

Marginal Efficiency of Capital (MEC)

There are three factors that are taken into consideration while making any investment decision. They are the cost of the capital asset, the expected rate of return from it during its lifetime, and the market rate of interest. Prof. Keynes sum up these factors in his concept of the Marginal Efficiency of Capital (MEC).

Marginal Efficiency of Capital (MEC): The MEC is the highest rate of return expected from an additional unit of a capital asset over its cost. In the words of Kwei Hara, "It is the ratio between the prospective yield of additional capital-goods and their supply price." The prospective yield is the aggregate net return from an asset during its lifetime, while the supply price is the cost of producing this asset. If the supply price of a capital asset is Rs. 20,000 and its annual yield is Rs. 2,000, the marginal efficiency of a this asset is $\frac{2000}{20000} \times 100 = 10$ percent. Thus MEC is the percentage of profit expected from a given investment on a capital asset.

Keynes relates the prospective yield of a capital asset to its supply price and defines the MEC as "equal to the rate of discount which would make the present value of the series of annuities given

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by the returns expected from the capital asset during its life just equal to its supply price. Symbolically, this can be expressed as:

$$S_p = \frac{R_1}{(1+i)} + \frac{R_2}{(1+i)^2} + \dots + \frac{R_n}{(1+i)^n} \rightarrow (1)$$

where S_p is the supply price or the cost of capital asset, $R_1, R_2, \dots$ and R_n are the prospective yields or the series of expected annual returns from the capital asset in the years 1, 2, ..., n , i is the rate of discount which makes the capital asset exactly equal to the present value of the expected yield from it. Thus i is the MEC or the rate of discount which equates the two sides of the equation.

In the equation (1), the term $\frac{R_1}{(1+i)}$ is the present value (PV) of the capital asset. PV is "the value now of payments to be received in the future." It depends on the rate of interest at which it is discounted.

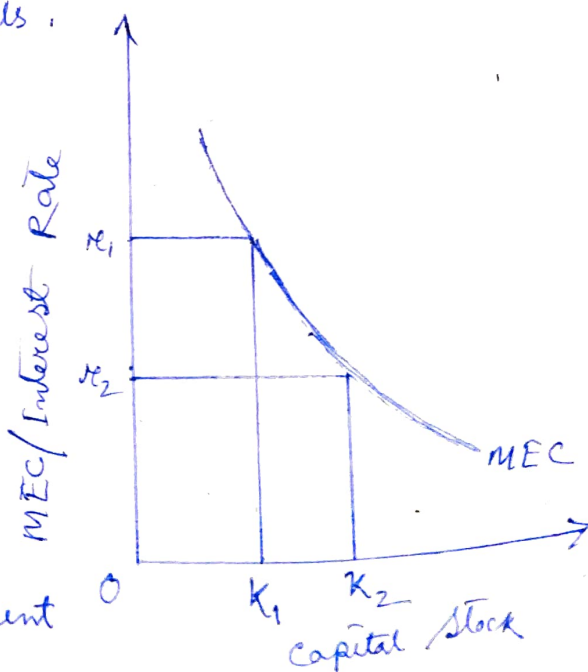
The PV of a capital asset is inversely related to the rate of interest. The lower the rate of interest, the higher is the PV and vice-versa. The MEC is the expected rate of return over cost of a new capital good. If the PV of a capital good exceeds its cost of buying, it pays to buy it. On the contrary, if the PV is less than its cost, it is not worthwhile

investing in this capital good.

If the MEC of a capital asset is higher than the market rate of interest, it pays to purchase the capital asset and vice-versa. If the market interest rate equals the MEC of the capital asset, the firm is said to possess the optimum capital stock. If the MEC is higher than the rate of interest, there will be a tendency to borrow funds in order to invest in new capital assets. If the MEC is lower than the rate of interest, no firm will borrow to invest in capital assets. Thus the equilibrium condition for a firm to hold optimum capital stock is where the MEC equals the rate of interest. The arguments which have been applied to a firm are equally applicable to the economy.

Fig (1) shows the MEC curve of an economy. It has a negative slope (i.e. from left to right downward) which indicates that the higher the MEC the smaller the capital stock or as the capital stock increases, the MEC falls.

In the fig (1), when the capital stock is OK_1 , the MEC is OR_1 . As the capital increases from OK_1 to OK_2 , the MEC falls from OR_1 to OR_2 . The net addition to the capital stock $K_1 K_2$ represents the net investment in economy.



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To reach the optimum capital stock in the economy, the MEC must equal the rate of interest. In fig (1), the existing capital stock is OK_1 , the MEC is OK_1 , and the rate of interest is at OK_2 . Everyone in the economy will borrow funds and the rate of interest (at OK_2). This will continue till the MEC (OK_1) comes down to the level of interest rate (at OK_2), when the MEC equals the rate of interest, the economy reaches the level of optimum capital stock. The fall in the MEC is due to increase in the actual capital stock OK_1 to the optimum capital stock OK_2 . The increase in the economy's capital stock by K_1K_2 is the net investment of the economy. The negative slope of the MEC curve indicates that as the rate of interest falls the optimum stock of capital increases.

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