

On our website, [freemoneybasics.com](http://freemoneybasics.com), we described a straightforward economy. People have the choice to either consume ( $M_s$ ) or to save ( $M_s$ ). The money saved plus spent on consumption is the total money available ( $M$ ). In a world of fractional banking, the bank will lend out a multiplier ( $M_u$ ) of the money saved.  $P_m$  is then defined as price inflation due to the printing of money.

In year 1, the money available (money supply) equals  $M_1$ . So,  $M_s + M_c = M_1$

With fractional banking, in year 2 the bank multiplies the amount we save, by lending out a multiple of the savings.  $M_s * M_u + M_c = M_2$ . Let's assume all the money that is newly created, will be invested and end up with the consumers in the end. Also, let's assume the proportion of the total money available which is used for consumption and for saving, remains the same. For instance, 20% of money in people's pockets is saved and 80% is consumed.

$P_m$  is the growth in money supply. Under the gold standard, there is no growth in the gold supply (or hardly so), so  $P_m$  is just about 0. If, however, we all have twice as much money, all things equal, prices will double.

$P_{m1} = (M_2 - M_1) / M_1$  (so, if  $M_2 = 200$  and  $M_1$  equals 100, the prices will rise by 100% and will double).

Let's start with an economy where  $M_c = 40$  and  $M_s$  equals 10. The multiplier  $M_u$  equals for instance 5.  
 $M_1$  equals 50

$M_2$  equals  $40 + 5 * 10 = 90$

If 20% is saved and 80% is consumed, in the next year we will see consumption rising to  $80% * 90 = 72$ . We then see the following numbers:

$M_3$  equals  $72 + 18 * 5 = 162$

And so on.

From year 2 to year 3,  $P_m = (M_3 - M_2) / M_2$ . This equals:

$P_{m2} = (0.8 * M_2 + 0.2 * M_2 * M_u - M_2) / M_2$  or

$P_{m2} = 0.2 (M_u - 1)$

If we do the same for  $P_{m3}$ , we will get the same outcome,  $P_{m3} = 0.2 (M_u - 1)$

In general  $P_m = M_s / M * (M_u - 1)$

As long as  $M_u > 1$  there will be price inflation due to the printing of money.

If the proportion of how much we save and how much we consume stays the same (20% in our example) the inflation due to the printing of money stays the same. If however, we decide to save more (because we get so much money for instance, we are concerned we are eating away our own planet) inflation will rise even more.