UNIVERSITY OF COLOMBO, SRI LANKA

FACULTY OF MANAGEMENT AND FINANCE

Postgraduate & Mid-career Development Unit

Master of Business Administration/Master of Business Administration in Finance/Master
of Business Administration in Marketing/Master of Business Administration in HRM
(Semester II- Second-half) Examination – December, 2016

MBA 535 – Financial Management

Three (03) Hours

Instructions:
1. **Answer all questions.**
2. **Part I and Part II should be answered in separate books and handed over separately to the supervisor.**
3. **Use of calculators is permitted.**

PART I

1.

i. Rukshan Perera is 60 years old and recently retired. He wishes to provide retirement income for himself and is considering an annuity contract with the Life Insurance Company. Such a contract pays him an equal rupee amount each year that he lives. For this cash flow stream, he must put up a specific amount of money at the beginning. His life expectancy is 15 years, and that is the duration on which the insurance company bases its calculations regardless of how long he actually lives.

   a. If Life Insurance Company uses a compound annual interest rate of 5 percent in its calculations, what must Perera pay at the outset for an annuity to provide him with Rs.10, 000 per year? (Assume that the expected annual payments are at the end of each of the 15 years.)

b. What would be the purchase price of life insurance if the compound annual interest rate is 10 percent?

c. Perera had Rs.30, 000 to put into an annuity. How much would he receive each year if the insurance company uses a 5 percent compound annual interest rate in its calculations? A 10 percent compound annual interest rate?

(08 marks)

ii. An Steel Company has outstanding a 12 percent bond issue with a face value of Rs.1,000 per bond and five years to maturity. Interest is payable annually. The bonds are privately held by Rohan Insurance Company. Insurance company wishes to sell the bonds, and is negotiating with another party. It estimates that, in current market conditions, the bonds should provide a required return of 14 percent. What price per bond should Rohan be able to realize on the sale?

(04 marks)

iii. A Furniture Company will pay a dividend of Rs.1.50 a share next year. After this, earnings and dividends are expected to grow at a 9 percent annual rate indefinitely. Investors currently require a rate of return of 13 percent. The company is considering several business strategies and wishes to determine the effect of these strategies on the market price per share of its stock.

a. Continuing the present strategy will result in the expected growth rate and required rate of return stated above.

b. Expanding furniture holdings and sales will increase the expected dividend growth rate to 11 percent but will increase the risk of the company. As a result, the rate of return required by investors will increase to 16 percent.

c. Integrating into retail stores will increase the dividend growth rate to 10 percent and increase the required rate of return to 14 percent. From the standpoint of market price per share, which strategy is best?

(08 marks)

(Total 20 Marks)

2.

i. The returns on the common stock of Hillard Manufacturing are quite cyclical. In a boom economy, the stock is expected to return 30 percent in comparison to 18 percent in a normal economy and a negative 20 percent in a recessionary period. The probability of a recession is 15 percent while the probability of a boom is 25 percent. What is the expected return and standard deviation of the stock of Hillard Manufacturing?

(05 marks)

ii. Consider the following information on three stocks:

State of Economy	Probability	Rate of return if state occurs		
		Stock X (%)	Stock Y (%)	Stock Z (%)
Boom	0.45	55	35	65
Normal	0.50	44	18	04
Bust	0.05	37	- 17	- 64

A portfolio is invested 40 percent each in Stock X and Stock Y and 20 percent in Stock Z. What is the expected risk premium on the portfolio if the expected Treasury bill rate is 05 percent?

(08 marks)

iii. Najeem City Services Ltd. provides maintenance services for commercial buildings. Currently, the beta on its common stock is 1.08. The risk-free rate is now 1.0 percent, and the expected return on the market portfolio is 15 percent. It is January 1, and the company is expected to pay a Rs. 2 per share dividend at the end of the year, and the dividend is expected to grow at a compound annual rate of 08 percent for many years to come. Based on the CAPM and other assumptions you might make what rupee value would you place on one share of this common stock?

(05 marks)

3

iv. Sameera Ltd. is a holding company with three main subsidiaries. The percentage of its business coming from each of the subsidiaries, and their respective betas are as follows:

Subsidiary	Business (%)	Beta
Electric utility	60	0.8
Cable company	25	0.9
Computer Hardware	15	1.5

a. What is the holding company's beta?

b. Assume that the risk-free rate is 7% and the market risk premium is 8%. What is the holding company's required rate of return?

c. Sameera is considering a change in its strategic focus; it will reduce its reliance on the electric utility subsidiary, so the percentage of its business from this subsidiary will be 50%. At the same time, Sameera will increase its reliance on the Cable Company, so the percentage of this business from that subsidiary will rise to 35%. What will be the shareholder's required rate of return if they adopt these changes?

(06 marks)

(Total 24 Marks)

3.

i. Distinguish between "Operating Leverage and Financial Leverage". Explain how would knowledge of a firm's Degree of Operating Leverage be of use to a financial manager? (06 marks)

ii. The share capital of a company is Rs. 1,000,000 with shares of face value of Rs. 10. The company has debt capital of Rs.600,000 at 10% rate of interest. The sales of the firm are 300,000 units per annum at a selling price of Rs. 5 per unit and the variable costs is Rs. 3 per unit. The fixed cost amounts to Rs. 200,000. The company pays tax at 35%. If sales increase by 10%;

a. Calculate the percentage increase in EPS,

b. Determine the degree of operating, and financial leverages at the two levels.

c. Determine the total leverage and explain the effect on the total risk of the firm in relation to changes in sales level?

<div align="right">(10 marks)</div>

<div align="right">**(Total 16 Marks)**</div>

PART-II

4.

i. "Many decisions in financial management are taken in a framework of conflicting stakeholder viewpoints, while the company focuses on maximizing shareholder wealth as its major goal."

Based on the above statement, maximization of shareholder wealth should be the only true objective of a company. Critically discuss the above statement.

<div align="right">(6 marks)</div>

ii. "IRR shows the entire benefit of the project in single number, while it has limitations with respect to ranking mutually exclusive projects." Explain the two limitations with examples.

<div align="right">(6 marks)</div>

iii. Gem Private limited is considering the purchase of new equipment to replace the existing equipment. The original basis of the old equipment was Rs. 50,000 and depreciated using straight-line over five years (Rs.10, 000 per year). The equipment has two years of depreciation and four years of useful life remaining. Gem Ltd. can sell the current machine for Rs.10, 000. The new equipment will cost Rs.100, 000 plus Rs.30, 000 for shipping and installation. An increased investment in net working capital of Rs.10, 000 will be needed to support operations if the new machine is acquired. The machine is depreciated at cost over the 4 years at straight line basis. Dummika Perera forecasts that revenues will increase by Rs.220, 000 for each of the next 4 years and will then be sold (scrapped) for Rs.20, 000 at the end of

the fourth year, when the project ends. Operating costs will rise by Rs.140, 000 for each of the next four years. Total research expenses (for gathering information for project analysis) are Rs.26, 000. Gem Ltd. is in the 28 % tax bracket. The company is currently financed with 20 million of equity capital and 5 million of preferred stock. The company's preferred stock pays constant annual dividend of Rs.1.00 and is currently selling for Rs.20. the company is expected to pay the common stock dividend of Rs. 1.50 in the next year with the constant growth of 5% each year thereafter. The currently the common stock is selling at a price of Rs.24.00.

You are required to

    a. Estimate the incremental cash flow at year 0

    b. Estimate the relevant annual operating cash flows from year 1 to 4 needed   to analyze the proposed replacement.

    c. Estimate the net present value (NPV) of the proposal and to decide whether the proposed replacement is acceptable.

<div align="right">(12 marks)</div>

<div align="right">**(Total 24 Marks)**</div>

5.

i. Is there an easily identifiable optimum debt–equity ratio that will maximize the value of a firm or minimize the cost of capital of a firm? If so, clearly discuss the determining factors of optimum debt equity ratio for a firm.

<div align="right">(6 marks)</div>

ii. Bell Company expects its EBIT to be Rs. 140,000 every year forever. The firm can borrow at 9 percent. Bell currently has no debt, and its cost of equity is 17 percent.

    a. If the tax rate is 28 percent, what is the value of the firm?

    b. What will the value be if Bell borrows Rs.135, 000 and uses the proceeds to repurchase shares?

    c. What is the cost of equity after recapitalization?

    d. What is the weighted average cost of capital (WACC)?

<div align="right">(10 marks)</div>

<div align="right">**(Total Marks 16)**</div>

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Important Formulas

1. $E(R) = \sum_{i=1}^{n} P_i R_i$

2. $\sigma = \sqrt{\sum_{i-1}^{n} (R_i - E(R))^2 P_i}$

3. $E(r_P) = w_B E(r_B) + w_S E(r_S)$

4. $\overline{R}_i = R_F + \beta_i \times (\overline{R}_M - R_F)$

5. $k_e = (D_1 / P_0) + g$

6. $P_0 = \dfrac{D_0(1+g)}{K_e - g} = \dfrac{D_1}{K_e - g}$

7. $V = I\ (PVIFA_{kd, n}) + MV\ (PVIF_{kd, n})$

8. $PVAN_0 = PMT\ (PVIFA_{i, n})$

9. $DOL = [(EBIT + FC)/EBIT]$

10. $DFL = \dfrac{EBIT}{EBIT - I - [PD /(1 - t)]}$

11. $DTL = DOL * DFL$

12. $WACC = r_s \left[\dfrac{s}{B+S}\right] + \left[\dfrac{B}{B+S}\right] r_B (1 - t_c)$

13. $V_* = \dfrac{EBIT \times (1 - t_c)}{r_0}$

14. $r_s = r_0 + \dfrac{B}{S} \times (1 - t_c) \times (r_0 - r_B)$

15. $k_p = \dfrac{D}{P_0}$

7

Present value interest factor of Rs.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%	1
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	0.8
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	0.7
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	0.6
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	0.5
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	0.4
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	0.4
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	0.3
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	0.3
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	0.2
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	0.2
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	0.2
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	0.1
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	0.1
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	0.1
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	0.1
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	0.1
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	0.0
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	0.0
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	0.0
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	0.0

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

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	1
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	0.8
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	1.6
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	2.2
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	2.8
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	3.3
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	3.7
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.
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	4.4
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.
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	5.0
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	5.2
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	5.4
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	5.5
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.
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	5.8
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	5.9
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	6.0
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.
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.
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	6.2

ture value interest factor of Rs.1 per period at i% for n periods, FVIF(i,n).

od	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	1!
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	1.1
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	1.3
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	1.5
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	1.7
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	2.0
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	2.3
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	2.6
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	3.0
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	3.5
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	4.0
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	4.6
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	5.3
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	6.1
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	7.0
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	8.1
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	9.3
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	10.7
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	12.3
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	14.2
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	16.3

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od	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	1
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	1.0
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	2.1
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	3.4
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	4.5
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	6.7
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	8.7
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	11.0
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	13.7
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	16.7
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	20.3
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	24.3
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	29.0
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	34.3
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	40.5
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	47.5
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	55.7
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	65.0
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	75.8
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	88.2
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