Odomirok.19-RBC

Model: mixture of 2 examples from Odomirok text (tables 86, 87, 88)

Problem Type: Calculate RBC charge R_1.

Given

data for R_1 calculation		
item	**amount**	**RBC factor**
cash & equivalents	1,680	0.0030
other short-term investmemts	8,140	0.0030
mortgage bonds	3,150	0.0500
net admitted collateral loans	0	0.0500
bonds	**amount**	**RBC factor**
U.S. government	68,400	0.0000
Class 01 U.S. govt. bonds	0	0.0030
Class 01 non-U.S. govt bonds	402,000	0.0030
Class 02 unaffiliated bonds	45,200	0.0100
Class 03 unaffiliated bonds	7,070	0.0200
Class 04 unaffiliated bonds	4,420	0.0450
Class 05 unaffiliated bonds	1,100	0.1000
Class 06 unaffiliated bonds	650	0.3000

# of bonds issuers	500

assets subject to asset concentration charge						
	fixed income investments		**equity investments**			
	class 02 unaffiliated bonds	*mortgage bonds*	*class 03 unaffiliated preferred stocks*	*unaffiliated common stock*	*real estate*	total *
1	6,700	0	0	0	0	6,700
2	0	2,200	2,200	2,200	0	6,600
3	0	3,150	0	0	3,150	6,300
4	1,600	0	0	0	1,600	3,200
5	0	1,600	0	1,600	0	3,200
6	1,033	0	1,033	0	1,033	3,100
7	0	800	0	800	0	1,600
8	0	0	533	533	533	1,600
9	1,500	0	0	0	0	1,500
10	0	0	0	0	1,400	1,400
11	433	0	433	0	433	1,300
12	700	0	0	0	0	700
13	0	233	233	233	0	700
14	200	0	0	200	0	400
15	200	0	0	0	0	200
total	12,367	7,983	4,433	5,567	8,150	38,500

* represents total assets subject to asset concentration charge

R_1	=	basic charge	+	BSC	+	ACC
	=	2,490	+	369	+	496
	=	3,355	<== final answer			

step 1: calculate the basic R_1 RBC charge

(multiply amounts by RBC factors for each item in the table)

basic R_1 charge = orange + blue highlights = **2,490**

item		RBC charge	
	cash & equivalents	5	
	other short-term investmemts	24	
	mortgage bonds	158	
	net admitted collateral loans	0	
bonds		**RBC charge**	
	U.S. government	0	<== NOT subject to bond size charge
	Class 01 U.S. govt. bonds	0	<== NOT subject to bond size charge
	Class 01 non-U.S. govt bonds	1,206	
	Class 02 unaffiliated bonds	452	
	Class 03 unaffiliated bonds	141	
	Class 04 unaffiliated bonds	199	
	Class 05 unaffiliated bonds	110	
	Class 06 unaffiliated bonds	195	
bonds subject to bond size factor		2,303	<== sum blue highlighted values

step 2: calculate BSC (Bond Size Charge)

BSC	=	BSF	x	(assets subject to BSF)
	=	0.160	x	2,303
	=	**369**		

BSF calc:

# issuers = 500	# issuers (1)	weights (2)	(3)=(2)x(1)
first 50	50	2.5	125.0
next 50	50	1.3	65.0
next 300	300	1.0	300.0
> 400	100	0.9	90.0
total	**500**		**580.0**

BSF	=	580	/	500	-	1
	=	0.160	<== *substitute this value above as shown*			

step 3: calculate ACC (Asset Concentration Charge) for R_1

(the 5-step procedure from the wiki is: gather, sort, truncate, sum, multiply)

gather: *this is already done for you*

sort: *this is already done for you*

truncate: cut the list off at the TOP 10

sum: sum the TOP 10:

class 02 unaffiliated bonds	=	10,833
mortgage bonds	=	7,750

multiply: multiply the above sums by the appropriate RBC factor

10,833	x	0.0100	=	108
7,750	x	0.0500	=	388
				496 <== ACC

Odomirok.19-RBC

Model: mixture of 2 examples from Odomirok text (tables 86, 87, 88)

Problem Type: Calculate RBC charge R_1.

Given

data for R_1 calculation		
item	**amount**	**RBC factor**
cash & equivalents	2,460	0.0030
other short-term investmemts	11,520	0.0030
mortgage bonds	4,580	0.0500
net admitted collateral loans	0	0.0500
bonds	**amount**	**RBC factor**
U.S. government	121,600	0.0000
Class 01 U.S. govt. bonds	0	0.0030
Class 01 non-U.S. govt bonds	794,600	0.0030
Class 02 unaffiliated bonds	78,100	0.0100
Class 03 unaffiliated bonds	10,120	0.0200
Class 04 unaffiliated bonds	4,950	0.0450
Class 05 unaffiliated bonds	1,520	0.1000
Class 06 unaffiliated bonds	810	0.3000

# of bonds issuers	340

assets subject to asset concentration charge						
	fixed income investments		**equity investments**			
	class 02 unaffiliated bonds	*mortgage bonds*	*class 03 unaffiliated preferred stocks*	*unaffiliated common stock*	*real estate*	total *
1	0	0	0	9,000	0	9,000
2	0	0	0	0	8,200	8,200
3	8,100	0	0	0	0	8,100
4	1,025	0	1,025	1,025	1,025	4,100
5	0	0	1,950	1,950	0	3,900
6	1,800	0	0	0	1,800	3,600
7	3,300	0	0	0	0	3,300
8	0	1,550	0	0	1,550	3,100
9	967	0	0	967	967	2,900
10	2,800	0	0	0	0	2,800
11	0	0	0	0	2,700	2,700
12	1,400	0	0	0	0	1,400
13	0	0	0	0	1,400	1,400
14	0	700	0	0	700	1,400
15	433	0	433	0	433	1,300
total	19,825	2,250	3,408	12,942	18,775	57,200

* represents total assets subject to asset concentration charge

R_1	=	basic charge	+	BSC	+	ACC
	=	4,256	+	1,055	+	257
	=	5,568	<== final answer			

step 1: calculate the basic R_1 RBC charge

(multiply amounts by RBC factors for each item in the table)

basic R_1 charge = orange + blue highlights = **4,256**

item	RBC charge	
cash & equivalents	7	
other short-term investmemts	35	
mortgage bonds	229	
net admitted collateral loans	0	
bonds	**RBC charge**	
U.S. government	0	<== NOT subject to bond size charge
Class 01 U.S. govt. bonds	0	<== NOT subject to bond size charge
Class 01 non-U.S. govt bonds	2,384	
Class 02 unaffiliated bonds	781	
Class 03 unaffiliated bonds	202	
Class 04 unaffiliated bonds	223	
Class 05 unaffiliated bonds	152	
Class 06 unaffiliated bonds	243	
bonds subject to bond size factor	3,985	<== sum blue highlighted values

step 2: calculate BSC (Bond Size Charge)

BSC	=	BSF	x	(assets subject to BSF)
	=	0.265	x	3,985
	=	**1,055**		

BSF calc:

# issuers = 340	# issuers (1)	weights (2)	(3)=(2)x(1)
first 50	50	2.5	125.0
next 50	50	1.3	65.0
next 300	240	1.0	240.0
> 400	0	0.9	0.0
total	**340**		**430.0**

BSF	=	430	/	340	-	1
	=	0.265	<== *substitute this value above as shown*			

step 3: calculate ACC (Asset Concentration Charge) for R_1

(the 5-step procedure from the wiki is: gather, sort, truncate, sum, multiply)

gather: *this is already done for you*

sort: *this is already done for you*

truncate: cut the list off at the TOP 10

sum: sum the TOP 10:

class 02 unaffiliated bonds	=	17,992
mortgage bonds	=	1,550

multiply: multiply the above sums by the appropriate RBC factor

17,992	x	0.0100	=	180
1,550	x	0.0500	=	78
				257 <== ACC

Odomirok.19-RBC

Model: mixture of 2 examples from Odomirok text (tables 86, 87, 88)

Problem Type: Calculate RBC charge R_1.

Given

data for R_1 calculation		
item	**amount**	**RBC factor**
cash & equivalents	2,150	0.0030
other short-term investmemts	13,080	0.0030
mortgage bonds	3,040	0.0500
net admitted collateral loans	0	0.0500
bonds	**amount**	**RBC factor**
U.S. government	102,700	0.0000
Class 01 U.S. govt. bonds	0	0.0030
Class 01 non-U.S. govt bonds	585,200	0.0030
Class 02 unaffiliated bonds	78,000	0.0100
Class 03 unaffiliated bonds	8,750	0.0200
Class 04 unaffiliated bonds	4,420	0.0450
Class 05 unaffiliated bonds	1,640	0.1000
Class 06 unaffiliated bonds	880	0.3000

# of bonds issuers	10

assets subject to asset concentration charge						
	fixed income investments		**equity investments**			
	class 02 unaffiliated bonds	*mortgage bonds*	*class 03 unaffiliated preferred stocks*	*unaffiliated common stock*	*real estate*	total *
1	0	12,800	0	0	0	12,800
2	2,133	0	0	2,133	2,133	6,400
3	3,200	0	0	0	3,200	6,400
4	3,050	0	0	0	3,050	6,100
5	0	0	0	0	3,100	3,100
6	0	1,450	0	0	1,450	2,900
7	0	0	0	0	2,800	2,800
8	0	0	0	0	2,500	2,500
9	0	1,200	0	1,200	0	2,400
10	1,200	0	0	1,200	0	2,400
11	0	0	0	2,300	0	2,300
12	0	0	0	1,200	0	1,200
13	367	0	367	0	367	1,100
14	0	600	0	0	0	600
15	300	0	300	0	0	600
total	10,250	16,050	667	8,033	18,600	53,600

* represents total assets subject to asset concentration charge

R_1	=	basic charge	+	BSC	+	ACC
	=	3,535	+	5,006	+	868
	=	9,410	<== final answer			

step 1: calculate the basic R_1 RBC charge

(multiply amounts by RBC factors for each item in the table)

basic R_1 charge = orange + blue highlights = **3,535**

item		RBC charge	
	cash & equivalents	6	
	other short-term investmemts	39	
	mortgage bonds	152	
	net admitted collateral loans	0	
bonds		**RBC charge**	
	U.S. government	0	<== NOT subject to bond size charge
	Class 01 U.S. govt. bonds	0	<== NOT subject to bond size charge
	Class 01 non-U.S. govt bonds	1,756	
	Class 02 unaffiliated bonds	780	
	Class 03 unaffiliated bonds	175	
	Class 04 unaffiliated bonds	199	
	Class 05 unaffiliated bonds	164	
	Class 06 unaffiliated bonds	264	
bonds subject to bond size factor		3,338	<== sum blue highlighted values

step 2: calculate BSC (Bond Size Charge)

BSC	=	BSF	x	(assets subject to BSF)
	=	1.500	x	3,338
	=	**5,006**		

BSF calc:

# issuers = 10	# issuers (1)	weights (2)	(3)=(2)x(1)
first 50	10	2.5	25.0
next 50	0	1.3	0.0
next 300	0	1.0	0.0
> 400	0	0.9	0.0
total	**10**		**25.0**

BSF	=	25	/	10	-	1
	=	1.500	<== *substitute this value above as shown*			

step 3: calculate ACC (Asset Concentration Charge) for R_1

(the 5-step procedure from the wiki is: gather, sort, truncate, sum, multiply)

gather: *this is already done for you*

sort: *this is already done for you*

truncate: cut the list off at the TOP 10

sum: sum the TOP 10:

class 02 unaffiliated bonds	=	9,583
mortgage bonds	=	15,450

multiply: multiply the above sums by the appropriate RBC factor

9,583	x	0.0100	=	96	
15,450	x	0.0500	=	773	
				868	<== ACC

Odomirok.19-RBC

Model: mixture of 2 examples from Odomirok text (tables 86, 87, 88)

Problem Type: Calculate RBC charge R_1.

Given

data for R_1 calculation		
item	**amount**	**RBC factor**
cash & equivalents	1,020	0.0030
other short-term investmemts	4,560	0.0030
mortgage bonds	1,700	0.0500
net admitted collateral loans	0	0.0500
bonds	**amount**	**RBC factor**
U.S. government	36,900	0.0000
Class 01 U.S. govt. bonds	0	0.0030
Class 01 non-U.S. govt bonds	332,500	0.0030
Class 02 unaffiliated bonds	32,400	0.0100
Class 03 unaffiliated bonds	5,550	0.0200
Class 04 unaffiliated bonds	2,080	0.0450
Class 05 unaffiliated bonds	810	0.1000
Class 06 unaffiliated bonds	320	0.3000

# of bonds issuers	240

assets subject to asset concentration charge						
	fixed income investments		**equity investments**			
	class 02 unaffiliated bonds	*mortgage bonds*	*class 03 unaffiliated preferred stocks*	*unaffiliated common stock*	*real estate*	total *
1	0	4,900	4,900	4,900	0	14,700
2	0	14,700	0	0	0	14,700
3	0	6,850	0	0	6,850	13,700
4	0	0	0	13,200	0	13,200
5	6,050	0	0	0	6,050	12,100
6	6,100	0	0	0	0	6,100
7	0	0	3,050	0	3,050	6,100
8	0	6,100	0	0	0	6,100
9	1,900	0	1,900	1,900	0	5,700
10	1,375	0	1,375	1,375	1,375	5,500
11	5,300	0	0	0	0	5,300
12	0	1,667	1,667	0	1,667	5,000
13	0	0	0	0	5,000	5,000
14	0	2,500	0	0	2,500	5,000
15	0	4,800	0	0	0	4,800
total	20,725	41,517	12,892	21,375	26,492	123,000

* represents total assets subject to asset concentration charge

R_1	=	basic charge	+	BSC	+	ACC
	=	1,805	+	639	+	1,782
	=	4,225	<== final answer			

step 1: calculate the basic R_1 RBC charge

(multiply amounts by RBC factors for each item in the table)

basic R_1 charge = orange + blue highlights = **1,805**

item		RBC charge	
	cash & equivalents	3	
	other short-term investmemts	14	
	mortgage bonds	85	
	net admitted collateral loans	0	
bonds		**RBC charge**	
	U.S. government	0	<== NOT subject to bond size charge
	Class 01 U.S. govt. bonds	0	<== NOT subject to bond size charge
	Class 01 non-U.S. govt bonds	998	
	Class 02 unaffiliated bonds	324	
	Class 03 unaffiliated bonds	111	
	Class 04 unaffiliated bonds	94	
	Class 05 unaffiliated bonds	81	
	Class 06 unaffiliated bonds	96	
bonds subject to bond size factor		1,703	<== sum blue highlighted values

step 2: calculate BSC (Bond Size Charge)

BSC	=	BSF	x	(assets subject to BSF)
	=	0.375	x	1,703
	=	**639**		

BSF calc:

# issuers = 240	# issuers (1)	weights (2)	(3)=(2)x(1)
first 50	50	2.5	125.0
next 50	50	1.3	65.0
next 300	140	1.0	140.0
> 400	0	0.9	0.0
total	**240**		**330.0**

BSF	=	330	/	240	-	1
	=	0.375	<== *substitute this value above as shown*			

step 3: calculate ACC (Asset Concentration Charge) for R_1

(the 5-step procedure from the wiki is: gather, sort, truncate, sum, multiply)

gather: *this is already done for you*

sort: *this is already done for you*

truncate: cut the list off at the TOP 10

sum: sum the TOP 10:

class 02 unaffiliated bonds	=	15,425
mortgage bonds	=	32,550

multiply: multiply the above sums by the appropriate RBC factor

15,425	x	0.0100	=	154
32,550	x	0.0500	=	1,628
				1,782 <== ACC