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Money and Banking

3.2 Demand for Money

Money is the most liquid of all assets in the sense that it is universally acceptable and hence can be exchanged for other commodities very easily. On the other hand, it has an opportunity cost. If, instead of holding on to a certain cash balance, you put the money in a savings account in some bank you can earn interest on that money. While deciding on how much money to hold at a certain point of time one has to consider the trade off between the advantage of liquidity and the disadvantage of the foregone interest. Demand for money balance is thus often referred to as liquidity preference. People desire to hold money balance broadly from two motives.

3.2.1 The Transaction Motive

The principal motive for holding money is to carry out transactions. If you receive your income weekly and pay your bills on the first day of every week, you need not hold any cash balance throughout the rest of the week; you may as well ask your employer to deduct your expenses directly from your weekly salary and deposit the balance in your bank account. But our expenditure patterns do not normally match our receipts. People earn incomes at discrete points in time and spend it continuously throughout the interval. Suppose you earn Rs 100 on the first day of every month and run down this balance evenly over the rest of the month. Thus your cash balance at the beginning and end of the month are Rs 100 and 0, respectively. Your average cash holding can then be calculated as (Rs 100 + Rs 0) ÷ 2 = Rs 50, with which you are making transactions worth Rs 100 per month. Hence your average transaction demand for money is equal to half your monthly income, or, in other words, half the value of your monthly transactions.

Consider, next, a two-person economy consisting of two entities – a firm (owned by one person) and a worker. The firm pays the worker a salary of Rs 100 at the beginning of every month. The worker, in turn, spends this income over the month on the output produced by the firm – the only good available in this economy! Thus, at the beginning of each month the worker has a money balance of Rs 100 and the firm a balance of Rs 0. On the last day of the month the picture is reversed – the firm has gathered a balance of Rs 100 through its sales to the worker. The average money holding of the firm as well as the worker is equal to Rs 50 each. Thus the total transaction demand for money in this economy is equal to Rs 100. The total volume of monthly transactions in this economy is Rs 200 – the firm has sold its output worth Rs 100 to the worker and the latter has sold her services worth Rs 100 to the firm. The transaction demand for money of the economy is again a fraction of the total volume of transactions in the economy over the unit period of time.

In general, therefore, the transaction demand for money in an economy, M_T^d, can be written in the following form

$$M_T^d = k.T \tag{3.1}$$

where T is the total value of (nominal) transactions in the economy over unit period and k is a positive fraction.

The two-person economy described above can be looked at from another angle. You may perhaps find it surprising that the economy uses money balance worth only Rs 100 for making transactions worth Rs 200 per month. The answer to this riddle is simple – each rupee is changing hands twice a month. On the first day, it is being transferred from the employer's pocket to that of the worker and sometime during the month, it is passing from the worker's hand to the employer's. The number of times a unit of money changes hands during the unit period is called the **velocity of circulation of money**. In the above example it is 2, inverse of half – the ratio of money balance and the value of transactions. Thus, in general, we may rewrite equation (3.1) in the following form

$$\frac{1}{k}.M_T^d = T, \text{ or, } v.M_T^d = T \tag{3.2}$$

where, $v = 1/k$ is the velocity of circulation. Note that the term on the right hand side of the above equation, T, is a flow variable whereas money demand, M_T^d, is a stock concept – it refers to the stock of money people are willing to hold at a particular point of time. The velocity of money, v, however, has a time dimension. It refers to the number of times every unit of stock changes hand during a unit period of time, say, a month or a year. Thus, the left hand side, $v.M_T^d$, measures the total value of monetary transactions that has been made with this stock in the unit period of time. This is a flow variable and is, therefore, equal to the right hand side.

We are ultimately interested in learning the relationship between the aggregate transaction demand for money of an economy and the (nominal) GDP in a given year. The total value of annual transactions in an economy includes transactions in all intermediate goods and services and is clearly much greater than the nominal GDP. However, normally, there exists a stable, positive relationship between value of transactions and the nominal GDP. An increase in nominal GDP implies an increase in the total value of transactions and hence a greater transaction demand for money from equation (3.1). Thus, in general, equation (3.1) can be modified in the following way

$$M_T^d = kPY \tag{3.3}$$