

MSCI 261 Assignment 1

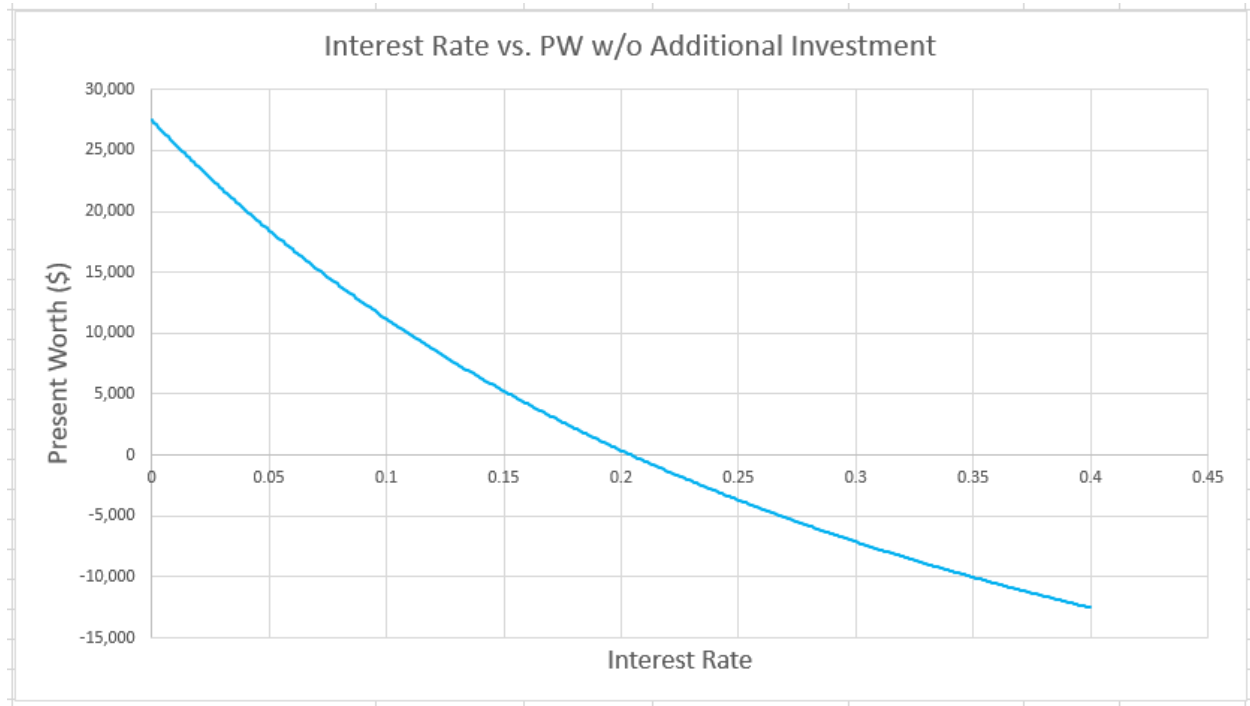
Question 3

Information

Givens	Value					
Interest Rate	15%					
Initial Investment	40,000					
Period	5					
Variable Expense	\$12.00					
Fixed Costs	\$3,500					
Growth	0					
Without Additional Investment		Period	Selling Price	Units Sold	Total	
Present Value Fixed Expenses	\$11,732.70	1	\$29.00	1,000	\$29,000.00	
Present Value Variable Expenses	\$40,226.40	2	\$29.00	1,000	\$29,000.00	
Present Value Total Expenses	\$51,959.10	3	\$29.00	1,000	\$29,000.00	
Present Worth Income	\$97,212.50	4	\$29.00	1,000	\$29,000.00	
Net Profit	\$5,253.40	5	\$29.00	1,000	\$29,000.00	
With Additional Investment		Period	Selling Price	Units Sold	Total	
Present Value Fixed Expenses	\$11,732.70	1	\$29.00	1,000	\$29,000.00	
Present Value Variable Expenses	\$75,975.69	2	\$29.00	2,200	\$63,800.00	
Present Value Total Expenses	\$87,708.39	3	\$29.00	2,200	\$63,800.00	
Present Worth Income	\$183,606.63	4	\$29.00	2,200	\$63,800.00	
Present Worth Additional Investment	\$13,043.48	5	\$29.00	2,200	\$63,800.00	
Net Profit	\$42,854.75					

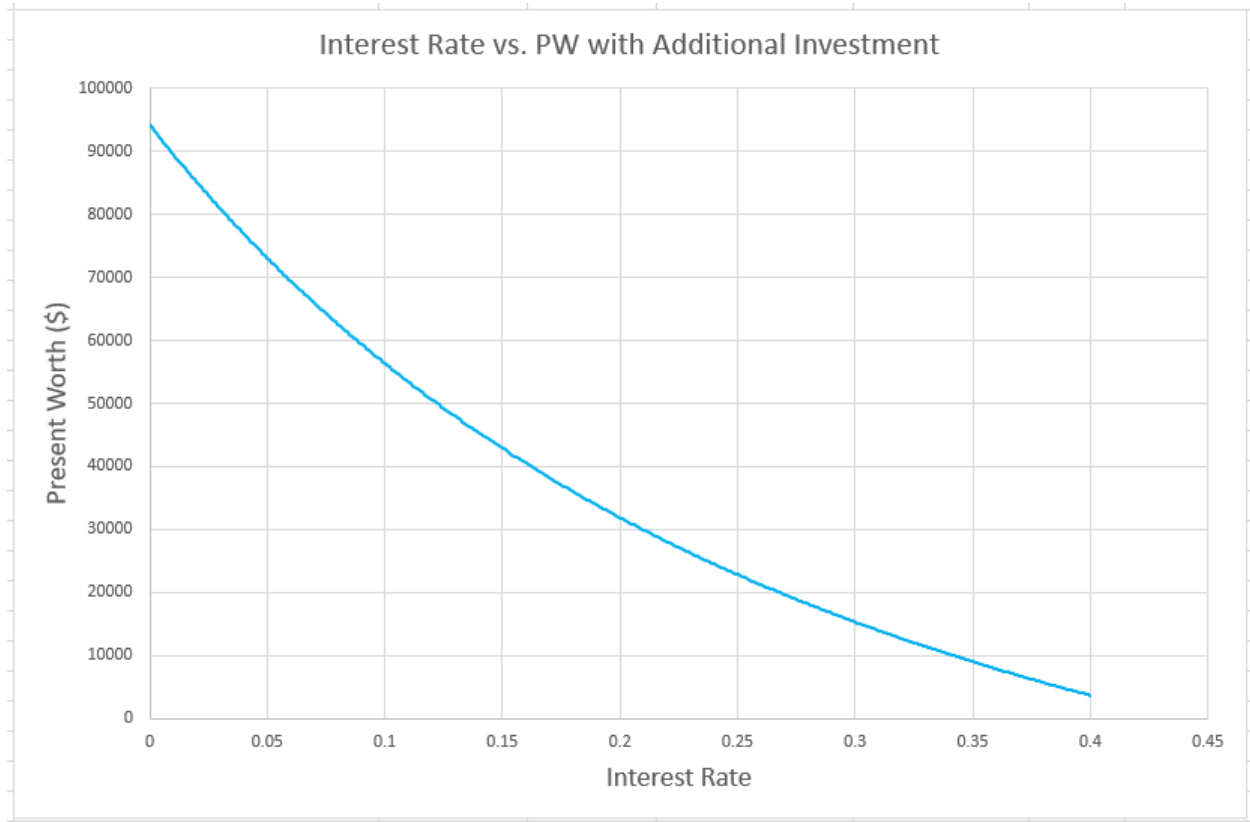
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Interest Rate vs. Present Worth Without Additional Investment



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Interest Rate vs. Present Worth With Additional Investment



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Questions

For the case of without additional investment, the present worth goes from positive to negative when the interest rate goes from 20.4% to 20.5%. The present worth is zero between these interest rates (highlighted in yellow). With the additional investment, the present worth goes from positive to negative when the interest rate goes from 44.0% and 44.1%. The present worth is zero between these interest rates (highlighted in blue). When present worth is zero, you should invest because not making the investment at this interest rate in this scenario would result in a loss of money.

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Point at Which Present Worth Without Additional Investment Crosses Zero

0.188	10749.67996	68962.08817	166658.3797	1463.051284	34320.34898
0.189	10725.65685	68791.07973	166245.1093	1370.39071	34112.72936
0.19	10701.72211	68620.72076	165833.4085	1278.071013	33905.92361
0.191	10677.87533	68451.00807	165423.2695	1186.090542	33699.92767
0.192	10654.11606	68281.9385	165014.6847	1094.447657	33494.73754
0.193	10630.44389	68113.50891	164607.6465	1003.140726	33290.34922
0.194	10606.8584	67945.71616	164202.1474	912.1681268	33086.75876
0.195	10583.35918	67778.55715	163798.1798	821.5282483	32883.96219
0.196	10559.94579	67612.02877	163395.7362	731.2194873	32681.95562
0.197	10536.61784	67446.12797	162994.8093	641.2402503	32480.73512
0.198	10513.37491	67280.85168	162595.3915	551.5889533	32280.29685
0.199	10490.2166	67116.19686	162197.4757	462.2640213	32080.63693
0.2	10467.14249	66952.16049	161801.0545	373.2638889	31881.75154
0.201	10444.15219	66788.73958	161406.1207	284.5869994	31683.63688
0.202	10421.24528	66625.93114	161012.6669	196.2318054	31486.28917
0.203	10398.42138	66463.7322	160620.6862	108.1967683	31289.70464
0.204	10375.68009	66302.13981	160230.1712	20.4803588	31093.87955
0.205	10353.02101	66141.15104	159841.115	-66.91894388	30898.81018
0.206	10330.44376	65980.76297	159453.5105	-154.0026516	30704.49284
0.207	10307.94793	65820.97271	159067.3507	-240.7722673	30510.92386
0.208	10285.53315	65661.77737	158682.6287	-327.2292854	30318.09959
0.209	10263.19902	65503.17409	158299.3374	-413.3751917	30126.01639
0.21	10240.94518	65345.16003	157917.4701	-499.2114633	29934.67064
0.211	10218.77122	65187.73234	157537.0198	-584.7395688	29744.05878
0.212	10196.67679	65030.88821	157157.9798	-669.9609684	29554.17722
0.213	10174.66149	64874.62485	156780.3434	-754.8771137	29365.02242
0.214	10152.72496	64718.93947	156404.1037	-839.4894483	29176.59086
0.215	10130.86682	64563.82931	156029.2542	-923.7994071	28988.87902
0.216	10109.08671	64409.29161	155655.7881	-1007.808417	28801.88343
0.217	10087.38425	64255.32364	155283.6988	-1091.517897	28615.60061
0.218	10065.75908	64101.92269	154912.9798	-1174.929257	28430.02712
0.219	10044.21084	63949.08604	154543.6246	-1258.043899	28245.15955
0.22	10022.73917	63796.81102	154175.6266	-1340.863219	28060.99447
0.221	10001.3437	63645.09494	153808.9794	-1423.388603	27877.52852
0.222	9980.024074	63493.93515	153443.6766	-1505.621428	27694.75831
0.223	9958.779946	63343.32902	153079.7118	-1587.563066	27512.68051
0.224	9937.610957	63193.27391	152717.0786	-1669.21488	27331.29178
0.225	9916.516756	63043.76721	152355.7708	-1750.578225	27150.58883
0.226	9895.496995	62894.80632	151995.782	-1831.654448	26970.56835

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Point at Which Present Worth With Additional Investment Crosses Zero

0.404	7075.363988	43112.04954	104187.4531	-12709.31033	3316.278846
0.405	7063.523235	43030.03637	103989.2546	-12754.98181	3219.53837
0.406	7051.716882	42948.27228	103791.658	-12800.5206	3123.10555
0.407	7039.944792	42866.75628	103594.661	-12845.92723	3026.979134
0.408	7028.206833	42785.48739	103398.2612	-12891.20221	2931.157875
0.409	7016.502871	42704.4646	103202.4561	-12936.34607	2835.640533
0.41	7004.832772	42623.68695	103007.2435	-12981.35931	2740.425873
0.411	6993.196405	42543.15346	102812.6209	-13026.24244	2645.512667
0.412	6981.593636	42462.86315	102618.5859	-13070.99597	2550.899692
0.413	6970.024337	42382.81505	102425.1364	-13115.62042	2456.585732
0.414	6958.488375	42303.00821	102232.2698	-13160.11627	2362.569577
0.415	6946.98562	42223.44166	102039.984	-13204.48404	2268.850022
0.416	6935.515945	42144.11446	101848.2766	-13248.72421	2175.425868
0.417	6924.07922	42065.02565	101657.1453	-13292.83729	2082.295923
0.418	6912.675317	41986.17429	101466.5879	-13336.82378	1989.459
0.419	6901.304108	41907.55945	101276.602	-13380.68415	1896.913916
0.42	6889.965468	41829.18017	101087.1854	-13424.41891	1804.659498
0.421	6878.65927	41751.03555	100898.3359	-13468.02853	1712.694575
0.422	6867.385387	41673.12464	100710.0512	-13511.51351	1621.017983
0.423	6856.143696	41595.44653	100522.3291	-13554.87431	1529.628564
0.424	6844.934072	41518.00031	100335.1674	-13598.11144	1438.525165
0.425	6833.756391	41440.78505	100148.5639	-13641.22535	1347.706639
0.426	6822.61053	41363.79985	99962.51631	-13684.21653	1257.171844
0.427	6811.496366	41287.04381	99777.02254	-13727.08544	1166.919645
0.428	6800.413778	41210.51602	99592.08039	-13769.83257	1076.94891
0.429	6789.362643	41134.2156	99407.6877	-13812.45838	987.2585144
0.43	6778.342842	41058.14165	99223.84232	-13854.96333	897.8473388
0.431	6767.354253	40982.29328	99040.5421	-13897.34788	808.7142686
0.432	6756.396757	40906.66961	98857.7849	-13939.61251	719.8581951
0.433	6745.470235	40831.26977	98675.56861	-13981.75767	631.2780147
0.434	6734.574568	40756.09288	98493.89112	-14023.78381	542.9726291
0.435	6723.709638	40681.13806	98312.75032	-14065.6914	454.9409453
0.436	6712.875328	40606.40446	98132.14412	-14107.48088	367.1818757
0.437	6702.071521	40531.89121	97952.07043	-14149.15271	279.6943377
0.438	6691.2981	40457.59746	97772.52719	-14190.70733	192.4772541
0.439	6680.554949	40383.52235	97593.51234	-14232.1452	105.5295528
0.44	6669.841954	40309.66503	97415.02381	-14273.46675	18.85016674
0.441	6659.159	40236.02465	97237.05958	-14314.67243	-67.56196593