285	0.9292	0.9299	0.9306	0.9312	0.9319	0.9325
<b>1.5</b>	0.9332	0.9338	0.9345	0.9351	0.9357	0.9364	0.9370	0.9376	0.9382	0.9388	0.9394	0.9400	0.9406	0.9412	0.9418	0.9424	0.9429	0.9435	0.9441	0.9446
<b>1.6</b>	0.9452	0.9458	0.9463	0.9468	0.9474	0.9479	0.9484	0.9490	0.9495	0.9500	0.9505	0.9510	0.9515	0.9520	0.9525	0.9530	0.9535	0.9540	0.9545	0.9550
<b>1.7</b>	0.9554	0.9559	0.9564	0.9568	0.9573	0.9577	0.9582	0.9586	0.9591	0.9595	0.9599	0.9604	0.9608	0.9612	0.9616	0.9621	0.9625	0.9629	0.9633	0.9637
<b>1.8</b>	0.9641	0.9645	0.9649	0.9652	0.9656	0.9660	0.9664	0.9667	0.9671	0.9675	0.9678	0.9682	0.9686	0.9689	0.9693	0.9696	0.9699	0.9703	0.9706	0.9710
<b>1.9</b>	0.9713	0.9716	0.9719	0.9723	0.9726	0.9729	0.9732	0.9735	0.9738	0.9741	0.9744	0.9747	0.9750	0.9753	0.9756	0.9759	0.9761	0.9764	0.9767	0.9770
<b>2.0</b>	0.9772	0.9775	0.9778	0.9780	0.9783	0.9786	0.9788	0.9791	0.9793	0.9796	0.9798	0.9801	0.9803	0.9805	0.9808	0.9810	0.9812	0.9815	0.9817	0.9819
<b>2.1</b>	0.9821	0.9824	0.9826	0.9828	0.9830	0.9832	0.9834	0.9836	0.9838	0.9840	0.9842	0.9844	0.9846	0.9848	0.9850	0.9852	0.9854	0.9856	0.9857	0.9859
<b>2.2</b>	0.9861	0.9863	0.9864	0.9866	0.9868	0.9870	0.9871	0.9873	0.9875	0.9876	0.9878	0.9879	0.9881	0.9882	0.9884	0.9885	0.9887	0.9888	0.9890	0.9891
<b>2.3</b>	0.9893	0.9894	0.9896	0.9897	0.9898	0.9900	0.9901	0.9902	0.9904	0.9905	0.9906	0.9907	0.9909	0.9910	0.9911	0.9912	0.9913	0.9915	0.9916	0.9917
<b>2.4</b>	0.9918	0.9919	0.9920	0.9921	0.9922	0.9923	0.9925	0.9926	0.9927	0.9928	0.9929	0.9930	0.9931	0.9931	0.9932	0.9933	0.9934	0.9935	0.9936	0.9937
<b>2.5</b>	0.9938	0.9939	0.9940	0.9940	0.9941	0.9942	0.9943	0.9944	0.9945	0.9945	0.9946	0.9947	0.9948	0.9948	0.9949	0.9950	0.9951	0.9951	0.9952	0.9953
<b>2.6</b>	0.9953	0.9954	0.9955	0.9955	0.9956	0.9957	0.9957	0.9958	0.9959	0.9959	0.9960	0.9960	0.9961	0.9962	0.9962	0.9963	0.9963	0.9964	0.9964	0.9965
<b>2.7</b>	0.9965	0.9966	0.9966	0.9967	0.9967	0.9968	0.9968	0.9969	0.9969	0.9970	0.9970	0.9971	0.9971	0.9972	0.9972	0.9972	0.9973	0.9973	0.9974	0.9974
<b>2.8</b>	0.9974	0.9975	0.9975	0.9976	0.9976	0.9976	0.9977	0.9977	0.9977	0.9978	0.9978	0.9978	0.9979	0.9979	0.9979	0.9980	0.9980	0.9980	0.9981	0.9981
<b>2.9</b>	0.9981	0.9982	0.9982	0.9982	0.9982	0.9983	0.9983	0.9983	0.9984	0.9984	0.9984	0.9984	0.9985	0.9985	0.9985	0.9985	0.9986	0.9986	0.9986	0.9986
<b>3.0</b>	0.9987	0.9987	0.9987	0.9987	0.9987	0.9988	0.9988	0.9988	0.9988	0.9988	0.9989	0.9989	0.9989	0.9989	0.9989	0.9989	0.9990	0.9990	0.9990	0.9990
<b>3.1</b>	0.9990	0.9990	0.9991	0.9991	0.9991	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993	0.9993	0.9993	0.9993
<b>3.2</b>	0.9993	0.9993	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995	0.9995	0.9995	0.9995	0.9995
<b>3.3</b>	0.9995	0.9995	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997	0.9997
<b>3.4</b>	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998	0.9998	0.9998
<b>3.5</b>	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998
<b>3.6</b>	0.9998	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
<b>3.7</b>	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
<b>3.8</b>	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
<b>3.9</b>	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
<b>4.0</b>	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



**Call Prices with Black & Scholes Option Pricing**

Price of a B&Sch call option where result=C/S

Cumulative Volatility: Sigma*SQRT(T)	Moneyness: S/K*exp(-rT)																							
	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75
0.00	37.50%	39.39%	41.18%	42.86%	44.44%	45.95%	47.37%	48.72%	50.00%	51.22%	52.38%	53.49%	54.55%	55.56%	56.52%	57.45%	58.33%	59.18%	60.00%	60.78%	61.54%	62.26%	62.96%	63.64%
0.05	37.50%	39.39%	41.18%	42.86%	44.44%	45.95%	47.37%	48.72%	50.00%	51.22%	52.38%	53.49%	54.55%	55.56%	56.52%	57.45%	58.33%	59.18%	60.00%	60.78%	61.54%	62.26%	62.96%	63.64%
0.10	37.50%	39.39%	41.18%	42.86%	44.44%	45.95%	47.37%	48.72%	50.00%	51.22%	52.38%	53.49%	54.55%	55.56%	56.52%	57.45%	58.33%	59.18%	60.00%	60.78%	61.54%	62.26%	62.96%	63.64%
0.15	37.50%	39.40%	41.18%	42.86%	44.44%	45.95%	47.37%	48.72%	50.00%	51.22%	52.38%	53.49%	54.55%	55.56%	56.52%	57.45%	58.33%	59.18%	60.00%	60.78%	61.54%	62.26%	62.96%	63.64%
0.20	37.55%	39.42%	41.20%	42.87%	44.45%	45.95%	47.37%	48.72%	50.00%	51.22%	52.38%	53.49%	54.55%	55.56%	56.52%	57.45%	58.33%	59.18%	60.00%	60.78%	61.54%	62.26%	62.96%	63.64%
0.25	37.73%	39.56%	41.29%	42.94%	44.50%	45.99%	47.40%	48.74%	50.01%	51.23%	52.39%	53.49%	54.55%	55.56%	56.52%	57.45%	58.33%	59.18%	60.00%	60.78%	61.54%	62.26%	62.96%	63.64%
0.30	38.09%	39.85%	41.53%	43.13%	44.65%	46.11%	47.49%	48.81%	50.07%	51.28%	52.43%	53.52%	54.57%	55.58%	56.54%	57.46%	58.34%	59.19%	60.01%	60.79%	61.54%	62.27%	62.97%	63.64%
0.35	38.64%	40.32%	41.93%	43.47%	44.94%	46.35%	47.70%	48.99%	50.22%	51.40%	52.53%	53.61%	54.64%	55.64%	56.59%	57.50%	58.38%	59.22%	60.03%	60.81%	61.56%	62.28%	62.98%	63.65%
0.40	39.34%	40.94%	42.48%	43.95%	45.37%	46.72%	48.03%	49.27%	50.47%	51.62%	52.72%	53.77%	54.79%	55.76%	56.70%	57.60%	58.46%	59.29%	60.09%	60.86%	61.61%	62.32%	63.01%	63.68%
0.45	40.18%	41.70%	43.16%	44.57%	45.93%	47.23%	48.48%	49.68%	50.83%	51.94%	53.01%	54.04%	55.02%	55.97%	56.89%	57.77%	58.61%	59.43%	60.21%	60.97%	61.70%	62.41%	63.09%	63.75%
0.50	41.12%	42.56%	43.96%	45.30%	46.60%	47.84%	49.04%	50.20%	51.31%	52.38%	53.41%	54.40%	55.35%	56.27%	57.16%	58.02%	58.84%	59.64%	60.41%	61.15%	61.86%	62.56%	63.22%	63.87%
0.55	42.14%	43.52%	44.85%	46.13%	47.36%	48.55%	49.70%	50.81%	51.88%	52.90%	53.90%	54.85%	55.77%	56.66%	57.52%	58.35%	59.15%	59.92%	60.67%	61.39%	62.09%	62.77%	63.42%	64.05%
0.60	43.22%	44.53%	45.80%	47.03%	48.21%	49.35%	50.45%	51.51%	52.53%	53.52%	54.47%	55.39%	56.28%	57.14%	57.96%	58.76%	59.54%	60.29%	61.01%	61.71%	62.39%	63.05%	63.68%	64.30%
0.65	44.35%	45.61%	46.82%	47.99%	49.12%	50.21%	51.26%	52.28%	53.26%	54.20%	55.12%	56.00%	56.86%	57.68%	58.48%	59.25%	60.00%	60.72%	61.42%	62.10%	62.76%	63.39%	64.01%	64.61%
0.70	45.52%	46.72%	47.88%	49.00%	50.08%	51.12%	52.13%	53.10%	54.04%	54.95%	55.83%	56.68%	57.50%	58.29%	59.06%	59.80%	60.52%	61.22%	61.90%	62.55%	63.18%	63.80%	64.40%	64.98%
0.75	46.72%	47.87%	48.98%	50.05%	51.08%	52.08%	53.04%	53.98%	54.88%	55.75%	56.59%	57.41%	58.19%	58.96%	59.70%	60.41%	61.10%	61.78%	62.43%	63.06%	63.67%	64.26%	64.84%	65.40%
0.80	47.93%	49.03%	50.10%	51.12%	52.12%	53.07%	54.00%	54.89%	55.75%	56.59%	57.40%	58.18%	58.94%	59.67%	60.38%	61.07%	61.73%	62.38%	63.01%	63.62%	64.21%	64.78%	65.34%	65.88%
0.85	49.16%	50.22%	51.24%	52.22%	53.17%	54.09%	54.98%	55.84%	56.66%	57.47%	58.24%	58.99%	59.72%	60.42%	61.11%	61.77%	62.41%	63.03%	63.63%	64.22%	64.79%	65.34%	65.88%	66.40%
0.90	50.40%	51.42%	52.40%	53.34%	54.25%	55.13%	55.98%	56.81%	57.60%	58.37%	59.11%	59.84%	60.53%	61.21%	61.86%	62.50%	63.12%	63.71%	64.30%	64.86%	65.41%	65.94%	66.46%	66.96%
0.95	51.65%	52.62%	53.56%	54.47%	55.34%	56.19%	57.01%	57.79%	58.56%	59.30%	60.01%	60.70%	61.37%	62.02%	62.65%	63.26%	63.86%	64.43%	64.99%	65.53%	66.06%	66.57%	67.07%	67.55%
1.00	52.90%	53.83%	54.73%	55.60%	56.44%	57.26%	58.04%	58.80%	59.53%	60.24%	60.93%	61.59%	62.23%	62.86%	63.46%	64.05%	64.62%	65.17%	65.71%	66.23%	66.74%	67.23%	67.71%	68.18%
1.05	54.14%	55.04%	55.91%	56.74%	57.55%	58.33%	59.08%	59.81%	60.51%	61.20%	61.85%	62.49%	63.11%	63.71%	64.29%	64.86%	65.40%	65.93%	66.45%	66.95%	67.44%	67.91%	68.38%	68.82%
1.10	55.38%	56.25%	57.08%	57.88%	58.66%	59.41%	60.13%	60.83%	61.51%	62.16%	62.79%	63.41%	64.00%	64.58%	65.14%	65.68%	66.20%	66.71%	67.21%	67.69%	68.16%	68.62%	69.06%	69.49%
1.15	56.61%	57.45%	58.25%	59.02%	59.77%	60.49%	61.18%	61.85%	62.50%	63.13%	63.74%	64.33%	64.90%	65.45%	65.99%	66.51%	67.02%	67.51%	67.98%	68.45%	68.90%	69.34%	69.76%	70.18%
1.20	57.84%	58.64%	59.41%	60.15%	60.87%	61.56%	62.23%	62.87%	63.50%	64.10%	64.69%	65.25%	65.80%	66.33%	66.85%	67.35%	67.84%	68.31%	68.77%	69.21%	69.65%	70.07%	70.48%	70.88%
1.25	59.05%	59.82%	60.56%	61.28%	61.97%	62.63%	63.27%	63.90%	64.50%	65.08%	65.64%	66.18%	66.71%	67.22%	67.71%	68.20%	68.66%	69.12%	69.56%	69.99%	70.40%	70.81%	71.20%	71.59%
1.30	60.26%	61.00%	61.71%	62.40%	63.06%	63.70%	64.32%	64.91%	65.49%	66.05%	66.59%	67.11%	67.61%	68.11%	68.58%	69.04%	69.49%	69.93%	70.35%	70.76%	71.16%	71.55%	71.93%	72.30%
1.35	61.44%	62.16%	62.84%	63.50%	64.14%	64.76%	65.35%	65.92%	66.48%	67.01%	67.53%	68.03%	68.52%	68.99%	69.45%	69.89%	70.32%	70.74%	71.15%	71.54%	71.93%	72.30%	72.67%	73.02%
1.40	62.62%	63.30%	63.96%	64.60%	65.21%	65.80%	66.37%	66.92%	67.46%	67.97%	68.47%	68.95%	69.42%	69.87%	70.31%	70.74%	71.15%	71.56%	71.95%	72.33%	72.70%	73.06%	73.41%	73.75%
1.45	63.78%	64.44%	65.07%	65.68%	66.27%	66.84%	67.39%	67.92%	68.43%	68.92%	69.40%	69.87%	70.32%	70.75%	71.17%	71.58%	71.98%	72.37%	72.74%	73.11%	73.46%	73.81%	74.15%	74.47%
1.50	64.92%	65.55%	66.16%	66.75%	67.32%	67.86%	68.39%	68.90%	69.39%	69.87%	70.33%	70.77%	71.20%	71.62%	72.03%	72.42%	72.80%	73.17%	73.54%	73.89%	74.23%	74.56%	74.88%	75.20%
1.55	66.04%	66.65%	67.24%	67.81%	68.35%	68.87%	69.38%	69.87%	70.34%	70.80%	71.24%	71.67%	72.08%	72.48%	72.87%	73.25%	73.62%	73.98%	74.32%	74.66%	74.99%	75.31%	75.62%	75.92%
1.60	67.15%	67.74%	68.30%	68.84%	69.37%	69.87%	70.36%	70.83%	71.28%	71.72%	72.14%	72.55%	72.95%	73.34%	73.71%	74.08%	74.43%	74.77%	75.10%	75.43%	75.74%	76.05%	76.35%	76.64%
1.65	68.24%	68.80%	69.34%	69.87%	70.37%	70.85%	71.32%	71.77%	72.21%	72.63%	73.04%	73.43%	73.81%	74.18%	74.54%	74.89%	75.23%	75.56%	75.88%	76.19%	76.49%	76.78%	77.07%	77.35%
1.70	69.31%	69.85%	70.37%	70.87%	71.35%	71.82%	72.27%	72.70%	73.12%	73.52%	73.91%	74.29%	74.66%	75.02%	75.36%	75.70%	76.02%	76.34%	76.64%	76.94%	77.23%	77.51%	77.79%	78.05%
1.75	70.35%	70.87%	71.37%	71.86%	72.32%	72.77%	73.20%	73.61%	74.02%	74.40%	74.78%	75.14%	75.50%	75.84%	76.17%	76.49%	76.80%	77.10%	77.40%	77.68%	77.96%	78.23%	78.50%	78.75%
1.80	71.38%	71.88%	72.36%	72.82%	73.27%	73.70%	74.11%	74.51%	74.90%	75.27%	75.63%	75.98%	76.32%	76.64%	76.96%	77.27%	77.57%	77.86%	78.14%	78.42%	78.68%	78.94%	79.20%	79.44%
1.85	72.39%	72.87%	73.33%	73.77%	74.20%	74.61%	75.01%	75.39%	75.76%	76.12%	76.47%	76.80%	77.12%	77.44%	77.74%	78.04%	78.33%	78.60%	78.88%	79.14%	79.40%	79.64%	79.89%	80.12%
1.90	73.37%	73.83%	74.28%	74.70%	75.11%	75.51%	75.89%	76.26%	76.61%	76.95%	77.29%	77.61%	77.92%	78.22%	78.51%	78.80%	79.07%	79.34%	79.60%	79.85%	80.10%	80.33%	80.57%	80.79%
1.95	74.33%	74.78%	75.20%	75.61%	76.00%	76.38%	76.75%	77.10%	77.44%	77.77%	78.09%	78.40%	78.70%	78.99%	79.27%	79.54%	79.80%	80.06%	80.31%	80.55%	80.78%	81.01%	81.24%	81.45%
2.00	75.27%	75.70%	76.11%	76.50%	76.88%	77.24%	77.59%	77.93%	78.26%	78.57%	78.88%	79.17%	79.46%	79.74%	80.00%	80.26%	80.52%	80.76%	81.00%	81.23%	81.46%	81.68%	81.89%	82.10%