

**PACIFIC POWER & LIGHT COMPANY****EARNINGS-PRICE RATIO PROOF**

If market price exceeds book value,  
the market-to-book ratio is greater than 1.0,  
and the earnings-price ratio understates the cost of capital.

MP = market price

BV = book value

i = cost of equity capital

r = earned return

E = earnings

1. At  $MP = BV$ ,  $i = r = \frac{E}{MP}$ .
2.  $E = rBV$ .
3. Then,  $\frac{E}{MP} = \frac{rBV}{MP}$ .
4. When  $BV < MP$ , i.e.,  $\frac{BV}{MP} < 1$ , then,
  - a.  $\frac{E}{MP} < r$ , since  $\frac{E}{MP} = \frac{rBV}{MP} < r$ , because  $\frac{BV}{MP} < 1$ ;
  - b.  $i < r$ , since at  $\frac{BV}{MP} = 1$ ,  $i = \frac{E}{MP} = \frac{rBV}{MP}$ , but if  $\frac{BV}{MP} < 1$ , then  $i < r$ ; and
  - c.  $\frac{E}{MP} < i$ , since at  $\frac{BV}{MP} = 1$ ,  $i = \frac{E}{MP} = \frac{rBV}{MP}$ , but if  $\frac{BV}{MP} < 1$ , then  $\frac{E}{MP} < i$ , because,
    - 1)  $\frac{BV}{MP} < 1$ , through MP increasing, and, if so,  $\frac{E}{MP}$  decreases, therefore,  $\frac{E}{MP} < i$ , or
    - 2)  $\frac{BV}{MP} < 1$ , through BV decreasing, and, if so, given  $E = rBV$ ,  $\frac{E}{MP}$  decreases, therefore,  $\frac{E}{MP} < i$ .
5. Ergo,  $\frac{E}{MP} < i < r$ , the earnings-price ratio is lower than the cost of capital, which is lower than the earned return.