



The University of Fiji
(An Entity of Arya Pratinidhi Sabha of Fiji)



SCHOOL OF BUSINESS AND ECONOMICS
Trimester 3, 2025

FINAL EXAMINATION PAPER

MBA409: FINANCIAL MANGAGEMENT

Important Instructions to Students

1. Read the questions, instructions carefully and answer the questions.
2. You are allowed an **extra 10 minutes reading time** (during this time, you are not allowed to write with pen) and **180 minutes (3 Hours) to complete this paper.**
3. Silent, non-programmable calculators are allowed but not supplied.
4. Write all your answers in the answer booklet provided. If you need extra sheets, please ask from the supervisor. Write your name, course code and student identification number in the answer booklet and in the attendance sheet.
5. **This Final Course Examination Paper is worth 100 marks and contributes 50% of the total course assessment.** Students must **at least score 40%** in this final exam to pass the course (subject to achieving an aggregate score of **at least 50%** in the course).
6. Write all your answers legibly. The marker has the right to award zero marks for answers that are not legible.
7. There are 7 questions, and all are **compulsory.**
8. Show ALL necessary working for practical questions.
9. This is a **Closed Book Examination.** The University views plagiarism, cheating and dishonest practice as serious offences and if found, offenders will be penalized.

Examination Paper Content (Format)

Question	Content	Marks	Suggested Time
1	Theory	12	22
2	Evaluating Business Proposal	10	18
3	Stock Valuation	10	18
4	Risk & Return	15	27
5	Capital Budgeting	15	27
6	Cost of Capital	15	27
7	Short Theory & Practical Questions	23	41
TOTAL		100	180 Minutes

*Registered with the Fiji Higher Education Commission as a University under the Higher Education Act 2008.
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Read the following news article and answer the questions that follow.

South Pacific Stock Exchange (SPX): \$43m dividend declared in 4 months of 2025

Companies listed on the South Pacific Stock Exchange (SPX) have collectively declared \$43 million in dividends from January to April 2025, continuing a strong trend of delivering shareholder value. This, according to a statement from SPX, reflected a 116 per cent increase compared to the same period in 2024, when declared dividends totalled \$19.95m.

Last year, a total of \$76m was paid out across the entire 2024 calendar year — the highest annual dividend payout on SPX record. So far this year, dividend payout on SPX has passed last year's halfway mark.

SPX chief executive officer Sheraj Obeyesekere said the Fijian stock market has long demonstrated a strong culture of rewarding shareholders through consistent dividend payments. "In addition to capital gains, where investors benefit by selling shares at a higher price than they purchased, dividends form a key part of the return for investors," Mr Obeyesekere said. "The Fijian market benefits from companies that regularly prioritise shareholder returns."

He said between 2000 and the end of 2024, companies listed on SPX had paid out over \$1b in dividends, highlighting the market's long-term value for investors. "Dividends are payments made by a company to its shareholders, typically drawn from its profits. "They serve as a way for companies to share a portion of their earnings with investors, providing a return on their investment," he said.

*(Source :Retrieved 7th May 2025 from: <https://www.fijitimes.com.fj/43m-dividend-declared-in-4-months>)
(Story by Dionisia Tabureguci)*

Required

- (a) As a potential investor, discuss some of the factors you would consider before making the decision to invest in the listed companies at South Pacific Stock Exchange?

(word limit: 300)

- (b) Discuss some of the factors listed companies in Fiji need to consider when determining the dividend payout to the shareholders.

(word limit: 300)

(6 + 6 marks)

QUESTION 2**Evaluating Business Proposal****(10 marks)**

Due to rapid expansion in Suva City area, Western Hardware Company Limited is exploring the option of selling its Rakiraki branch. It has received an offer of \$1,600,000 from Ra Hardware Limited. Western Hardware has a policy of evaluating any business over a 7-year period. The table below depicts the projected cash flows for the next 7 years (end). The average required rate of return for hardware business is 20%.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Cashflow (\$)	300,000	375,000	450,000	500,000	525,000	550,000	600,000

Required

- Evaluate the business proposal offer from Ra Hardware Limited and advise Western Hardware Company Limited.
- Calculate the equivalent amount of cash flows per year at 20% required rate of return (i.e. determine the annuity amount).
- Assume the required rate of return was 15% rather than 20%. Re-evaluate the project and advise the management of Western Hardware Company Limited accordingly.

(4 + 2 + 4 marks)

QUESTION 3**Stock Valuation****(10 marks)**

Hakwa Hotels & Tours Limited made significant investment of \$10m to its business. This is expected to provide competitive edge for at least next 4 years before the growth stabilises with the market. The stockholders required rate of return is benchmarked at 12% per annum on company's stock. The last dividend paid yesterday was \$1.00 per share.

Year	1st	2nd	3rd	4th	5th Year Onwards
Dividend Growth Rate	25%	20%	15%	15%	8%

Required

- Calculate the expected dividend per share for Years 1 - 5.
- Calculate the present value of the company's stock (P_0).
- Calculate the expected dividend yield and the capital gains during the current year.

(4 + 4 + 2 marks)

QUESTION 4**Risk & Return****(15 marks)**

City Investment Limited has recently completed its 5-year strategic plan. One of the strategies identified for future growth is diversification of the business and investing in stock market. The management has decided to invest \$2 million in 4 stocks. The current risk-free rate is 4% and the likely market return for the next period is 15%.

Stock	P	Q	R	S
Investment (\$000's)	300,000	600,000	400,000	700,000
Beta	1.40	2.10	(1.20)	0.80

Required

- (a) Define 'Beta' of a stock and provide physical interpretation for stock 'R' beta.
- (b) Calculate the portfolio beta for City Investment Limited.
- (c) Estimate the security market line (SML) equation.
- (d) Calculate the company's required rate of return for the next period.
- (e) The financial manager is suggesting investing an additional \$500,000 with expected return of 20% and a likely beta of 1.30. Determine whether it would be worthwhile to consider suggestion from the finance manager.

(3 + 3 + 3 + 3 + 3marks)

QUESTION 5**Capital Budgeting****(15 marks)**

The management of PQR Bottling Company Limited has decided to introduce two new products in the local market. After a thorough research, the company is confident the two new products will be able to gain at least 25% of the market share. However, the financial controller would like to carry out the financial evaluation based on net present value criteria as it will require an investment of \$1,500,000 for the purchase of new machinery in Year 0. The other relevant information regarding the new product for the next 5 years is as follows:

Additional Information

- PQR Bottling Company Limited has a company policy to evaluate all capital budgeting projects over a 5-year period.
- The two new products will generate revenue of \$500,000 in Year 1 with 10% increase in year over year from Years 2 to 5.
- In addition, the introduction of two new products will result in net incremental sale of \$50,000 in Year 1 of its existing Product BBX with 5% increase in year over year from Years 2 to 5.
- The operating cost is expected to be \$200,000 in Year 1 with 5% increase in year over year from Years 2 to 5.
- The introduction of the two new products will incur incremental fixed costs of \$60,000 per year.
- The project investment cost of \$1,500,000 for the purchase of the new machinery needs to be fully depreciated using straight line method over the 5-year period (assume zero salvage value).
- Applicable current corporate tax rate of 20% will apply.
- The company has a policy of using 12% as cost of capital for evaluating any capital budget project.

Required

- (a) Using the Net Present Value (NPV) criteria, evaluate the financial impact of investing in the two new products.
- (b) Explain the importance of evaluating any capital budget projects using NPV criteria rather than qualitative factors or based on management preference.

(12 + 3 marks)

QUESTION 6**Cost of Capital****(15 marks)**

Capital Investment Company Limited has in principle agreed for a capital budget project of \$1,600,000 for 2026. The Debt: Equity ratio of 40:60 will be maintained. Other relevant information is as follows:

- Cost of debt = 12% p.a.
- Current market share price = \$22
- Latest dividend/share paid was \$2.00
- Growth rate is assumed to be 8%
- Flotation cost (issue of new shares) = 15%
- Expected after tax annual earnings = \$1,200,000
- Dividend Payout ratio = 40%
- Tax rate = 20%

Required

- (a) Calculate the relevant weighted average cost of capital for Capital Investment Company Limited. (You need to demonstrate all necessary calculations including after tax cost of debt, cost of internal equity, cost of external equity, project cost to be funded by debt & equity, weighted average cost of capital and the breakpoints).
- (b) The \$1,600,000 capital budget project for 2026 consists of 6 projects with the projected cost and expected returns. Based on the relevant weighted average cost of capital in part (a):
- (i) Recommend which of the following projects should the company pursue in 2026.
 - (ii) State the total project cost to be pursued in 2026.

Projects	Cost (\$)	Expected Return
AX01	250,000	17%
BX02	250,000	14%
CX03	350,000	18%
DX04	380,000	22%
EX05	220,000	13%
FX06	150,000	16%
TOTAL	1,600,000	

(1 + 2 + 2 + 2 + 2 + 1 + 5 marks)

(a) Marika invested \$170,000 in Life Insurance Corporation of India (LIC) under the single premium policy 10 years ago when he was 35 years old. On his 45th birthday (today), Marika is expected to receive \$237,000. He currently holds a managerial position in a popular hardware company and does not have any immediate need for additional cash for the next 10 years. He is exploring two investment options and seeks your advice.

- **Option 1:** Invest \$237,000 in his Fiji National Provident Fund (FNPF) account for the next 10 years.
- **Option 2:** Buy a freehold land in a popular location worth \$237,000 which is expected to increase in value over the 10-year period. Based on the valuation of the area, the land is expected to be worth \$550,000 (net of capital gains tax) after 10 years.

Required

- (i) Calculate the total amount available in Marika's FNPF account on his 55th birthday with the assumption the compound interest rate will remain 9% per annum.
- (ii) Evaluate the two options and recommend the preferred option based on maximising wealth to the investor.

(3 + 3 marks)

(b) Vanua Company's bond has 5 years remaining to maturity. The coupon interest rate is 10% per annum. The par value of the bond is \$1,000. Calculate the current value of the bond if the market interest rate decreases to 8% per annum.

(5 marks)

(c) The Financial Controller of ABC Company Limited suggested to the Board of Directors (BOD) to maintain an optimal Debt to Equity in the proportion 45%:55%. However, the BOD advised that Debt should not exceed over 30%. Discuss at least 3 reasons why the BOD recommended for sub-optimal Debt: Equity proportion.

(6 marks)

(d) Within your first 2 weeks of joining Jeks Hardware Limited, you identified inventory is not managed effectively and this is having an impact on the organisation's working capital management. Discuss some of the strategies you would recommend to better manage inventory and improve working capital for Jeks Hardware Limited.

(6 marks)

The End

Formulas

1. $YTM = [I + (F-P)/n] / [(F+P)/2]$

I= Interest, F= Par Value of Bond, P = Present Value of Bond, n= years to maturity

2. $Bond\ Value = [Interest \times PVAF@ r\%, n\ periods] + [Par\ Value \times PVF @ r\%, n\ periods]$

3. $Stock\ Price\ (P_0) = D_1 / (1 + r)^1 + D_2 / (1 + r)^2 + \dots + D_n / (1+r)^n + [D_n (1+g)/(ks-g)] / (1+r)^n$

4. $Dividend\ Yield = D_1 / P_0$

5. $Capital\ Gains = (P_1 - P_0) / P_0$

6. $Current\ Bond\ Yield = Interest / Bond\ Value$

7. $Capital\ Gains\ (Bond) = (VB_2 - VB_1) / VB_1$

8. $E(R_i) = R_f + \beta_i \times [(E(R_m) - R_f)]$

9. $Cost\ of\ Debt = Interest\ Rate \times (1-T)$

10. $Cost\ of\ Internal\ Equity\ (Retained\ Earnings) = D_1 / P_0 + g$

11. $Cost\ of\ New\ Equity = [D_1 / (P_0 \times (1 - flotation\ cost\ \%))] + g$

12. $WACC = (\% Debt \times Cost\ of\ Debt - Net\ of\ Tax) + (\% Equity \times Cost\ of\ Applicable\ Equity)$

13. $Expected\ EPS = EPS \times Prob + \dots$

14. $SD\ of\ EPS = Sq.\ Root\ [(EPS - Exp\ EPS)^2 \times Prob + \dots]$

15. $Coefficient\ of\ Variation = SD\ EPS / Exp\ EPS$

16. $Share\ Price = DPS / Expected\ Return$

17.

Two Stock Risk Calculation: $\sigma^2_p = [w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2] + 2 (w_1 w_2) Corr.\ Coef.\ (R_1, R_2)$

$[(\% Investment\ in\ Stock\ X^2 \times SD\ Stock\ X^2) + (\% Investment\ in\ Stock\ Y^2 \times SD\ Stock\ Y^2) + (2 \times \% Investment\ in\ Stock\ X \times \% Investment\ in\ Stock\ Y \times Corr.\ Coef. \times SD\ for\ Stock\ X \times SD\ for\ Stock\ Y)]$

Table 1 Future Value of \$1
 $FV = \$1(1 + r)^n$

n\i	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	20.0%
1	1.01000	1.01500	1.02000	1.02500	1.03000	1.03500	1.04000	1.04500	1.05000	1.05500	1.06000	1.07000	1.08000	1.09000	1.10000	1.11000	1.12000	1.20000
2	1.02010	1.03022	1.04040	1.05063	1.06090	1.07123	1.08160	1.09203	1.10250	1.11303	1.12360	1.14490	1.16640	1.18810	1.21000	1.23210	1.25440	1.44000
3	1.03030	1.04568	1.06121	1.07689	1.09273	1.10872	1.12486	1.14117	1.15763	1.17424	1.19102	1.22804	1.26549	1.30330	1.34150	1.38000	1.41880	1.72800
4	1.04060	1.06136	1.08263	1.10361	1.12551	1.14752	1.16986	1.19252	1.21551	1.23882	1.26248	1.30680	1.36049	1.41156	1.46410	1.51807	1.57352	2.07360
5	1.05101	1.07728	1.10408	1.13141	1.15927	1.18769	1.21665	1.24618	1.27628	1.30696	1.33823	1.40255	1.46933	1.53862	1.61051	1.68506	1.76234	2.49932
6	1.06152	1.09344	1.12616	1.15969	1.19405	1.22926	1.26532	1.30226	1.34010	1.37884	1.41852	1.50073	1.58687	1.67710	1.77156	1.87041	1.97382	2.98598
7	1.07214	1.10984	1.14869	1.18869	1.22987	1.27228	1.31593	1.36086	1.40710	1.45466	1.50363	1.60578	1.71382	1.82804	1.94872	2.07616	2.21068	3.58318
8	1.08286	1.12649	1.17166	1.21840	1.26677	1.31681	1.36857	1.42210	1.47746	1.53469	1.59385	1.71819	1.85093	1.99256	2.14359	2.30454	2.47596	4.29982
9	1.09369	1.14339	1.19509	1.24886	1.30477	1.36290	1.42331	1.48610	1.55133	1.61909	1.68948	1.83846	1.99900	2.17189	2.35795	2.55804	2.77308	5.15778
10	1.10462	1.16054	1.21899	1.28008	1.34392	1.41060	1.48024	1.55297	1.62889	1.70814	1.79085	1.96715	2.15892	2.36736	2.59374	2.83942	3.10585	6.19174
11	1.11567	1.17795	1.24337	1.31209	1.38423	1.45997	1.53945	1.62285	1.71034	1.80209	1.89830	2.10485	2.33164	2.58043	2.85312	3.15176	3.47855	7.43008
12	1.12683	1.19562	1.26824	1.34489	1.42576	1.51107	1.60103	1.69588	1.79586	1.90121	2.01220	2.25219	2.51817	2.81266	3.13843	3.49845	3.89598	8.91610
13	1.13809	1.21355	1.29361	1.37851	1.46853	1.56396	1.66507	1.77220	1.88565	2.00577	2.13293	2.40985	2.71962	3.06530	3.45227	3.88328	4.36349	10.69932
14	1.14947	1.23176	1.31946	1.41297	1.51259	1.61869	1.73168	1.85194	1.97993	2.11609	2.26090	2.57853	2.93719	3.34173	3.79750	4.31044	4.88711	12.83918
15	1.16097	1.25023	1.34867	1.44830	1.55797	1.67835	1.80094	1.93528	2.07893	2.23248	2.39658	2.75903	3.17217	3.64248	4.17725	4.78459	5.47357	15.40702
16	1.17258	1.26899	1.37279	1.48451	1.60471	1.73389	1.87296	2.02237	2.18287	2.35526	2.54035	2.95216	3.42594	3.97031	4.59497	5.31089	6.13039	18.48843
17	1.18430	1.28802	1.40024	1.52162	1.65285	1.79468	1.94790	2.11330	2.29202	2.48480	2.69277	3.15882	3.70002	4.32763	5.05447	5.89509	6.86604	22.18611
18	1.19615	1.30734	1.42825	1.55946	1.70243	1.85749	2.02562	2.20848	2.40662	2.62147	2.85434	3.37993	3.99602	4.71712	5.55992	6.54355	7.68997	26.62333
19	1.20811	1.32895	1.45681	1.59865	1.75351	1.92250	2.10665	2.30786	2.52695	2.76565	3.02560	3.61653	4.31570	5.14166	6.11591	7.26234	8.61276	31.94800
20	1.22019	1.34686	1.48595	1.63862	1.80611	1.98979	2.19112	2.41171	2.65330	2.91776	3.20714	3.86968	4.66096	5.60441	6.72750	8.06231	9.64629	38.23760
21	1.23239	1.36706	1.51667	1.67958	1.86029	2.05943	2.27877	2.52824	2.79896	3.09203	3.41956	4.14056	5.03383	6.10861	7.40025	8.94917	10.80385	46.00512
25	1.28243	1.45095	1.64061	1.85394	2.09378	2.36324	2.66594	3.00543	3.38635	3.81339	4.29187	5.42743	6.84988	8.62308	10.83471	13.58546	17.00006	95.39622
30	1.34785	1.56308	1.81136	2.09757	2.42726	2.80679	3.24340	3.74532	4.32194	4.98395	5.74249	7.61226	10.06266	13.26768	17.44940	22.89230	29.95992	227.37631
40	1.48886	1.81402	2.20804	2.68506	3.26204	3.95926	4.80102	5.81636	7.03999	8.51331	10.28572	14.97446	21.72452	31.40942	45.25926	65.09087	93.05097	1469.77160

TABLE 2 Present Value of \$1

$$PV = \frac{\$1}{(1 + i)^n}$$

n/	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	20.0%
1	0.99010	0.98522	0.98039	0.97561	0.97087	0.96618	0.96154	0.95694	0.95238	0.94787	0.94340	0.93898	0.93458	0.93019	0.92583	0.92149	0.91717	0.89333
2	0.98030	0.97066	0.96117	0.95181	0.94260	0.93351	0.92456	0.91573	0.90703	0.89845	0.89000	0.88164	0.87344	0.86534	0.85734	0.84943	0.84161	0.81777
3	0.97059	0.95632	0.94232	0.92860	0.91514	0.90194	0.88900	0.87630	0.86384	0.85161	0.83962	0.82780	0.81613	0.80459	0.79317	0.78187	0.77068	0.74684
4	0.96098	0.94218	0.92385	0.90595	0.88849	0.87144	0.85480	0.83856	0.82270	0.80722	0.79209	0.77729	0.76280	0.74863	0.73477	0.72121	0.70795	0.68411
5	0.95147	0.92826	0.90573	0.88385	0.86261	0.84197	0.82193	0.80245	0.78353	0.76513	0.74726	0.72991	0.71308	0.69668	0.68069	0.66511	0.64993	0.62609
6	0.94205	0.91454	0.88797	0.86230	0.83748	0.81350	0.79031	0.76790	0.74622	0.72525	0.70496	0.68524	0.66604	0.64733	0.62911	0.61138	0.59414	0.57030
7	0.93272	0.90103	0.87056	0.84127	0.81309	0.78599	0.75992	0.73483	0.71068	0.68744	0.66506	0.64347	0.62275	0.60289	0.58377	0.56528	0.54742	0.52358
8	0.92348	0.88771	0.85349	0.82075	0.78941	0.75941	0.73069	0.70319	0.67684	0.65160	0.62741	0.60420	0.58201	0.56082	0.54063	0.52143	0.50323	0.47939
9	0.91434	0.87459	0.83676	0.80073	0.76642	0.73373	0.70259	0.67290	0.64461	0.61763	0.59199	0.56763	0.54453	0.52259	0.50179	0.48201	0.46323	0.43939
10	0.90529	0.86167	0.82085	0.78120	0.74409	0.70892	0.67556	0.64393	0.61391	0.58543	0.55839	0.53265	0.50823	0.48501	0.46397	0.44401	0.42513	0.40129
11	0.89632	0.84893	0.80426	0.76214	0.72242	0.68495	0.64958	0.61630	0.58466	0.55491	0.52619	0.49850	0.47282	0.44913	0.42743	0.40771	0.38907	0.36523
12	0.88745	0.83639	0.78849	0.74356	0.70138	0.66178	0.62460	0.58966	0.55684	0.52598	0.49697	0.46981	0.44451	0.42113	0.40071	0.38223	0.36475	0.34091
13	0.87866	0.82403	0.77303	0.72542	0.68095	0.63940	0.60057	0.56427	0.53032	0.49856	0.46884	0.44149	0.41656	0.39403	0.37391	0.35521	0.33793	0.31409
14	0.86996	0.81185	0.75788	0.70773	0.66112	0.61778	0.57748	0.53997	0.50507	0.47257	0.44230	0.41436	0.38882	0.36573	0.34509	0.32689	0.31011	0.28627
15	0.86135	0.79985	0.74301	0.69047	0.64186	0.59689	0.55526	0.51672	0.48102	0.44793	0.41727	0.38903	0.36324	0.34093	0.32113	0.30383	0.28805	0.26421
16	0.85282	0.78803	0.72845	0.67362	0.62317	0.57671	0.53391	0.49447	0.45811	0.42458	0.39365	0.36523	0.33934	0.31593	0.29509	0.27680	0.26002	0.23618
17	0.84438	0.77639	0.71416	0.65720	0.60502	0.55720	0.51337	0.47316	0.43630	0.40245	0.37136	0.34287	0.31697	0.29356	0.27272	0.25443	0.23865	0.21481
18	0.83602	0.76491	0.70016	0.64117	0.58739	0.53836	0.49363	0.45280	0.41552	0.38147	0.35034	0.32185	0.29595	0.27254	0.25170	0.23341	0.21763	0.19379
19	0.82774	0.75361	0.68643	0.62553	0.57029	0.52016	0.47464	0.43330	0.39573	0.36158	0.33051	0.29261	0.26671	0.24330	0.22246	0.20417	0.18839	0.16455
20	0.81954	0.74247	0.67297	0.61027	0.55368	0.50257	0.45639	0.41464	0.37689	0.34273	0.31180	0.27390	0.24800	0.22510	0.20526	0.18847	0.17369	0.15085
21	0.81143	0.73150	0.65978	0.59539	0.53755	0.48557	0.43883	0.39679	0.35894	0.32496	0.29416	0.25626	0.23036	0.20746	0.18762	0.17083	0.15605	0.13321
24	0.78757	0.69954	0.62172	0.55288	0.49193	0.43796	0.39012	0.34770	0.31007	0.27666	0.24696	0.19715	0.15770	0.12640	0.10353	0.08810	0.07588	0.05204
25	0.77977	0.68921	0.60953	0.53939	0.47761	0.42315	0.37512	0.33273	0.29530	0.26223	0.23300	0.19425	0.14602	0.11597	0.09220	0.07361	0.05882	0.03498
28	0.75684	0.65910	0.57437	0.50086	0.43708	0.38165	0.33348	0.29157	0.25569	0.22332	0.19563	0.15840	0.11591	0.08855	0.06934	0.05382	0.04187	0.02803
29	0.74934	0.64936	0.56311	0.48866	0.42435	0.36875	0.32065	0.27902	0.24295	0.21168	0.18456	0.14856	0.10733	0.08215	0.06304	0.04949	0.03738	0.02354
30	0.74192	0.63976	0.55207	0.47674	0.41199	0.35628	0.30832	0.26700	0.23138	0.20044	0.17411	0.13813	0.09928	0.07537	0.05731	0.04568	0.03338	0.02054
31	0.73458	0.63031	0.54125	0.46511	0.39999	0.34423	0.29646	0.25550	0.22036	0.19018	0.16425	0.12827	0.09202	0.06915	0.05210	0.04035	0.02780	0.01496
40	0.67165	0.55126	0.45289	0.37243	0.30656	0.25257	0.20829	0.17193	0.14205	0.11746	0.09722	0.08678	0.06603	0.05184	0.03209	0.01538	0.01075	0.00068

TABLE 3 Future Value of an Ordinary Annuity of \$1

$$FVA = \frac{(1 + i)^n - 1}{i}$$

n	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	20.0%
1	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
2	2.0100	2.0150	2.0200	2.0250	2.0300	2.0350	2.0400	2.0450	2.0500	2.0550	2.0600	2.0700	2.0800	2.0900	2.1000	2.1100	2.1200	2.2000
3	3.0301	3.0452	3.0604	3.0756	3.0909	3.1062	3.1216	3.1370	3.1525	3.1680	3.1836	3.2149	3.2464	3.2781	3.3100	3.3421	3.3744	3.6400
4	4.0604	4.0909	4.1216	4.1525	4.1836	4.2149	4.2465	4.2782	4.3101	4.3423	4.3746	4.4399	4.5061	4.5731	4.6410	4.7097	4.7793	5.3680
5	5.1010	5.1523	5.2040	5.2563	5.3091	5.3625	5.4163	5.4707	5.5256	5.5811	5.6371	5.7507	5.8666	5.9847	6.1051	6.2278	6.3528	7.4416
6	6.1520	6.2296	6.3081	6.3877	6.4684	6.5502	6.6330	6.7169	6.8019	6.8881	6.9753	7.1533	7.3359	7.5233	7.7156	7.9129	8.1152	9.9299
7	7.2135	7.3230	7.4343	7.5474	7.6625	7.7794	7.8983	8.0192	8.1420	8.2669	8.3938	8.6540	8.9228	9.2004	9.4872	9.7833	10.0890	12.9159
8	8.2857	8.4328	8.5830	8.7361	8.8923	9.0517	9.2142	9.3800	9.5491	9.7216	9.8975	10.2598	10.6366	11.0285	11.4359	11.8594	12.2997	16.4991
9	9.3685	9.5593	9.7546	9.9545	10.1591	10.3685	10.5828	10.8021	11.0266	11.2563	11.4913	11.9780	12.4876	13.0210	13.5795	14.1640	14.7757	20.7989
10	10.4622	10.7027	10.9497	11.2034	11.4639	11.7314	12.0061	12.2882	12.5779	12.8754	13.1808	13.6164	14.0866	15.1929	15.9374	16.7220	17.5487	26.9587
11	11.5668	11.8633	12.1687	12.4835	12.8078	13.1420	13.4864	13.8412	14.2068	14.5835	14.9716	15.7836	16.6455	17.5603	18.5312	19.5614	20.6546	32.1504
12	12.6825	13.0412	13.4121	13.7956	14.1920	14.6020	15.0258	15.4640	15.9171	16.3856	16.8699	17.8885	18.9771	20.1407	21.3843	22.7132	24.1331	39.5805
13	13.8093	14.2668	14.8003	15.3404	15.6178	16.1130	16.6268	17.1599	17.7130	18.2868	18.8821	20.1406	21.4953	22.9534	24.5227	26.2116	28.0291	48.4966
14	14.9474	15.4504	15.9739	16.5190	17.0863	17.6770	18.2919	18.9321	19.5986	20.2928	21.0151	22.5505	24.2149	26.0192	27.9750	30.0949	32.3926	59.1959
15	16.0969	16.6821	17.2934	17.9319	18.5989	19.2957	20.0236	20.7841	21.5786	22.4087	23.2760	25.1290	27.1521	29.3609	31.7725	34.4054	37.2797	72.0351
16	17.2579	17.9324	18.6393	19.3802	20.1569	20.9710	21.8245	22.7193	23.6575	24.6411	25.6725	27.8881	30.3243	33.0034	35.9497	39.1899	42.7533	87.4421
17	18.4304	19.2014	20.0121	20.8647	21.7616	22.7050	23.6975	24.7417	25.8404	26.9964	28.2129	30.8402	33.7502	36.9737	40.5447	44.5008	48.8837	105.9306
18	19.6147	20.4894	21.4123	22.3863	23.4144	24.4997	25.6464	26.8551	28.1324	29.4812	30.9057	33.9990	37.4502	41.3013	45.5992	50.3959	55.7497	128.1167
19	20.8109	21.7967	22.8406	23.9460	25.1169	26.3572	27.6712	29.0636	30.5390	32.1027	33.7600	37.3790	41.4463	46.0785	51.1591	56.9395	63.4397	154.7400
20	22.0190	23.1237	24.2974	25.5447	26.8704	28.2797	29.7781	31.3714	33.0660	34.8683	36.7856	40.9955	45.7620	51.1601	57.2750	64.2028	72.0524	186.6880
21	23.2392	24.4705	25.7833	27.1833	28.6765	30.2695	31.9692	33.7831	35.7193	37.7861	39.9927	44.8652	50.4229	56.7645	64.0025	72.2651	81.6987	228.0256
30	34.7849	37.5387	40.5681	43.9927	47.5754	51.6227	56.0849	61.0071	66.4388	72.4355	79.0582	94.4608	113.2832	136.3075	164.4940	199.0209	241.3327	1181.8816
40	48.8864	54.2679	60.4020	67.4026	75.4013	84.5503	95.0255	107.0303	120.7998	136.6056	154.7620	199.6351	259.0565	337.8824	442.5926	581.8261	767.0914	7343.8578

TABLE 4 Present Value of an Ordinary Annuity of \$1

$$PVA = \frac{1 - \frac{1}{(1 + r)^n}}{r}$$

n/1	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	20.0%
1	0.99010	0.98522	0.98039	0.97561	0.97087	0.96618	0.96154	0.95694	0.95238	0.94787	0.94340	0.93458	0.92593	0.91743	0.90909	0.90090	0.89286	0.83333
2	1.97040	1.95588	1.94156	1.92742	1.91347	1.89969	1.88609	1.87267	1.85941	1.84632	1.83339	1.80802	1.78326	1.75911	1.73554	1.71252	1.69005	1.52778
3	2.94099	2.91220	2.88386	2.85602	2.82861	2.80164	2.77509	2.74896	2.72325	2.69793	2.67301	2.62432	2.57710	2.53129	2.48685	2.44371	2.40183	2.10648
4	3.90197	3.85438	3.80773	3.76197	3.71710	3.67308	3.62990	3.58753	3.54595	3.50515	3.46511	3.38721	3.31213	3.23972	3.16987	3.10245	3.03735	2.59873
5	4.85343	4.78264	4.71346	4.64583	4.57971	4.51505	4.45182	4.38998	4.32948	4.27028	4.21236	4.10020	3.99271	3.88965	3.79079	3.69590	3.60478	2.99061
6	5.79548	5.69719	5.60143	5.50813	5.41719	5.32855	5.24214	5.15787	5.07569	4.99553	4.91732	4.76654	4.62288	4.48592	4.35526	4.23054	4.11141	3.32551
7	6.72819	6.59821	6.47199	6.34939	6.23028	6.11454	6.00205	5.89270	5.78637	5.68297	5.58238	5.38929	5.20637	5.03295	4.86842	4.71220	4.56376	3.60459
8	7.65168	7.48593	7.32548	7.17014	7.01969	6.87396	6.73274	6.59589	6.46321	6.33457	6.20979	5.97130	5.74664	5.53482	5.33493	5.14612	4.96764	3.83716
9	8.56602	8.36052	8.16224	7.97087	7.78611	7.60769	7.43533	7.26879	7.10782	6.95220	6.80169	6.51523	6.24689	5.99525	5.75902	5.53705	5.32825	4.03997
10	9.47130	9.22218	8.98259	8.75206	8.53020	8.31661	8.11090	7.91272	7.72173	7.53763	7.36009	7.02358	6.71808	6.41766	6.14457	5.88923	5.65022	4.19287
11	10.36763	10.07112	9.78685	9.51421	9.25282	9.00155	8.76048	8.52892	8.30641	8.09254	7.88687	7.49867	7.13896	6.80519	6.49506	6.20652	5.93770	4.32706
12	11.25508	10.90751	10.57534	10.25776	9.95400	9.66332	9.38507	9.11858	8.86325	8.61852	8.38384	7.94329	7.53608	7.16073	6.81369	6.49236	6.19437	4.43922
13	12.13374	11.73153	11.34837	10.98319	10.63496	10.30274	9.98565	9.68285	9.39357	9.11708	8.85268	8.35765	7.90378	7.48690	7.10036	6.74987	6.42355	4.53268
14	13.00370	12.54338	12.10625	11.69091	11.29607	10.92052	10.56312	10.22283	9.89864	9.58965	9.29498	8.74547	8.24424	7.78615	7.36669	6.98187	6.62817	4.61057
15	13.86505	13.34323	12.84926	12.38138	11.93794	11.51741	11.11839	10.73955	10.37966	10.03758	9.71225	9.10791	8.55948	8.06069	7.60608	7.19087	6.81086	4.67547
16	14.71767	14.13126	13.57771	13.05500	12.56110	12.09412	11.65230	11.23402	10.83777	10.46216	10.10590	9.44665	8.85137	8.31256	7.82371	7.37916	6.97399	4.72956
17	15.56225	14.90765	14.29187	13.71220	13.16612	12.65132	12.16567	11.70719	11.27407	10.86461	10.47726	9.76322	9.12164	8.54363	8.02155	7.54879	7.11963	4.77463
18	16.39827	15.67256	14.99203	14.35336	13.75351	13.18968	12.65930	12.15999	11.68959	11.24607	10.82760	10.05909	9.37189	8.75563	8.20141	7.70162	7.24967	4.81219
19	17.22601	16.42617	15.67846	14.97889	14.32280	13.70984	13.13394	12.59329	12.08532	11.60765	11.15812	10.33540	9.60360	8.95011	8.36492	7.83929	7.36578	4.84350
20	18.04555	17.18864	16.35143	15.58916	14.87747	14.21240	13.59033	13.00794	12.46221	11.95038	11.46992	10.59401	9.81815	9.12855	8.51356	7.96332	7.46944	4.86958
21	18.85698	17.90014	17.01121	16.18455	15.41502	14.69797	14.02916	13.40472	12.82115	12.27524	11.76488	10.83553	10.01680	9.29224	8.64869	8.07507	7.56200	4.89132
25	22.02316	20.71961	19.52346	18.42438	17.41315	16.48151	15.62208	14.82821	14.09394	13.41392	12.78336	11.65358	10.67478	9.82258	9.07704	8.42174	7.84314	4.94759
30	25.80771	24.01584	22.39646	20.93029	19.60044	18.39205	17.29203	16.28889	15.37245	14.53375	13.76483	12.40904	11.25778	10.27365	9.42691	8.69379	8.05518	4.97894
40	32.83469	29.91585	27.35548	25.10278	23.11477	21.35507	19.79277	18.40158	17.15909	16.04612	15.04630	13.33171	11.92461	10.75736	9.77905	8.95105	8.26378	4.99660