Chapter 14
Complex Financial Instruments

K. Problems

P14-1. ***Suggested solution:***

	Item	Financial instrument?
a.	Account payable	Yes
b.	Note payable	Yes
c.	Warranty provision	No
d.	Long-term debt	Yes
e.	Common share	Yes

P14-2. ***Suggested solution:***

	Item	Financial liability?
a.	Account payable	Yes
b.	Note payable	Yes
c.	Warranty provision	No
d.	Long-term debt	Yes
e.	Deferred tax liability	No

P14-3. ***Suggested solution:***

	Item	Basic financial asset, financial liability, or equity instrument	Derivative	Compound financial instrument
a.	10-year bond payable	√		
b.	Convertible debenture			√
c.	Preferred shares	√		
d.	Convertible preferred shares			√
e.	Stock warrants		√	
f.	Interest rate swap		√	

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P14-4. ***Suggested solution:***

	Item	Basic financial asset, financial liability, or equity instrument	Derivative	Compound financial instrument
a.	Employee stock option		√	
b.	Shares with warrants			√
c.	Bank loan	√		
d.	Convertible bond			√
e.	Currency forward		√	

P14-5. ***Suggested solution:***

	Item	True / False
a.	A stock option provides a right to buy but not a right to sell a share.	False (Can be either)
b.	An option's fair value is at least as high as its intrinsic value.	True
c.	A stock option's fair value increases with the volatility of the underlying stock.	True
d.	A stock option's exercise price is the price of the share at the time of exercise.	False (Exercise price is fixed)
e.	An option's intrinsic value cannot be negative.	True
f.	An option's intrinsic value increases with the length of time until the option matures.	False (Fair value increases)
g.	An in-the-money option is one in which the exercise price is higher than the market price.	False (Opposite is true)

P14-6. ***Suggested solution:***

Type of derivative	Example
Future	A company contracts to sell 10,000 oz of gold at $1,100/oz on March 15, 2015 on the Chicago Mercantile Exchange.
Swap	A company contracts with an investment bank to pay the bank 5% interest on $25 million of debt in exchange for receiving LIBOR + 1% from the bank. (LIBOR is the London Interbank Offered Rate, similar to the Prime Rate.)
Option	A company purchases the right but not the obligation to purchase U.S. dollars for CAD$1.02 /US$ within a 90-day period.
Forward	Company X contracts to buy 10,000 oz of gold at $1,100/oz on March 15, 2015 from Company Y.
Warrant	A company purchases the right but not the obligation to purchase 500,000 shares in another company at $12 each over a 10-year period.

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P14-7. ***Suggested solution:***

Dec 15	No entry. A forward contract is executory—nothing has changed hands between the parties to the contract.		
Dec 31	Dr. Loss on foreign currency forward ($0.02/€1 × €200,000)	4,000	
	Cr. Foreign currency forward (a liability account)		4,000

P14-8. ***Suggested solution:***

Purchase	Dr. Gold futures	8,000	
	Cr. Cash		8,000
Year-end	Dr. Gold futures ($12,000 – $8,000)	4,000	
	Cr. Gain on gold futures		4,000

P14-9. ***Suggested solution:***

2014 Aug 15	Dr. Cash	150,000	
	Cr. Liability for call options issued		150,000
	(Proceeds equals $3.00/option)		
2014 Dec 31	Dr. Liability for call options issued	25,000	
	Cr. Gain on call options issued		25,000
	(50,000 options × $2.50/option – $3.00/option)		
2015 Mar 16	Dr. Liability for call options issued	125,000	
	Cr. Gain on call options issued		125,000
	($150,000 – $25,000)		
	Since the options expire unexercised, Jarvis's liability is extinguished.		

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P14-10. ***Suggested solution:***

2015 Oct 21	Dr. Cash	30,000	
	Cr. Liability for call options issued		30,000
	(Proceeds equals $1.50/option)		
2015 Dec 31	Dr. Loss on call options issued	40,000	
	Cr. Liability for call options issued		40,000
	(20,000 options × ($3.50/option – $1.50/option))		
2016 May 17	Dr. BCE shares held for trading (20,000 sh × $37/sh)	740,000	
	Cr. Cash		740,000
	Dr. Cash (20,000 sh × $33/sh)	660,000	
	Dr. Liability for call options issued	70,000	
	($30,000 + $40,000)		
	Dr. Loss on call options exercised	10,000	
	Cr. BCE shares held for trading		740,000
	When the options are exercised, Kearney must deliver the shares to the option holders. Therefore, the company must first purchase the shares on the exchange at the prevailing price of $37.		

P14-11. ***Suggested solution:***

IFRS requires use of the incremental method. In this case, the conversion right is allocated the residual amount.

Dr. Cash (given)	6,540,000	
Cr. Bonds payable (standalone market value)		6,200,000
Cr. Contributed surplus—conversion rights		340,000

P14-12. ***Suggested solution:***

IFRS requires use of the incremental method. Values for both components are available. However, market prices are more reliable than estimates from the underwriter, so we first assign value to the warrants, and assign the residual to the preferred shares.

Dr. Cash (given)	6,540,000	
Cr. Contributed surplus—conversion rights		200,000
(100,000 warrants × $2/warrant)		
Cr. Preferred shares—par value (100,000 sh × $60/sh)		6,000,000
Cr. Contributed surplus—preferred shares, excess over par		340,000
(remainder)		

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P14-13. ***Suggested solution:***

Total liabilities before bond issuance = $400,000 × 1.52 = $608,000.
Total liabilities after bond issuance = $608,000 + $254,000 = $862,000.
Total equity after bond issuance = $400,000 + $21,000 = $421,000.
Debt-to-equity after bond issuance = $862,000 / $421,000 = **2.05**.

P14-14. ***Suggested solution:***

The proceeds of the preferred share issue need not be separated into their component parts as both the preferred shares and conversion option are equity.		
a. Journal entry on issuance (June 18, 2014)		
Dr. Cash ($102 x 30,000)	3,060,000	
Cr. Preferred shares		3,060,000
b. Declaration and payment of dividends (June 18, 2015)		
Dr. Retained earnings (30,000 x $4)	120,000	
Cr. Cash		120,000
c. Journal entry on conversion (Aug. 17, 2017)		
Dr. Preferred shares	3,060,000	
Cr. Common shares		3,060,000

P14-15. ***Suggested solution:***

Ratio	Return on common shareholders' equity	Current ratio	Operating margin
Ratio definition	(Net income – preferred dividends) / common equity	Current assets / current liabilities	Operating profit / revenue
Ratio without transaction	16%	1.25	10%
Repayment of a bond on the first day of the fiscal year	No effect	Worsen	No effect
Conversion of a bond with a 10% stated rate into common shares	Worsen	No effect	No effect
Sale of 2,000 common shares for cash	Worsen	Improve	No effect
Sale of $5,000 of inventory on credit for $6,000 revenue	Improve	Improve	Improve

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P14-16. ***Suggested solution:***

a. Journal entry for interest on July 31, 2014:		
Dr. Interest expense ($3,859,649 × 14%)	540,351	
Cr. Convertible bonds payable		140,351
Cr. Cash ($4,000,000 × 10%)		400,000
b. Number of shares outstanding before conversion		120,000
Shares issued upon conversion ($4,000,000 × 15 shares / $1,000)		60,000
Number of shares outstanding after conversion		180,000
c. Dr. Convertible bonds payable	4,000,000	
Dr. Contributed surplus—common stock conversion rights	345,000	
Cr. Common shares		4,345,000

P14-17. ***Suggested solution:***

a. Allocation of proceeds:

Bond*	$2,297,549
Underwriting fees	45,000
Warrants ($2,000,000 × 20 warrants / $1,000 × $4/warrant)	160,000
Conversion rights (remainder)	97,451
Total proceeds	$2,600,000

Under the incremental method, the underwriting costs end up reducing the component instrument that is allocated the residual amount, which is the conversion right in this case.

* PV of principal ($2,000,000 / 1.03^{20})	$1,107,351
PV of coupons ($80,000 × PVFA(3%,20) = $80,000 × 14.87747)	1,190,198
Bond value	$2,297,549
Using BAII Plus financial calculator:	
20 N, 3 I/Y, 2000000 FV, 80000 PMT, CPT PV	$2,297,549

b. Journal entries for 2014:

2014 Sep 30	Dr. Cash	2, 600,000	
	Cr. Bond payable		2,297,549
			45,000
	Cr. Contributed surplus—warrants (Type C)		160,000
	Cr. Contributed surplus —conversion rights		97,451
2014 Dec 31	Dr. Interest expense ($2,297,549 × 3% × 3/6)	34,463	
	Dr. Bond payable	5,537	
	Cr. Interest payable ($2,000,000 × 4% × 3/6)		40,000

c. Journal entries for exercise of stock warrants:

2017 Feb 22	Dr. Cash (20,000 warrants × $20/warrant)	400,000	
	Dr. Contributed surplus—warrants ($160,000 × 50%)	80,000	
	Cr. Common stock		480,000

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P14-18. ***Suggested solution:***

a. Journal entry for issuance:

Dr. Cash (given)	10,200,000	
Cr. Bonds payable (given)		9,400,475
Cr. Contributed surplus—conversion rights ($10,200,000 - $9,400,475)		799,525

b. Journal entry for conversion under IFRS (book value method):

Dr. Bonds payable*	3,798,682	
Dr. Contributed surplus—conversion rights ($799,525 × 40%)	319,810	
Cr. Common stock (100,000 shares)		4,118,492
* PV of principal ($4,000,000 / 1.09^7)		$2,188,137
PV of coupons ($4,000,000 × 8% × PVFA(9%,7) = $320,000 × 5.03295)		1,610,545
Carrying value of bond at time of conversion		$3,798,682
Using BAII Plus financial calculator:		
7 N, 9 I/Y, 4000000 FV, 320000 PMT, CPT PV		$3,798,682

P14-19. ***Suggested solution:***

Value of convertible bond (given) $660,000

January 1, 2015

Coupon interest payment = $600,000 × (8%/2) = $24,000

- PV of coupons = $24,000 × PVFA(4.5%, 12) = $24,000 × 9.1186 = $218,846
- PV of principal = $600,000/$1.045^{12}$ = $353,798
- PV of the note = $218,846 + $353,798 = $572,644

Using a BAII PLUS financial calculator:

- 12N, 4.5 I/Y, 24,000 PMT; 600000 FV, CPT PV PV = –572,644 (rounded)

Value of conversion rights $660,000 - $572,644 = $87,356

June 30, 2019

Coupon interest payment = $600,000 × (8%/2) = $24,000

- PV of coupons = $24,000 × PVFA(4.5%, 4) = $24,000 × 3.5875 = $86,100
- PV of principal = $600,000/$1.045^4$ = $503,137
- PV of the note = $86,100 + $503,137 = $589,237

Using a BAII PLUS financial calculator:

- 4N, 4.5 I/Y, 24,000 PMT; 600000 FV, CPT PV PV = –589,237 (rounded)

Interest expense

- $589,237 x 9%/2 = $26,516

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July 1, 2019

Coupon interest payment = $600,000 × (8%/2) = $24,000

- PV of coupons = $24,000 × PVFA(4.5%, 3) = $24,000 × 2.74896 = $65,975
- PV of principal = $600,000/$1.045^3$ = $525,778
- PV of the note = $65,975 + $525,778 = $591,753
- Or more simply $589,237 + ($26,516 - $24,000) = $591,753

Using a BAII PLUS financial calculator:

- 3N, 4.5 I/Y, 24,000 PMT; 600000 FV, CPT PV PV = –591,753 (rounded)

a. Journal entry on issuance (Jan. 1, 2015)		
Dr. Cash (given)	660,000	
Cr. Contributed surplus—conversion option bonds (from above)		87,356
Cr. Bonds payable (from above)		572,644
b. Journal entry on interest payment date (June 30, 2015)		
Dr. Interest expense ($572,644 x 9%/2)	25,769	
Cr. Bonds payable ($25,769 - $24,000)		1,769
Cr. Cash ($600,000 x 8%/2)		24,000
c. Journal entry on interest payment date (June 30, 2019)		
Dr. Interest expense (from above)	26,516	
Cr. Bonds payable ($26,516 – $24,000)		2,516
Cr. Cash ($600,000 x 8%/2)		24,000
d. Journal entry on bond conversion date (July 1, 2019)		
Dr. Bonds payable (from above)	591,753	
Dr. Contributed surplus—conversion option bonds	87,356	
Cr. Common shares [$591,753 + $87,356]		679,109

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P14-20. ***Suggested solution:***

Value of convertible bond (given) $660,000
Face value of bond (given) $600,000
Conversion option $0 (CIHI has adopted the zero common equity method to account for the conversion option.)
Premium on bond to be amortized $660,000 - $600,000 = $60,000
Amortization of bond premium per period $60,000 / (6 years × 2 periods/year) = $5,000 per period.
Unamortized bond value at conversion $660,000 - ($5,000 × 9* periods) = $615,000
*4 ½ years have passed since issuance. 4 ½ × 2 = 9.

a. Journal entry on issuance (Jan. 1, 2015)		
Dr. Cash (given)	660,000	
Cr. Bonds payable		660,000
b. Journal entry on interest payment date (June 30, 2015)		
Dr. Interest expense ($24,000 - $5,000)	19,000	
Cr. Bonds payable (from above)	5,000	
Cr. Cash ($600,000 x 8%/2)		24,000
c. Journal entry on interest payment date (June 30, 2019)		
Dr. Interest expense ($24,000 - $5,000)	19,000	
Cr. Bonds payable (from above)	5,000	
Cr. Cash ($600,000 x 8%/2)		24,000
d. Journal entry on bond conversion date (July 1, 2019)		
Dr. Bonds payable (from above)	615,000	
Cr. Common shares		615,000

P14-21. ***Suggested solution:***

The fair value of the bond (sales price) is determined using discounted cash flow analysis where:
- N = 10 (5 × 2); PMT = $15,000 ($500,000 × 6% × 6/12); I/Y = 3.5% (7% /2)

Value of principal	= $500,000 / 1.035^{10}		$354,459
Value of coupons	= $15,000 × PVFA(3.5%,10)	= $15,000 × 8.3166	124,749
Total			$479,208

Using a BAII PLUS financial calculator
- 10N, 3.5I/Y, 500000 FV, 15000 PMT, CPT PV PV = –479,208 (rounded)

Conversion option $520,000 - $479,208 = $40,792

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Effective period rate		3.5000%			
Date	Interest expense	Interest paid	Discount amortized	Amortized cost	
01/01/2015				**$479,208**	(a)
06/30/2015	$16,772 (b)	$15,000 (c)	$1,772 (d)	**$480,981**	(e)
12/31/2015	$16,834	$15,000	$1,834	$482,815	
06/30/2016	$16,899	$15,000	$1,899	$484,714	
12/31/2016	$16,965	$15,000	$1,965	$486,679	
06/30/2017	$17,034	$15,000	$2,034	$488,712	
12/31/2017	$17,105	$15,000	$2,105	$490,817	
06/30/2018	$17,179	$15,000	$2,179 (h)	**$492,996**	
07/01/2018	Conversion of 60% of bonds			**-$295,798**	(f)
				$197,198	(g)
12/31/2018	$6,902	$6,000 (h)	$902	$198,100	
06/30/2019	$6,934	$6,000	$934	$199,034	
12/31/2019	$6,966	$6,000	$966	**$200,000**	

(a) - as calculated above
(b) - $479,208 x 3.5% = $16,772
(c) - $500,000 x 6%/2 = $15,000
(d) - $16,772 - $15,000 = $1,772
(e) - $479,208 + $1,772 = $480,981
(f) - $492,996 x 60% = $295,798
(g) - $492,996 - $295,798 = $197,198
(h) - ($500,000 - $300,000) x 6%/2 = $6,000
Note: Small differences due to rounding

a. Journal entry on issuance (Jan. 1, 2015)		
Dr. Cash (Sales proceeds)	520,000	
Cr. Contributed surplus—conversion option bonds ($520,000 - $479,208)		40,792
Cr. Bonds payable (from above)		479,208
b. Journal entry on interest payment date (June 30, 2015)		
Dr. Interest expense (from spreadsheet)	16,772	
Cr. Bonds payable		1,772
Cr. Cash		15,000
c. Journal entry on interest payment date (June 30, 2018)		
Dr. Interest expense (from spreadsheet)	17,179	
Cr. Bonds payable		2,179
Cr. Cash		15,000

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d. Journal entry on conversion of 60% of bonds (July 1, 2019)		
Dr. Bonds payable	295,798	
Dr. Contributed surplus—conversion option bonds ($40,792 × 60%)	24,475	
Cr. Common shares		320,273
e. Journal entry on interest payment date (Dec. 31, 2019)		
Dr. Interest expense (from spreadsheet)	6,966	
Cr. Bonds payable		966
Cr. Cash		6,000
f. Journal entry on derecognition (Jan. 1, 2020)		
Dr. Bonds payable	200,000	
Cr. Cash		200,000
Dr. Contributed surplus—conversion option bonds ($40,792 - $24,475)	16,317	
Cr. Contributed surplus—expired conversion option bonds		16,317
g. The conversion option is valued at the difference between the total proceeds of the bond issue and the market value of an equivalent bond issue without the option.		

P14-22. ***Suggested solution:***

Allocation of proceeds:

Bonds*	$4,673,625
Warrants ($5,000,000 × 40 warrants / $1,000 × $3/warrant)	600,000
Conversion rights (remainder)	226,375
Total proceeds	$5,500,000

* 5% / 2 = 2.5%; $5,000,000 x 4% / 2 = $100,000

PV of principal ($5,000,000 / 1.025^{16})	$3,368,125
PV of coupons ($100,000 × PVFA(2.5%,16) = $100,000 × 13.05500)	1,305,500
Bond value	$4,673,625
Using BAII Plus financial calculator:	
16 N, 2.5 I/Y, 5000000 FV, 100000 PMT, CPT PV	$4,673,625

a. Issuance of bonds on January 1, 2016:

Dr. Cash	5,500,000	
Cr. Bonds payable		4,673,625
Cr. Contributed surplus—warrants		600,000
Cr. Contributed surplus—conversion rights		226,375

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b. Payment of interest on June 30, 2016:

Dr. Interest expense ($4,673,625 × 5% × 6/12)	116,841	
Cr. Bonds payable ($116,841 - $100,000)		16,841
Cr. Interest payable ($5,000,000 × 4% × 6/12)		100,000

c. Exercise of stock warrants on July 1, 2020:

Dr. Cash (200,000 warrants × 80% × $35/warrant)	5,600,000	
Dr. Contributed surplus—warrants ($600,000 × 80%)	480,000	
Cr. Common stock		6,080,000

d. Payment of interest on June 30, 2021:

Dr. Interest expense ($4,862,297* × 5% × 6/12)	121,557	
Cr. Bonds payable ($121,557 - $100,000)		21,557
Cr. Interest payable ($5,000,000 × 4% × 6/12)		100,000
*6 N, 2.5 I/Y, 5000000 FV, 100000 PMT, CPT PV PV = -4,862,297 (rounded)		

e. Conversion of bonds on July 1, 2021:

Dr. Bonds payable	3,418,698	
Dr. Contributed surplus—conversion rights ($226,375 × 70%)	158,463	
Cr. Common stock		3,577,161
*5 N, 2.5 I/Y, 5000000 FV, 100000 PMT, CPT PV PV = -4,883,854 (rounded); $4,883,854 × 70% = $3,418,698		

f. Derecognition of bond on Jan. 1, 2024:

Dr. Bonds payable ($5,000,000 × 30%)	1,500,000	
Cr. Cash		1,500,000
Dr. Contributed surplus—conversion rights ($226,375 - $158,463)	67,912	
Cr. Contributed surplus—expired conversion rights		67,912
Dr. Contributed surplus—warrants ($600,000 - $480,000)	120,000	
Cr. Contributed surplus—expired warrants		120,000

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P14-23. ***Suggested solution:***

a. Correcting entry for issuance:

Reversal of incorrect entry	Dr. Bonds payable	5,325,000	
	Cr. Cash		5,325,000
Correct entry	Dr. Cash	5,325,000	
	Cr. Bonds payable		4,240,000
	Cr. Contributed surplus—conversion rights		1,085,000
Net of above = correcting entry	Dr. Bonds payable	1,085,000	
	Cr. Contributed surplus—conversion rights		1,085,000

b. Correcting entry for interest:

Incorrect entry	None made.		
Correct entry = correcting entry	Dr. Retained earnings ($4,240,000 × 10% × 5/12)	176,667	
	Cr. Interest payable ($5,000,000 × 8% × 5/12)		166,667
	Cr. Bonds payable		10,000
	Note that we must adjust retained earnings instead of interest expense because the general ledger has been closed.		

c. The effect of correcting for the convertible bond issuance will improve (i.e., decrease) the debt-to-equity ratio because the correction reclassifies $1,085,000 from liability to equity. On the other hand, recording the interest cost will increase liabilities (interest payable) and decrease equity (retained earnings).

While not required, the revised debt-to-equity ratio would be:
Total liabilities = $25,000,000 – $1,085,000 + $166,667 + $10,000 = $24,091,667
Total equity = $20,000,000 + $1,085,000 – $176,667 = $20,908,333
Debt-to-equity = $24,091,667 / $20,908,333 = 1.15

P14-24. ***Suggested solution:***

Note that in the absence of other information, the expense is assumed to be incurred in the period that an enterprise grants the options.

Dr. Compensation expense or stock option expense	150,000	
Cr. Contributed surplus—stock options (100,000 x $1.50)		150,000

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P14-25. ***Suggested solution:***

Since the options vest after five years, the compensation expense should be amortized over this five-year vesting period. Pelham should record the following entry each year from 2014 to 2018.

Dr. Compensation expense (200,000 options × $1/option / 5 yr)	40,000	
Cr. Contributed surplus—stock options		40,000

P14-26. ***Suggested solution:***

2015 Dec 31	Dr. Compensation expense	20,000	
	Cr. Contributed surplus—stock options		20,000
	(30,000 options × $2/option / 3 years)		
2016 Dec 31	Same entry as above.		
2017 Dec 31	Same entry as above.		
2018 Jan 1	Dr. Cash (30,000 sh × $12/sh)	360,000	
	Dr. Contributed surplus—stock options	60,000	
	($20,000/year × 3 years)		
	Cr. Common stock		420,000

P14-27. ***Suggested solution:***

a.	Dr. Compensation expense or stock option expense	1.8	
	Cr. Contributed surplus—stock options (given)		1.8
	Dr. Cash	5.9	
	Dr. Contributed surplus—stock options (given)	1.0	
	Cr. Common stock (given)		6.9
b.	Dr. Common stock (given)	46.5	
	Dr. Retained earnings	64.5	
	Cr. Cash (given)		111

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P14-28. ***Suggested solution:***

Jan. 1, 2016	Dr. Compensation Expense	250,000	
	Cr. Contributed surplus—employee stock options		250,000
The options are for past service and vest immediately so the total cost is expensed immediately			
May 31, 2016	Dr. Cash (30,000 options × $27/option)	810,000	
	Dr. Contributed surplus—stock options	150,000	
	($250,000 × 30,000 options / 50,000 options)		
	Cr. Common shares		960,000
June 30, 2016	Dr. Cash (20,000 options × $27/option)	540,000	
	Dr. Contributed surplus—stock options	100,000	
	($250,000 × 20,000 options / 50,000 options)		
	Cr. Common shares		640,000

P14-29. ***Suggested solution:***

Dec. 31. 2014	Dr. Compensation Expense	150,000	
	Cr. Contributed surplus—employee stock options		150,000
Dec. 31. 2015	Dr. Compensation Expense	150,000	
	Cr. Contributed surplus—employee stock options		150,000
Dec. 31. 2016	Dr. Compensation Expense	150,000	
	Cr. Contributed surplus—employee stock options		150,000
The total cost of the options is $450,000 options. This amount should be amortized over the vesting period (three years). $450,000 / 3 = $150,000			
Apr. 30, 2017	Dr. Cash (90,000 options × $22/option)	1,980,000	
	Dr. Contributed surplus—stock options	270,000	
	($450,000 × 90,000 options / 150,000 options)		
	Cr. Common shares		2,250,000
June 30, 2017	Dr. Cash (50,000 options × $22/option)	1,100,000	
	Dr. Contributed surplus—stock options	150,000	
	($450,000 × 50,000 options / 150,000 options)		
	Cr. Common shares		1,250,000

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Dec. 31, 2021	Dr. Contributed surplus—stock options ($450,000 – $270,000 - $150,000)	30,000	
	Cr. Contributed surplus—expired stock options		30,000

P14-30. ***Suggested solution:***

Cash-settled Stock Appreciation Rights—Compensation Expense (IFRS)						
1	2	3	4	5 = 2 × 3 × 4	6	7 = 5 – 6
Date	Fair value	Number of SARs	Percentage accrued	Cumulative liability close	Cumulative liability open	Compensation expense
12/31/2017	$5	100,000	1/2 = 50%	$250,000	$0	$250,000
12/31/2018	$4	100,000	2/2 = 100%	$400,000	$250,000	$150,000
01/01/2019	X	(60,000)		($120,000)	**Partial exercise of SARS – market price $12 - $10 benchmark = $2 payout per SAR**	
01/01/2019	X	40,000		$280,000		
12/31/2019	$7	40,000	100%	$280,000	$280,000	$0
01/01/2020	X	(40,000)	100%	($120,000)	**Exercise of balance of SARS– market price $13 - $10 benchmark = $3 payout per SAR**	
01/01/2020	X	0		$160,000		
12/31/2020	$6	0	100%	$0	$160,000	($160,000)
12/31/2021	$5	0	100%	$0	$0	$0

Dec. 31, 2017	Dr. Compensation expense	250,000	
	Cr. Liability for stock appreciation rights		250,000
Dec. 31, 2018	Dr. Compensation expense	150,000	
	Cr. Liability for stock appreciation rights		150,000
Jan. 1, 2019	Dr. Liability for stock appreciation rights	120,000	
	Cr. Cash		120,000
Dec. 31, 2019	No entry required – the liability remains unchanged at $280,000		
Jan. 1, 2020	Dr. Liability for stock appreciation rights	120,000	
	Cr. Cash		120,000

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Dec. 31, 2020	Dr. Liability for stock appreciation rights	160,000	
	Cr. Compensation expense		160,000
Dec. 31, 2021	No entry required the liability remains unchanged at $0		

P14-31. ***Suggested solution:***

Cash-settled Stock Appreciation Rights—Compensation Expense (ASPE)

1	2	3	4	5	6 = (2 - 3) × 4 × 5 subject to liability ≥ $0^	7	8 = 6 – 7
Date	Market value	Benchmark price	Number of SARs	Percentage accrued^	Cumulative liability close	Cumulative liability open	Compensation expense
12/31/2017	$11	$10	100,000	1/2 = 50%	$50,000	$0	$50,000
12/31/2018	$12	$10	100,000	2/2 = 100%	$200,000	$50,000	$150,000
01/01/2019	$12	$10	(60,000)		($120,000)	**Partial exercise of SARS – market price $12 - $10 benchmark = $2 payout per SAR**	
01/01/2019	X		40,000		$80,000		
12/31/2019	$13	$10	40,000	100%	$120,000	$80,000	$40,000
01/01/2020	$13	$10	(40,000)	100%	($120,000)	**Exercise of balance of SARS– market price $13 - $10 benchmark = $3 payout per SAR**	
01/01/2020	X		0		$0		
12/31/2020	$14	$10	0	100%	$0	$0	$0
12/31/2021	$15	$10	0	100%	$0	$0	$0

Dec. 31, 2017	Dr. Compensation expense	50,000	
	Cr. Liability for stock appreciation rights		50,000
Dec. 31, 2018	Dr. Compensation expense	150,000	
	Cr. Liability for stock appreciation rights		150,000
Jan. 1, 2019	Dr. Liability for stock appreciation rights	120,000	
	Cr. Cash		120,000
Dec. 31, 2019	Dr. Compensation expense	40,000	
	Cr. Liability for stock appreciation rights		40,000
Jan. 1, 2020	Dr. Liability for stock appreciation rights	120,000	
	Cr. Cash		120,000

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Dec. 31, 2020	No entry required the liability remains unchanged at $0
Dec. 31, 2021	No entry required the liability remains unchanged at $0

P14-32. ***Suggested solution:***

2014 Dec 31	Dr. Compensation expense	300,000	
	Cr. Contributed surplus—stock options		300,000
	The total cost of the options is 200,000 options × $3/option = $600,000. This amount should be amortized over the vesting period (two years), which is presumed to be the period of service expected from the option grant.		
2015 Dec 31	Dr. Compensation expense	300,000	
	Cr. Contributed surplus—stock options		300,000
2016 Mar 31	Dr. Cash (120,000 shares × $25/share)	3,000,000	
	Dr. Contributed surplus—stock options	360,000	
	($600,000 × 120,000 options / 200,000 options)		
	Cr. Common shares		3,360,000
2020 Dec 31	Dr. Contributed surplus—stock options	240,000	
	($600,000 – $360,000)		
	Cr. Contributed surplus—expired stock options		240,000

P14-33. ***Suggested solution:***

a.	Dr. Cash (given)	3,402,605	
	Cr. Bonds payable (standalone market value – given)		2,660,987
	Cr. Contributed surplus—conversion rights		741,618
	($3,402,605 – $2,660,987)		
b.	A journal entry is not required at the time the stock options are issued, rather, a memorandum would be made in the company's records. An adjusting entry would then be processed at period end to allocate the expense for the period in the form that follows. As the question does not state when the options were issued, the amount to be expensed at period end cannot be determined.		
	Dr. Compensation expense	??	
	($50,000 / 5 years × portion of year outstanding)		
	Cr. Contributed surplus—stock options		??
	Dr. Contributed surplus—stock options	5,000	
	Cr. Contributed surplus—expired stock options		5,000

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P14-34. ***Suggested solution:***

Cash-settled Stock Appreciation Rights—Compensation Expense (IFRS)						
1	2	3	4	5 = 2 × 3 × 4	6	7 = 5 – 6
Date	Fair value	Number of SARs	Percentage accrued	Cumulative liability close	Cumulative liability open	Compensation expense
12/31/2015	$10	180,000	1/3 = 33 1/3%	$600,000	$0	$600,000
12/31/2016	$6	180,000	2/3 = 66 2/3%	$720,000	$600,000	$120,000
12/31/2017	$7	180,000	3/3 = 100%	$1,260,000	$720,000	$540,000
01/01/2018	X	(80,000)		($320,000)	**Partial exercise of SARS – market price $20 - $16 benchmark = $4 payout per SAR**	
01/01/2018	X	100,000		$940,000		
12/31/2018	$8	100,000	100%	$800,000	$940,000	($140,000)
01/01/2019	X	(60,000)		($360,000)	**Partial exercise of SARS – market price $22 - $16 benchmark = $6 payout per SAR**	
01/01/2019	X	40,000		$440,000		
12/31/2019	$1	40,000	100%	$40,000	$440,000	($400,000)
12/31/2020	$0	0*	100%	$0	$40,000	($40,000)

*The SARS expired on 12/31/2020

Dec. 31, 2015	Dr. Compensation expense	600,000	
	Cr. Liability for stock appreciation rights		600,000
Jan. 1, 2018	Dr. Liability for stock appreciation rights	320,000	
	Cr. Cash		320,000
Jan. 1, 2019	Dr. Liability for stock appreciation rights	360,000	
	Cr. Cash		360,000
Dec. 31, 2020	Dr. Liability for stock appreciation rights	40,000	
	Cr. Compensation expense		40,000

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P14-35. ***Suggested solution:***

Cash-settled Stock Appreciation Rights—Compensation Expense (ASPE)							
1	2	3	4	5	6 = (2 - 3) × 4 × 5 subject to liability ≥ $0^	7	8 = 6 – 7
Date	Market value	Benchmark price	Number of SARs	Percentage accrued^	Cumulative liability close	Cumulative liability open	Compensation expense
12/31/2015	$21	$16	180,000	1/3 = 33 2/3%	$300,000	$0	$300,000
12/31/2016	$18	$16	180,000	2/3 = 66 2/3%	$240,000	$300,000	($60,000)
12/31/2017	$20	$16	180,000	3/3 = 100%	$720,000	$240,000	$480,000
01/01/2018	$20	$16	(80,000)		($320,000)	**Partial exercise of SARS**	
01/01/2018	X		100,000		$400,000		
12/31/2018	$22	$16	100,000	100%	$600,000	$400,000	$200,000
01/01/2019	$22	$16	(60,000)		($360,000)	**Partial exercise of SARS**	
01/01/2019	X		40,000		$240,000		
12/31/2019	$15	$16	40,000	100%	$0	$240,000	($240,000)
12/31/2020	$14	$16	0*	100%	$0	$0	$0

*The SARS expired on 12/31/2020

Dec. 31, 2015	Dr. Compensation expense	300,000	
	Cr. Liability for stock appreciation rights		300,000
Jan. 1, 2018	Dr. Liability for stock appreciation rights	320,000	
	Cr. Cash		320,000
Jan. 1, 2019	Dr. Liability for stock appreciation rights	360,000	
	Cr. Cash		360,000
Dec. 31, 2019	Dr. Liability for stock appreciation rights	240,000	
	Cr. Compensation expense		240,000

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P14-36. ***Suggested solution:***

Note: "C/S" denotes contributed surplus.

a. Repurchase of 100,000 shares where 70,000 shares went into treasury and 30,000 were cancelled.

Dr. Treasury stock (70,000 sh × $17/sh)	1,190,000	
Cr. Cash		1,190,000
Dr. Common stock ($57,000,000 / 9,500,000 sh× 30,000 sh)	180,000	
Dr. C/S—share repurchases / resales (type B)	300,000	
Dr. C/S—stock options (Type C) (30,000 sh × $0.05/share)	1,500	
Dr. C/S—expired options (Type C) (30,000 sh × $0.03/sh)	900	
Dr. C/S—conversion rights(Type C) (30, 000 sh × $0.10/sh)	3,000	
Dr. Retained earnings	24,600	
Cr. Cash		510,000

b. Carrying value of debt portion of convertible bond on April 1, 2014.
Nine semi-annual periods remain until maturity, with yield 3%/period.
NBV = $5,000,000 × PVF(3%,9) + $200,000 × PVFA(3%,9)
NBV = $5,000,000 × 0.76642 + $200,000 × 7.78611
NBV = $3,832,083 + $1,557,222 = $5,389,305
Using BAII Plus financial calculator:
9 N, 3 I/Y, 5000000 FV, 200000 PMT, CPT PV ➔ PV = $5,389,305

c. Conversion of $5 million of bonds on April 1, 2014.

Dr. Bonds payable	5,389,305	
Dr. C/S—conversion rights	947,000	
Cr. Common stock (500,000 shares)		6,336,305

d. Exercise of stock options and sale of treasury shares on April 30, 2014.

Dr. Cash (150,000 options × 1 sh/option × $12/sh)	1,800,000	
Dr. C/S—stock options (Type C) (150,000 options × $1.50/option)	225,000	
Dr. Retained earnings (remainder)	365,000	
Cr. Treasury stock (balance of account for 150,000 sh)		2,390,000

e. Stock option expirations on April 30, 2014.

Dr. C/S—stock options (Type C) (50,000 options × $1.50/option)	75,000	
Cr. C/S—expired stock options (Type C)		75,000

f. Issuance of stock options on May 1, 2014.

Dr. Compensation expense (50,000 options × $2.40/option × 4/24)	20,000	
Cr. C/S—stock options (Type C)		20,000

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g. Issuance of $20 million convertible debt on June 30, 2014.

Dr. Cash (given)	21,500,000	
Cr. Bonds payable (standalone market value - given)		18,640,967
Cr. C/S—conversion rights (Type C)		2,859,033

h. Equity section of balance sheet as at August 31, 2014.

Corus Manufacturing Ltd. Balance sheet excerpt (equity section) As at August 31, 2014	
Preferred stock ($200 par, 6% cumulative, 50 million authorized, 100,000 issued and outstanding)	$ 20,000,000
Common stock (no par, unlimited number authorized, 19.94 million issued and outstanding)	63,156,305
Treasury stock	—
Contributed surplus – issuance of preferred stock	800,000
Contributed surplus – repurchases/resales of common stock	—
Contributed surplus – stock options	193,500
Contributed surplus – expired stock options	359,100
Contributed surplus – conversion rights	2,859,033
Retained earnings	44,610,400
Total shareholders' equity	$131,978,338

The above balances are derived from the following spreadsheet.

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Date	Event	Preferred stock			Common stock - issued			Treasury stock			Contrib. surplus - pfd stock	[Type B] Contrib. surplus - repurch/ resale of common	[Type C] Contrib. surplus - stock options	[Type C] Contrib. surplus - expired options	[Type C] Contrib. surplus - conv bond	R/E
		# sh	$	$/sh	# sh	$	$/sh	# sh	$	$/sh					$	$
2013 Aug 31	Balance	100,000	20,000,000	200	9,500,000	57,000,000	6.00	(80,000)	(1,200,000)	15.00	800,000	300,000	475,000	285,000	950,000	34,500,000
2014 Mar 31	Shares repurch into treas.							(70,000)	(1,190,000)	17.00						
	Shares repurch and cancelled				(30,000)	(180,000)	6.00	-	-		-	(300,000)	(1,500)	(900)	(3,000)	(24,600)
	Balance				9,470,000	56,820,000		(150,000)	(2,390,000)	15.93	800,000	-	473,500	284,100	947,000	34,475,400
2014 Apr 01	$5million bond conversion				500,000	6,336,305									(947,000)	
2014 Apr 30	Option exercise							150,000	2,390,000	15.93			(225,000)			(365,000)
	Option expiration												(75,000)	75,000	-	-
	Balance												173,500	359,100	-	34,110,400
2014 May 01	Option grant				-	-		-	-		-	-	20,000	-	-	
	Balance				9,970,000	63,156,305		-	-		800,000	-	193,500	359,100	-	
2014 May 31	Stock split				9,970,000	-		-	-		-	-	-	-	-	
	Balance				19,940,000	63,156,305		-	-		800,000	-	193,500	359,100	-	
2014 Jun 30	Issuance of convertible bond														2,859,033	
2014 Aug 31	Net income															10,500,000
	Balance	100,000	20,000,000	200	19,940,000	63,156,305	3.17	-	-		800,000	-	193,500	359,100	2,859,033	44,610,400

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P14-37. ***Suggested solution:***

	Item	Fair value hedge or cash flow hedge?
a.	A forward contract to buy USD$1 million for CAD$1.05 million.	Either*
b.	A swap of investment with a variable interest rate with one providing a fixed return.	Cash flow
c.	A swap of a U.S.-dollar denominated bond payable for one denominated in Canadian dollars.	Cash flow
d.	A futures contract to sell 10,000 oz of gold at USD$1,150/oz.	Fair value

*Recall that by definition a firm commitment is a highly probable forecast transaction. As foreign currency exposure to a firm commitment affects both the fair value of the item and future cash flows, IAS 39 paragraph 87 provides that a hedge of the foreign currency risk of a firm commitment may be accounted for either as a fair value or cash flow hedge.

P14-38. ***Suggested solution:***

	Circumstance	Futures contract to buy USD can be considered as a fair value hedge?
a.	The company has an account receivable of USD$500,000, due in 90 days.	No
b.	The company has an account payable of USD$500,000, due in 90 days.	Yes
c.	The company has an investment in shares traded on a U.S. stock exchange and it plans to sell these shares in 90 days.	No
d.	The company intends to buy USD$500,000 of inventories for which it must pay 90 days later.	No (Cash flow hedge)

P14-39. ***Suggested solution:***

	Item	Potential hedging instrument?	Item being hedged or explanation
a.	A forward contract to sell USD$200,000.	Yes	Cash of USD$200,000.
b.	A forward contract to sell USD$100,000.	Yes	Cash of USD$100,000. The company need not hedge its entire exposure.
c.	A forward contract to buy USD$100,000.	Yes	Net liability of USD$100,000 consisting of $300,000 in accounts payable and $200,000 in cash.
d.	An interest rate swap involving future payments of 6% interest and receipts of prime + 2% on $1,000,000 principal.	No	Company does not have an exposure to variable interest rates on liabilities. The swap would have to be in the opposite direction for there to be a hedge.

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P14-40. ***Suggested solution:***

Dec. 1, 2015	No entry required— the contract to purchase the inventory and the forward contract are both mutually unexecuted contracts		
Dec. 31, 2015	Dr. Foreign exchange gains and losses	1,000	
	Cr. Forward contract receivable (US dollars)		1,000
	Dr. Contract commitment asset	1,000	
	Cr. Foreign exchange gains and losses		1,000
	US$200,000 × (0.995 – 1.000)		
Feb. 2, 2016	Dr. Foreign exchange gains and losses	1,000	
	Cr. Forward contract receivable (US dollars)		1,000
	Dr. Contract commitment asset	1,000	
	Cr. Foreign exchange gains and losses		1,000
	US$200,000 × (0.990 – 0.995)		
	Dr. Cash (US$) (US$200,000 × 0.990)	198,000	
	Dr. Forward contract receivable (US dollars) ($1,000 + $1,000)	2,000	
	Cr. Cash (C$) (US$200,000 × 1.000)		200,000
	Dr. Inventory (US$) (US$200,000 × 1.000)	200,000	
	Cr. Cash (C$) (US$200,000 × 0.990)		198,000
	Cr. Contract commitment asset		2,000

P14-41. ***Suggested solution:***

(a)			
Dec. 1, 2015	No entry required— the contract to purchase the inventory and the forward contract are both mutually unexecuted contracts		
Dec. 31, 2015	Dr. Other comprehensive income	1,000	
	Cr. Forward contract receivable (US dollars)		1,000
	US$200,000 × (0.995 – 1.000)		
Feb. 2, 2016	Dr. Other comprehensive income	1,000	
	Cr. Forward contract receivable (US dollars)		1,000
	US$200,000 × (0.990 – 0.995)		
	Dr. Cash (US$) (US$200,000 × 0.990)	198,000	
	Dr. Forward contract receivable (US dollars) ($1,000 + $1,000)	2,000	
	Cr. Cash (C$) (US$200,000 × 1.000)		200,000

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	Dr. Inventory (US$) (US$200,000 × 0.990)	198,000	
	Cr. Cash (C$) (US$200,000 × 0.990)		198,000
	Dr. Inventory	2,000	
	Cr. Other comprehensive income ($1,000 + $1,000)		2,000
(b)	The other alternative for recycling other comprehensive income is to remove it from AOCI when the inventory is sold and report it as income at that time.		

P14-42. ***Suggested solution:***

June 18, 2015	No entry required— the contract to sell the machinery and the forward contract are both mutually unexecuted contracts		
June 30, 2015	Dr. Foreign exchange gains and losses	500	
	Cr. Forward contract receivable (€)		500
	Dr. Contract commitment asset/liability	500	
	Cr. Foreign exchange gains and losses		500
	€100,000 × (1.310 – 1.305)		
Aug. 12, 2015	Dr. Forward contract receivable (€)	2,000	
	Cr. Foreign exchange gains and losses		2,000
	Dr. Foreign exchange gains and losses	2,000	
	Cr. Contract commitment asset/liability		2,000
	€200,000 × (1.290 – 1.310)		
	Dr. Cash (C$) (€100,000 × 1.305)	130,500	
	Cr. Forward contract receivable ($2,000 - $500)		1,500
	Cr. Cash (€) (€100,000 × 1.2900)		129,000
	Dr. Cash (€) (€$100,000 × 1.290)	129,000	
	Dr. Contract commitment asset/liability ($2,000 - $500)	1,500	
	Cr. Sales (C$) (€100,000 × 1.305)		130,500
	Dr. Cost of goods sold (C$)	110,000	
	Cr. Machine inventory (C$)		110,000

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P14-43. ***Suggested solution:***

June 18, 2015	No entry required— the contract to sell the machinery and the forward contract are both mutually unexecuted contracts		
June 30, 2015	Dr. Other comprehensive income	500	
	Cr. Forward contract receivable (€)		500
	€100,000 × (1.310 – 1.305)		
Aug. 12, 2015	Dr. Forward contract receivable (€)	2,000	
	Cr. Other comprehensive income		2,000
	€200,000 × (1.290 – 1.310)		
	Dr. Cash (C$) (€100,000 × 1.305)	130,500	
	Cr. Forward contract receivable ($2,000 - $500)		1,500
	Cr. Cash (€) (€100,000 × 1.2900)		129,000
	Dr. Cash (€) (€$100,000 × 1.290)	129,000	
	Cr. Sales (C$)		129,000
	Dr. Cost of goods sold (C$)	110,000	
	Cr. Machine inventory (C$)		110,000
	Dr. Other comprehensive income ($2,000 - $500)	1,500	
	Cr. Sales (C$)		1,500

L. Mini-Cases

Case 1: Ultramart. ***Suggested solution:***

To: Ted Chamberlain, CEO
From: CFO
Subject: Financing with compound financial instruments (hybrids) or other instruments

Compound financial instruments, or hybrids, have two or more components and so hybrids have characteristics of their component part. Hybrids can have a mix of debt and equity. For example, a convertible bond has characteristics of both debt and equity.

Generally speaking, a firm is better off issuing debt instead of equity if the company's leverage is not too high taking into consideration the type of industry and business model of the company. Interest on debt is tax deductible and issuing debt signals management's confidence in the company's future. Dividends from equity are not tax deductible and issuing equity suggests that management is unsure of the company's future prospects and possibly that the company's shares are overvalued. The advantage of issuing equity and common shares in particular is that doing so does not increase leverage and bankruptcy risk and indeed reduces this risk.

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Now, let us look at hybrids. To make the discussion concrete, let us stay with the example of a convertible bond, which allows bondholders the right to convert their bonds to shares. As a bond, issuing this hybrid will still increase our liabilities. However, our company's equity would also increase to reflect the value of the conversion right. As a result, our leverage ratios will not go up as much as if we issued straight debt, but they probably will still go up to some extent. Numerical estimates will require additional information on the terms of the convertible bond and the value that can be attributed to the debt and equity components.

As you heard at the conference, issuing a hybrid instrument such as a convertible bond will lower the interest rate compared with straight debt, so the income statement will look better, at least in the short term. However, there will be interest payments required, unlike issuing common shares.

What I have explained so far suggests that hybrids are somewhere in the middle between debt and equity, which is intuitive. However, there are also strategic considerations that need to be taken into account. Specifically, we should think about what the holders of the convertible bonds are likely to do. Bondholders are most likely to convert their bonds into shares when our company performs well, and our shares increase in value significantly, so that owning the shares is preferable to holding the bonds. If and when this conversion occurs, our liabilities would decrease and our equity would increase. The downside is that these convertible bondholders will be able to obtain common shares at a bargain and there will be dilution of the common shareholders.

Hybrids such as convertible bonds are most appropriately used in early-stage and other business ventures that require multi-stage financing. The conversion right embedded in the bond creates an automatic de-leveraging effect when bondholders convert as a result of shares increasing in value. This lower leverage then allows the enterprise to issue more debt and obtain a second stage of financing. As noted above, the de-leveraging is important because issuing debt is generally preferred to issuing equity.

These strategic considerations suggest that there are situations when using a hybrid instrument makes more sense than using either debt or equity alone. However, hybrids are not suitable for every enterprise. If there is no need for multi-stage financing, the benefits of hybrids are more limited.

It is not clear that our company is a good candidate for using hybrids. Although competitive, the retail grocery industry is quite stable. The uncertainties surrounding our business are small relative to many other types of businesses. We also do not have plans beyond the current expansion that would require a significant second-stage financing. If our expansion plans go smoothly, we would also be required to issue common shares at a discount relative to the market price to satisfy the bond conversions. Thus, I recommend against going with a hybrid instrument such as a convertible bond.

I would also advise against issuing shares to obtain the projected $500 million because doing so would require the issuance of 12.5 million shares. This will significantly dilute your family's holdings in the company, from 30% to 24%. However, it is possible this dilution will be

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acceptable, so I leave that decision up to you and your family members. Dilution is also a consideration for the convertible bonds since conversion will result in additional shares being issued.

Given the nature of our business, I recommend issuing debt as our first choice in financing. We operate in a stable business environment and this is the least costly financing source in the long term. If our debt capacity is not sufficient to allow increasing our debt by $500 million, I recommend issuing additional shares as a secondary source of financing. If your family members have funds available, issuing shares to them would be preferable to issuing to the general public.

Case 2: Canadian Development Limited. ***Suggested solution:***

To: Partner
From: Stephanie Baker
Re: Canadian Development Limited (CDL) Engagement

As requested, I have analyzed the accounting implications, financial statement presentation, and disclosure issues. CDL's proposed treatments tend to present the company's financial position in a more positive light than what accounting standards allow. The following discussion provides more details relating to each of the two changes in capital structure.

Convertible debentures
During 2013, CDL raised $250 million by issuing one million convertible, redeemable debentures at $250 each. Each debenture is convertible into one common share at any time. The debentures are redeemable at $250 from January 1, 2019, to January 1, 2022. CDL has the option of repaying the debt at maturity in 20 years' time through the issuance of common shares.

CDL proposes to partition the balance sheet, and will include the debenture in a section entitled "Shareholders' Equity and Convertible Debentures." [*Note:* these two paragraphs summarizing the facts would not be awarded marks, but they are presented here as they would be in a professional memo.]

Substance over form: If the convertible debentures are, in substance, permanent equity of CDL, then classifying them as shareholders' equity is appropriate and gives the proper presentation of the economic substance of the transaction. Therefore, it is necessary to determine whether these debentures are, in substance, equity or debt, or some combination of the two.

Relevant standards: Guidance provided in IAS 39 requires compound financial instruments to be recorded according to their component parts because the convertible debenture has the substance of both debt and equity. The obligation to pay interest periodically and the principal at maturity are characteristics of a liability. The debenture holders' right to convert is an option on the company's common shares, which is a type of equity.

Likelihood of conversion: The allocation to the debt and equity components takes into account the likelihood of conversion: the higher that likelihood, the larger the equity component. However, as long as the likelihood of conversion is not 100%, some portion of the debenture's

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value needs to be allocated to debt. While CDL states that the company expects most debenture holders will convert, there is little evidence to suggest that they will. CDL has the option to force conversion at maturity, which adds to the likelihood of conversion.

The combination of conversion features bears some additional analysis. Normally, holders of convertible debt will choose to convert when it is to their advantage, which is when the value of common shares is high relative to the value of the debt. The probability of this occurring can be estimated based on historical prices. However, the ability to force conversion at maturity significantly alters this analysis. CDL would force conversion if it is advantageous for CDL, not the debenture holders. Specifically, the fact that the debenture holders had not converted prior to maturity suggests that conversion would not be advantageous to them (i.e., holding the common shares would be worth less than holding the debt). If CDL does force conversion, this action indicates that the common shares that would be issued are less valuable than repaying the principal value of $250 per debenture. In other words, CDL has the ability to force conversion when the company needs it most, when its equity is of low value, which is likely to be when the company is performing poorly. Thus, if CDL is successful, the debenture holders will choose to convert; but if the company is not successful, the company will force conversion. As a result, the likelihood of conversion, while not 100%, is very high. Additional analysis is required to quantify this likelihood to help determine the allocation between debt and equity.

Common shares converted to preferred shares
Two million common shares were converted into two million preferred, redeemable shares. The net book value of the two million common shares was $20 million. The preferred shares do not bear dividends and are mandatorily redeemable in five years at $15 per share. CDL has recorded them at their redemption value of $30 million, and the difference of $10 million as a charge as retained earnings.

Two issues need to be considered with respect to the redeemable preferred shares: their classification on the balance sheet and their measurement.

Classification: Since the preferred shares are mandatorily redeemable in five years, they do not constitute a part of CDL's equity. The basis for classifying this transaction originates in the definition of a liability. The fact that CDL will need to pay cash in five years for the redemption, the fact that the company is obligated to redeem the shares, and the fact that the shares arose from a past transaction (the conversion) mean that these shares should be classified as a liability. The substance of the security takes precedence over its legal form.

Measurement: Investors contribute cash to enterprises so that they can earn a return on their investment. This return can be periodic or it can be realized when the investor liquidates the investment. In this case, the future return has been fixed at $30 million (2 million shares at $15 per share). This amount includes both a return of capital and income over the five-year period. It is therefore important to distinguish capital from income. To determine the amount that should be allocated to each, it is necessary to determine the present value of the $30 million; this amount is the capital component and the remainder would be future income. To do this requires an estimate of the appropriate interest rate that is consistent with the risk of this security. For

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example, if the appropriate interest rate is 10%, then the present value would be $18.6 million ($30 million / 1.10^5).

Case 3: Convertible debt. ***Suggested solution:***

a. Potential reasons Lord Motors offered bondholders to convert include:
   i) Conversion will reduce interest expense and debt on the balance sheet. All else being equal, the company should be able to report higher earnings and improved financial ratios such as debt-to-equity.
   ii) Improving cash flow may be another reason. While Lord Motors made a one-time cash payment of $1.26 million, in the coming years it will enjoy annual pre-tax interest savings of $2.65 million ($1.325 million × 2).
   iii) It had excess cash that was not earmarked for investment.

   It likely offered the cash inducement to make the conversion option more attractive, and thus increase the likelihood the debt holders would accept the offer.

b. The face value of the bond was $50 million. If $42 million of convertible bonds were converted, then 84% (42/50) of bondholders accepted the offer.

c. If 2,520,000 shares were issued and $42 million bonds were retired, then for each $1,000 bonds, 60 shares were issued, or the conversion rate was 1 share for each $16.67 of bonds (1,000/60). (2,520,000/$42,000,000 × $1,000 = 60)

d. As $1.26 million was paid to bondholders, each $10,000 of bonds was paid a $300 cash inducement. ($1,260,000 / $42,000,000 × $10,000 = $300). In addition, they are paid accrued interest of $250. ($1,250,000 / $50,000,000 × $10,000 = $250). Therefore a $10,000 bondholder on Dec. 31, 2013 received a total of $550 cash.

e. Journal entry:
Interest for the period is $1,737,186 as per the spreadsheet. The bondholders that convert receive $1,050,000 interest on Dec. 31, 2013, while the interest payment to the remaining bondholders of $200,000 is on Jan. 1, 2014.

Dr. Interest expense	1,737,186	
Cr. Cash		1,050,000
Cr. Interest payable		200,000
Cr. Bonds payable		487,186

As per the amortization table below, the carrying value of the bonds on Jan. 1, 2014 is $43,916,828. When 84% of these bonds were converted, bonds payable was reduced by $36,890,136 ($43,916,828 × 84%). The carrying value at issue was $41,260,778.
FV = 50,000,000
PMT = 1,250,000
N = 16
I = 8%
PV = $41,260,778

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Because proceeds were $46,869,892, then the amount paid for the conversion rights was $5,609,114. Thus, we need to debit the conversion rights $4,711,656. (5,609,114 × 84%). The company paid cash of $1,260,000 to induce the conversion. As per AG 32 of IAS 32, the book value method is used to account for conversion.

Dr. Bonds payable	36,890,136	
Dr. Conversion rights	4,711,656	
Cr. Common Shares		40,341,792
Cr. Cash		1,260,000

f. According to the amortization table below, interest expense for 2013 equalled $3,455,634 ($1,718,448 + $1,737,186). Interest expense for 2014 is only 16% of the amount in the table $3,533,613 ($1,756,673 + $1,776,940), which is $565,378. Thus, interest expense in 2014 will be $2,890,256 less than in 2013 ($3,455,634 – $565,378).

g. To decide if the inducement was necessary, we need to compare the fair value of the bond to the fair value of the shares. From part c) we know that every $1,000 bonds are convertible to 60 shares. Each share is traded at $15.50, so the fair value of the shares is $930. The fair value of $1,000 the bonds is $950 as they are traded at 95. Thus, without inducement bondholders were unlikely to convert. The inducement provides an additional $30 cash, such that the fair value of what they receive is $960. This is $10 more than the $950 fair value of the bonds, and thus bondholders are more likely to convert.

Date	Carrying value beginning	Interest payment	Interest expense	Discount amortization	Carrying value ending
2011 Jan. 1					41,260,778
2011 July 1	41,260,778	1,250,000	1,650,431	400,431	41,661,209
2012 Jan 1	41,661,209	1,250,000	1,666,448	416,448	42,077,657
2012 July 1	42,077,657	1,250,000	1,683,106	433,106	42,510,764
2013 Jan. 1	42,510,764	1,250,000	1,700,431	450,431	42,961,194
2013 July 1	42,961,194	1,250,000	1,718,448	468,448	43,429,642
2014 Jan. 1	**43,429,642**	**1,250,000**	**1,737,186**	**487,186**	**43,916,828**
2014 July 1	43,916,828	1,250,000	1,756,673	506,673	44,423,501
2015 Jan. 1	44,423,501	1,250,000	1,776,940	526,940	44,950,441
2015 July 1	44,950,441	1,250,000	1,798,018	548,018	45,498,459
2016 Jan. 1	45,498,459	1,250,000	1,819,938	569,938	46,068,397
2016 July 1	46,068,397	1,250,000	1,842,736	592,736	46,661,133
2017 Jan. 1	46,661,133	1,250,000	1,866,445	616,445	47,277,578
2017 July 1	47,277,578	1,250,000	1,891,103	641,103	47,918,681
2018 Jan. 1	47,918,681	1,250,000	1,916,747	666,747	48,585,428
2018 July 1	48,585,428	1,250,000	1,943,417	693,417	49,278,846
2019 Jan. 1	49,278,846	1,250,000	1,971,154	721,154	50,000,000

Note: small differences due to rounding

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