

AME Modelling Methods

June 2026



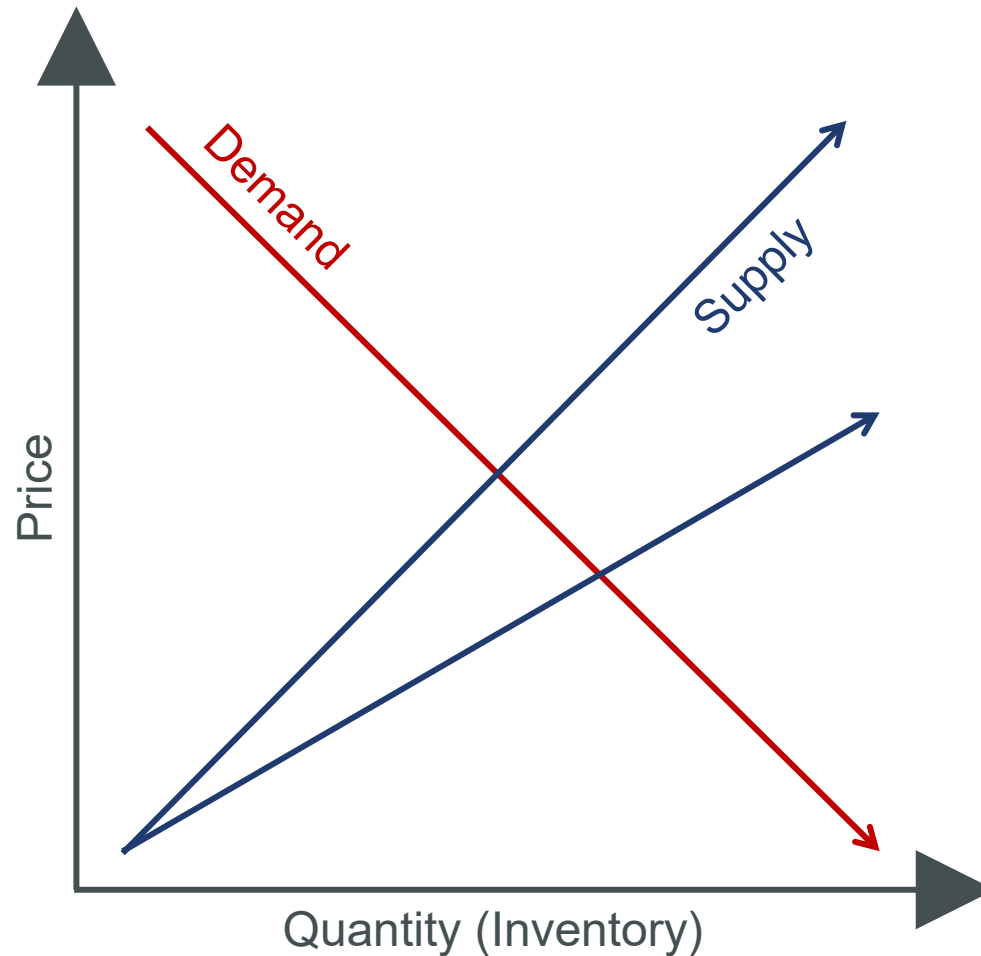
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Market Dynamics Over Time

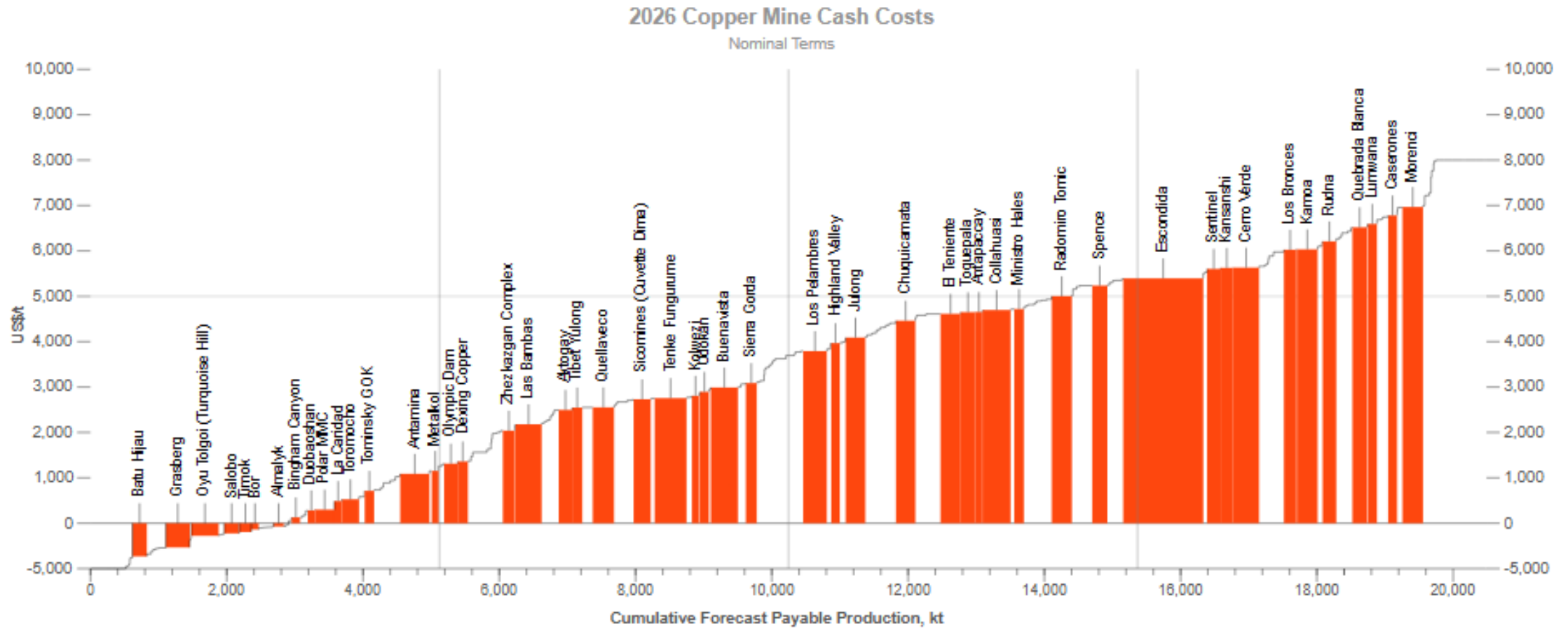


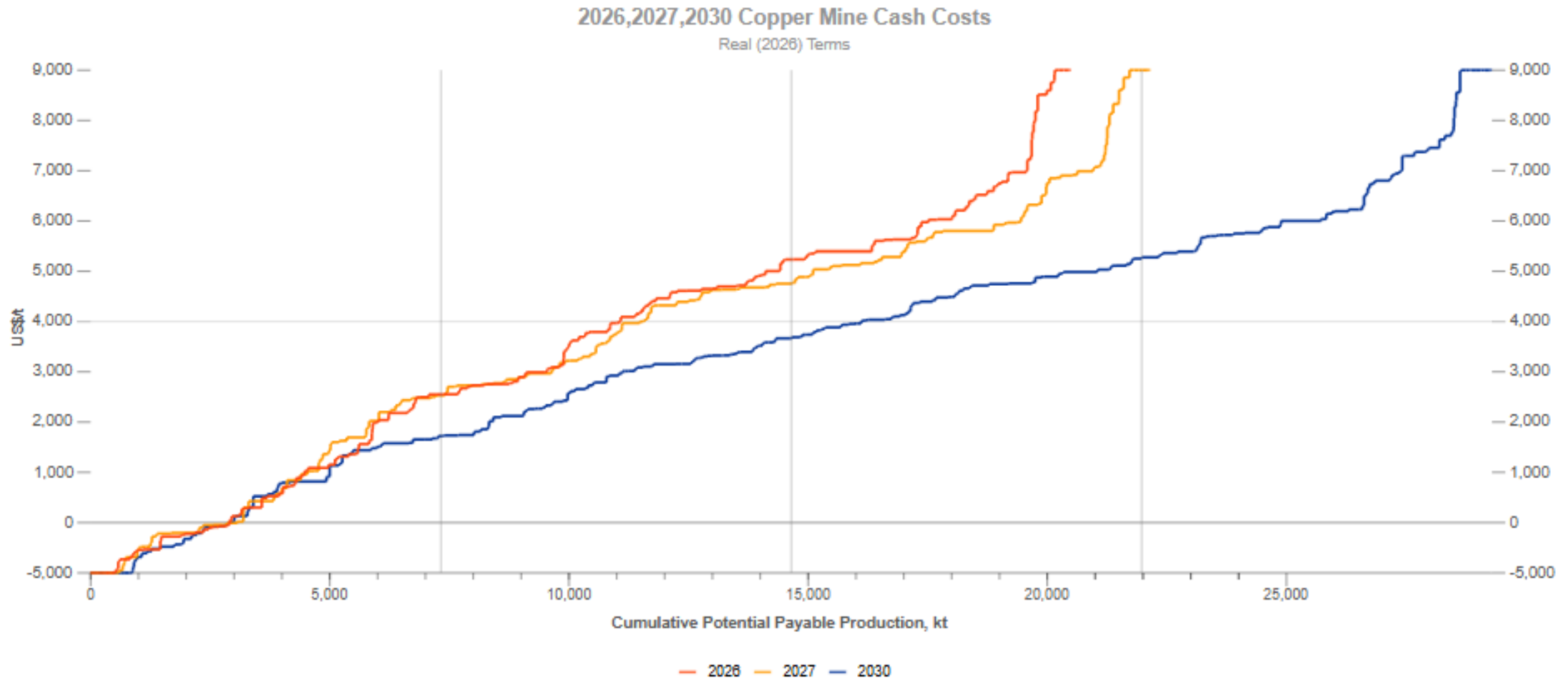
We cannot look at demand, supply, inventory, and price in isolation.

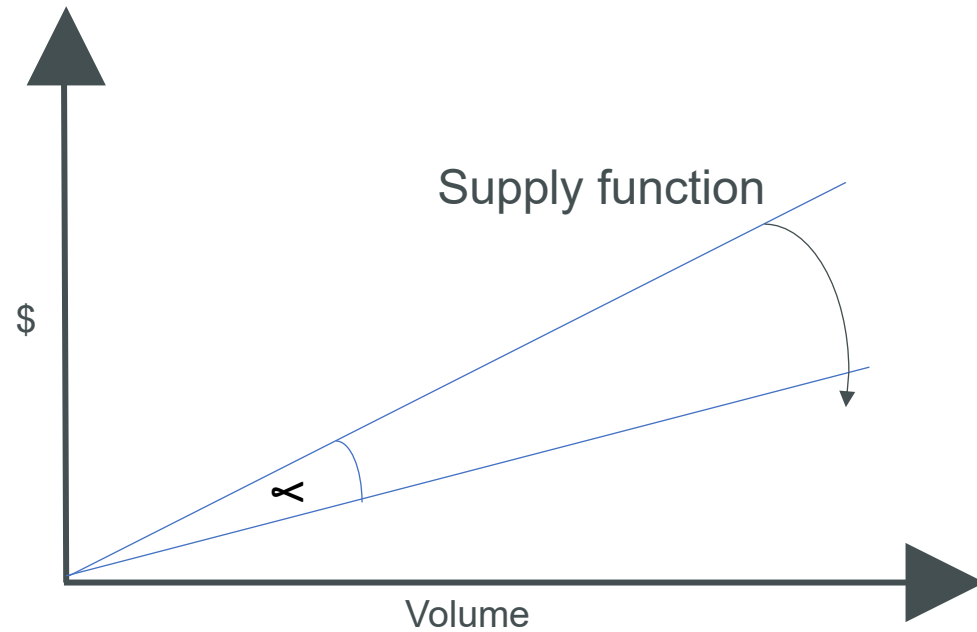
Each one directly shapes and is shaped by the others, they must be analysed together, by commodity and in the view of the wider industry.

Think in systems, not silos...

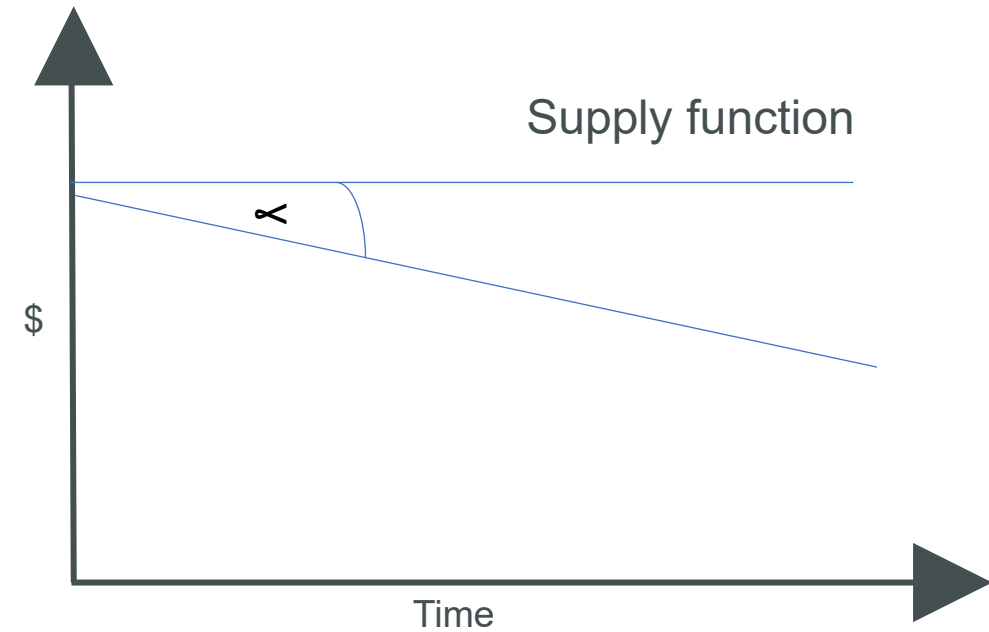
- Demand** Shifts price pressure and trade flows
- Supply** Drives price, affects inventories
- Inventory** Reflects imbalances in supply/demand
- Price** Responds to changes in supply/demand/inventory





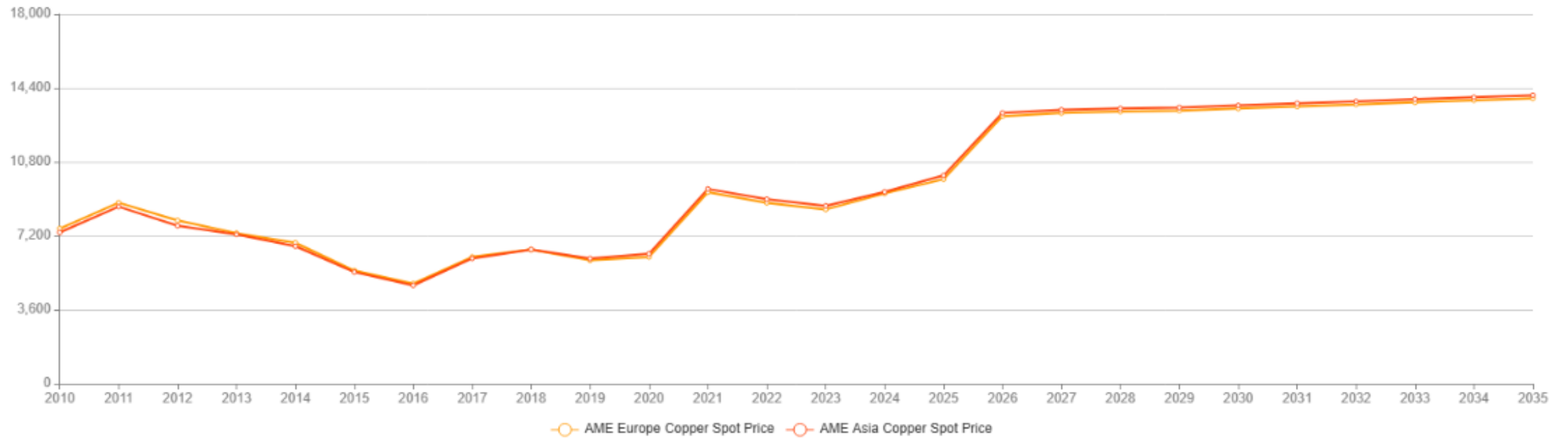


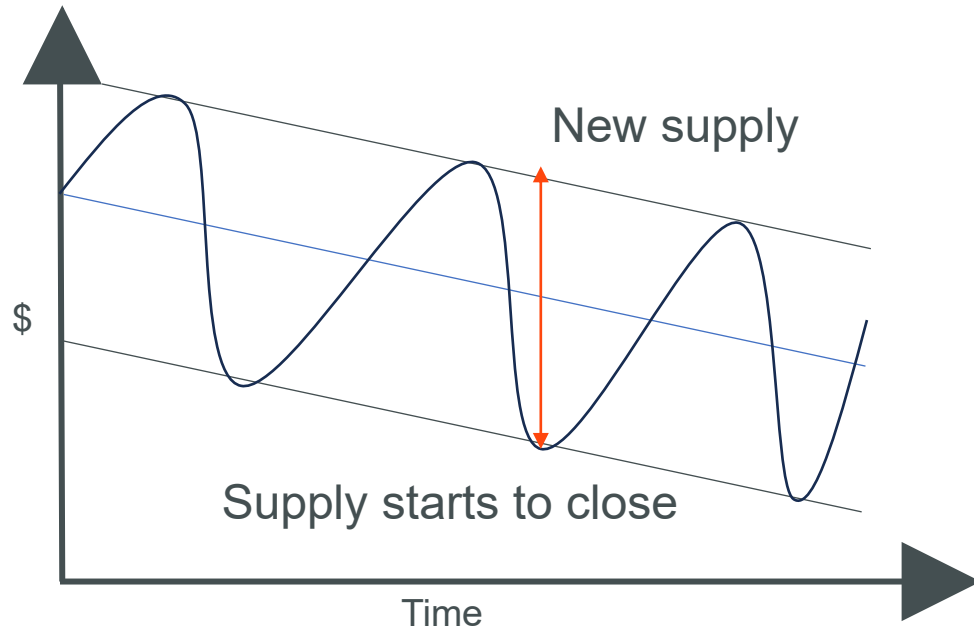
Real Price



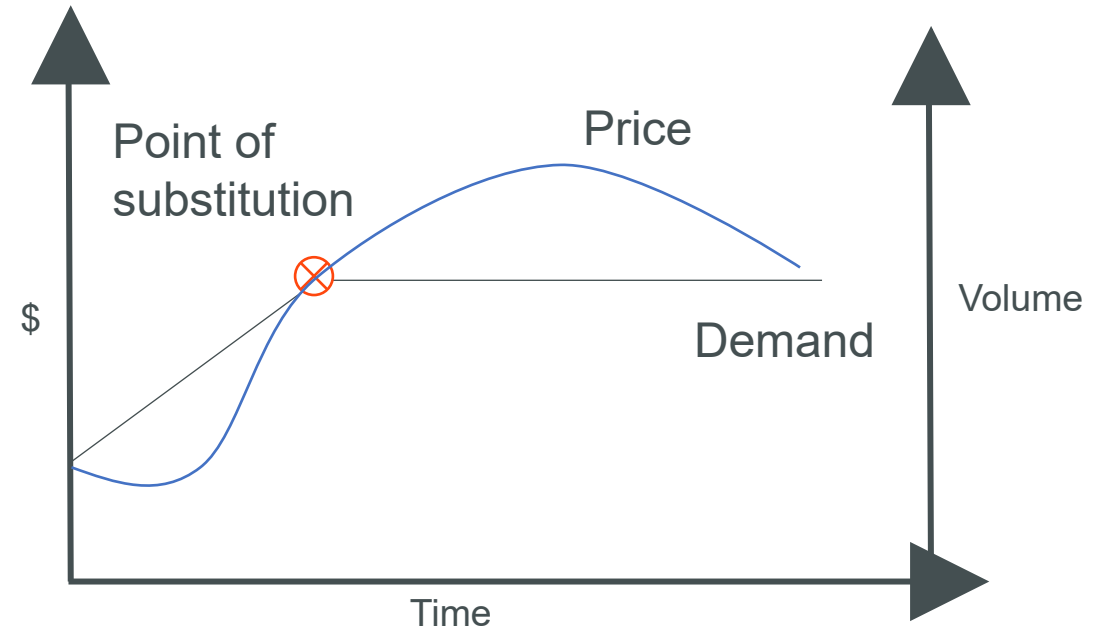
Real Price

Annual Copper Prices 2010-2035

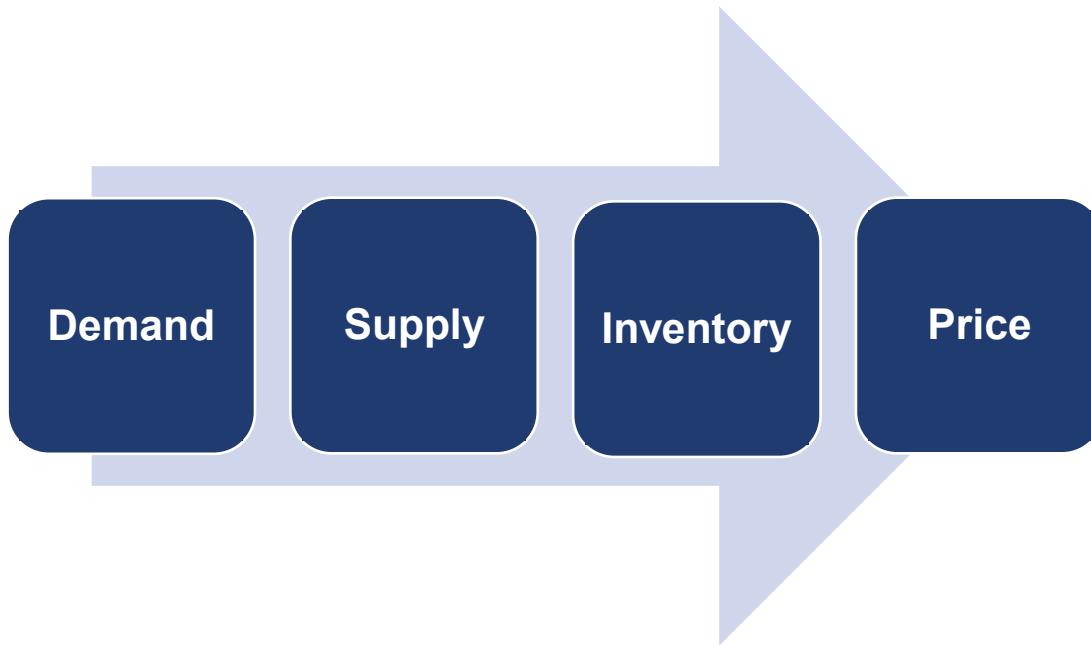




Real Price



Real Price

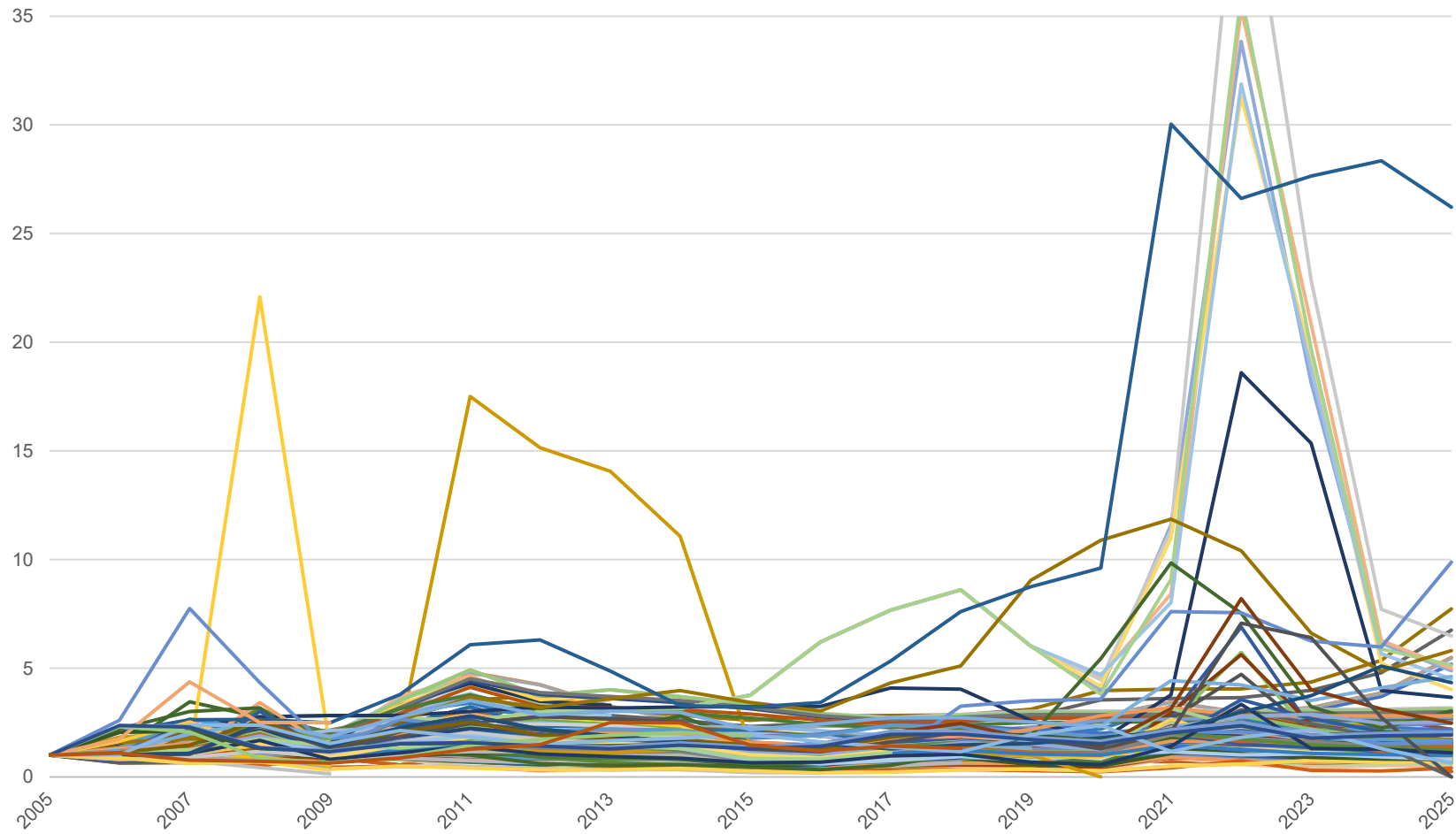


- Demand is the absolute king! The total driver for our structured living, our existence and ability to operate as a society.
- If demand drives up the sustained real long-term price by 25% (on a relative basis), then substitution kicks in.
- If all commodities go up in price by the same amount, then nothing changes. There is no apparent substitution
- Substitution is hard to measure, BUT very apparent in our lives. Copper pipe to plastic pipe, aluminium to plastic, real diamonds to synthetic diamonds, etc. This is an interesting substitution which makes modelling harder.
- Population growth and metal intensity are the specific long-term structural changes.



Modelling Methods – Fundamental Laws



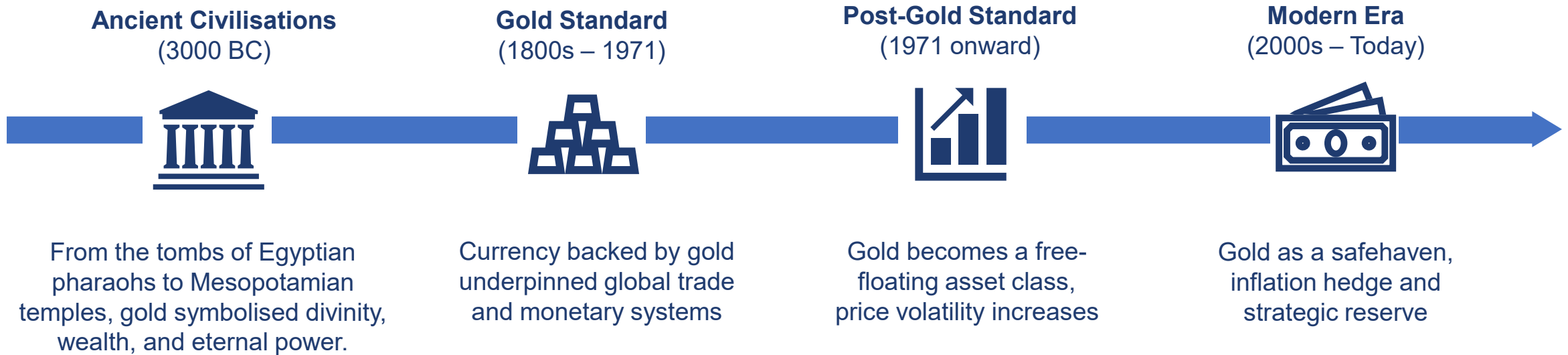


- 1 Keep the model simple
- 2 Use the same methodology for every commodity
- 3 Use massive amounts of data
- 4 Do not forecast cycles
- 5 Be fairly conservative

| Category | Term | Modelling Reliability |
|-----------------|--------------|-----------------------|
| Short Term | 0 – 2 years | Low |
| Strategic Term | 3 – 8 years | Medium |
| Structural Term | 9 – 30 years | High |

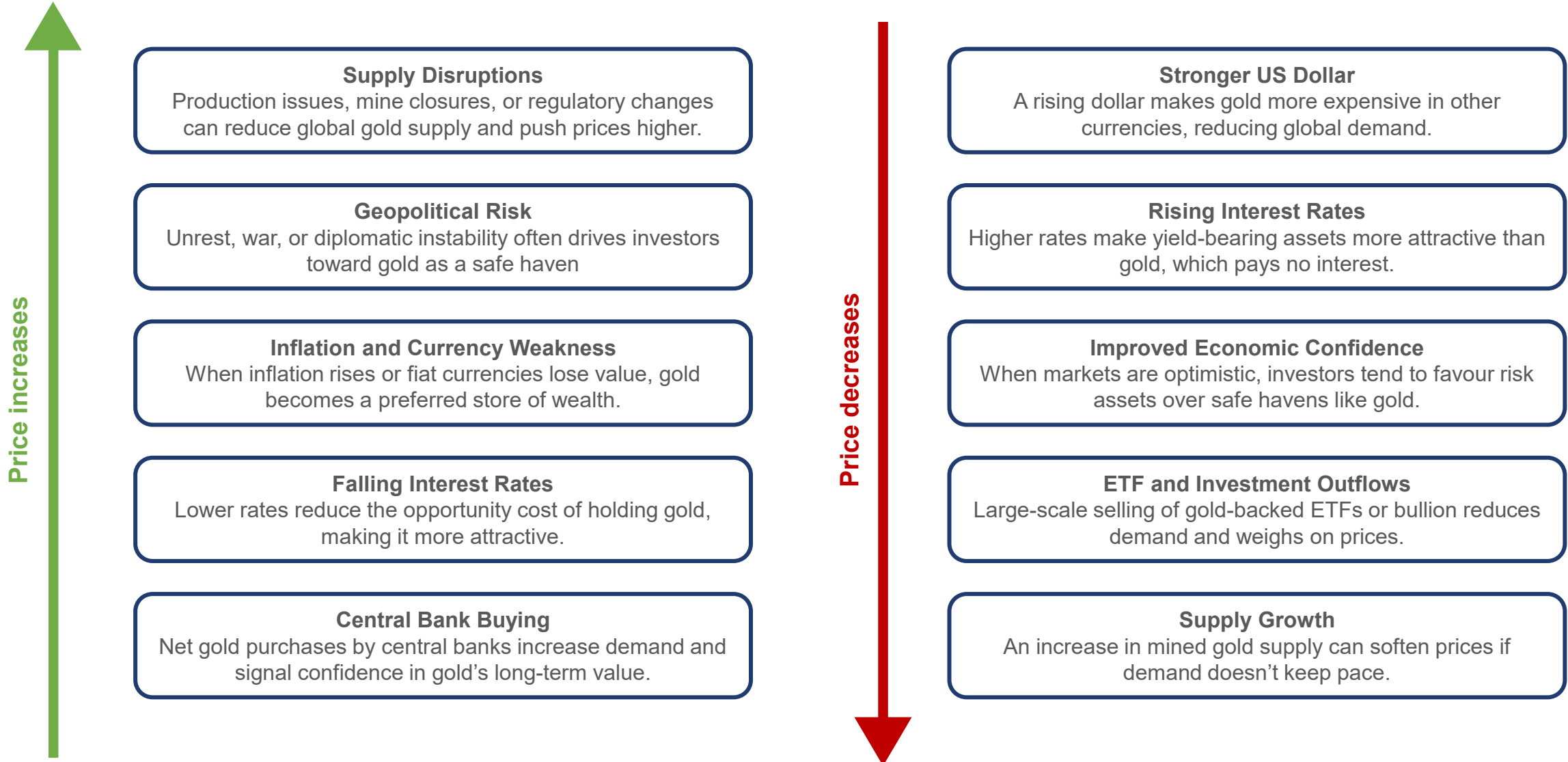


- Gold is a transportable, valuable, traceable store of wealth.
- Gold is an investment and retail product.
- Gold is not an industrial material and works in an economic paradigm.
- Gold essentially has no inventory.
- Gold is not a currency (silly idea).
- There is not enough gold in the world for this.
- Gold is like Bitcoin, hairdressing trends and fashion trends.
- Gold is very hard to model, but it does have value based upon a 5,000-year tradition.
- Personally, I would prefer Cowrie shells.



Market Significance

Gold holds a unique position in the global financial system. While no longer backing currencies directly, it continues to serve as a trusted store of value and hedge against inflation, currency devaluation, and geopolitical risk. Central banks around the world maintain significant gold reserves as a form of monetary insurance, while investors rely on gold as a portfolio diversifier. Traded on global exchanges and held in various forms—bars, coins, ETFs, and derivatives—gold’s liquidity and enduring value ensure its relevance in both times of uncertainty and economic stability.





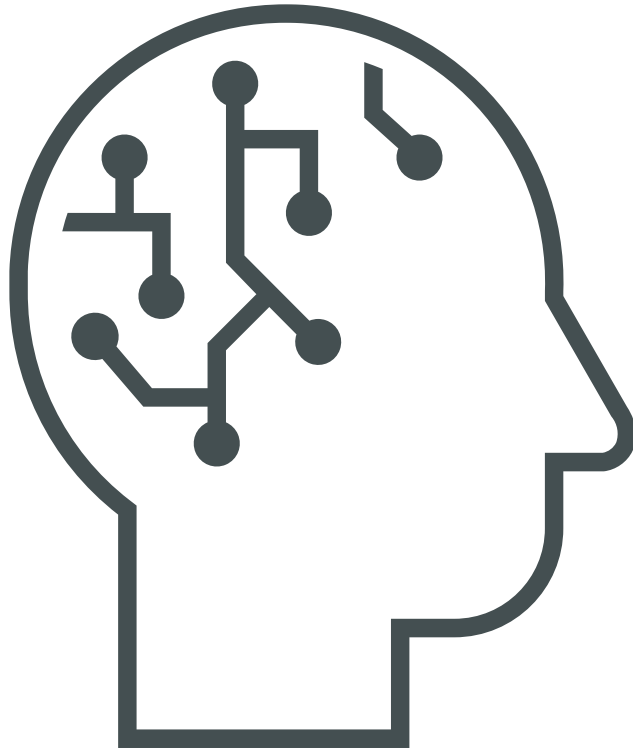
- AME’s modelled results & forecasts will be wrong.
- Thus, we remodel every; 3-months, every month and now every day.
- AME delivers a planning service to “steer investment” in a chaotic world.
- We model commodities on the basis that the work is defensible in court at the point of publication.
- Like the aviation industry, we are conservative and detailed by methodology, approach and attitude.
- We use incredible amounts of data.
- Our anxiety is always that we have left something out.



AI



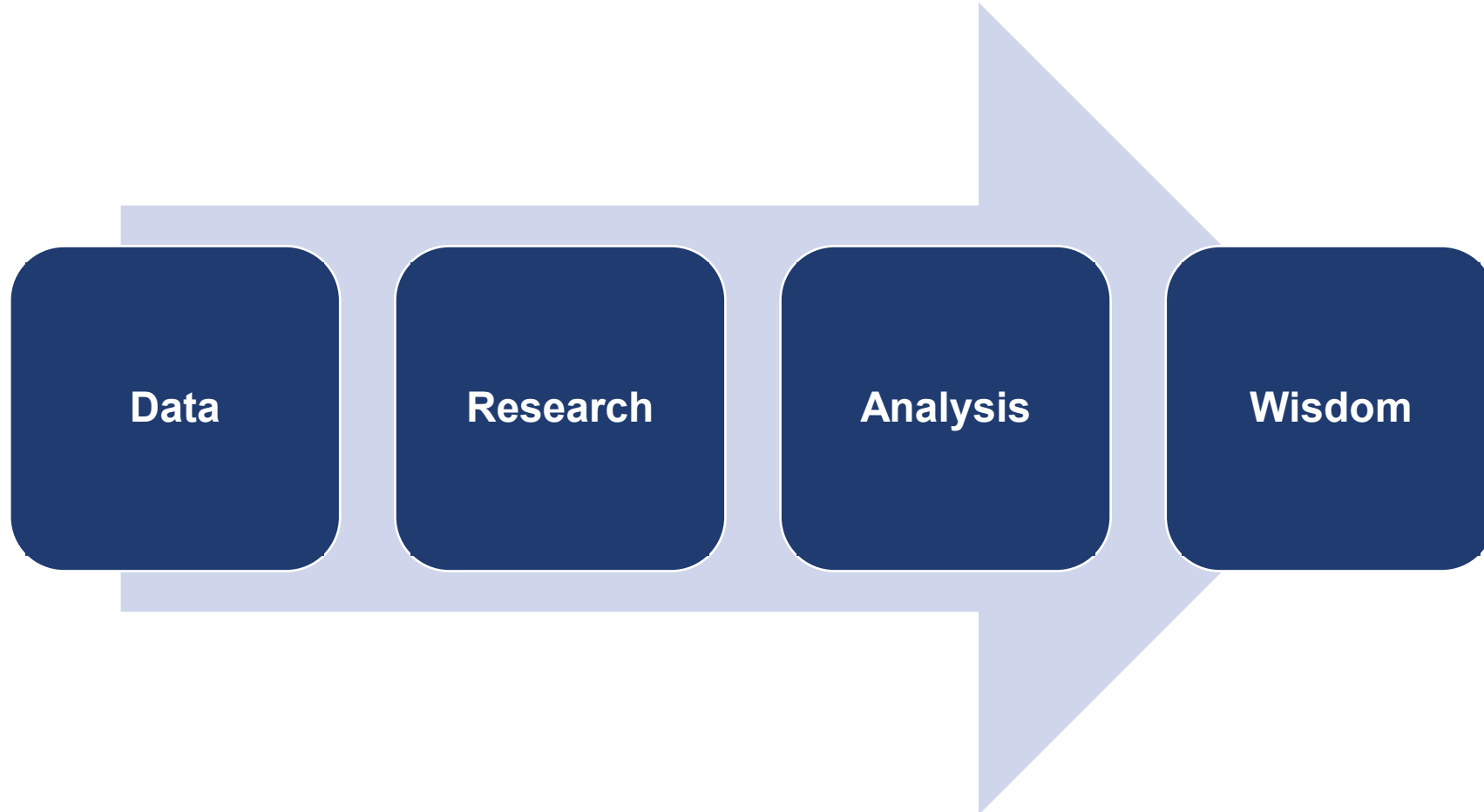
- First, if we don't put machine learning at the very centre of our lives, we will be gone in 3 years.
- The upfront cost is fantastic as we add in software engineers.
- Data Engineers, Architects, UI, Testers and Machine Learning Engineers (ML) come next.
- There is no substitute for humans for machines. Quite the reverse at our stage of development.
- In time, we expect to process far more data, but our staff pool will be the same.
- We are no longer scraping data using only people, but now with data engineers using Python.
- We use company reports, surveys, site visits (if allowed), but also satellite imaging and try to buy everything that looks useful.
- Government-derived and company data are still 80% of all information we use. A lot of this is now scraped.



- We start with detailed design briefs. We need to know the destination.
- We have found it's a hybrid environment. A Software Engineer plus a Commodity (Asset) Engineer.
- We don't expect this to change as our junior staff gain experience; we will need them.
- There is no magic button, magic wand or easy solution.
- AI is a very cool, but for now, quite stupid and inconsistent.
- Claude, we have found, is the best.
- It's a step-by-step approach. But over 12 months, you can see how brilliant these tools have become.
- There is no immediate revolution. But in 10 years' time, 30-50% of the white-collar workforce will be doing new things. Perhaps still as white-collar workers.



Data



Wisdom is the ability to separate the signal from the noise. It is surprisingly hard.

Track

- 45 countries on the demand side, or >95% of GDP

Track

- 80 countries relating to supply.

Projects on a site-by-site basis

- Gold
- Copper
- Nickel
- Lithium
- Lead / Zinc
- Coal
- Iron Ore
- Steel
- Aluminium / Alumina / Bauxite



Geopolitics – Driving Commodities

Climate Change

Climate change is upon us even for sceptics

Population

Population WILL increase to 9bn then 10bn although the trends are encouraging

Trade

Global trade growth will slow due to national security, maturity and transport costs

Energy

Real energy costs will increase for industry as we change the generating base

Fossil Fuels

Coal and fossil fuels will remain stronger for longer

Deglobalisation

A big trend towards greater national and regional independence

US-China

US and China WILL REPRESENT >50% of global GDP. (Greater on a PPP basis).

Economy

We expect some desynchronisation of the global economy.

Military Spending

As the US steps down, we expect greater military spending by motivated countries.

AI

The AI revolution will be important. Labour disruption will be material but slow.

Climate Change

Donald Trump actions with Cuba, Greenland, Venezuela etc

Population

Trump and Tariffs phase 3?

Trade

Chance of war US vs China or China vs Taiwan?

Energy

New wars occurring due to new drone and cheap missile technology.

Fossil Fuels

Extent of when there could be a runaway climate change

Deglobalisation

Chinas wish to fill in the power vacuum left by the USA.

Supply Gap

How big, when and how much?

The US and President Trump

Mr Trump high assertiveness & volatility after mid-terms >70%.

The Middle East

Israel and Lebanon, Gaza and Yemen. Long-term settlement <60%.

Iran

Iran vs ROW. Steady state 12-months <90%.

China

China vs Taiwan. Avoid conflict >95%.

Russia

Russia vs Ukraine. Settlement in 6 months > 50%.

Inflation

Inflation control with higher energy prices. 75% steady state 12 months.

EU Disintegration

Structural decline of EU. >30% over 5 years.

Energy Transition

CBAM is now becoming less important. >30% over 5 years.

Climate Policies

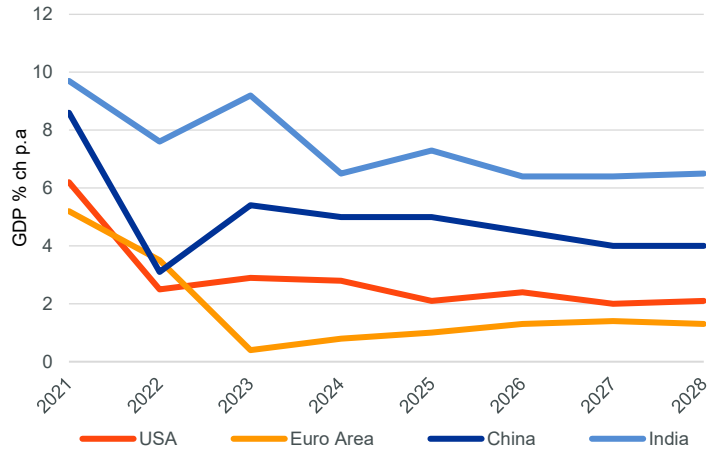
Policies on climate control rolled back. >50% over 5 years.

AI and Data Centres

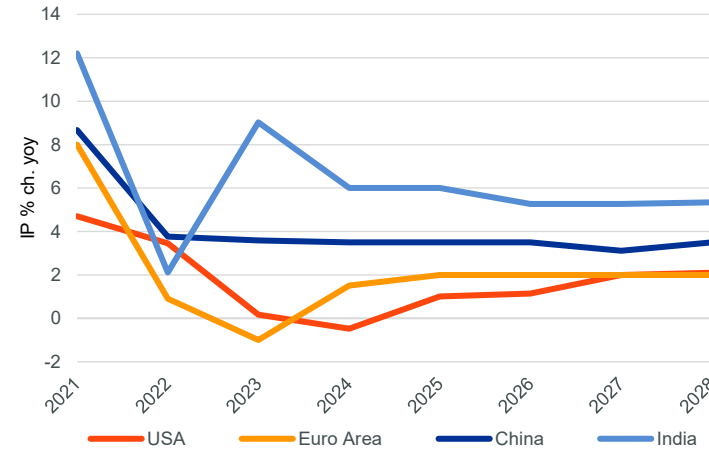
Concern on an overheated AI sector building data centres. >50% over 2 years.

| Trump wins the Mid-Term elections both house and Senate. | Trump only wins the Mid-Term elections only for the Senate. | Trump loses the Mid-Term elections both house and Senate. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • >10% chance he will resign before his term ends and receive a pardon. • 5% chance he will bid for another term. • <1% there will be a civil war as a result of a third term. | <ul style="list-style-type: none"> • >20% chance he will resign before his term ends and receive a pardon. • <1% chance he will bid for another term. • <0.1% there will be a civil war as a result of a third term. | <ul style="list-style-type: none"> • >30% chance he will resign one month before his term ends and receive a pardon. • <0.1% chance he will bid for another term. • < No statistically significant chance for a civil war as a result of a lost election bid. • >90% Impeachment proceedings will be started by the Democrats. • >95% chance impeachment will fail as Republicans can veto the vote passing the senate. • Impeachment will only get up if Trump's behaviour deteriorates dramatically. |

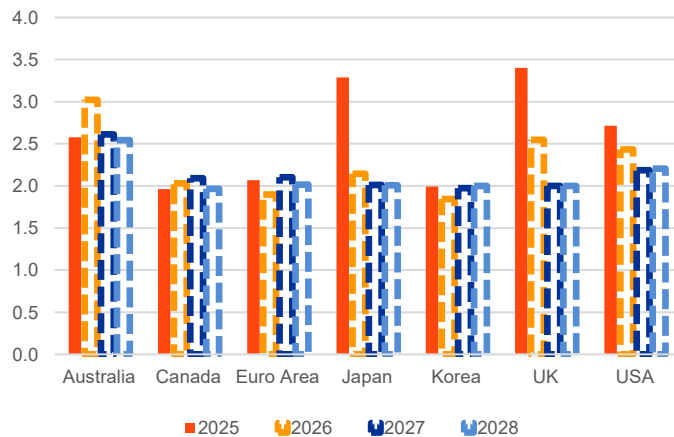
Key Country GDP



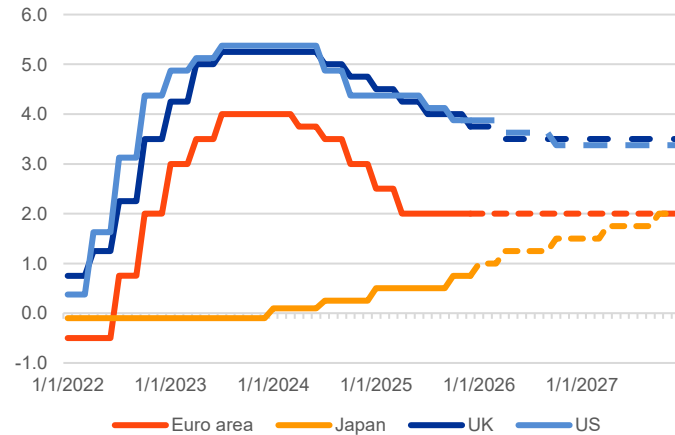
Key Country IP



Key Country Inflation



Central Bank Policy Rates (%)



A key risk to economic stability is that the world is less stable.

AME's current assumptions:

- The Strait of Hormuz remains a high-risk zone for up to 12 months, keeping shipping insurance premiums elevated.
- Gulf LNG exports would be slow for the next six months.
- Oil prices would average above US\$75/bbl during the initial six-month period.
- Beyond six months, oil prices are expected to stabilise in the US\$70–90/bbl range.
- Natural gas prices across Greater Asia remain high.
- If energy accounts for around one-third of total shipping costs, a 30% increase in marine fuel prices would be expected to raise overall CIF and FOB freight rates by roughly 10% and could escalate further.

Bigger issues:

- The Iran war highlighted the issue of such a global and integrated world.
- The energy debate is back on – Trump's fossilisation of the world will slow. China's domestic EV sales share hit 51% in 2025. Beijing has pledged to hit peak oil by 2030.

Source: AME Research, OECD
Consumer price index

Source: AME Research, OECD



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