1 Q.   Reference: Dr. Booth Evidence, Appendix D, Page 4, Lines 26-27:   Please

2 explain in detail why Dr. Booth believes that for non-regulated firms and utility

3 holding companies, the underlying assumptions of the DCF model are frequently

4 violated.

5

6 A.   Dr. Booth's comments apply to the constant growth DCF model, not general DCF

7 models. It is a truism that when valuing cash flows given a price and their stream of cash

8 flows under some conditions you can imply the investor's required rate of return or

9 discount rate. However in deriving the constant growth model, Professor Myron Gordon

10 imposed the assumption that $D2=D1*(1+g)$ and $D3=D2*(1+g)$ etc. In this way the future

11 stream of cash flows reduces to the current dividend and the expected constant growth

12 rate and becomes a geometric series with solution $1/(1-X)$. The result is the constant

13 growth rate model

14 $$P=D1/((K-g))$$

15

16 which says the stock price is equal to the expected dividend per share (D1) capitalized by

17 the equity cost (K) minus the constant growth rate (g). Only if this constant growth model

18 holds is it possible to rearrange the equation and get

19

20 $$K=D1/P+g$$

21

22 If dividends are not expected to grow at a constant rate to infinity, then the constant

23 growth model does not imply and the investors equity cost cannot be determined by d1/P

24 + g.

25

26 In practice infinity is a very long time and as the expected growth rate deviates

27 significantly from that for the economy as a whole the constant growth model becomes

28 progressively more and more unreliable. This is why an analyst using the constant

1   growth model should do some diagnostic checks like looking at past growth performance

2   or estimating the sustainable growth rate which is what can be obtained if the firm

3   reinvests at its ROE.

4

5   Note Mr. Coyne performed a sustainable growth analysis when looking at his US sample

6   to estimate Hydro Quebec Distribution and Hydro Quebec Transmission's equity cost in

7   2013 as the following exhibit from page 13 illustrates.

1   Table 1: Summary of Results

Capital Asset Pricing Model		
Inputs	CAPM Reconciled	
Risk Free Rate	4.23%	
Beta	0.59	
Market Risk Premium	6.67%	
Sub-Total	8.17%	
Flotation Cost	0.30%	
Sub-Total	8.47%	
Adjustment for Other Models	0.75%	
Total	9.22%	
Discounted Cash Flow				
Market Averaging Period	Constant Growth	Sustainable Growth	Multi-Stage	Average
Canadian Utility Proxy Group				
Average ROE	11.75%	N/A	9.08%	10.41%
Flotation Cost	0.30%	N/A	0.30%	0.30%
Average ROE with Flotation Cost	12.05%		9.38%	10.71%
U.S. Electric Utility Proxy Group				
Average ROE	9.28%	8.90%	9.14%	9.11%
Flotation Cost	0.30%	0.30%	0.30%	0.30%
Average ROE with Flotation Cost	9.58%	9.20%	9.44%	9.41%

2
1