

UNIVERSITY OF ESWATINI
DEPARTMENT OF BUSINESS ADMINISTRATION
MAIN EXAMINATION PAPER DECEMBER 2018

DEGREE AND

YEAR OF STUDY : MASTER OF BUSINESS ADMINISTRATION

TITLE OF PAPER : CORPORATE FINANCE AND INVESTMENT

COURSE CODE : ACF603

TOTAL MARKS : 100 MARKS

TIME ALLOWED : THREE (3) HOURS

- INSTRUCTIONS :
- 1 This paper consists of **ELEVEN (11) numbered pages**, including this page and Appendix A which contains useful formulae.
 2. There are **six (6)** questions of 20 marks each, answer **ANY FIVE (5)** questions.
 3. Begin solution to each question on a new page.
 4. Show all the necessary workings.
 5. Round off as you deem appropriate.
 6. Tables are attached for your use.

Note: You are reminded that in assessing your work, account will be taken of accuracy of the language and general quality of expression, together with layout and presentation of your answer.

THIS PAPER MUST NOT BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR OR SUPERVISOR.

SPECIAL REQUIREMENT: FINANCIAL CALCULATOR

QUESTION 1 (20 marks)

“Though people in general may be honest and trustworthy, this cannot be relied upon. Job contracts have to be based on the assumption that people will act in their self-interest”.

Anonymous

Required:

With reference to the above quote, write an essay on the Agency Theory. Your essay must include, amongst other relevant content:

- how the Agency problem arises
- describe the Agency costs and
- the ways in which market forces can minimise these costs.

QUESTION 2 (20 marks)

Write a brief essay explaining the relationship between the overall corporate strategy of a firm and its financial strategy. Illustrate your answer with relevant diagrams.

QUESTION 3 (20 marks)

Good Taste Foods was a small snack food producer, based in Lubombo region. At the beginning of 2017 the company undertook a major expansion and went national. They doubled their plant capacity, opened new sales offices outside the province and launched an expensive advertising campaign. Their 2017 financial results were poor, to the dissatisfaction of the Board, shareholders, bankers, suppliers and other stakeholders. The 2016 and 2017 financial statements are presented hereunder (all figures in Emalangeni):

Statement of Financial Position of Good Taste Foods as at 31 December 2017.

	2017 E	2016 E
ASSETS		
Net non-current assets	939 790	344 800
Current Assets	1 926 802	1 124 000
Inventory	1 287 360	715 200
Accounts receivable	632 160	351 200
Cash	7 282	57 600
Total Assets	<u>2 866 592</u>	<u>1 468 800</u>
EQUITY and LIABILITIES		
Equity	492 592	663 768
Ordinary Share Capital	460 000	460 000
Retained Earnings	32 592	203 768
Liabilities	2 374 000	805 032
Long-term loans	723 432	323 432
Short term bank loans	636 808	200 000
Account payable	1 013 760	281 600
Total Equity and Liabilities	<u>2 866 592</u>	<u>1 468 800</u>

Statement of Comprehensive Income of Good Taste Foods for the year ending 31 December 2017

	2017	2016
Sales	6 034 000	3 432 000
less Cost of Goods Sold	5 528 000	2 864 000
less Operating expenses	636 948	377 572
PBIT	(130 948)	190 428
less Interest expense	136 012	43 828
PBT	(266 960)	146 600
less Taxes	*(106 784)	58 640
NPAT	<u>(160 176)</u>	<u>87 960</u>

* Due to insufficient taxable income in 2015 and 2016, the firm was able to obtain a tax refund in 2017.

Required:

Through the calculation of relevant ratios, analyse the Debt Management/Long-term solvency position the firm. Your analysis must include a description of what each ratio measures.

QUESTION 4 (20 marks)**Part A (12 marks)**

Devon plans to borrow E48 000 from LMN bank in order to buy a second hand car. The bank has offered him a 12% three year loan repaid annually.

Required:

- (a) Prepare an amortization schedule for the loan, showing how it will be repaid assuming;
- (i) Fixed instalment method
 - (ii) Fixed principal method
- (10 marks)**
- (b) Calculate the total interest payment under each method of repayment and state which method is more expensive.

(2 marks)

Part B (8 marks)

Portfolio A comprises two bonds: a 'zero-coupon bond' and a Kingdom of Eswatini government bond.

The 'zero' has a face value of E1000 and a maturity of five years.

The Kingdom of Eswatini government bond has a face value of E1000, a maturity of ten years and it has a coupon rate of 14%. The bond makes semi-annual coupon payments.

The Yield to Maturity on both these bonds is 12%.

Required:

- (a) Calculate the value of the zero-coupon bond and Kingdom of Eswatini government bond.
- (6 marks)**
- (b) Calculate the value of Portfolio A.

(2 marks)

QUESTION 5 (20 marks)

Zambesia Lubricants Limited (ZLL) wish to calculate their weighted average cost of capital.

Below is information extracted from the company's most recent Statement of Financial Position and the company's annual report.

1. The firm recently paid out a dividend of E1.50. The firm has a payout ratio of 75% and its Return on Equity (ROE) is 10%.
2. The firm has 5 million ordinary shares have a par value of E10 per share and are currently trading at E16.50 per share on the Eswatini Stock Exchange.
3. The firm has forty-five thousand semi-annual coupon bonds which have two-and-a-half years to maturity. The current yield to maturity is 8%. The par value is E 1000 per bond and the coupon rate is 10%.
4. The firm has 4 million irredeemable preference shares have a par value of E7, a coupon rate of 6%. The current price per share is E10.
5. The corporate tax rate is 35%.

Required:

- (a) Explain what a firm's cost of capital represents. **(1 marks)**
- (b) Calculate ZLL's cost of equity and preference shares. **(5 marks)**
- (c) Calculate the market value of ZLL's ordinary shares, preference shares, debentures and the total market value of the firm. **(9 marks)**
- (d) Calculate ZLL's Weighted Average Cost of Capital (WACC). **(5 marks)**

Round off all prices to the nearest cent, values to the nearest lilangeni, and interest factors and decimalized interest rates and weightings to four decimal places.

Question 6 (20 marks)

Smart Looks is a fashion design business. The owner, Ms Pumuzile Khumalo, is planning to request a line of credit from her bank. She needs to prepare a cash budget to present to her bank manager.

She has estimated the following sales forecasts:

	(E)
December 2018	220 000
January 2019	90 000
February 2019	180 000
March 2019	180 000

Actual sales for November 2018 are E360 000. Her credit and collection departments anticipate the following collection pattern:

Collections in the month of sale:	10%
Collections 30 days after sale:	75%
Collections 60 days after sale:	15%

Assume equal sales throughout the month.

Purchases of raw materials are made on the first day of each month, and amount to 50% of the following month's forecasted sales. These purchases are paid for 45 days after purchase.

Wages, salaries and other administration costs amount to E27 000 per month. Lease payments for machinery are E9 000 per month. Depreciation on equipment owned totals E36 000 per month. Income tax payments are due in December 2018 and January 2019 to E63 000 each. A progress payment of E180 000 on a new design studio must be paid in December 2018.

Cash on hand on 1st December 2018 will be E220 000 (due to brisk festive season), and a minimum cash balance of E90 000 will be maintained throughout the cash budget period.

Required:

Prepare a monthly cash budget for the three-month period from December 2018 to February 2019.

APPENDIX A: SELECTED RATIOS AND FORMULAE

$$\text{Quick Ratio} = (\text{Current Assets} - \text{Inventory}) / \text{Current Liabilities}$$

$$\text{ROA} = \text{NPAT} / \text{Total Assets}$$

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$

$$\text{Equity Multiplier} = \text{Total Assets} / \text{Equity}$$

$$\text{Inventory Turnover} = \text{Cost of Goods Sold} / \text{Inventory}$$

$$\text{Times Interest Earned} = \text{PBIT} / \text{Interest paid}$$

$$\text{Net Profit Margin} = \text{NPAT} / \text{Sales}$$

$$\text{P/E ratio} = \text{Market price per share} / \text{EPS}$$

$$\text{Total Debt ratio} = \text{Total debt} / \text{Total Assets}$$

$$\text{ROE} = \text{NPAT} / \text{Equity}$$

$$\text{Accounts receivable Period} = \text{Accounts Receivables} / \text{Sales} \times 360 \text{ days}$$

$$\text{Inventory period} = \text{Inventory} / \text{COGS} \times 360 \text{ days}$$

$$\text{Debt: Equity ratio} = \text{Total Debt} / \text{Total Equity}$$

$$\text{Total Asset Turnover} = \text{Sales} / \text{Total Assets}$$

$$\text{Cash ratio} = \text{Cash} / \text{Current Liabilities}$$

$$\text{ROE} = \text{PM} \times \text{TAT} \times \text{EM}$$

$$\text{FV of a lump sum} = \text{PV} \times (1 + r)^t \quad \text{PV of a lump sum} = \text{FV} / (1 + r)^t$$

$$\text{FV of annuity} = C \times \left(\frac{(1 + r)^t - 1}{r} \right) \quad \text{PV of annuity} = C \times \left(\frac{1 - \frac{1}{(1 + r)^t}}{r} \right)$$

$$\text{Bond Value} = C \times [1 - 1 / (1 + r)^t] / r + F / (1 + r)^t$$

$$P_0 = D_1 / (1 + r) + D_2 / (1 + r)^2 + \dots + D_t / (1 + r)^t + P_t / (1 + r)^t$$

$$R_E = \frac{D_0 (1 + g)}{P_0} + g$$

$$R_P = D / P_0$$

$$P_t = D_{t+1} / (R - g)$$

$$\text{WACC} = \left(\frac{E}{V} \times R_E \right) + \left(\frac{P}{V} \times R_P \right) + \left(\frac{D}{V} \times R_D \times (1 - T_c) \right)$$

$$R_E = R_F + \beta_E \times (R_M - R_F)$$

$$\text{YTM} = \frac{i + (F_d - V_d) / n}{(F_d + 2V_d) / 3}$$

Present value interest factor of an (ordinary) annuity of \$1 per period at i% for n periods, PVIFA(i,n).

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077	8.422	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.427	8.694	8.055	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.644	8.855	8.176	7.566	7.070	6.617	6.215	5.858	5.539	5.251	4.992
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.779	8.951	8.244	7.634	7.105	6.642	6.233	5.871	5.548	5.258	4.997
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.915	9.042	8.304	7.675	7.133	6.661	6.246	5.880	5.554	5.262	4.999

Present value interest factor of \$1 per period at i% for n periods, PVIF(i,n).																				
Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092	0.074	0.059	0.047	0.038	0.030	0.024	0.020	0.016	0.013	0.010
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057	0.044	0.033	0.026	0.020	0.015	0.012	0.009	0.007	0.005	0.004
35	0.706	0.500	0.355	0.253	0.181	0.130	0.094	0.068	0.049	0.036	0.026	0.019	0.014	0.010	0.008	0.006	0.004	0.003	0.002	0.002
40	0.672	0.453	0.307	0.208	0.142	0.097	0.067	0.046	0.032	0.022	0.015	0.011	0.008	0.005	0.004	0.003	0.002	0.001	0.001	0.001
50	0.608	0.372	0.228	0.141	0.087	0.054	0.034	0.021	0.013	0.009	0.005	0.003	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000

Future value interest factor of an ordinary annuity of \$1 per period at i% for n periods, FVIFA(i,n).

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2	2,010	2,020	2,030	2,040	2,050	2,060	2,070	2,080	2,090	2,100	2,110	2,120	2,130	2,140	2,150	2,160	2,170	2,180	2,190	2,200
3	3,030	3,060	3,091	3,122	3,153	3,184	3,215	3,246	3,278	3,310	3,342	3,374	3,407	3,440	3,473	3,506	3,539	3,572	3,606	3,640
4	4,060	4,122	4,184	4,246	4,310	4,375	4,440	4,506	4,573	4,641	4,710	4,779	4,850	4,921	4,993	5,066	5,141	5,215	5,291	5,368
5	5,101	5,204	5,309	5,416	5,526	5,637	5,751	5,867	5,985	6,105	6,228	6,353	6,480	6,610	6,742	6,877	7,014	7,154	7,297	7,442
6	6,152	6,308	6,468	6,633	6,802	6,975	7,153	7,336	7,523	7,716	7,913	8,115	8,323	8,536	8,754	8,977	9,207	9,442	9,683	9,930
7	7,214	7,434	7,662	7,898	8,142	8,394	8,654	8,923	9,200	9,487	9,783	10,089	10,405	10,730	11,067	11,414	11,772	12,142	12,523	12,916
8	8,286	8,583	8,892	9,214	9,549	9,897	10,260	10,637	11,028	11,436	11,859	12,300	12,757	13,233	13,727	14,240	14,773	15,327	15,902	16,499
9	9,369	9,755	10,159	10,583	11,027	11,491	11,978	12,488	13,021	13,579	14,164	14,776	15,416	16,085	16,786	17,519	18,285	19,086	19,923	20,799
10	10,462	10,950	11,464	12,006	12,578	13,181	13,816	14,487	15,193	15,937	16,722	17,549	18,420	19,337	20,304	21,321	22,393	23,521	24,709	25,959
11	11,567	12,169	12,808	13,486	14,207	14,972	15,784	16,645	17,560	18,531	19,561	20,655	21,814	23,045	24,349	25,733	27,200	28,755	30,404	32,150
12	12,683	13,412	14,192	15,026	15,917	16,870	17,888	18,977	20,141	21,384	22,713	24,133	25,650	27,271	29,002	30,850	32,824	34,931	37,180	39,581
13	13,809	14,680	15,618	16,627	17,713	18,882	20,141	21,495	22,953	24,523	26,212	28,029	29,985	32,089	34,352	36,786	39,404	42,219	45,244	48,497
14	14,947	15,974	17,086	18,292	19,599	21,015	22,550	24,215	26,019	27,975	30,095	32,393	34,883	37,581	40,505	43,672	47,103	50,818	54,841	59,196
15	16,097	17,293	18,599	20,024	21,579	23,276	25,129	27,152	29,361	31,772	34,405	37,280	40,417	43,842	47,580	51,660	56,110	60,965	66,261	72,035
16	17,258	18,639	20,157	21,825	23,657	25,673	27,888	30,324	33,003	35,950	39,190	42,753	46,672	50,980	55,717	60,925	66,649	72,939	79,850	87,442
17	18,430	20,012	21,762	23,698	25,840	28,213	30,840	33,750	36,974	40,545	44,501	48,884	53,739	59,118	65,075	71,673	78,979	87,068	96,022	105,93
18	19,615	21,412	23,414	25,645	28,132	30,906	33,999	37,450	41,301	45,599	50,396	55,750	61,725	68,394	75,836	84,141	93,406	103,74	115,27	128,12
19	20,811	22,841	25,117	27,671	30,539	33,760	37,379	41,446	46,018	51,159	56,939	63,440	70,749	78,969	88,212	98,603	110,28	123,41	138,17	154,74
20	22,019	24,297	26,870	29,778	33,066	36,786	40,995	45,762	51,160	57,275	64,203	72,052	80,947	91,025	102,44	115,38	130,03	146,63	165,42	186,69
25	28,243	32,030	36,459	41,646	47,727	54,865	63,249	73,106	84,701	98,347	114,41	133,33	155,62	181,87	212,79	249,21	292,10	342,60	402,04	471,98
30	34,785	40,568	47,575	56,085	66,439	79,058	94,461	113,28	136,31	164,49	199,02	241,33	293,20	356,79	434,75	530,31	647,44	790,95	966,71	1,182
35	41,660	49,994	60,462	73,652	90,320	111,43	138,24	172,32	215,71	271,02	341,59	431,66	546,68	693,57	881,17	1,121	1,427	1,817	2,314	2,948
40	48,886	60,402	75,401	95,026	120,80	154,76	199,64	259,06	337,88	442,59	581,83	767,09	1,013,	1,342,	1,779,	2,361	3,135	4,163	5,529	7,344
50	64,463	84,579	112,80	152,67	209,35	290,34	406,53	573,77	815,08	1,163,	1,668,	2,400,	3,459,	4,995	7,218	10,436	15,090	21,813	31,515	45,497

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	1,010	1,020	1,030	1,040	1,050	1,060	1,070	1,080	1,090	1,100	1,110	1,120	1,130	1,140	1,150	1,160	1,170	1,180	1,190	1,200
2	1,020	1,040	1,061	1,082	1,103	1,124	1,145	1,166	1,188	1,210	1,232	1,254	1,277	1,300	1,323	1,346	1,369	1,392	1,416	1,440
3	1,030	1,061	1,093	1,125	1,158	1,191	1,225	1,260	1,295	1,331	1,368	1,405	1,443	1,482	1,521	1,561	1,602	1,643	1,685	1,726
4	1,041	1,082	1,126	1,170	1,216	1,262	1,311	1,360	1,412	1,464	1,518	1,574	1,630	1,689	1,749	1,811	1,874	1,939	2,005	2,071
5	1,051	1,104	1,159	1,217	1,276	1,338	1,403	1,469	1,539	1,611	1,685	1,762	1,842	1,925	2,011	2,100	2,192	2,288	2,386	2,486
6	1,062	1,126	1,194	1,265	1,340	1,419	1,501	1,587	1,677	1,772	1,870	1,974	2,082	2,195	2,313	2,436	2,565	2,700	2,840	2,984
7	1,072	1,149	1,230	1,316	1,407	1,504	1,606	1,714	1,828	1,949	2,076	2,211	2,353	2,502	2,660	2,826	3,001	3,185	3,379	3,581
8	1,083	1,172	1,267	1,369	1,477	1,594	1,718	1,851	1,993	2,144	2,305	2,476	2,658	2,853	3,059	3,278	3,511	3,759	4,021	4,301
9	1,094	1,195	1,305	1,423	1,551	1,689	1,838	1,999	2,172	2,358	2,558	2,773	3,004	3,252	3,518	3,803	4,108	4,435	4,785	5,161
10	1,105	1,219	1,344	1,480	1,629	1,791	1,967	2,159	2,367	2,594	2,839	3,106	3,395	3,707	4,046	4,411	4,807	5,234	5,695	6,191
11	1,116	1,243	1,384	1,539	1,710	1,898	2,105	2,332	2,580	2,853	3,152	3,479	3,836	4,226	4,652	5,117	5,624	6,176	6,777	7,431
12	1,127	1,268	1,426	1,601	1,796	2,012	2,252	2,518	2,813	3,138	3,498	3,896	4,335	4,818	5,350	5,936	6,580	7,288	8,064	8,911
13	1,138	1,294	1,469	1,665	1,886	2,133	2,410	2,720	3,066	3,452	3,883	4,363	4,898	5,492	6,153	6,886	7,699	8,599	9,596	10,691
14	1,149	1,319	1,513	1,732	1,980	2,261	2,579	2,937	3,342	3,797	4,310	4,887	5,535	6,261	7,076	7,988	9,007	10,147	11,420	12,831
15	1,161	1,346	1,558	1,801	2,079	2,397	2,759	3,172	3,642	4,177	4,785	5,474	6,254	7,138	8,137	9,266	10,539	11,974	13,590	15,401
16	1,173	1,373	1,605	1,873	2,183	2,540	2,952	3,426	3,970	4,595	5,311	6,130	7,067	8,137	9,358	10,748	12,330	14,129	16,172	18,481
17	1,184	1,400	1,653	1,948	2,292	2,693	3,159	3,700	4,328	5,054	5,895	6,866	7,986	9,276	10,761	12,468	14,426	16,672	19,244	22,181
18	1,196	1,428	1,702	2,026	2,407	2,854	3,380	3,996	4,717	5,560	6,544	7,690	9,024	10,575	12,375	14,463	16,879	19,673	22,901	26,621
19	1,208	1,457	1,754	2,107	2,527	3,026	3,617	4,316	5,142	6,116	7,263	8,613	10,197	12,056	14,232	16,777	19,748	23,214	27,252	31,941
20	1,220	1,486	1,806	2,191	2,653	3,207	3,870	4,661	5,604	6,727	8,062	9,646	11,523	13,743	16,367	19,461	23,106	27,393	32,429	38,331
25	1,282	1,641	2,094	2,666	3,386	4,3	5,4	6,8	8,6	10,8	13,6	17,0	21,2	26,5	32,9	40,9	50,7	62,7	77,4	95,1
30	1,348	1,811	2,427	3,243	4,322	5,7	7,6	10,1	13,3	17,4	22,9	30,0	39,1	51,0	66,2	85,8	111,1	143,4	184,7	237,1
35	1,417	2,000	2,814	3,946	5,516	7,7	10,7	14,8	20,4	28,1	38,6	52,8	72,1	98,1	133,2	180,3	243,5	328,0	440,7	590,1
40	1,489	2,208	3,262	4,801	7,040	10,3	15,0	21,7	31,4	45,3	65,0	93,1	132,8	188,9	267,9	378,7	533,9	750,4	1,051,7	1,469,1
50	1,645	2,692	4,384	7,107	11,467	18,4	29,5	46,9	74,4	117,4	184,6	289,0	450,7	700,2	1,083,7	1,670,7	2,566,2	3,927,4	5,988,9	9,100,1