

II. The meaning of financial ratios

The financial literature usually assumes that the stock price P_t equals the intrinsic value V_t^* . In this paper, we regard the stock price as an estimator for the unobserved intrinsic value and assume that the stock price converges continuously to the intrinsic value. The stock price P_t is therefore an unbiased estimator for V_t^* and the relation between P_t and V_t^* can be expressed as follows:

$$\log(P_t) = \log(V_t^*) + e_t, \quad (1.1)$$

where variable e_t is a random error term with mean zero since the stock price is assumed to be an unbiased estimator for V_t^* .

We denote any other estimator for V_t^* by K_t . The logarithm relation between K_t and V_t^* can be similarly expressed as:

$$\log(K_t) = \log(V_t^*) + w_t. \quad (1.2)$$

Subtracting equation (1.1) by (1.2), we obtain:

$$\log(P_t / K_t) = e_t - w_t. \quad (2)$$

Since w_t cannot be observed, we use the price-to-estimator ratio (the P/K ratio) to examine the ratio's tracking ability about the unbiased estimator P_t .