**Q. McShane Evidence - DCF Risk premiums, pages 82-90**

**a. Please confirm that the constant growth DCF model assumes that the growth rate goes on forever and that if this growth rate exceeds the normal GDP growth rate, then that utility eventually becomes the whole economy. If not why not.**

**b. Please indicate which growth rates Ms. McShane rejected as not satisfying the criterion that they are below the nominal growth rate in GDP.**

**c. Please indicate Ms. McShane's long run growth estimates for US and Canadian GDP and whether these are different for GNP?**

**d. Please indicate the government bond yields used to estimate the historic risk premiums on page 84 (indicate the maturity and series #).**

**e. Please provide any citations to the literature or elsewhere to support the assumption that utilities long run growth rate equals that of GDP and confirm that this assumption means they will continue their share of GDP and they are not a mature industry.**

**f. Please provide all the data underlying the regression results in Table 23 so that the estimates can be replicated.**

A. a. In principle, growth in earnings/corporate profits cannot exceed, in the longer term, growth in the economy as a whole. If this were the case, earnings/corporate profits would overwhelm GDP. That does not preclude the expectation that earnings will grow faster than the economy as a whole for an extended period. For the sample of U.S. utilities, the average of the consensus earnings forecasts (5.1%, Schedule 17) is similar to the forecast growth in the economy (4.9%, Schedule 19).

b. Ms. McShane did not have a criterion that growth rates be at or below a certain level. Please refer to the response to CA-NP-377 a.

c. The forecasts of nominal GDP growth are found on Schedules 19 and 21 for the U.S. and Canada respectively. GDP is different from GNP. GDP measures the value of all goods and services produced within a country, irrespective of whether they are domestic or foreign. GNP includes the value of all goods and services produced by a country's enterprises, whether produced within that country's borders or abroad. Ms. McShane does not have forecasts of GNP growth.

d. The government bond yields used on page 84 are the market yields on 30-year U.S. Treasury securities. The unique identifier used by the U.S. Federal Reserve is H15/H15/RIFLCFCY30_N.B.

e. Ms. McShane does not have citations to academic literature specific to utilities. The growth component of a DCF model is intended to be an estimate of what investors expect the long-term growth to be and thus build into the prices they are willing to pay (and thus is embedded in the dividend yield component of the

model). Ms. McShane's use of forecast long-term growth in the economy as a reasonable estimate of investors' expectations for long-term growth in earnings for mature industries is based on the link between corporate profits and GDP growth in the long term. The two primary determinants of profit growth are growth in nominal GDP and unit labour costs. Nominal GDP measures the current dollar value of the goods and services produced in the economy. Simplistically, GDP less payments to labour, depreciation, plus income from abroad equals corporate profits. As long as labour costs are contained, increases in economic growth will be reflected in growth in profits. To Ms. McShane's knowledge, the conclusion that corporate profit growth will track GDP growth in the long-term is not contested. If an industry grows at the rate of the economy, then it should maintain a similar share of GDP as it has currently. If an industry is persistently growing at the rate of the economy, it would be considered a mature industry.

As noted at page C-5, the FERC relies on GDP growth to estimate expected long-term growth in its standard DCF models for gas and oil pipelines structured as conventional corporations. The development of their model was in part validated by the valuation practices of Merrill Lynch and Prudential Securities who relied on the growth in the economy as their estimate of long-term growth for all firms, including regulated firms.

f. The data required to replicate the estimates for the Constant Growth and Three-Stage Growth models presented in Table 23 are provided in "CA-NP-377 f Attachment 1.xls".

**Data required to replicate the estimates for the Constant Growth and Three-Stage Growth models presented in Table 23**

| | Constant Growth Regressions | | Three-Stage Growth Regressions | |
|---|---|---|---|---|
| Date | Equity Risk Premium | 30 Year Treasury | Equity Risk Premium | 30 Year Treasury |
| Jan98 | 3.30 | 5.82 | 4.06 | 5.82 |
| Feb98 | 3.33 | 5.92 | 3.91 | 5.92 |
| Mar98 | 3.02 | 5.94 | 3.60 | 5.94 |
| Apr98 | 3.24 | 5.95 | 3.83 | 5.95 |
| May98 | 3.57 | 5.81 | 3.99 | 5.81 |
| Jun98 | 4.07 | 5.62 | 4.08 | 5.62 |
| Jul98 | 4.23 | 5.72 | 4.31 | 5.72 |
| Aug98 | 4.58 | 5.30 | 4.58 | 5.30 |
| Sep98 | 4.32 | 4.98 | 4.38 | 4.98 |
| Oct98 | 4.36 | 5.15 | 4.43 | 5.15 |
| Nov98 | 4.25 | 5.08 | 4.41 | 5.08 |
| Dec98 | 4.27 | 5.09 | 4.33 | 5.09 |
| Jan99 | 4.72 | 5.09 | 4.80 | 5.09 |
| Feb99 | 4.59 | 5.57 | 4.64 | 5.57 |
| Mar99 | 4.87 | 5.63 | 4.87 | 5.63 |
| Apr99 | 4.40 | 5.68 | 4.39 | 5.68 |
| May99 | 4.14 | 5.84 | 4.06 | 5.84 |
| Jun99 | 4.03 | 5.98 | 3.91 | 5.98 |
| Jul99 | 3.92 | 6.11 | 3.80 | 6.11 |
| Aug99 | 3.82 | 6.07 | 3.70 | 6.07 |
| Sep99 | 4.10 | 6.06 | 3.99 | 6.06 |
| Oct99 | 4.61 | 6.16 | 4.38 | 6.16 |
| Nov99 | 4.73 | 6.29 | 4.43 | 6.29 |
| Dec99 | 5.03 | 6.48 | 4.92 | 6.48 |
| Jan00 | 5.19 | 6.49 | 5.08 | 6.49 |
| Feb00 | 5.84 | 6.15 | 5.73 | 6.15 |
| Mar00 | 5.91 | 5.84 | 5.80 | 5.84 |
| Apr00 | 5.60 | 5.97 | 5.35 | 5.97 |
| May00 | 5.90 | 6.02 | 5.54 | 6.02 |
| Jun00 | 6.32 | 5.90 | 6.28 | 5.90 |
| Jul00 | 5.72 | 5.79 | 5.45 | 5.79 |
| Aug00 | 5.70 | 5.67 | 5.42 | 5.67 |
| Sep00 | 5.37 | 5.88 | 5.09 | 5.88 |
| Oct00 | 5.12 | 5.79 | 4.82 | 5.79 |
| Nov00 | 4.95 | 5.60 | 4.63 | 5.60 |
| Dec00 | 5.15 | 5.46 | 5.03 | 5.46 |
| Jan01 | 4.99 | 5.54 | 5.05 | 5.54 |
| Feb01 | 5.26 | 5.34 | 5.32 | 5.34 |
| Mar01 | 5.07 | 5.46 | 5.13 | 5.46 |
| Apr01 | 4.72 | 5.78 | 4.77 | 5.78 |
| May01 | 4.87 | 5.78 | 4.93 | 5.78 |
| Jun01 | 4.77 | 5.75 | 4.82 | 5.75 |
| Jul01 | 5.24 | 5.51 | 5.30 | 5.51 |
| Aug01 | 5.35 | 5.39 | 5.29 | 5.39 |
| Sep01 | 5.67 | 5.42 | 5.62 | 5.42 |
| Oct01 | 6.16 | 4.89 | 6.11 | 4.89 |
| Nov01 | 5.54 | 5.27 | 5.56 | 5.27 |
| Dec01 | 5.22 | 5.48 | 5.16 | 5.48 |
| Jan02 | 4.66 | 5.44 | 5.05 | 5.44 |
| Feb02 | 4.57 | 5.57 | 4.80 | 5.57 |
| Mar02 | 4.07 | 5.96 | 4.29 | 5.96 |

| | Constant Growth Regressions | | Three-Stage Growth Regressions | |
|---|---|---|---|---|
| Date | Equity Risk Premium | 30 Year Treasury | Equity Risk Premium | 30 Year Treasury |
| Apr02 | 5.13 | 5.73 | 4.76 | 5.73 |
| May02 | 5.18 | 5.76 | 4.82 | 5.76 |
| Jun02 | 5.65 | 5.68 | 5.12 | 5.68 |
| Jul02 | 5.89 | 5.47 | 5.21 | 5.47 |
| Aug02 | 6.28 | 5.09 | 5.60 | 5.09 |
| Sep02 | 6.91 | 4.83 | 6.26 | 4.83 |
| Oct02 | 6.60 | 5.18 | 5.96 | 5.18 |
| Nov02 | 6.35 | 5.21 | 5.94 | 5.21 |
| Dec02 | 6.19 | 4.95 | 5.76 | 4.95 |
| Jan03 | 6.58 | 4.99 | 6.24 | 4.99 |
| Feb03 | 6.51 | 4.82 | 6.40 | 4.82 |
| Mar03 | 6.04 | 4.98 | 5.97 | 4.98 |
| Apr03 | 5.72 | 4.92 | 5.64 | 4.92 |
| May03 | 5.38 | 4.50 | 5.65 | 4.50 |
| Jun03 | 5.29 | 4.70 | 5.56 | 4.70 |
| Jul03 | 4.66 | 5.51 | 5.03 | 5.51 |
| Aug03 | 4.44 | 5.31 | 5.00 | 5.31 |
| Sep03 | 4.60 | 5.01 | 5.16 | 5.01 |
| Oct03 | 4.38 | 5.25 | 4.88 | 5.25 |
| Nov03 | 3.92 | 5.22 | 4.71 | 5.22 |
| Dec03 | 4.07 | 5.18 | 5.01 | 5.18 |
| Jan04 | 4.00 | 5.07 | 5.02 | 5.07 |
| Feb04 | 4.27 | 4.95 | 5.09 | 4.95 |
| Mar04 | 4.15 | 4.87 | 4.96 | 4.87 |
| Apr04 | 4.01 | 5.36 | 4.78 | 5.36 |
| May04 | 4.02 | 5.41 | 4.72 | 5.41 |
| Jun04 | 3.87 | 5.41 | 4.57 | 5.41 |
| Jul04 | 4.00 | 5.31 | 4.74 | 5.31 |
| Aug04 | 4.09 | 4.97 | 4.96 | 4.97 |
| Sep04 | 4.08 | 4.97 | 4.95 | 4.97 |
| Oct04 | 4.37 | 4.87 | 5.01 | 4.87 |
| Nov04 | 3.91 | 5.07 | 4.65 | 5.07 |
| Dec04 | 3.87 | 4.86 | 4.73 | 4.86 |
| Jan05 | 4.33 | 4.62 | 5.04 | 4.62 |
| Feb05 | 4.04 | 4.71 | 4.90 | 4.71 |
| Mar05 | 4.32 | 4.76 | 4.91 | 4.76 |
| Apr05 | 4.57 | 4.53 | 5.16 | 4.53 |
| May05 | 4.35 | 4.36 | 5.08 | 4.36 |
| Jun05 | 4.26 | 4.19 | 5.12 | 4.19 |
| Jul05 | 4.01 | 4.42 | 4.80 | 4.42 |
| Aug05 | 4.45 | 4.23 | 5.12 | 4.23 |
| Sep05 | 4.14 | 4.53 | 4.80 | 4.53 |
| Oct05 | 4.24 | 4.73 | 4.87 | 4.73 |
| Nov05 | 4.23 | 4.66 | 4.97 | 4.66 |
| Dec05 | 4.57 | 4.51 | 5.21 | 4.51 |
| Jan-06 | 4.27 | 4.69 | 4.90 | 4.69 |
| Feb-06 | 4.66 | 4.51 | 5.27 | 4.51 |
| Mar-06 | 4.35 | 4.90 | 4.96 | 4.90 |
| Apr-06 | 4.23 | 5.17 | 4.85 | 5.17 |
| May-06 | 4.91 | 5.21 | 5.06 | 5.21 |
| Jun-06 | 4.48 | 5.19 | 4.87 | 5.19 |

| | Constant Growth Regressions | | Three-Stage Growth Regressions | |
|---|---|---|---|---|
| Date | Equity Risk Premium | 30 Year Treasury | Equity Risk Premium | 30 Year Treasury |
| Jul-06 | 4.53 | 5.07 | 4.89 | 5.07 |
| Aug-06 | 4.08 | 4.88 | 4.82 | 4.88 |
| Sep-06 | 4.11 | 4.77 | 4.93 | 4.77 |
| Oct-06 | 3.91 | 4.72 | 4.70 | 4.72 |
| Nov-06 | 4.38 | 4.56 | 4.81 | 4.56 |
| Dec-06 | 4.23 | 4.81 | 4.38 | 4.81 |
| Jan-07 | 4.07 | 4.93 | 4.21 | 4.93 |
| Feb-07 | 4.33 | 4.68 | 4.47 | 4.68 |
| Mar-07 | 4.14 | 4.84 | 4.28 | 4.84 |
| Apr-07 | 4.14 | 4.81 | 4.28 | 4.81 |
| May-07 | 4.05 | 5.01 | 4.20 | 5.01 |
| Jun-07 | 4.16 | 5.12 | 4.30 | 5.12 |
| Jul-07 | 4.58 | 4.92 | 4.82 | 4.92 |
| Aug-07 | 4.37 | 4.83 | 4.55 | 4.83 |
| Sep-07 | 4.52 | 4.83 | 4.56 | 4.83 |
| Oct-07 | 4.54 | 4.74 | 4.58 | 4.74 |
| Nov-07 | 4.96 | 4.40 | 5.00 | 4.40 |
| Dec-07 | 4.92 | 4.45 | 4.88 | 4.45 |
| Jan-08 | 5.23 | 4.35 | 5.18 | 4.35 |
| Feb-08 | 5.49 | 4.41 | 5.48 | 4.41 |
| Mar-08 | 5.63 | 4.30 | 5.49 | 4.30 |
| Apr-08 | 5.32 | 4.49 | 5.11 | 4.49 |
| May-08 | 5.07 | 4.72 | 4.86 | 4.72 |
| Jun-08 | 5.10 | 4.53 | 4.88 | 4.53 |
| Jul-08 | 5.50 | 4.59 | 5.19 | 4.59 |
| Aug-08 | 5.59 | 4.43 | 5.35 | 4.43 |
| Sep-08 | 6.17 | 4.31 | 5.59 | 4.31 |
| Oct-08 | 6.19 | 4.35 | 5.93 | 4.35 |
| Nov-08 | 7.07 | 3.45 | 6.70 | 3.45 |
| Dec-08 | 8.30 | 2.69 | 7.88 | 2.69 |
| Jan-09 | 7.58 | 3.58 | 7.11 | 3.58 |
| Feb-09 | 8.35 | 3.71 | 7.92 | 3.71 |
| Mar-09 | 8.44 | 3.56 | 7.80 | 3.56 |
| Apr-09 | 7.45 | 4.05 | 7.00 | 4.05 |
| May-09 | 7.85 | 4.34 | 7.22 | 4.34 |
| Jun-09 | 7.36 | 4.32 | 6.74 | 4.32 |
| Jul-09 | 7.01 | 4.31 | 6.41 | 4.31 |
| Aug-09 | 6.20 | 4.18 | 6.24 | 4.18 |
| Sep-09 | 6.32 | 4.03 | 6.36 | 4.03 |
| Oct-09 | 6.23 | 4.23 | 6.27 | 4.23 |
| Nov-09 | 6.03 | 4.20 | 6.07 | 4.20 |
| Dec-09 | 5.32 | 4.63 | 5.32 | 4.63 |
| Jan-10 | 5.61 | 4.51 | 5.61 | 4.51 |
| Feb-10 | 5.57 | 4.55 | 5.57 | 4.55 |
| Mar-10 | 5.83 | 4.72 | 5.39 | 4.72 |
| Apr-10 | 5.28 | 4.53 | 5.23 | 4.53 |
| May-10 | 6.02 | 4.22 | 5.96 | 4.22 |
| Jun-10 | 6.22 | 3.91 | 6.20 | 3.91 |
| Jul-10 | 5.94 | 3.98 | 5.81 | 3.98 |
| Aug-10 | 6.53 | 3.52 | 6.39 | 3.52 |
| Sep-10 | 6.19 | 3.69 | 6.05 | 3.69 |

| | Constant Growth Regressions | | Three-Stage Growth Regressions | |
|---|---|---|---|---|
| Date | Equity Risk Premium | 30 Year Treasury | Equity Risk Premium | 30 Year Treasury |
| Oct-10 | 5.79 | 3.99 | 5.65 | 3.99 |
| Nov-10 | 5.96 | 4.12 | 5.64 | 4.12 |
| Dec-10 | 5.47 | 4.34 | 5.16 | 4.34 |
| Jan-11 | 5.36 | 4.58 | 5.14 | 4.58 |
| Feb-11 | 5.04 | 4.49 | 4.90 | 4.49 |
| Mar-11 | 5.33 | 4.51 | 5.01 | 4.51 |
| Apr-11 | 5.48 | 4.40 | 5.08 | 4.40 |
| May-11 | 5.65 | 4.22 | 5.12 | 4.22 |
| Jun-11 | 5.43 | 4.38 | 5.21 | 4.38 |
| Jul-11 | 5.96 | 4.12 | 5.60 | 4.12 |
| Aug-11 | 6.30 | 3.60 | 5.97 | 3.60 |
| Sep-11 | 6.89 | 2.90 | 6.63 | 2.90 |
| Oct-11 | 6.40 | 3.16 | 6.26 | 3.16 |
| Nov-11 | 6.38 | 3.06 | 6.23 | 3.06 |
| Dec-11 | 6.31 | 2.89 | 6.04 | 2.89 |
| Jan-12 | 6.31 | 2.94 | 6.23 | 2.94 |
| Feb-12 | 6.09 | 3.08 | 6.14 | 3.08 |
| Mar-12 | 5.75 | 3.35 | 5.79 | 3.35 |
| Apr-12 | 6.15 | 3.12 | 6.00 | 3.12 |
| May-12 | 6.66 | 2.67 | 6.50 | 2.67 |
| Jun-12 | 6.77 | 2.76 | 6.29 | 2.76 |