

## The investment schedule

Firms will undertake any investment project whose expected rate of return,  $r$ , exceeds the real rate of interest,  $i$ . If all possible investment projects are considered, then, total planned investment must be a declining function of the real rate of interest and an increasing function of the rate of return, all else constant—the lower the interest rate and the higher the rate of return, the greater the volume of projects that will qualify. In symbols,  $I_g = f(i, r)$  with  $\Delta I_g / \Delta i < 0$  and  $\Delta I_g / \Delta r > 0$ . However, changes in acquisition, maintenance, and operating cost ( $A$ ), business taxes ( $B$ ), the rate of technological change ( $C$ ), the size of the capital stock ( $K$ ) relative to sales, and expectations ( $E$ ) all have an impact on desired investment as well through their impact on the expected rate of return on investment projects. We could write  $r = r(A, B, C, K, E)$ . By hypothesis,  $\Delta r / \Delta A < 0$ ,  $\Delta r / \Delta B < 0$ ,  $\Delta r / \Delta C > 0$ ,  $\Delta r / \Delta K < 0$ , and  $\Delta r / \Delta E > 0$ . Significantly, GDP is not one of the factors that affects the expected rate of return. In symbols,  $\Delta r / \Delta \text{GDP} = 0$ . Finally, businesses may plan on adding to or subtracting from their stock of inventory ( $\Delta V$ ), which is also a component of planned investment.

Combining the three relationships, we discover that planned investment can be represented by the compound function  $I_g = f(i, r(A, B, C, K, E)) + \Delta V$ .

The “investment schedule” relates  $I_g$  to GDP. Because the interest rate, the expected rate of return on investments, and planned changes in inventories are independent of GDP, gross investment is also independent of the level of GDP. That is,  $\Delta I_g / \Delta \text{GDP} = 0$ , and the investment schedule plots as a horizontal line. However, the height of this line depends on the other factors listed above. Planned changes in inventory are a direct component of  $I_g$ , shifting the investment schedule dollar for dollar in the same direction. An increase in the interest rate will decrease planned investment. So too will a decrease in the expected return on investment, which may be brought about by an increase acquisition, maintenance, and operating cost, a decrease in the rate of technological change, an increase in the capital stock relative to sales, or a reduction in expectations.