

# The value of Gold

Per Troy ounce

**Period**

**Gold price**

|           |  |                |
|-----------|--|----------------|
| 1971      | Fixed price under the Bretton Woods system         | \$35           |
| 1980      | US quits Bretton Woods system in 1971              | \$850          |
| 1999      | High IR to fight inflation. Bonds better than gold | \$250          |
| 2011      | Dot-Com crash. 2008 Subprimes crisis               | \$1,920        |
| 2020      | Covid crisis                                       | \$2,070        |
| 2024-2025 | Ukraine war.                                       | ~\$2,000–2,400 |

Remember – gold is measured in dollars, so if the dollar weakens, gold 'appears' to gain in value. If the Euro weakens against the dollar, Gold is more expensive in Euros.

| Term       | Used for             | Meaning                       |
|------------|----------------------|-------------------------------|
| Karat (K)  | Gold                 | Purity (how much gold inside) |
| Carat (ct) | Diamonds & gemstones | Weight (0.2 g)                |

So when we talk about gold jewelry (18K, 14K...), we are talking about **purity**, not mass.

### Purity table

| Carats | Gold content | Typical use                      |
|--------|--------------|----------------------------------|
| 24K    | 99.9%        | bars, coins, investment          |
| 22K    | 91.6%        | coins, Middle East/India jewelry |
| 18K    | 75%          | most French fine jewelry         |
| 14K    | 58.5%        | US jewelry                       |
| 9K     | 37.5%        | low-cost jewelry (common in UK)  |

In France, legally, jewelry must be at least **9K** to be sold as gold.

# The origin of Karats and Carats



# Weighing in Carats (Carob seeds)



# Eureka!

The belief that carob seeds are perfectly identical is slightly romanticized — they're just **more consistent than most seeds**, but not precise enough for modern measurement.

However, they were good enough that ancient merchants trusted them with gold — and the name stuck for over 2,000 years.

## The historical problem

King Hiero II of Syracuse commissioned a crown made of pure gold.

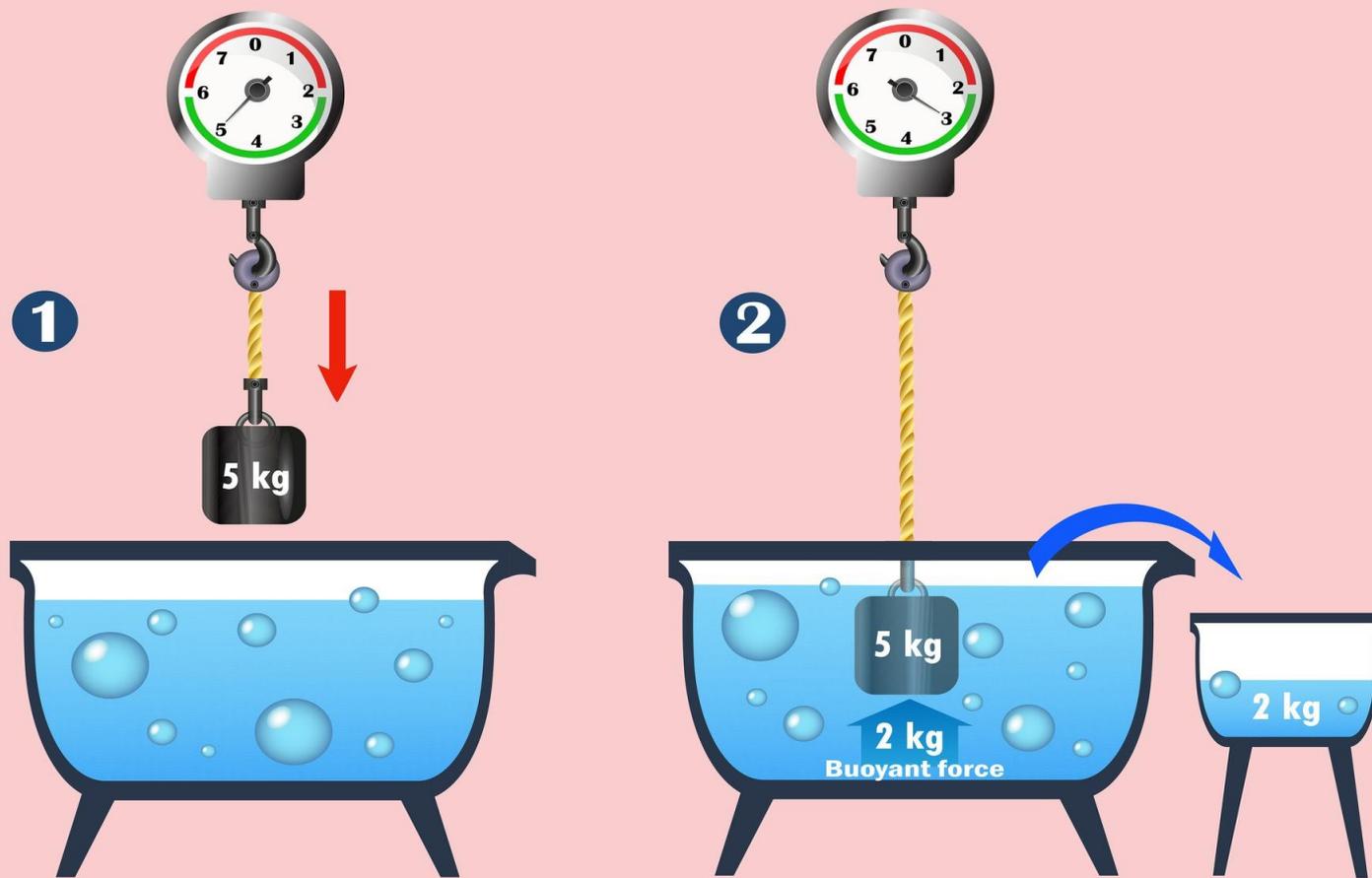
He suspected the goldsmith secretly mixed in silver (cheaper metal), but:

- he could not melt the crown
- he could not cut it
- he still needed proof

So Archimedes had to determine **purity non-destructively**.

# Eureka!

## Archimedes' Law



# Eureka!

## Why this reveals gold purity

Every metal has a unique **density** (mass  $\div$  volume).

| Metal  | Density (g/cm <sup>3</sup> ) |
|--------|------------------------------|
| Gold   | 19.3                         |
| Silver | 10.5                         |
| Copper | 8.9                          |

Gold is extraordinarily dense.

So:

If a crown weighs like gold but occupies more volume  $\rightarrow$  it contains lighter metal.

This was revolutionary: purity could be determined using physics rather than appearance.

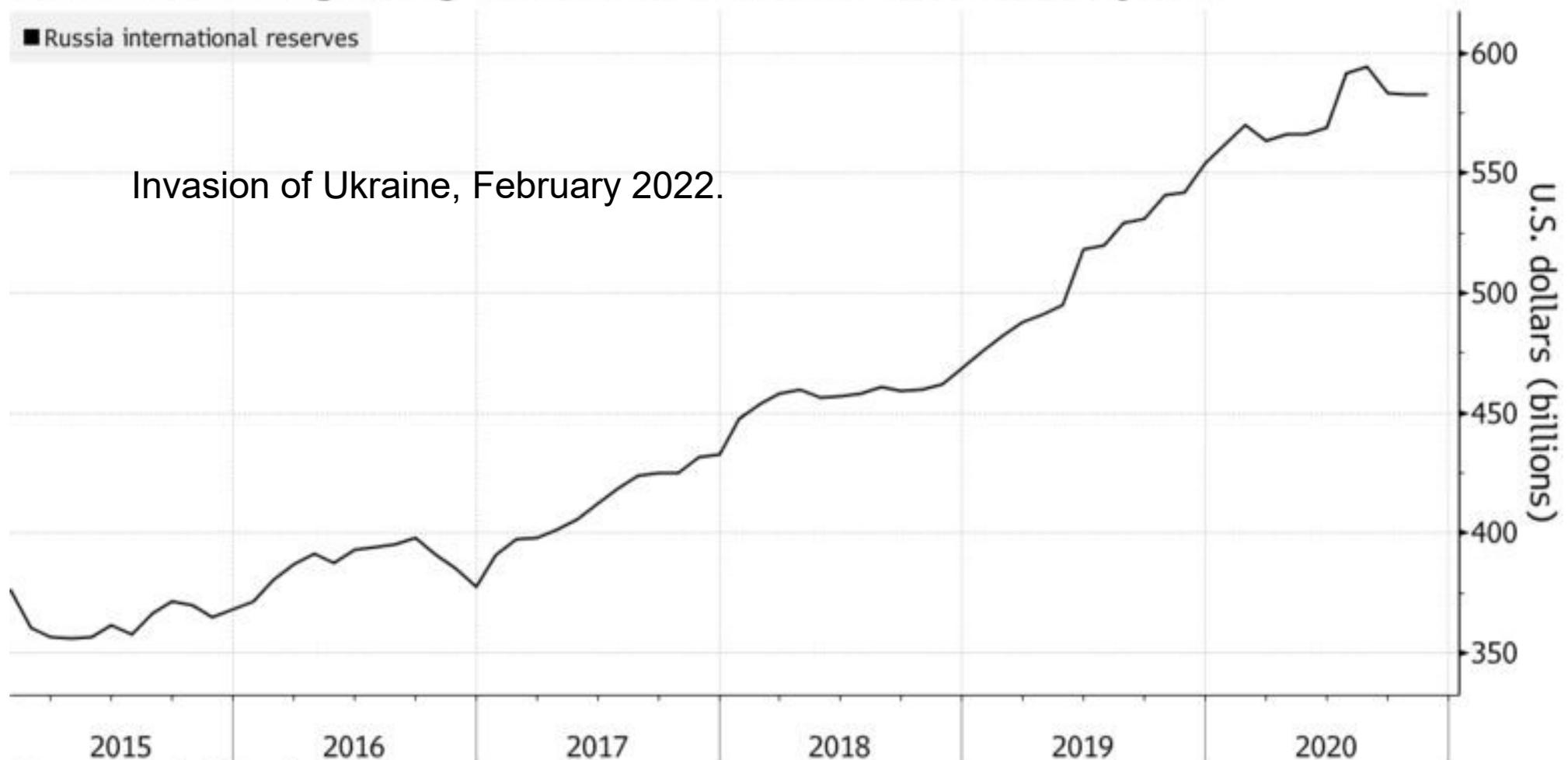
# Geopolitics

- Gold prices reflect global geopolitical and financial risk. It also reflects speculation which exaggerates the effect.
- Purchasing large quantities of gold often indicates a future conflict.

# Preparing for international sanctions

## Stockpiling

Russia has been growing its international reserves in recent years



Source: Bank of Russia

# The future of gold

- Next financial crisis around the corner (Crypto money, geopolitical tensions (US Trade war, Venezuela, Ukraine/Russia, Greenland, Israel, Taiwan...), US government control of the US Treasury... All of this increases tension which increases the price of gold.
- Speculators know the price will increase, they multiply the effect (Gold up) then take their profits (Gold down), creating an unstable market. Speculators love an unstable market!