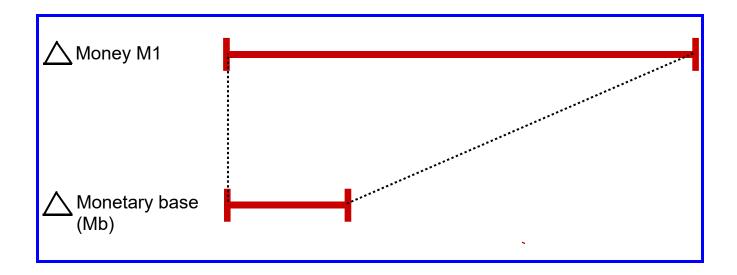# Money multiplier

---

❶ Δ Mb and Δ Money M1 are known.

- Money multiplier = $\dfrac{\Delta \text{ Money M1}}{\Delta \text{ Mb}}$

---

❷ Δ Mb is known, **Δ Money M1 ?**
The public has no cash; r = reserve ratio of the banks.

- Money multiplier = $\dfrac{1}{r}$

- $\Delta \text{ Money M1} = \Delta \text{ Mb} * \dfrac{1}{r} = \dfrac{\Delta \textbf{ Mb}}{\textbf{r}}$

---

❸ Δ Mb is known, **Δ Money M1 ?**
c = cash-to-money ratio; r = reserve ratio of the banks.

- Money multiplier = $\dfrac{1}{1-(1-c)(1-r)}$

- $\Delta \text{ Money M1} = \Delta \text{ Mb} * \dfrac{1}{1-(1-c)(1-r)} = \dfrac{\Delta \textbf{ Mb}}{\textbf{1-(1-c)(1-r)}}$