Q. Laurence D. Booth Report, page 53, lines 22-25. Please explain how in Dr. Booth's opinion the DCF methodology should be considered by the Board in its determination of a fair return for Newfoundland Power. In the response, please state whether the CAPM, with adjustments to reflect current market conditions, is Dr. Booth's preferred approach to assess the fair return for Newfoundland Power.

A. Dr. Booth judges the standard DCF model to be most applicable to the overall stock market. This is because the DCF estimates the discount rate, or required rate of return, based on the forecast dividend yield plus a constant growth to infinity. This also gives the long run expected rate of return. On page 3 of Appendix D, this is derived as the constant growth rate version of the DCF model.

$$K = \frac{d_1}{P_0} + g$$

For the overall stock market, profits tend to increase with the growth rate in the economy as indicated by GDP. Otherwise, profits would increase as a proportion of GDP, when in fact there is a long run average value with profits fluctuating above or below trend with the business cycle. In 2020, JP Morgan, the biggest bank in the US, had the following graphic illustrating this.

This year, our equity return assumptions decline across most regions

EXHIBIT 5A: SELECTED DEVELOPED MARKET EQUITY LONG-TERM RETURN ASSUMPTIONS AND BUILDING BLOCKS

Equity assumptions	U.S. large cap	Eurozone	Japan	UK
Revenue growth	5.2	4.4	3.4	5.3
+ Margins impact	0.1	1.5	1.5	0.2
Earnings growth	5.3	5.9	5.0	5.5
+ Gross dilution	-2.0	-2.0	-2.0	-2.0
+ Buybacks	2.1	1.1	1.5	1.2
EPS growth	5.4	4.9	4.4	4.7
+ Valuation impact	-3.0	-2.2	-1.9	-1.5
Price return	2.4	2.7	2.6	3.1
+ Dividend yield (DY)	1.8	2.5	2.5	3.5
Total return, local currency	4.1	5.2	5.1	6.7
Change vs. 2020 LTCMAs	-1.5	-0.6	-0.4	0.6

Source: J.P. Morgan Asset Management; estimates as of September 30, 2019, and September 30, 2020.
Components may not add up to totals due to rounding.

Revenue growth is US GDP growth, and this plus the dividend yield gives 7.0%. The rest is minor additions for a more sophisticated estimate to take into account the business cycle (margin changes), share changes to convert to a per share basis (issues and repurchases), and a valuation adjustment for whether the stock market is over or under valued.

This is the same sort of calculation done by all the major investment banks. It benchmarks the fair rate of return for the overall market, and is an input into the determination of the market risk premium. There is then a hierarchy based on risk, with the equity market cost of just under 9% exceeding the cost of preferred shares at about 6.0%, and the current LTC yield at 3.4%. The equity cost for a utility is then placed in this hierarchy above the LTC and preferred stock yields, but below the overall market cost. So, in practise there is a narrow range for the utility equity cost as determined by a DCF analysis for the overall stock market.

In contrast to the overall market, there are very, very few utilities that now satisfy the assumptions to use the constant growth model. In the 1980s and 1990s, 50% of direct estimates by Dr. Booth and his late colleague Dr. Berkowitz were based on constant growth DCF estimates from Canadian utilities. What follows is Schedule 11 from Dr. Booth's Appendix C, where they estimated the beta adjustment formula appropriate for Canadian utilities at that time, where the adjustment was to the utility grand mean of about 0.52 rather than the grand mean of all securities (Blume adjustment) of 1.0. However, note the companies that were used. First, they included seven Telecommunications (Telcos) companies because they were still rate of return regulated at that time. Second, there were five gas and electric companies and four pipelines. The only presently surviving rate of return regulated companies are Canadian Utilities and Fortis. There are two additions, Hydro One and Emera, but of those four firms only Hydro One and Canadian Utilities are still predominantly Canadian rate of return regulated utilities.

If we go to US utilities, we have to recognise that these are holding companies from another jurisdiction, where several utilities have failed due to poor regulation, where government interest rates are much higher, and where markets are generally more competitive, that is, riskier. Further, the growth estimates are of earnings, not dividends, and are generally provided by security analysts from the sell side, who are known to be biased high in their assessments. As an attachment (Booth PUB-CA-009), see the US SEC assessment of the analyst research scandal which pervaded the US investment banks at that time.

Currently, Dr. Booth's preferred estimation of the fair ROE from individual companies is the conditional CAPM supplemented by all the other information he has provided.

SCHEDULE 11

ROLLING BETAS

FIRM	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
BCE INC	0.368	0.370	0.357	0.480	0.432	0.520	0.477	0.608	0.630	0.989	1.240	1.002
BCT TEL	0.29	0.328	0.349	0.548	0.642	0.812	0.739	0.731	0.757	0.975	0.900	1.013
QUEBEC TEL	0.351	0.269	0.250	0.296	0.211	0.552	0.421	0.616	0.572	0.88	0.721	0.892
NEWTEL	0.417	0.375	0.405	0.559	0.470	0.569	0.568	0.585	0.348	0.539	0.438	0.474
BRUNCOR	0.38	0.400	0.412	0.545	0.432	0.577	0.336	0.377	0.427	0.775	0.758	0.781
MARITIME TT	0.367	0.402	0.332	0.359	0.263	0.376	0.274	0.357	0.603	0.785	0.780	0.818
ISLAND TEL	0.26	0.250	0.249	0.189	0.216	0.534	0.441	0.591	0.524	0.71	0.603	0.606
MEAN TELCOS	**0.348**	**0.342**	**0.336**	**0.425**	**0.381**	**0.563**	**0.465**	**0.552**	**0.552**	**0.808**	**0.777**	**0.798**
MARITIME ELEC	0.383	0.405	0.396	0.536	0.672	0.321	n/a	n/a	N/a	n/a	n/a	n/a
TRANSALTA	0.233	0.284	0.271	0.377	0.451	0.491	0.588	0.585	0.462	0.536	0.285	0.259
FORTIS	0.280	0.230	0.271	0.402	0.377	0.563	0.537	0.390	0.310	0.484	0.320	0.216
CDN UTIL	0.418	0.413	0.382	0.456	0.475	0.466	0.501	0.561	0.634	0.616	0.530	0.361
BC GAS	0.528	0.522	0.493	0.425	0.444	0.570	0.627	0.562	0.474	0.479	0.338	0.231
MEAN GAS/ELEC	**0.368**	**0.371**	**0.363**	**0.439**	**0.484**	**0.482**	**0.563**	**0.525**	**0.470**	**0.529**	**0.368**	**0.267**
PAC N GAS	0.362	0.449	0.478	0.404	0.543	0.305	0.492	0.286	0.443	0.573	0.492	0.453
TRANSCDA P	0.657	0.616	0.550	0.492	0.385	0.549	0.538	0.489	0.338	0.544	0.238	0.182
TRANS MNT	0.757	0.662	0.665	0.796	0.588	0.525	n/a	n/a	N/a	n/a	n/a	n/a
WESTCOAST	0.723	0.683	0.667	0.522	0.550	0.562	0.557	0.611	0.531	0.453	0.261	0.134
MEAN PIPELINES	**0.625**	**0.603**	**0.590**	**0.554**	**0.517**	**0.485**	**0.529**	**0.462**	**0.437**	**0.523**	**0.330**	**0.256**
MEAN OVERALL	**0.424**	**0.416**	**0.408**	**0.462**	**0.447**	**0.518**	**0.507**	**0.525**	**0.504**	**0.667**	**0.565**	**0.530**

Taken from Schedule B2 of L. Booth and M. Berkowitz before the National Energy Board
December 2001