Tests for unit roots in the log dividend yields, which are consistent with 'rational bubbles' in stock prices, are conducted for S&P500 as well as for Finnish stock market indexes. In addition to the traditional unit root tests we split the data into 10-year segments and use frequency domain analysis to test for the presence of unit roots in the dividend yield data. The results strongly suggest existence of bubbles in the US as well as in Finland. Finally we develop a novel dividend yield-based method to track out periods when stock prices divert their fundamental level. This indicator produces promising results as it seems to have some forecasting ability concerning the booms and busts in the stock markets.