FINA 4360 Homework 2: Solutions

2.1 (Chapter 11)

Possible S_{t+T}	Prob.	Put Premium	Exercise (X=.49 USD/NZD)	Amount per unit Received	Total Amount Received for NZD 250,000
.44 USD/NZD	30%	USD .03	Yes	USD .46	USD 115,000
.40 USD/NZD	50%	USD .03	Yes	USD .46	USD 115,000
.38 USD/NZD	20%	USD .03	Yes	USD .46	USD 115,000

The probability distribution represents a 100% probability of receiving USD 115,000, based on the forecasts of the future USD/NZD exchange rate. The put option has established a floor of **USD 115,000.**
Note: No information on interest rates, cannot estimate opportunity cost!

2.2 (Chapter 11)

1) Forward hedge (sell GBP forward).

Firm will receive GBP 400,000 x (1.50 USD/GBP) = USD 600,000 in 180 days.

2) Money market hedge (borrow GBP at 9%, convert to USD, invest in U.S. at 8%)
Firm will borrow GBP 400,000/(1+.09x180/360) = GBP 382,775
Firm will convert to USD GBP 382,780 x 1.48 USD/GBP = USD 566,507 (amount to deposit)
Firm will receive USD 566,507*(1+.08*180/360) = USD 589,167

Comparison: Firm will receive USD 600,000 in 180 days using FH, or about 589,167 in 180 days using MMT. Firm should use the forward hedge because it delivers the highest payout.

2.3 (Chapter 11)

Put option hedge (Exercise price = .52 USD/NZD; premium = USD .03)

Possible Spot Rate	Put Option Premium	Exercise Option?	Amount per Unit Received Including premium	Total Amount Received For NZD 4.000.000	Probability
.50	.03	Yes	.49	1,949,200	20%
.51	.03	Yes	.49	1,949,200	50%
.53	.03	No	.50	1,989,200	30%

Opportunity cost = NZD 4000000 x .03 USD/NZD x .09 = USD 10,800
Expected Amount to be received = USD 1,961,200.

Money market hedge (borrow NZD at 8%, convert to USD, invest in USD at 9%)
1. Borrow NZD 3,703,704 (NZD 4,000,000/1.08 = NZD 3,703,704)
2. Convert NZD 3,703,704 to USD 2,000,000 (at .54 USD/NZD)
3. Invest USD 2,000,000 to accumulate USD 2,180,000 at the end of one year (USD 2,000,000 x 1.09 = USD 2,180,000)

Comparison: The money market hedge is always superior to the put option hedge.

2.4 (Chapter 11)

Forecasted DINTt	Forecast of $e_{f,t}$	Prob	Approximate Forecasted USD/GBP
1%	1.1(-5%) + .6(1%) = -4.9%	40%	1.62 x [1 + (-4.9%)] = 1.54

2%	1.1(-5%) + .6(2%) = -4.3%	50%	1.62 x [1 + (-4.3%)] = 1.55
3%	1.1(-5%) + .6(3%) = -3.7%	10%	1.62 x [1 + (-3.7%)] = 1.56

1) Option hedge (Buy put option with X = 1.61 USD/GBP; premium = USD .04)

Possible S_t	Prob	Put Premium	Exercise (X=1.61 USD/GBP)	Amount per unit Received	Total Amount Received for GBP 1,000,000
1.54 USD/GBP	40%	USD .04	Yes	USD 1.57	USD 1,570,000
1.55 USD/GBP	50%	USD .04	Yes	USD 1.57	USD 1,570,000
1.56 USD/GBP	10%	USD .04	Yes	USD 1.57	USD 1,570,000

2) Forward hedge (sell 1-yr GBP forward)
Total Amount Received for GBP 1,000,000 GBP 1,000,000x1.59 USD/GBP = USD 1,590,000

Comparison: In this exercise, the forward hedge is always better than the option hedge.

2.5 (Chapter 12)
Carlton is subject to a higher degree of EE because it does not have an offsetting cost in Mexico. But both firms are exposed to EE.

2.6 (Chapter 12)
A. Transaction Exposure (TE): TWD 50 M x (1/29.78 TWD/USD) = **USD 1.67898 M**

Note: The monthly mean (TWD/USD) is -.0077 => The monthly mean (USD/TWD) is .0075
T= 5-mo 5-mo mean = .0077*5 = .0385 (3.85%)
5-mo SD = .014495*sqrt(5) = .0324 (3.24%)

(i) **VaR(97.5%)** = USD 1.67898 M*[1+(.0385-1.96x.0324)] = **USD 1.637 M**
(ii) The method used to approximate 5-mo mean returns cannot be used for extremes. Given the information, we need to make assumptions. Let's assume the worst case 1-mo scenario (-.038576) also applies in 5-mo. Then,
Worst case scenario = USD 1.67898 M*(1-.038576) = **USD 1.614 M**

B. Amount to be received = TWD 50M x 1/(30.12 TWD/USD) = **USD 1.66003 M**

C. Check lectures notes. But, note that MMH is a replication of IRP. Then,
$F_{t,150}$=1/(29.78 TWD/USD) x (1+.013x5/12)/(1+.04x5/12)=.03321 USD/TWD
=> Amount to be received = TWD 50M x .3321 USD/TWD = **USD 1.6605 M**

2.7 (Chapter 12)

Forecasted Income Statement for St. Paul (in millions)

	0.48 USD/NZD	.50 USD/NZD	.54 USD/NZD
Sales			
U.S.	100M	105M	110M
NZ	288M	300M	324M
Total	388M	405M	434M
COGS			
U.S.	200	200	200
NZ	48	50	54
Total	248	250	254

Gross Profit	140	155	180
Op. Expenses			
U.S. Fixed	30	30	30
U.S. Variable	77.6	81	86.6
Total	107.6	111	116.6
EBIT	32.4	42.0	63.2
Interest Expense	20	20	20
EBT	**12.4**	**22.0**	**43.2**

As the NZD appreciates against the USD there is an increase in EBT. If St. Paul is a U.S. firm it benefits. If you're a NZ firm, you are adversely affected. St. Paul could reduce its EE without reducing its German revenues by *shifting* expenses to New Zealand.

2.8 Ram Inc. would likely be more effective because its international business is spread across several major countries, while Raider Chemical Company is concentrated in only one foreign country whose business cycles are related to the U.S.

2.9 As MNCs capitalize on low cost labor, they may create a strong demand for labor, which can cause labor shortages and increased wage rates, thereby reducing any cost advantage.

2.10 Calculations

1. Colombia

$E[r_{BOYD+Col}] = w_{EP}*E[r_{BOYD}] + (1- w_{EP})*E[r_{col}]$

$= .85*.11 + .15*.35 = 0.146$

$\sigma^2_{BOYD+Col} = w_{BOYD}^2(\sigma_{BOYD}^2) + w_{Col}^2(\sigma_{Col}^2) + 2\ w_{BOYD}\ w_{Col}\ \rho_{BOYD,Col}\ \sigma_{BOYD}\ \sigma_{Col}$

$= (.85)^2*(.20)^2 + (.15)^2*(.55)^2 + 2*.85*.15*0.10*.20*.55 = 0.0385$

$=> \sigma_{BOYD+Col} = (0.0385)^{1/2} = 0.1962$

$\beta_{BOYD+Col} = w_{BOYD} *\beta_{BOYD} + (1- w_{Col})*\beta_{Col}$

$= .85*.90 + .15*1.40 = 0.975$

$SR_{BOYD+Col} = E[r_{BOYD+Col} - r_r]/ \sigma_{BOYD+Col} = (.146-.04)/.1962 = 0.5401$

$TR_{BOYD+Col} = E[r_{BOYD+Col} - r_r]/ \beta_{BOYD+Col} = (.146-.04)/0.975 = 0.1087$

2. Venezuela

$E[r_{BOYD+Ven}] = 0.173$

$\sigma_{BOYD+Ven} = 0.2054$

$\beta_{BOYD+Ven} = 1.035$

$SR_{BOYD+Ven} = (.173-.04)/0.2054 = 0.6475 > SR_{BOYD+Col}$

$TR_{BOYD+Ven} = (.173-.04)/1.035 = 0.1285 > TR_{BOYD+Col}$

A. Under the SR measure, the *Venezuelan* project is superior.

B. Under the TR measure, the *Venezuelan* project is superior.

C. $SR_{BOYD} = (.11-.04)/.2 = .35 < SR_{BOYD+Col} < SR_{BOYD+Ven}$

$TR_{BOYD} = (.11-.04)/.90 = .0778 < TR_{BOYD+Col} < TR_{BOYD+Ven}$

Under both measures, Boyd is not better off without adding any project.

2.11 a.

Capital Budgeting Analysis: Wolverine Corporation

	Year 0	Year 1	Year 2	Year 3
1. Demand		40,000	50,000	60,000
2. Price per unit		NZD 500	NZD 511	NZD 530
3. Total revenue = (1) × (2)		NZD 20,000,000	NZD 25,550,000	NZD 31,800,000
4. Variable cost per unit		NZD 30	NZD 35	NZD 40
5. Total variable cost = (1) × (4)		NZD 1,200,000	NZD 1,750,000	NZD 2,400,000
6. Fixed cost		NZD 6,000,000	NZD 6,000,000	NZD 6,000,000
7. Interest expense of New Zealand loan		NZD 2,800,000	NZD 2,800,000	NZD 2,800,000
8. Non-cash expense (depreciation)		NZD 5,000,000	NZD 5,000,000	NZD 5,000,000
9. Total expenses = (5)+(6)+(7)+(8)		NZD 15,000,000	NZD 15,550,000	NZD 16,200,000
10. Before-tax earnings of subsidiary = (3)–(9)		NZD 5,000,000	NZD 10,000,000	NZD 15,600,000
11. Host government tax (30%)		NZD 1,500,000	NZD 3,000,000	NZD 4,680,000
12. After-tax earnings of subsidiary		NZD 3,500,000	NZD 7,000,000	NZD 10,920,000
13. Net cash flow to subsidiary = (12)+(8)		NZD 8,500,000	NZD 12,000,000	NZD 15,920,000
14. NZD remitted by sub. (100% of CF)		NZD 8,500,000	NZD 12,000,000	NZD 15,920,000
15. Withholding tax imposed on remitted funds (10%)		NZD 850,000	NZD 1,200,000	NZD 1,592,000
16. NZD remitted after withholding taxes		NZD 7,650,000	NZD 10,800,000	NZD 14,328,000
17. Salvage value				NZD 52,000,000
18. Exchange rate of NZD		USD .52	USD .54	USD .56
19. Cash flows to parent		USD 3,978,000	USD 5,832,000	USD 37,143,680
20. PV of parent cash flows (20% of discount rate)		USD 3,315,000	USD 4,050,000	USD 21,495,185
21. Initial investment by parent	–USD 25,000,000			
22. Cumulative NPV of cash flows		–USD 21,685,000	–USD 17,635,000	USD 3,860,185

The net present value of this project is USD 3,860,185. Therefore, Wolverine should accept this project.

b. This alternative financing arrangement will have the following effects. First, it will increase the dollar amount of the initial outlay to USD 35 million. Second, it avoids the annual interest expense of NZD 2,800,000. Third, it will increase the salvage value from NZD 52,000,000 to NZD 70,000,000. The capital budgeting analysis is revised to incorporate these changes.

Capital Budgeting Analysis with an Alternative Financing Arrangement: Wolverine Corporation

	Year 0	Year 1	Year 2	Year 3
1. Demand		40,000	50,000	60,000
2. Price per unit		NZD 500	NZD 511	NZD 530
3. Total revenue = (1)×(2)		NZD 20,000,000	NZD 25,550,000	NZD 31,800,000
4. Variable cost per unit		NZD 30	NZD 35	NZD 40
5. Total variable cost = (1)×(4)		NZD 1,200,000	NZD 1,750,000	NZD 2,400,000
6. Fixed cost		NZD 6,000,000	NZD 6,000,000	NZD 6,000,000
7. Interest expense of New Zealand loan		NZD 0	NZD 0	NZD 0

8. Noncash expense (depreciation)		NZD 5,000,000	NZD 5,000,000	NZD 5,000,000
9. Total expenses = (5)+(6)+(7)+(8)		NZD 12,200,000	NZD 12,750,000	NZD 13,400,000
10. Before-tax earnings of subsidiary = (3)–(9)		NZD 7,800,000	NZD 12,800,000	NZD 18,400,000
11. Host government tax (30%)		NZD 2,340,000	NZD 3,840,000	NZD 5,520,000
12. After-tax earnings of subsidiary		NZD 5,460,000	NZD 8,960,000	NZD 12,880,000
13. Net cash flow to subsidiary = (12)+(8)		NZD 10,460,000	NZD 13,960,000	NZD 17,880,000
14. NZD remitted by sub. (100% of CF)		NZD 10,460,000	NZD 13,960,000	NZD 17,880,000
15. Withholding tax imposed on remitted funds (10%)		NZD 1,046,000	NZD 1,396,000	NZD 1,788,000
16. NZD remitted after withholding taxes		NZD 9,414,000	NZD 12,564,000	NZD 16,092,000
17. Salvage value				NZD 70,000,000
18. Exchange rate of NZD		USD .52	USD .54	USD .56
19. Cash flows to parent		USD 4,895,280	USD 6,784,560	USD 48,211,520
20. PV of parent CFs (20% discount rate)		USD 4,079,400	USD 4,711,500	USD 27,900,185
21. Initial investment by parent	–USD 35,000,000			
22. Cumulative NPV of CFs		–USD 30,920,600	–USD 26,209,100	USD 1,691,085

This alternative financing arrangement is expected to generate a lower NPV.

c. The NPV would be more sensitive to FX movements if the parent uses its own financing to cover the working capital requirements. If it used New Zealand financing, a portion of NZD CFs could be used to cover the interest payments on debt. Thus, there would be less NZD to be converted to USD and less exposure to FX movements.

d. The effects of the blocked funds are shown below:

		Year 1	Year 2	Year 3
13. Net cash flow to subsidiary =(12)+(8)		NZD 8,500,000	NZD 12,000,000	NZD 15,920,000
			□	NZD 12,720,000
		□		NZD 9,550,600
14. NZD remitted by subsidiary		NZD 0	NZD 0	NZD 38,190,600
15. Withholding tax imposed on remitted funds (10%)				NZD 3,819,060
16. NZD remitted after withholding taxes				NZD 34,371,540
17. Salvage value				NZD 52,000,000
18. Exchange rate of NZD				USD .56
19. Cash flows to parent				USD 48,368,062
20. PV of parent CFs (20% discount rate)		NZD 0	NZD 0	USD 27,990,777
21. Initial investment by parent	–USD 25,000,000			
22. Cumulative NPV of CFs		USD 0	USD 0	USD 2,990,777

e. First, determine the present value of cash flows when excluding salvage value:

End of Year	PV of CFs (excluding SV)
1	USD 3,315,000
2	4,050,000

3	4,643,333*
	USD 12,008,333

*This number is determined by converting the third year NZD cash flows excluding salvage value (NZD 14,328,000) into dollars at the forecasted exchange rate of USD .56 per NZD:

NZD 14,328,000 × .56 USD/NZD = USD 8,023,680

The present value of the USD 8,023,680 received 3 years from now is USD 4,643,333.

Then determine the break-even salvage value:

BE SV (SV^{BE}) = [IO – (present value of cash flows)] x $(1+k)^n$
= [USD 25,000,000 – USD 12,008,333] x $(1+.20)^3$ = USD 22,449,601

Since the NZD is expected to be USD .56 in Year 3, this implies that the break-even salvage value in terms of NZD is:

USD 22,449,601/(.56 USD/NZD)= NZD 40,088,573

2.12 a.

Valuation of Malaysian Target Based on the Assumptions
(in millions)

	Year 1	Year 2	Year 3
Revenue	MYR 200	MYR 216	MYR 233.3
Cost of Goods Sold	MYR 100	MYR 108	MYR 116.6
Gross Profit	MYR 100	MYR 108	MYR 116.7
Selling & Admin. Exp.	MYR 30	MYR 30	MYR 30
Depreciation	MYR 20	MYR 20	MYR 20
Earnings Before Taxes	MYR 50	MYR 58	MYR 66.7
Tax (35%)	MYR 17.5	MYR 20.3	MYR 23.3
Earnings After Taxes	MYR 32.5	MYR 37.7	MYR 43.4
+Depreciation	MYR 20	MYR 20	MYR 20
–Funds to Reinvest	MYR 7	MYR 7	MYR 7
Sale of Firm			MYR 300
Cash Flows in MYR	MYR 45.5	MYR 50.7	MYR 356.4
Exchange Rate of MYR	USD .25	USD .25	USD .25
Cash Flows in USD	USD 11.4	USD 12.7	USD 89.1
PV (20% disc. rate)	USD 9.5	USD 8.8	USD 51.6
Cumulative PV	USD 9.5	USD 18.3	USD 69.9

The value of the Malaysian target based on the information provided is USD 69.9 million.

b. The Malaysian target's shares are presently valued at MYR30 per share. Thus, the 9 million shares outstanding are worth MYR 270 million. At the prevailing S_t of USD .25, the target is presently valued at USD 67.5 million (computed as MYR270 million × USD .25). The MNC's valuation of the target is USD 69.9 million, which is only about 3.5% above the market valuation. However, Blore will have to pay a premium on the shares to entice the target's board of directors to approve the acquisition. Premiums commonly range from 10 percent to 40 percent of the market price. Thus, it is unlikely that Blore could purchase the target for a price that is below its valuation of the target.

2.13 Sensitivity analysis can be used to measure the net present value under each possible scenario, as shown in the attached exhibit. There are four possible scenarios. The most favorable scenario is a strong British economy and a relatively low (40%) British tax rate. This scenario results in after-tax dollar earnings of USD 288,000 in one year. The NPV is determined by obtaining the present value of these earnings (discounted at the required rate of return of 18%) and subtracting the initial outlay of USD 200,000. The NPV resulting from the most favorable scenario is USD 44,068. The joint probability of a strong British economy and the 40% tax rate is the product of the probabilities of these two situations (assuming that the situations are independent). Given a 70 percent probability for the strong British economy and an 80 percent probability for the 40% British tax rate, the joint probability is 70% × 80% = 56%.

The NPV and joint probability for each of the other three scenarios are also estimated in the exhibit, following the same process as discussed above. The expected value of the project's NPV can be determined as the sum of the products of each scenario's NPV and joint probability, as shown below:

E(NPV) = (USD 44,068) (56%) + (USD 3,390) (14%) + (–USD 37,288) (24%) +
+ (–USD 64,407) (6%)
= (USD 24,678) + (USD 475) + (–USD 8,949) + (–USD 3,864) = USD 12,340

The expected net present value of the project is positive. Yet, the NPV is expected to be negative for two of the four possible scenarios that could occur. Since the joint probabilities of these two scenarios add up to 30 percent, this implies that there is a 30% chance that the project will result in a negative NPV.

The example was simplified in that the project has a planned life of only one year, and there was no terminal value for the project. However, a more complicated example could be analyzed by using spreadsheet software to conduct the sensitivity analysis. The analyst would need to develop some "compute" statements that lead to an estimate of NPV. Each scenario causes a change in one or more of the numbers to be input when estimating the NPV.

EXHIBIT FOR QUESTION 13

Pretax GBP Earnings	After-Tax GBP Earnings	After-Tax Dollar Earnings	Estimated NPV
	UK tax rate=40% (Prob.= 80%)		

GBP 300,000 × (1–.40) = GBP 180,000

GBP 180,000 × USD 1.60 = USD 288,000

$\frac{\$288,000}{(1.18)} - \$200,000 = \$44,068$

Strong UK Economy

GBP 300,000
(Prob. = 70%)

UK tax rate=50% (Prob.= 20%)

GBP 300,000 × (1–.50) = GBP 150,000

GBP 150,000 × USD 1.60 = USD 240,000

$\frac{\$240,000}{(1.18)} - \$200,000 = \$3,390$

UK tax tate=40% (Prob.= 80%)

GBP 200,000 × (1–.40) = GBP 120,000

GBP 120,000 × USD 1.60 = USD 192,000

$\frac{\$192,000}{(1.18)} - \$200,000 = \$ - 37,288$

Weak UK Economy

GBP 200,000
(Prob. = 30%)

UK tax rate=50% (Prob.= 20%)

GBP 200,000 × (1–.50) = GBP 100,000

GBP 100,000 × USD 1.60 = USD 160,000

$\frac{\$160,000}{(1.18)} - \$200,000 = \$ - 64,407$

2.14 LaSalle Corporation can use mostly equity financing for its U.S. operations. When consolidated with the debt financing of its subsidiaries, its "global" target capital structure is balanced. The heavy emphasis on equity financing in the U.S. offsets the heavy emphasis on debt financing in the foreign countries.

2.15 Charleston neglected the cost of financing the subsidiary. It may be more costly to finance a subsidiary in the United Kingdom than a subsidiary in Germany when using the local debt of the host country as the primary source of funds. When considering the cost of financing, a subsidiary in the United Kingdom could be less favorable than a subsidiary in Germany, based on the information provided in this question.

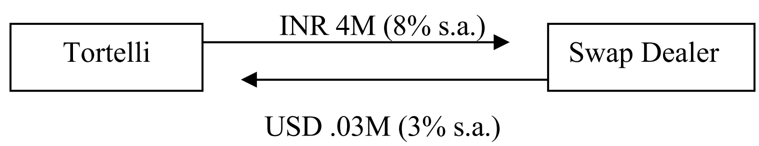
2.16

	End of Year:			
	1	2	3	4
SGD payment	SGD 1,400,000	SGD 1,400,000	SGD 1,400,000	SGD 21,400,000
Exchange rate	USD .52	USD .56	USD .58	USD .53
USD payment	USD 728,000	USD 784,000	USD 812,000	USD 11,342,000

The annual cost of financing with SGD is determined as the discount rate that equates the USD payments resulting from payments on the Singapore dollar-denominated bond to the amount of USD borrowed. Using a calculator, this discount rate is 8.97%. Thus, the expected annual cost of financing with a Singapore dollar-denominated bond is 8.97%, which is less than the 12% cost of financing with USD. However, there is some uncertainty associated with Singapore dollar financing. Seminole Inc. must weigh the expected savings from financing in Singapore dollars with the uncertainty associated with such financing.

2.17 Since Grant Inc. needs GBP 10 million, Grant will need to issue debt amounting to USD 17 million (computed as GBP 10 million × USD 1.70 per GBP). Grant Inc. will pay 10% on the principal amount of USD 17 million annually as a coupon rate, which is equal to USD 1.7 million. It should specify that 1 million GBP are to be swapped for dollars in each of the next three years (computed as USD 1.7 million dollars divided by USD 1.70 per GBP = GBP 1 million).

2.18
A .



B. T = 2 years (4 payments)

$V_{Tortelli}$ = NPV(USD receivables) - NPV(INR payables) x S_t =

= [USD .03M/(1.01) +USD .03M/$(1.01)^2$ +USD .03M/$(1.01)^3$ +USD 2.03M/$(1.01)^4$] -

- [INR 4M/(1.05) +INR 4M/$(1.05)^2$ +INR 4M/$(1.05)^3$ +INR 104M/$(1.05)^4$] *.02 USD/INR

= USD 2.039M – INR 96.454M * .02 USD/INR = USD .1099M

2.19

Japanese Interest Rate	Change in JPY Value	Effect. Financing Rate (r_f)	Probability	Computation of Expected Value
8%	–4%	3.68%	20%	.736%
8%	–1%	6.92%	30%	2.076%
8%	0%	8.00%	10%	.800%
8%	3%	11.24%	40%	4.496%
				8.108%

Expected value = 8.108%

2.20 If Jacksonville borrows yen and simultaneously purchases yen one year forward, it will pay a forward premium that will offset the interest rate differential (given that interest rate parity exists). Based on interest rate parity, the forward premium is about 3.8%. The effective financing rate would be:

$$(1 + 5\%)x(1 + 3.8\%) – 1 = \text{about } 9\%$$

If it does not cover the exposure but uses the forward rate as a forecast, the expected percentage change in the Japanese yen's value is about 3.8 %. Thus, the expected effective financing rate is 9%. Jacksonville should therefore finance with USD rather than Japanese yen, since the expected cost of financing with USD s is not higher.

c.

Change in $S_t(e_f)$	Effective Financing Rate of JYP	Probability
5%	(1.05)(1.05) – 1 = 10.25%	33.3%
3%	(1.05)(1.03) – 1 = 8.15	33.3%
2%	(1.05)(1.02) – 1 = 7.10	33.3%

Given the probability, there is about a 67 percent chance that financing with Japanese yen will be less costly than financing with dollars. The choice of financing with yen or dollars in this case is dependent on Jacksonville's degree of risk aversion.

2.21

Currency	Interest Interest Rate	Possible e_f	Eff. Rate (r_f)	Probability
CAD	9%	4%	13.36%	70%
CAD	9%	7%	16.63%	30%
JPY	7%	6%	13.42%	50%
JPY	7%	9%	16.63%	50%

Possible Joint r_f CAD	 JY	Joint Probability	r_r of Portfolio
13.36%	13.42%	(70%)(50%) = 35%	.4(13.36%) + .6(13.42%) = 13.396%
13.36%	16.63%	(70%)(50%) = 35%	.4(13.36%) + .6(16.63%) = 15.322%
16.63%	13.42%	(30%)(50%) = 15%	.4(16.63%) + .6(13.42%) = 14.704%
16.63%	16.63%	(30%)(50%) = 15%	.4(16.63%) + .6(16.63%) = 16.630%

Thus, there is a 35% probability that the portfolio's effective financing rate will be 13.396%, and so on.