## Asset Classes

The main investable asset classes are:

- Equity, also known as stocks and shares. Dividends are the periodic cash income from equity.
- Property such as real estate (land or buildings) and equipment. Rent is the periodic cash income from property.
- Debt, which is usually divided into:
- Long term debt such as bonds or loans. Coupons are the periodic cash income from bonds. Loan payments are the periodic cash income from loans. Both bonds and loans pay the principal or face value at maturity.
- Short term debt with a maturity of less than 1 year such as bank accepted bills (BAB's), certificates of deposit
(CD's) and promissory notes (PN's) generally only pay principal, there are no periodic payments.

There are other important investable asset classes, such as human capital including education, which is also very valuable and which we are all heavily investing in, but its returns are not easily measured so we exclude them from our discussion. Derivatives such as options, futures, forwards and swaps are not usually considered an investable asset class. They are quite different because they are mostly used for hedging (reducing risk and return) and speculating (gaining risk and return), not as a store of value. They tend to be short-term instruments and their value is often derived from the 3 main investable asset classes.

## Income, Capital and Total Returns

Total returns on stocks, bonds, real estate, and any asset can be broken into two parts, the income return and the capital return.

Income return is the proportion of the asset's price that is paid out in cash per time period.
$r_{\text {income }, \mathbf{0}-\mathbf{1}}=\frac{C_{1}}{P_{\mathbf{0}}}$
Where $C_{1}$ is the cash flow at $\mathrm{t}=1$ and $P_{0}$ is the price at $\mathrm{t}=0$.
The cash flow income:

- from equity is called dividends or drawings,
- from debt is called coupon or loan payments,
- from real estate is rent.

Capital return is the rate of increase in the asset's price per time period.
$r_{\text {capital }, 0-1}=\frac{P_{1}-P_{0}}{P_{0}}$
When a dividend is paid (actually when the ex-dividend date occurs), the stock price falls. Therefore, all things remaining equal, dividends (income returns) come at the expense of price (capital returns).

Total return is the sum of the income and capital returns.
$r_{\text {total }, 0-1}=r_{\text {capital }, 0-1}+r_{\text {income }, 0-1}$

$$
=\frac{P_{1}-P_{0}}{P_{0}}+\frac{C_{1}}{P_{0}}
$$

$$
=\frac{P_{1}-P_{0}+C_{1}}{P_{0}}
$$

## Calculation Example: Components of

## Returns

Question: A stock was bought for $\$ 10$ at $\mathrm{t}=0$.
At $t=1$ the stock paid a dividend of $\$ 1$ and immediately afterwards the price of the stock was $\$ 9.50$.

At $\mathrm{t}=2$ the stock paid no dividend and its price was $\$ 12$.
All time periods are measured in years.
Find the total, dividend and capital returns of the stock over the first and second years.

## Answer:

Over the first year (from $t=0$ to $t=1$ ):

$$
\begin{aligned}
r_{\text {income }, 0-1} & =\frac{C_{1}}{P_{0}}=\frac{1}{10}=0.1=10 \% \\
r_{\text {capital }, 0-1} & =\frac{P_{1}-P_{0}}{P_{0}}=\frac{9.50-10}{10}=-0.05=-5 \% \\
r_{\text {total }, 0-1} & =r_{\text {income }, 0-1}+r_{\text {capital }, 0-1} \\
& =0.1+-0.05=0.05=5 \%
\end{aligned}
$$

Over the second year (from $t=1$ to $t=2$ ):

$$
\begin{aligned}
r_{\text {income }, 1-2} & =\frac{C_{2}}{P_{1}}=\frac{0}{9.50}=0=0 \% \\
r_{\text {capital }, 1-2} & =\frac{P_{2}-P_{1}}{P_{1}}=\frac{12-9.50}{9.50}=0.263157895=26.32 \% \\
r_{\text {total }, 1-2} & =r_{\text {income }, 1-2}+r_{\text {capital }, 1-2} \\
& =0 \quad+0.263157895 \\
& =0.263157895=26.32 \%
\end{aligned}
$$

Note that all of these returns are effective annual rates.

## Questions: Income and Capital Returns

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