CAPITAL CYCLE
INTELLIGENCE

THE CCI ROSETTA STONE SERIES



HOW CCI READS MARKETS

A FRAMEWORK FOR UNDERSTANDING THE FORCES BEHIND PRICE

Translating the forces that shape markets
into a language investors can understand and apply.

COMMODITIES

A CCI Foundation for Understanding, Researching and Allocating to the Essential Inputs of the Global Economy

PART I

UNDERSTANDING COMMODITIES

The CCI Rosetta Stone Series—translating scarcity, production, inventories and physical markets into a language investors can understand and apply.

WELCOME

Commodities are the physical foundations upon which the global economy is built.

They generate electricity.

Fuel transport.

Feed populations.

Construct cities.

Power factories.

Enable technology.

And provide many of the raw materials from which almost every finished product is made.

Yet commodities are among the most frequently misunderstood investments.

They are often grouped together under a single label, as though crude oil, copper, natural gas, wheat and cattle were interchangeable expressions of the same idea.

They are not.

Each commodity exists within its own physical system.

Each has its own:

- Sources of production
- Patterns of consumption
- Storage requirements
- Transportation networks
- Quality specifications
- Seasonal rhythms
- Political sensitivities
- Substitution possibilities
- Inventory structures
- Capital cycle

A barrel of crude oil cannot satisfy a shortage of natural gas.

Copper stored in one region may not relieve a shortage elsewhere without suitable transport, financing and processing capacity.

A record grain harvest in one country may coexist with food scarcity in another.

A commodity can appear plentiful globally while remaining unavailable in the form, quality, location or timeframe required by the buyer.

That is why commodity analysis must begin with the physical market.

But it cannot end there.

Commodity prices are also influenced by:

- Liquidity
- Growth
- Credit
- Inflation
- Currencies
- Interest rates
- Geopolitics
- Regulation
- Weather
- Technology
- Financial positioning

These forces interact with physical supply and demand.

They do not replace them.

At CCI, we ask:

- What exactly is the commodity?
- Where is it produced?
- Who consumes it?
- In what form and location is it needed?
- Can it be stored?
- How much usable inventory exists?
- How quickly can supply respond?
- Can demand adjust or substitute?
- What does the futures curve reveal?
- Which risks arise from the commodity?
- Which risks arise from the investment vehicle?
- What expectations are already reflected in the price?
- What purpose could the exposure perform within your portfolio?

Commodities differ from equities and bonds in one foundational respect.

They do not represent a productive business or a contractual promise.

A tonne of copper does not generate cash flow merely by existing.

A barrel of oil pays no coupon.

A bushel of wheat produces no dividend.

Physical commodities provide utility through consumption, transformation or availability.

Their investment return therefore depends largely on changes in price, the structure of futures markets, currency movements and the costs associated with gaining and maintaining exposure.

Commodity-producing businesses are different again.

An oil company is not crude oil.

A copper miner is not copper.

A grain producer is not wheat.

Those businesses combine commodity exposure with:

- Management
- Labour
- Capital expenditure
- Debt
- Taxes
- Operating costs
- Regulation
- Jurisdiction
- Capital allocation

A commodity can rise while its producers disappoint shareholders.

A producer can create value while the underlying commodity remains subdued.

The first rule is therefore simple:

Never confuse the commodity with the business that produces it or the vehicle used to obtain exposure.

This document will help you understand those distinctions before reconnecting them within the complete CCI investment framework.

The objective is not to convince you that commodities must always be owned.

It is to help you determine:

- When they may deserve consideration
- Which commodity expresses the intended view
- Which form of exposure is appropriate
- What evidence supports the thesis
- What could invalidate it
- Whether the prospective return adequately compensates for the risks

Before we can interpret commodity markets, we must first understand what commodities are.

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1. WHAT IS A COMMODITY?

A commodity is a basic physical good that can be produced, extracted, harvested or raised and exchanged according to sufficiently standardised characteristics.

Commodities generally serve as inputs into economic activity rather than finished consumer products.

Examples include:

- Crude oil
- Natural gas
- Copper
- Aluminium
- Iron ore
- Wheat
- Corn
- Soybeans
- Sugar
- Coffee
- Cotton
- Livestock

A particular quantity of a commodity is ordinarily valued according to characteristics such as:

- Grade
- Purity
- Weight
- Moisture
- Location
- Delivery date
- Processing state

These specifications matter.

“Oil” is not one perfectly uniform product.

Neither is wheat, coal, natural gas or copper concentrate.

Fungibility

A commodity is generally fungible when one qualifying unit can be exchanged for another unit meeting the same standard.

A barrel of crude oil satisfying a specified benchmark can be treated as equivalent to another qualifying barrel.

This enables:

- Standardised contracts
- Large-scale trading
- Centralised pricing
- Hedging
- Physical delivery
- Financial settlement

Fungibility does not mean every unit is identical.

It means the market has established standards through which differences can be recognised and priced.

Physical Utility

Commodities possess value because they can be used.

Oil can be refined into fuels and petrochemical inputs.

Copper conducts electricity.

Natural gas can generate power, produce heat and serve as industrial feedstock.

Grains can provide food, livestock feed and biofuel inputs.

That utility creates demand.

The price required to balance that demand with available supply changes continuously.

Commodities Are Consumed or Transformed

Unlike many monetary assets, most commodities are consumed, burned, eaten or transformed.

Once crude oil becomes fuel and is combusted, it cannot be placed back into inventory.

Once wheat is eaten, it must be replaced through another harvest.

Some metals can be recycled repeatedly, but collection, processing, contamination, economics and time limit how quickly they return to supply.

This continual consumption makes the balance between flow and inventory especially important.

Commodity Price and Commodity Value

A commodity has economic value because it performs a useful function.

Its market price reflects the amount buyers and sellers currently accept for a specified form, location and delivery date.

Those are related concepts.

They are not identical.

A vital commodity can still experience collapsing prices when supply exceeds immediate demand.

An abundant commodity can experience an extreme price spike when the deliverable form becomes temporarily scarce.

2. THE MAIN COMMODITY FAMILIES

Commodities can be organised into broad families.

These categories help us begin the analysis.

They do not remove the need to study each market independently.

Energy

Energy commodities include:

- Crude oil
- Refined petroleum products
- Natural gas
- Liquefied natural gas
- Coal
- Uranium
- Electricity
- Biofuels
- Carbon-related instruments in relevant markets

Energy underpins transport, manufacturing, heating, cooling and electricity generation.

Its markets are influenced by:

- Economic activity
- Weather
- Geopolitics
- Infrastructure
- Producer coordination
- Technology
- Environmental policy
- Inventories
- Refining and processing
- Transport constraints

Electricity is particularly distinctive because it must be balanced continuously and remains difficult to store economically at very large scale.

A disruption in one part of an energy system can therefore transmit quickly through the broader economy.

Industrial Metals

Industrial metals include:

- Copper
- Aluminium
- Nickel
- Zinc
- Lead
- Tin
- Iron ore
- Manganese
- Chromium
- Molybdenum

They are used in:

- Construction
- Manufacturing
- Transport
- Electrical systems
- Machinery
- Infrastructure
- Consumer goods
- Energy systems

Their demand is often sensitive to:

- Global growth
- Industrial production
- Construction
- Infrastructure spending
- Manufacturing investment
- Technology
- Urbanisation
- Substitution
- Scrap availability

Government geological agencies such as the USGS publish production, reserves, recycling and industry data across a wide range of non fuel minerals. These data help establish the physical starting point, but they must still be interpreted through economics, accessibility and time. U.S. Geological Survey

Agricultural Commodities

Agricultural commodities include:

- Wheat
- Corn
- Rice
- Soybeans

- Canola
- Sugar
- Coffee
- Cocoa
- Cotton
- Orange juice
- Livestock
- Dairy products

Agricultural markets are shaped by biological and seasonal realities.

Relevant forces include:

- Weather
- Soil
- Planting decisions
- Yield
- Disease
- Water
- Fertiliser
- Feed costs
- Government policy
- Trade
- Storage
- Consumer income
- Currency
- Substitution

The USDA's monthly World Agricultural Supply and Demand Estimates provide widely used balance-sheet forecasts for major crop and livestock markets. They are estimates—not certainties—and are revised as new evidence becomes available. USDA Economic Research Service

Soft Commodities

The term *soft commodities* generally refers to cultivated products such as:

- Coffee
- Cocoa
- Sugar
- Cotton

Their cycles can be influenced by highly concentrated growing regions, perennial crop biology, labour, disease and weather.

A coffee tree cannot be brought into full production simply because the price rose last week.

Supply response may take years.

Livestock

Livestock markets include cattle, hogs and related products.

Their economics depend on:

- Herd or breeding cycles
- Feed prices
- Weather
- Disease
- Processing capacity
- Consumer demand
- Trade
- Biological lead times

A high price may encourage future production while initially restricting current supply if producers retain breeding animals.

The path of adjustment is not always intuitive.

Precious Metals

Gold, silver, platinum and palladium are also commodities.

They have been addressed separately within the CCI Rosetta Stone Series because their monetary, investment and reserve characteristics require an additional analytical framework.

Within this document, the primary emphasis is on energy, industrial and agricultural commodities.

3. COMMODITIES ARE PHYSICAL SYSTEMS

A commodity is more than a quoted price.

It exists within a physical chain connecting production with consumption.

The Commodity Chain

A simplified commodity chain may include:

Resource or biological input → Production → Processing → Transport → Storage → Distribution → Consumption

Each stage can create a bottleneck.

Crude oil may be available while refining capacity is constrained.

A mineral may be mined but lack processing capacity.

A crop may be harvested but unable to reach export markets.

Natural gas may be abundant in one region but inaccessible to another without pipelines or liquefaction infrastructure.

The relevant question is therefore not merely:

Does the commodity exist?

It is:

Can the required quantity and quality reach the required buyer at the required location and time?

Production

Production may involve:

- Extraction
- Drilling
- Mining
- Harvesting
- Farming
- Breeding
- Processing

Each production system possesses its own economics and lead times.

Oil wells can decline rapidly.

Mining projects can take more than a decade to discover, permit, finance and develop.

Annual crops may respond within the next planting season.

Orchards and plantations may require years.

Livestock cycles depend on biology.

Supply responsiveness must be assessed market by market.

Processing

Raw production is not always directly usable.

Crude oil must be refined.

Bauxite must be processed into alumina and aluminium.

Ore must be concentrated, smelted or refined.

Natural gas may require treatment, liquefaction or regasification.

Crops may need milling, crushing or other processing.

Processing capacity can become scarce even when the raw commodity is available.

Transportation

Commodities move through:

- Pipelines
- Railways
- Roads
- Ports
- Ships
- Barges
- Transmission networks

Transport introduces:

- Cost
- Time
- Capacity constraints
- Weather exposure
- Insurance
- Political risk
- Chokepoints
- Quality considerations

A global price can conceal severe regional differences.

Storage

Storage allows production and consumption to occur at different times.

But storage is not free.

It may require:

- Tanks
- Silos
- Warehouses
- Refrigeration
- Security
- Insurance
- Financing
- Quality management

Some commodities are inexpensive to store.

Others are costly, dangerous or perishable.

Storage economics materially influence price behaviour.

Consumption

Final demand may arise from:

- Households
- Utilities
- Factories
- Construction
- Agriculture
- Transport
- Governments
- Strategic reserves

The ability of consumers to reduce, delay or substitute demand helps determine how violently price must adjust when supply becomes scarce.

4. SUPPLY, DEMAND AND THE CLEARING PRICE

Commodity markets continually search for the price that balances available supply with desired demand.

That sounds straightforward.

In practice, both sides can be slow, uncertain and constrained.

Supply

Commodity supply may come from:

- Current production
- Inventories
- Recycling
- Imports
- Spare capacity
- Substitution
- Strategic reserves

The composition matters.

A market dependent on inventory draws is different from one supported by expanding production.

A market with spare capacity can respond differently from one operating near physical limits.

Demand

Commodity demand may be:

- Essential
- Discretionary
- Industrial
- Seasonal
- Policy-driven
- Price-sensitive
- Income-sensitive
- Technologically determined

Demand for electricity, heating and staple food may initially respond only modestly to price.

Demand for discretionary travel, construction or marginal industrial use may respond more readily.

Price Elasticity

Elasticity describes how strongly supply or demand responds to price.

When both are inelastic over the short term, a small physical imbalance can create a large price movement.

Supply cannot rise immediately.

Consumers cannot reduce use immediately.

Price must move far enough to:

- Attract inventory
- Encourage substitution
- Reduce consumption
- Redirect trade
- Incentivise future production

This helps explain why commodities can experience explosive rallies and severe collapses.

The Marginal Unit

Commodity prices are established at the margin.

The market-clearing price may need to compensate the highest-cost unit required to satisfy demand.

When demand expands into limited spare capacity, a relatively small increase in consumption can call upon materially more expensive supply.

When demand falls, that marginal high-cost production may no longer be required.

The clearing price can then decline sharply.

Demand Destruction

A sufficiently high price can reduce demand through:

- Substitution
- Reduced consumption
- Lower production
- Postponed investment
- Behavioural change
- Economic contraction

High prices are not merely the result of scarcity.

They can become the mechanism through which scarcity is resolved.

Supply Destruction

Persistently low prices can lead to:

- Mine closures
- Reduced drilling
- Lower planting
- Deferred maintenance
- Cancelled projects
- Producer insolvency
- Lower exploration
- Reduced future capacity

Low prices can eventually create the conditions for future scarcity.

The CCI Clearing-Price Question

CCI asks:

- What is the marginal source of supply?
- What is the marginal source of demand?
- How price-sensitive is each?
- What must the price accomplish?
- Is it rationing demand, attracting supply or both?
- Over what timeframe can the market adjust?

The price is not merely reporting the imbalance.

It is working to correct it.

5. INVENTORIES: THE BRIDGE BETWEEN SUPPLY AND DEMAND

Inventories sit between current production and current consumption.

They allow the market to absorb temporary differences without requiring an immediate change in either.

Why Inventories Exist

Inventories may be held for:

- Operational continuity
- Seasonal demand
- Supply disruption
- Strategic security
- Speculation
- Arbitrage
- Delivery obligations
- Processing requirements

A refinery requires working inventory.

A country may hold strategic petroleum reserves.

A grain processor needs supply between harvests.

A futures-market participant may hold deliverable stock.

These inventories do not all respond to price in the same way.

Inventory Builds

Inventories tend to build when available supply exceeds immediate consumption.

This may indicate:

- Weak demand
- Excess production
- Seasonal accumulation
- Anticipation of future scarcity
- Attractive storage economics
- Supply-chain caution

An inventory build is evidence.

Its meaning depends on the cause.

Inventory Draws

Inventories tend to decline when consumption exceeds current supply.

This may reflect:

- Strong demand
- Supply disruption
- Seasonal consumption
- Unattractive storage economics
- Deliberate destocking

A draw can tighten the market.

But one weekly or monthly observation rarely establishes a durable trend.

Days of Supply and Stock-to-Use

Absolute inventory can be misleading.

A growing economy may require more working stock.

A smaller absolute inventory can remain comfortable when demand has fallen.

Analysts therefore use measures such as:

- Days of supply
- Stock-to-use ratios
- Inventory relative to seasonal norms
- Inventory relative to processing capacity
- Inventory relative to delivery obligations

The appropriate measure depends on the commodity.

Visible and Invisible Inventories

Some inventories are reported through:

- Exchanges
- Governments
- Industry agencies
- Public companies
- Warehouses

Others remain difficult to observe:

- Private storage

- Producer holdings
- Consumer stockpiles
- Floating storage
- Informal agricultural stocks
- Inventories in countries with limited reporting

Incomplete data create uncertainty.

Location and Quality

Inventory is only useful if it is available in the required form.

A market can possess adequate global stock while experiencing scarcity because the inventory is:

- In the wrong country
- Of the wrong grade
- Inaccessible
- Committed elsewhere
- Economically uneconomic to move
- Held for strategic rather than commercial purposes

Inventories and Oil Prices

The EIA describes petroleum inventories as both a physical buffer and an important signal connecting current supply and demand with expectations about future conditions. Inventory draws can satisfy consumption when current production falls short; builds can absorb excess production and reflect incentives created by the futures curve. U.S. Energy Information Administration

The CCI Inventory Principle

Inventories determine how long a physical imbalance can persist before price must force a stronger response.

The smaller and less accessible the buffer, the greater the market's vulnerability to surprise.

6. SPOT PRICES, FUTURES AND THE FORWARD CURVE

Commodity markets trade not only for immediate delivery but for delivery at different points in the future.

The relationship between those prices forms the futures curve.

Spot Price

The spot price refers broadly to the price for immediate or near-term delivery under specified conditions.

Actual transactions may differ according to:

- Location
- Quality
- Quantity
- Timing
- Transport
- Credit
- Market access

There is rarely one economically identical price for every unit of a commodity everywhere.

Futures Contract

A futures contract is a standardised agreement traded on an exchange.

It specifies matters such as:

- Commodity
- Quantity
- Quality
- Delivery location
- Delivery period
- Settlement method

Futures are used by:

- Producers
- Consumers
- Merchants

- Processors
- Investors
- Speculators

They allow participants to transfer price risk.

The Forward Curve

Plotting futures prices across successive delivery dates creates a curve.

That curve contains information about:

- Current scarcity
- Expected availability
- Storage economics
- Financing
- Seasonality
- Risk
- Market positioning

It is not a perfect forecast of future spot prices.

It is the set of prices at which market participants can transact today for different delivery dates.

Contango

A market is commonly described as being in contango when later-dated futures trade above nearer contracts.

Contango may reflect:

- Storage costs
- Financing costs
- Insurance
- Abundant current supply
- Expectations of stronger future conditions

When the future price sufficiently exceeds the current price and carrying costs, participants may be encouraged to store the commodity.

Backwardation

A market is commonly described as being in backwardation when nearer contracts trade above later-dated contracts.

Backwardation may reflect:

- Immediate scarcity
- Low accessible inventories
- Strong current demand
- Supply disruption

- A premium for obtaining the commodity now

It can encourage inventory holders to sell into the current market rather than continue storing.

The Curve Is a Balancing Mechanism

The curve helps move supply and demand through time.

Contango can reward storage.

Backwardation can reward inventory release.

The shape may therefore change even when the headline spot price moves little.

Seasonality

Some curves possess recurring seasonal shapes.

Natural gas demand may increase during heating or cooling seasons.

Agricultural prices reflect planting and harvest calendars.

Refined products may respond to driving seasons or refinery maintenance.

Seasonality must be distinguished from genuine structural tightness.

Basis

Basis is the difference between a local physical price and a related futures benchmark.

Basis risk can arise because the investor's actual commodity differs by:

- Location
- Quality
- Delivery date
- Transport
- Market convention

A hedge can succeed against the benchmark while failing to offset the investor's specific physical exposure.

7. HOW COMMODITY RETURNS ARE CREATED

Commodity investment returns depend on the exposure selected.

The return from physical ownership differs from the return on a futures position, a commodity fund or a producer's equity.

Spot-Price Movement

A physical commodity may produce a gain when its sale price exceeds:

- Purchase price
- Storage
- Insurance
- Financing
- Transportation
- Handling
- Taxes
- Transaction costs

Most individual investors do not directly store bulk energy, industrial or agricultural commodities because the operational burden is substantial.

Futures Return

A futures-based investment can receive return from several sources:

- Change in the futures price
- Movement as the contract approaches expiry
- Collateral return
- Currency movement
- Fees and transaction costs

A rising spot commodity price does not guarantee an equivalent return for a futures-based fund.

Roll Yield

A fund that maintains exposure must replace expiring contracts.

This process is known as rolling.

In contango, the fund may sell a cheaper near contract and purchase a more expensive later contract.

Repeated negative roll effects can erode returns.

In backwardation, the fund may sell a higher-priced near contract and purchase a lower-priced later contract.

This can support returns.

The actual outcome depends on the curve's movement, contract selection and timing.

Collateral Return

Futures require only a portion of the contract's notional value to be posted as margin.

The remaining collateral may earn interest.

That return can contribute meaningfully when cash rates are high.

Producer Equity Return

Commodity producers can generate returns through:

- Revenue growth
- Margin expansion
- Production growth
- Reserve development
- Dividends
- Buybacks
- Asset revaluation
- Improved capital allocation

They can also destroy value through:

- Cost overruns
- Debt
- Dilution
- Poor acquisitions
- Operational failure
- Political intervention
- Environmental liabilities
- Excessive expansion

Currency Return

Many commodities are priced internationally in US dollars.

A member's local-currency return may therefore differ from the quoted commodity return.

The investor should ask:

Which portion of the outcome comes from the commodity—and which comes from the currency?

Total Return Must Be Decomposed

CCI separates total return into its components.

For a futures-based exposure:

Total return ≈ Price movement + roll effect + collateral return + currency movement − fees and costs

For a producer:

Shareholder return ≈ Commodity exposure + operating performance + capital allocation + valuation change + distributions − financing and dilution

Without decomposition, the investor may own an exposure whose behaviour differs materially from the intended thesis.

8. QUALITY, LOCATION AND TIME

Commodity markets are defined by more than quantity.

Three additional dimensions are fundamental:

- Quality
- Location
- Time

Quality

Commodities trade according to specifications.

Relevant differences may include:

- Sulphur content in crude oil
- Energy content in natural gas or coal
- Protein content in wheat
- Moisture in grain
- Purity in metals
- Contaminants in concentrates
- Grade and form of refined products

A high headline inventory may provide limited relief when it does not meet the consumer's specification.

Location

A commodity in one place may not be economically equivalent to the same commodity elsewhere.

Location differences reflect:

- Transport costs
- Infrastructure
- Congestion
- Regulation
- Trade barriers
- Political risk
- Local supply and demand

Natural gas can trade at dramatically different regional prices when pipeline or liquefaction capacity is constrained.

Landlocked production can become discounted.

Port congestion can isolate supply from global demand.

Time

A commodity available next year cannot satisfy a shortage today.

Likewise, present abundance does not guarantee future availability.

Time matters because:

- Mines take years to develop
- Crops follow seasons
- Wells decline
- Maintenance interrupts supply
- Transport requires time
- Inventories bridge only finite periods
- Futures contracts specify delivery windows

Benchmark Prices

Common benchmarks provide useful reference points.

But the benchmark may not represent the precise commodity relevant to the producer or consumer.

Differences can arise through:

- Grade
- Geography
- Delivery
- Regulation
- Contract design
- Local market structure

The CCI Deliverability Question

CCI asks:

Is the commodity available in the right quality, at the right location, at the right time—and at what complete delivered cost?

A market can be balanced in aggregate and scarce in practice.

9. HOW INVESTORS GAIN COMMODITY EXPOSURE

There is no single commodity investment.

Each vehicle creates a different combination of market exposure, cost and risk.

Physical Ownership

Direct physical ownership may be practical for some compact, durable commodities.

It is generally impractical for bulk energy, agricultural and industrial commodities.

Physical ownership may require:

- Storage
- Insurance
- Transport
- Security
- Quality verification
- Maintenance
- Financing
- Disposal

For perishable or hazardous commodities, those requirements can become prohibitive.

Futures

Futures provide direct exposure to a specified commodity contract.

They can offer:

- Liquidity
- Price transparency
- Efficient hedging
- Tactical flexibility
- Exposure without long-term physical storage

They also introduce:

- Leverage
- Margin calls
- Expiry

- Rollover
- Basis risk
- Contract specifications
- Potential delivery obligations
- Forced liquidation

Options

Options provide the right—but not always the obligation—to buy or sell under specified terms.

They can create:

- Defined-risk exposure
- Hedging
- Convex payoff
- Tactical flexibility

Their value depends on:

- Price
- Time
- Volatility
- Strike
- Interest rates
- Curve structure

The investor can be correct about direction and still lose because the move was too small or too late.

Exchange-Traded Products

Exchange-traded products may gain exposure through:

- Futures
- Physical holdings
- Swaps
- Producer equities
- A commodity index

Research should establish:

- What the product owns
- Which contracts it uses
- How it rolls
- Whether it is leveraged
- Whether it concentrates in one maturity
- What fees apply
- How accurately it tracks the intended market

The product name may describe its marketing category more broadly than its economic exposure.

Commodity Indices

A commodity index may combine:

- Energy
- Metals
- Agriculture
- Livestock

Its behaviour can be dominated by the largest weights.

Two indices labelled *broad commodities* may produce materially different results because of:

- Sector weights
- Contract selection
- Roll methodology
- Rebalancing
- Currency
- Collateral treatment

Producer Equities

Shares in commodity producers offer ownership in businesses exposed to commodity markets.

Examples include:

- Energy producers
- Miners
- Agricultural businesses
- Fertiliser companies
- Processors
- Merchants
- Royalty companies

Their returns depend on company economics as well as commodity prices.

Royalty and Infrastructure Businesses

Some companies earn revenue from:

- Royalties
- Pipelines
- Storage
- Processing
- Transport
- Terminals

These may provide indirect exposure with different sensitivities.

A pipeline company, for example, may depend more on contracted volumes and financing than on the immediate direction of the commodity price.

Managed Strategies

Commodity trading strategies may use:

- Trend-following
- Relative value
- Curve positioning
- Seasonal spreads
- Arbitrage
- Options
- Active contract selection

Their returns depend on the strategy and execution—not simply on commodity prices rising.

The CCI Ownership Question

Before investing, ask:

Do I own the commodity, a futures exposure, an index methodology, a financial claim or a business operating within the commodity chain?

The answer determines what must be researched.

10. COMMODITIES ARE MARKETS OF CONSTRAINT

Commodity investing is the study of constraints.

The quantity of a financial claim may be expanded through issuance.

Physical supply must be produced, processed, transported and delivered.

Each stage faces limits.

Geological Constraints

A mineral deposit must possess sufficient:

- Grade
- Scale
- Metallurgy
- Accessibility
- Economic value

A resource in the ground is not equivalent to available supply.

Biological Constraints

Agriculture must operate within:

- Growing seasons
- Reproduction cycles
- Weather
- Soil
- Water
- Disease
- Yield

Biological time cannot be eliminated by financial demand.

Infrastructure Constraints

Supply may depend on:

- Pipelines
- Refineries

- Smelters
- Power
- Ports
- Rail
- Storage
- Processing plants

The commodity can exist while the system required to deliver it remains constrained.

Financial Constraints

New supply requires capital.

That capital may become unavailable because of:

- Low historical returns
- Weak balance sheets
- High interest rates
- Investor reluctance
- Regulation
- Political risk
- Project uncertainty

A high commodity price does not guarantee that capital will arrive on acceptable terms.

Political Constraints

Governments can influence commodity supply through:

- Taxes
- Royalties
- Export controls
- Sanctions
- Permitting
- Nationalisation
- Subsidies
- Strategic reserves
- Environmental policy
- Trade restrictions

Political intervention often increases when commodities become economically or strategically important.

Time Constraints

Time may be the most important constraint.

Demand can change faster than mines, pipelines, refineries, plantations or power systems can be built.

That mismatch creates price volatility.

Substitution and Demand Response

Constraints are not permanent.

High prices encourage:

- Substitution
- Recycling
- Efficiency
- Innovation
- New supply
- Reduced consumption
- Alternative technologies

The solution to high prices is often created by the high prices themselves.

The solution simply takes time.

The Foundational CCI Distinction

Before interpreting a commodity investment, identify which of three exposures you are considering:

1. **The physical commodity**
2. **A financial instrument linked to its price**
3. **A business operating within its production or supply chain**

They can respond to a common force.

They do not produce an identical outcome.

A PRINCIPLE TO CARRY INTO PART II

You now understand the physical foundations of commodity markets.

A commodity is a useful, standardisable physical input.

Its price must balance production, consumption and inventories across:

- Quality
- Location
- Time

The futures curve connects the present with expectations and storage economics.

The investment vehicle determines whether the member receives:

- Physical-price exposure
- Futures and roll exposure
- Corporate operating exposure
- Infrastructure exposure
- A managed trading strategy

And the commodity capital cycle ensures that today's scarcity can finance tomorrow's supply—while today's abundance can destroy the investment required for tomorrow.

To interpret commodities through the CCI framework, we must now ask:

How do liquidity, growth, credit, inflation, currencies, geopolitics, inventories and the capital cycle interact to create commodity opportunity, excess, scarcity and renewal?

That is the work of **Part II — How CCI Interprets Commodities**.

COMMODITIES

PART II

HOW CCI INTERPRETS COMMODITIES

A framework for understanding how liquidity, growth, credit, inflation, currencies, geopolitics, inventories and the capital cycle shape commodity markets.

HOW CCI INTERPRETS COMMODITIES

They tell producers when the market may require more supply.

They tell consumers when a resource is becoming scarce.

They encourage inventories to be accumulated or released.

They redirect trade.

They reward substitution.

They ration demand.

And, over time, they influence where capital is invested—or withdrawn.

But a price movement does not explain itself.

Oil can rise because demand is strengthening.

It can also rise because supply has been disrupted.

Copper can appreciate because construction and manufacturing are expanding.

It can also rise because mines, smelters or transport networks cannot satisfy existing demand.

Grain prices can climb despite weak economic growth when drought damages harvests.

Natural gas can collapse in one region while remaining scarce in another because the infrastructure required to move it does not exist.

These are very different investment environments.

At CCI, we do not begin with broad assumptions such as:

- Commodities rise when inflation rises.
- A growing economy is always bullish for commodities.
- Low inventories guarantee higher prices.
- A supply deficit guarantees scarcity.
- The energy transition guarantees demand for every associated material.
- Commodity producers automatically benefit from rising prices.

Each statement contains a fragment of truth.

None provides a complete framework.

We begin with the system.

We examine:

- Liquidity
- Growth
- Credit
- Inflation
- Currencies
- Physical supply and demand
- Inventories
- Spare capacity
- Futures curves
- Geopolitics
- Policy
- Technology
- Positioning
- The capital cycle

We then ask which force is dominant, which is changing and which commodity—or related investment—is most directly exposed to it.

11. LIQUIDITY, GROWTH AND CREDIT

Commodities sit directly within CCI's Three-Pillar framework.

Each pillar affects both physical activity and financial participation.

Liquidity

Liquidity describes the capacity and willingness of capital to move through the financial system.

Improving liquidity can:

- Lower financing costs
- Support economic activity
- Encourage inventory accumulation
- Increase speculative participation
- Strengthen risk appetite
- Improve access to project finance
- Support emerging-market demand
- Weaken the currency in which commodities are priced

Tightening liquidity can:

- Increase financing costs
- Reduce inventory ownership
- Force leveraged positions to close
- Delay industrial investment
- Restrict producer funding
- Strengthen demand for cash
- Pressure commodity-sensitive economies

The effect is not always immediate.

A commodity market may remain physically tight while financial liquidity is deteriorating.

Likewise, improving liquidity may lift futures prices before physical demand has recovered.

Inventory Financing

Inventories consume capital.

The holder may face:

- Purchase cost
- Interest expense
- Storage
- Insurance

- Transport
- Deterioration
- Price risk

When credit is inexpensive and the futures curve rewards storage, holding inventory may be attractive.

When financing costs rise or the market rewards immediate sale, inventories may be released.

Liquidity therefore influences not only financial positioning but the physical balance itself.

Growth

Economic growth affects commodity demand through:

- Construction
- Manufacturing
- Transport
- Electricity generation
- Household consumption
- Infrastructure
- Agricultural demand
- Business investment

But the relationship differs by commodity.

Industrial metals may respond strongly to construction and manufacturing.

Oil demand may reflect transport, petrochemicals and broader activity.

Natural gas may depend on electricity generation, industry and weather.

Agricultural demand may be less economically sensitive for staple foods but more sensitive through meat consumption, feed use and biofuels.

Growth must be translated into the specific units of demand relevant to the commodity.

Credit

Credit finances:

- Housing
- Infrastructure
- Manufacturing
- Vehicles
- Trade
- Inventories
- Production
- Commodity projects

Credit expansion can support current demand while financing future supply.

That dual role is crucial.

At first, easier credit may strengthen commodity prices through economic activity.

Later, the production capacity financed during the expansion may create excess.

Credit contraction can reverse the sequence:

1. Financing conditions tighten.
2. Inventories are reduced.
3. Construction and investment weaken.
4. Commodity demand slows.
5. Marginal producers lose access to capital.
6. Projects are deferred or cancelled.
7. Future supply growth declines.
8. Scarcity can eventually re-emerge.

Divergence Between the Pillars

Liquidity, growth and credit do not always move together.

Examples include:

- Liquidity improves while growth remains weak.
- Growth remains resilient while credit conditions tighten.
- Credit expands domestically while global dollar liquidity contracts.
- Government-directed credit supports infrastructure while private demand deteriorates.
- Financial liquidity rises while physical commodity markets remain oversupplied.

Divergence can create false signals.

A broad commodity rally driven by liquidity may not yet possess physical confirmation.

A falling commodity price during tight credit may conceal the destruction of future supply.

The CCI Three-Pillar Question

CCI asks:

- Which pillar is driving the market?
- Which pillar is changing?
- Is the effect financial, physical or both?
- Does the commodity respond immediately or with a lag?
- Is current weakness reducing future supply?
- Is current strength financing future excess?

The same pillar can support the price today while weakening prospective returns tomorrow.

12. INFLATION AND THE COMMODITY SYSTEM

Commodities are frequently described as inflation hedges.

That description is useful only when carefully defined.

Commodities Can Cause Inflation

Rising commodity prices can increase:

- Transport costs
- Electricity prices
- Heating costs
- Food prices
- Manufacturing costs
- Construction costs
- Agricultural inputs

These increases can flow through supply chains and affect consumer prices.

The transmission depends on:

- The commodity's economic importance
- The size and duration of the price change
- Business margins
- Contracts
- Government subsidies
- Taxes
- Currency movements
- Consumer demand
- Monetary and fiscal policy

A short commodity spike may produce a temporary inflation impulse.

A sustained and broad increase can become more deeply embedded.

Commodities Can Reflect Inflation

Commodity prices may rise because:

- Demand is exceeding capacity
- Currency purchasing power is declining

- Production costs are increasing
- Inventories are being accumulated
- Investors seek real-asset exposure
- Fiscal or monetary policy is supporting nominal demand

In these cases, commodities are not merely causing inflation.

They are reflecting the same forces producing it.

Inflation Can Hurt Commodity Demand

Inflation is not automatically favourable.

High commodity prices can reduce real household income and corporate margins.

Central banks may respond with tighter policy.

Credit may contract.

Economic activity may weaken.

Demand destruction can follow.

The commodity that initiated the inflationary pressure may later decline as the system adjusts.

Expected and Unexpected Inflation

Investment returns depend partly on what was already priced.

If markets expected a severe supply shortage and the outcome is merely tight, prices may fall despite apparently supportive conditions.

If inflation is lower than its eventual peak but more persistent than expected, commodity prices may strengthen.

The relevant question is not:

Is inflation high?

It is:

How does the inflation outcome differ from the expectations reflected in price, positioning and policy?

Demand-Led Inflation

Inflation driven by strong demand may support a broad range of commodities.

Characteristics may include:

- Expanding production
- Rising employment

- Strong credit
- Increasing construction
- Greater transport activity
- Falling inventories

Industrial metals and energy may possess favourable habitats.

Producers may benefit if selling prices rise faster than costs.

Supply-Led Inflation

Inflation caused by supply disruption creates a more complicated environment.

Examples include:

- War
- Sanctions
- Drought
- Export restrictions
- Mine closures
- Transport disruption
- Energy shortages

The affected commodity may rise sharply.

But the broader economy may weaken because consumers and businesses face higher costs.

One commodity can thrive while the overall commodity complex diverges.

Inflation and Policy Are Not Separate Pillars

The economic consequence of commodity inflation depends on the response.

Policy may:

- Tighten demand
- Release strategic inventories
- Subsidise consumers
- Restrict exports
- Cap prices
- Increase taxes
- Accelerate permitting
- Support alternative supply
- Encourage substitution

These responses can change both the current price and the next capital cycle.

The CCI Inflation Question

CCI asks:

- Is the commodity causing inflation or responding to it?

- Is the pressure demand-led or supply-led?
- Is it broad or commodity-specific?
- Is it expected or surprising?
- How are policy and consumers responding?
- Is demand being destroyed?
- Is the high price financing future supply?
- What has the market already discounted?

Commodities can provide inflation sensitivity.

They do not provide automatic protection against every form of inflation.

13. CURRENCIES AND GLOBAL PRICING

Many internationally traded commodities are quoted in US dollars.

But production costs, consumer incomes and investor returns occur across many currencies.

The Denominator Matters

A commodity can rise in Australian dollars while remaining unchanged in US dollars.

It can decline in dollars while appreciating in the currency of a country experiencing severe depreciation.

The member must always ask:

Return measured in which currency?

The US Dollar

A stronger US dollar may create pressure for commodity prices because:

- Commodities become more expensive in other currencies
- Global financial conditions may tighten
- Dollar-denominated debt becomes more burdensome
- Emerging-market demand may weaken
- Investors may prefer dollar assets

A weaker dollar may support commodity prices through the reverse channels.

But the relationship is not mechanical.

Cause Matters

The dollar may rise because:

- US growth is stronger
- US interest rates are higher
- Global investors require liquidity
- Financial stress is increasing
- Growth elsewhere is weakening

Those causes carry different implications.

A stronger dollar caused by robust US demand may coexist with firm commodity consumption.

A stronger dollar caused by global crisis may accompany collapsing demand and forced liquidation.

Producer Currencies

Commodity producers often incur costs in local currency while receiving revenue in US dollars.

When the producer's currency weakens:

- Dollar revenue may translate into more local currency
- Local operating costs may become cheaper in dollar terms
- Producer margins may receive support
- New supply may remain viable at lower dollar prices

This can delay the supply response expected from falling commodity prices.

A strengthening producer currency can have the opposite effect.

Consumer Currencies

A weakening consumer currency raises the local cost of imported commodities.

That can:

- Reduce demand
- Increase inflation
- Worsen trade balances
- Encourage substitution
- Prompt government intervention

The global benchmark price may remain stable while local users experience a severe price shock.

Currency and Sovereign Revenue

Commodity-exporting countries may rely on resource revenue to support:

- Government budgets
- Foreign-exchange reserves
- Employment
- Imports
- Debt service
- Social expenditure

Falling commodity prices can weaken the currency and fiscal position.

Currency weakness may then support local producer economics while increasing national financial stress.

The CCI Currency Question

CCI asks:

- In which currency is the commodity quoted?
- In which currency are production costs incurred?
- In which currency do consumers earn?
- In which currency does the member measure wealth?
- Why is the dollar moving?
- Is currency movement reinforcing or offsetting the physical thesis?
- Is the currency exposure intentional?

Currency is not an afterthought.

It forms part of the commodity system.

14. INVENTORIES, SPARE CAPACITY AND THE MARGIN OF SAFETY

Commodity markets are most vulnerable when their buffers are small.

The principal buffers include:

- Inventories
- Spare production capacity
- Substitution
- Demand flexibility
- Alternative trade routes

Inventory as Time

Inventory provides time for the system to respond.

It allows consumption to continue while:

- Production recovers
- New supply arrives
- Transport routes change
- Demand adjusts
- Policy responds

The smaller the usable inventory, the less time remains.

Inventory Quality Matters

The headline quantity may overstate the true buffer.

Inventory may be:

- In the wrong location
- Of unsuitable quality
- Contractually committed
- Inaccessible
- Strategically unavailable
- Expensive to transport
- Held outside reliable reporting systems

CCI focuses on *available* inventory rather than inventory in the abstract.

Seasonal Comparison

Many inventories follow seasonal patterns.

Grain stocks change around harvest.

Natural gas inventories build and draw with heating and cooling demand.

Petroleum products respond to driving seasons and refinery maintenance.

Current inventories should therefore be compared with:

- Normal seasonal patterns
- Prior years
- Consumption
- Import requirements
- Processing capacity

A decline can be ordinary.

A build can still leave the market tight.

Spare Capacity

Spare capacity is production that can be brought into the market within a relevant timeframe.

It must be:

- Technically available
- Commercially viable
- Politically willing
- Logistically deliverable
- Of usable quality

Announced capacity is not always effective capacity.

Concentration of Spare Capacity

A market may appear protected by spare capacity while that capacity is controlled by:

- One country
- One producer group
- One processing region
- One transportation route

The quantity and ownership of the buffer both matter.

Demand Flexibility

Demand response can also provide a margin of safety.

Consumers may:

- Substitute another material
- Reduce usage
- Delay activity
- Improve efficiency
- Change technology
- Draw their own inventories

But adaptation takes time.

The shorter the timeframe and more essential the use, the less responsive demand may be.

Inventory Signals Can Be Misread

A draw may reflect:

- Strong consumption
- Import delays
- Seasonal patterns
- Reduced production
- Strategic release elsewhere
- Changes in reporting

A build may reflect:

- Weak demand
- Higher production
- Preparations for disruption
- Attractive storage economics
- Trade rerouting

Data must be interpreted within the system.

Price Response Is Evidence

A market that fails to rally on seemingly bullish inventory news may already have priced the development.

A market that rises despite apparently comfortable inventory may be anticipating future deterioration or questioning the data's usefulness.

CCI observes not only the information.

We observe how the market responds to it.

The CCI Buffer Principle

Inventories and spare capacity determine how much surprise a commodity system can absorb before price must ration demand or attract supply.

A market without buffers does not require a large shock.

It requires only a small disappointment.

15. GEOPOLITICS, POLICY AND RESOURCE SECURITY

Commodities are physical, strategic and geographically uneven.

That makes them inseparable from politics.

Geographic Concentration

Production or processing may be concentrated because of:

- Geology
- Climate
- Infrastructure
- Historical investment
- Energy availability
- Labour
- Regulation
- Industrial policy

Concentration can create efficiency.

It can also create vulnerability.

Producer Power

When supply is concentrated, producers may possess greater influence over:

- Output
- Exports
- Contract terms
- Taxes
- Royalties
- Domestic processing
- Foreign ownership

Producer coordination can affect availability.

Its effectiveness depends on:

- Compliance
- Spare capacity
- Market share

- Fiscal needs
- Competition
- Demand
- Alternative supply

Sanctions and Export Controls

Sanctions or export restrictions can:

- Remove supply from some markets
- Redirect flows elsewhere
- Increase transport distances
- Raise insurance and financing costs
- Create regional price differences
- Accelerate alternative supply chains

The commodity may continue to trade.

The path between producer and consumer becomes longer, less transparent or more expensive.

Resource Nationalism

When commodity prices rise, governments may seek a larger share through:

- Taxes
- Royalties
- Ownership requirements
- Export duties
- Contract renegotiation
- Nationalisation
- Domestic-processing rules

These actions can increase government revenue.

They can also discourage investment and constrain future supply.

Consumer Intervention

Governments may respond to high prices through:

- Subsidies
- Price caps
- Export bans
- Import support
- Strategic-reserve releases
- Tax reductions
- Rationing
- Windfall taxes
- Anti-speculation rules

Intervention can soften near-term consumer pain while creating unintended consequences.

A price cap may preserve demand while weakening the incentive to produce additional supply.

Strategic Stockpiles

Governments may hold reserves for:

- Energy security
- Food security
- Defence
- Industrial resilience
- Emergency response

A release can temporarily increase supply.

It does not create permanent production.

A program to rebuild reserves can later become an additional source of demand.

Trade Routes and Chokepoints

Commodity systems depend on:

- Straits
- Canals
- Ports
- Pipelines
- Rail corridors
- Electricity interconnections

Disruption may affect:

- Delivery time
- Freight
- Insurance
- Regional availability
- Refining
- Inventory requirements

The market's sensitivity depends on available alternatives and the time required to use them.

Resource Security

Governments and businesses increasingly evaluate not only the lowest-cost supply but the reliability of supply.

This may encourage:

- Diversification
- Domestic production

- Strategic inventories
- Long-term contracts
- Friend-shoring
- Recycling
- Substitution
- Redundant infrastructure

Resilience often costs more than efficiency.

That cost can support higher investment while altering trade and capital flows.

The CCI Geopolitical Question

CCI asks:

- Where is production concentrated?
- Where is processing concentrated?
- Which routes connect supply with demand?
- Who controls spare capacity?
- What political incentives influence production?
- Can flows be redirected?
- At what cost and over what timeframe?
- Will policy solve the shortage or discourage future supply?

Geopolitics matters most when it meets a physically constrained market.

16. TECHNOLOGY, SUBSTITUTION AND DEMAND TRANSFORMATION

Commodity demand changes as technology changes how economies produce, move, communicate and consume.

Technology Creates Demand

New technologies may require additional:

- Electricity
- Copper
- Aluminium
- Lithium
- Nickel
- Graphite
- Uranium
- Natural gas
- Specialised materials

But a compelling technology narrative does not automatically create an attractive commodity investment.

Translate the Narrative Into Units

CCI asks:

- How many units of the technology will be deployed?
- How much commodity is required per unit?
- Is intensity increasing or decreasing?
- What is the adoption timeframe?
- What competing technology exists?
- How much demand is already reflected in forecasts?
- Can supply respond before demand arrives?

The investable question is not whether an industry will grow.

It is whether the resulting commodity demand will exceed available supply at the prevailing price.

Substitution

High prices encourage users to seek alternatives.

Substitution may occur through:

- Different materials
- Product redesign
- Lower commodity intensity
- Alternative energy
- Changed manufacturing processes
- Recycling
- Reduced consumption

Substitution can be slow when safety, reliability and regulation require extensive testing.

Once adopted, it may alter demand structurally.

Efficiency

Economic growth does not always translate proportionately into commodity demand.

Efficiency can reduce the amount required per unit of output.

Examples include:

- Lighter products
- More efficient engines
- Improved building design
- Reduced material waste
- Better crop yields
- Energy-efficient equipment

Growth in the end market must be adjusted for intensity.

Technology Also Changes Supply

Technology can increase supply through:

- Better exploration
- Improved drilling
- Automation
- Enhanced recovery
- Advanced processing
- Agricultural genetics
- Precision farming
- Improved recycling
- Alternative transport

A resource once considered uneconomic can become viable.

Technological improvement can convert scarcity into abundance.

Rebound Effects

Efficiency does not always reduce total consumption.

Lower cost per unit may encourage greater total use.

This is why demand analysis must consider both:

- Intensity per unit
- Total number of units consumed

Timing Mismatch

Demand narratives often focus on the destination.

Investment returns depend on the path.

A commodity can experience:

- Early enthusiasm
- Project over investment
- Delayed adoption
- Temporary oversupply
- Producer failures
- Eventual shortage

The final technology may succeed while early commodity investors lose money.

The CCI Technology Principle

Translate every structural story into tonnes, barrels, bushels, kilowatt-hours, timelines and prices.

Narrative becomes investable only when it changes the physical balance.

17. THE CAPITAL CYCLE IN COMMODITIES

The capital cycle is the central organising mechanism of commodity markets.

It explains how opportunity attracts investment, how investment creates capacity, how capacity creates excess and how poor returns eventually restore discipline.

Opportunity

Opportunity may emerge when:

- Prices have remained low
- Producer returns are poor
- Capital expenditure has fallen
- Exploration or drilling has declined
- Inventories are being drawn down
- Capacity is aging
- Projects have been cancelled
- Investor interest is limited
- Demand is stabilising
- Producers have repaired balance sheets

The future can improve while the present still appears unattractive.

Scarcity

Scarcity develops when demand approaches or exceeds the system's ability to respond.

It may appear through:

- Falling inventories
- Limited spare capacity
- Processing bottlenecks
- Declining grades
- Project delays
- Weather
- Depletion
- Underinvestment
- Trade restrictions

Scarcity can initially remain hidden because inventories absorb the imbalance.

Once buffers become insufficient, prices may need to rise sharply.

High Prices Attract Capital

Improving returns can encourage:

- Exploration
- Drilling
- New mines
- Expanded acreage
- Processing capacity
- Infrastructure
- Acquisitions
- Producer equity issuance
- Debt financing

Capital begins solving the shortage.

But the solution takes time.

Cost Inflation

When many producers expand simultaneously, they compete for:

- Labour
- Equipment
- Energy
- Engineering
- Transport
- Services
- Permits

Costs rise.

A higher commodity price does not necessarily create proportionately higher producer returns.

Excess

Excess develops when capital becomes too abundant or demand disappoints.

It may appear through:

- Excess capacity
- High inventories
- Marginal projects
- Aggressive acquisitions
- Excessive leverage
- Weak underwriting
- Overly optimistic demand forecasts
- Industry-wide cost inflation

The assets financed near the top of the cycle may begin production after the market has already changed.

Contraction

As prices and returns fall:

- Investment declines
- Projects are cancelled
- Exploration is reduced
- Marginal capacity closes
- Producers restructure
- Balance sheets weaken
- Investors withdraw
- Consolidation increases

The contraction destroys current returns.

It also begins repairing future supply conditions.

Renewal

Renewal emerges when:

- Weak capacity exits
- Inventories normalise
- Capital discipline improves
- Costs decline
- Assets change hands
- Debt is reduced
- Demand begins to absorb supply
- New investment requires higher expected returns

The best prospective returns may appear before the industry's reported earnings fully recover.

Capital-Cycle Timing

The cycle differs by commodity.

Short-cycle supply may respond within months.

Long-cycle mines, processing plants and infrastructure may require many years.

Agriculture may respond within the next season—but weather, soil and biological limits can intervene.

The longer the response time, the greater the potential mismatch between price signals and physical supply.

Capital Is Not Supply

An announced investment does not guarantee production.

Projects may fail because of:

- Cost
- Financing
- Permitting
- Geology
- Technology
- Community opposition
- Infrastructure
- Politics
- Management

CCI distinguishes:

Capital committed → Capacity constructed → Commercial production → Deliverable supply

Each transition requires evidence.

The CCI Capital-Cycle Principle

Low prices do not merely describe abundance. If sustained, they can create future scarcity. High prices do not merely describe scarcity. If sustained, they can finance future excess.

The investor must determine where the market sits between those two outcomes.

18. NATURAL HABITATS ACROSS MARKET REGIMES

Commodities do not possess one natural habitat.

Different markets respond to different combinations of liquidity, growth, credit, inflation and physical balance.

Improving Liquidity and Accelerating Growth

This environment can support broad commodity demand through:

- Manufacturing
- Construction
- Transport
- Inventory restocking
- Improving risk appetite
- Easier financing

Industrial metals and energy may benefit.

Producer equities may perform strongly when revenues rise faster than costs.

Agricultural outcomes remain heavily influenced by weather and supply.

Improving Liquidity and Weak Growth

Financial commodity prices may recover before physical demand.

Gold may respond differently from industrial commodities.

Energy and metals may require confirmation through:

- Inventory draws
- Higher utilisation
- Improved orders
- Stronger imports
- Better credit transmission

This environment can produce a liquidity-driven rally vulnerable to disappointing physical evidence.

Strong Growth and Tightening Liquidity

Physical demand may remain resilient while financing conditions deteriorate.

Commodity prices can initially stay firm because inventories are low.

Eventually:

- Inventory financing becomes expensive
- Construction slows
- Credit-sensitive demand weakens
- Leveraged positions contract

The lag between financial tightening and physical demand can create false confidence.

Inflationary Expansion

When demand exceeds available capacity:

- Inventories fall
- Commodity prices rise
- Producer margins may expand
- Capital expenditure increases
- Policy begins to tighten

Energy and industrial commodities may possess a favourable habitat.

The opportunity deteriorates as:

- Positioning becomes crowded
- Costs increase
- Demand destruction begins
- New supply is financed

Supply Shock

A supply shock can create sharp gains in the affected commodity.

But it can simultaneously weaken the broader economy through:

- Lower real income
- Higher business costs
- Tighter policy
- Reduced consumption

The correct exposure may be narrow rather than a broad commodity basket.

Stagflation

Stagflation combines weak growth with persistent inflation.

Commodities responsible for the inflation may perform well initially.

Other commodities may suffer from weakening demand.

Producer equities may face:

- Higher selling prices
- Higher operating costs
- Political intervention
- Higher interest rates
- Reduced valuation multiples

The commodity can outperform the company.

Disinflationary Growth

Falling inflation accompanied by stable growth may support consumption while easing cost pressure.

Some producer margins may improve.

But commodity prices may weaken if:

- Supply expands
- Inventories rebuild
- Currency conditions tighten
- Inflation premiums disappear

The outcome depends on whether disinflation comes from improved supply or weaker demand.

Recession and Deflationary Pressure

During contraction:

- Demand falls
- Inventories rise
- Credit tightens
- Producers reduce investment
- Commodity prices weaken
- Marginal capacity closes

This is generally a difficult current environment.

It may create attractive future capital-cycle conditions.

Early Recovery

As policy eases and activity stabilises:

- Inventories stop building
- Demand expectations improve
- Restocking begins
- Producer financing returns
- Prices recover before reported fundamentals appear strong

Commodity markets can turn before economic data confirm the recovery.

Geopolitical Fragmentation

Fragmentation may support commodities affected by:

- Supply concentration
- Sanctions
- Trade restrictions
- Strategic stockpiling
- Defence demand
- Duplicated infrastructure

But slower global growth and reduced trade efficiency may weaken other demand.

The Initiating Shock Matters

A commodity rally caused by demand growth differs from one caused by lost supply.

An inventory draw caused by strong consumption differs from one caused by production failure.

A rising futures price caused by immediate scarcity differs from one caused by easier financial conditions.

CCI interprets the cause before extrapolating the outcome.

19. VALUING COMMODITIES AND READING EXPECTATIONS

Commodities do not generate conventional cash flows.

This changes the valuation process.

It does not eliminate valuation discipline.

No Single Intrinsic-Value Formula

A bond can be evaluated against contractual payments.

An equity can be evaluated against prospective cash flows.

A physical commodity produces utility but no distributable cash flow merely through ownership.

Its price is shaped by the interaction of:

- Current availability
- Expected availability
- Demand
- Inventories
- Storage
- Financing
- Substitution
- Production economics
- Policy
- Positioning

No single measure establishes fair value.

The Cost Curve

A cost curve ranks production according to cost.

It may help identify:

- Marginal supply
- Producer competitiveness
- Potential closures
- Incentive prices
- Industry profitability

But the cost curve is not a hard price floor.

Prices may fall below marginal production costs while producers:

- Continue operating for cash
- Meet debt obligations
- Complete existing contracts
- Benefit from currency weakness
- Reduce costs
- Delay closure

Costs also change with:

- Energy
- Labour
- Grade
- Currency
- Technology
- Taxes
- Production volume

Incentive Price

The incentive price is the commodity price required to justify investment in new supply.

It may incorporate:

- Construction cost
- Operating cost
- Financing
- Taxes
- Required return
- Development risk
- Time
- Political uncertainty

A market can trade below incentive price for years if existing production and inventories remain sufficient.

The incentive price becomes most relevant when the system genuinely requires new capacity.

Inventory Valuation

Commodity prices may be interpreted relative to:

- Inventory levels
- Stock-to-use ratios
- Days of supply
- Seasonal norms
- Spare capacity

Low inventories can support a scarcity premium.

But a low inventory measure may already be fully reflected in price.

Curve Structure

The forward curve reveals information about current scarcity, carrying costs and expected future conditions.

CCI examines:

- Contango
- Backwardation
- Calendar spreads
- Seasonal patterns
- Changes across maturities

A tightening near-term spread can provide evidence that the physical market is strengthening.

The signal must be interpreted alongside inventories and logistics.

Relative Value

A commodity may be compared with:

- Its own real price history
- Related commodities
- Substitutes
- Producer equities
- Production costs
- End-product economics

Examples include:

- One energy source relative to another
- One feed grain relative to another
- Primary metal relative to scrap
- Commodity price relative to producer share prices

Relative cheapness does not guarantee convergence.

Structural differences may justify the gap.

Positioning

A strong physical thesis may produce a poor entry when the market is crowded.

CCI examines:

- Futures positioning
- Fund flows

- Options
- Producer hedging
- Consumer hedging
- Open interest
- Price response to news

Crowded positioning does not invalidate the thesis.

It changes the margin for disappointment.

Scenario Analysis

CCI develops multiple scenarios.

Base Case

What outcome is supported by the most probable combination of demand, supply, inventories, policy and capital-cycle conditions?

Bull Case

What would need to occur for scarcity to exceed expectations?

Possible drivers include:

- Stronger demand
- Lower production
- Delayed projects
- Transport disruption
- Lower recycling
- Policy constraint
- Faster inventory depletion

Bear Case

What would happen if:

- Growth slowed?
- Supply exceeded expectations?
- Inventories rebuilt?
- Substitution accelerated?
- The currency strengthened?
- Policy reduced demand?
- Positioning reversed?
- New capacity arrived sooner?

Stress Case

Could the exposure survive:

- Extreme volatility?

- Market closure?
- Margin calls?
- Government intervention?
- Liquidity loss?
- Counterparty failure?
- Forced sale?

Expectations Embedded in Price

The commodity may appear fundamentally attractive while the price already assumes:

- Persistent scarcity
- Perfect demand growth
- No substitution
- Project delays
- Supportive policy
- Continued investor inflows

The key question is:

What must occur for the investment to outperform the expectations already reflected in its price?

Valuation is not a precise answer.

It is the discipline of understanding what the price requires.

20. THE CCI VIEW OF COMMODITIES

CCI approaches commodities as physical markets governed by constraints, incentives, inventories and time.

Our institutional view rests on the following principles.

1. Begin With the Commodity

Oil, natural gas, copper, wheat and cattle are different systems.

Identify the commodity before applying the narrative.

2. Then Identify the Exposure

Physical ownership, futures, an index, a fund and a producer's equity create different returns and risks.

Know what you own.

3. Physical Balance Comes First

Financial flows can move prices.

Over time, production, consumption, inventories and deliverability determine whether the move can endure.

4. Quality, Location and Time Define Availability

A commodity is not useful merely because it exists somewhere.

It must reach the buyer in the required form and timeframe.

5. Inventories Are Time

They allow the market to absorb an imbalance while supply, demand and logistics adjust.

Low usable inventories reduce the time available.

6. Spare Capacity Is Insurance

Its value depends on whether it is real, accessible, deliverable and politically available.

Announced capacity should not be confused with effective capacity.

7. Price Is a Balancing Mechanism

Price attracts supply, releases inventory, redirects trade, encourages substitution and destroys demand.

Extreme prices often contain the seeds of their own reversal.

8. The Marginal Unit Sets the Clearing Price

A small change in demand can create a large price move when it requires much more expensive supply.

The reverse can occur when that marginal unit is no longer needed.

9. Supply Response Must Be Measured in Time

A crop, oil well, mine, refinery and pipeline respond across different horizons.

The length of the lag shapes the cycle.

10. A Deficit Is Not Automatically a Shortage

Inventories and spare capacity may absorb it.

The size, duration and accessibility of the buffer matter.

11. A Surplus Is Not Automatically Abundance

The reported supply may be of the wrong quality, in the wrong place or unavailable to the buyer.

Deliverability matters.

12. The Futures Curve Is Part of the Market

It helps move supply and demand through time.

It also shapes the return earned by futures-based investors.

13. Spot Return Is Not Investment Return

Roll effects, collateral, currency, fees and vehicle structure can materially change the outcome.

14. Inflation Is Not a Standalone Thesis

Commodities can cause, reflect or eventually be damaged by inflation.

The source, policy response and starting price determine the result.

15. Currency Is Part of the Exposure

The pricing currency, producer currency, consumer currency and member's unit of account may all differ.

16. Geopolitics Matters Most When Buffers Are Thin

A disruption has greater impact when inventories, spare capacity and alternative routes are limited.

17. Policy Changes Incentives

Subsidies, taxes, export controls and price caps can alter demand today while reshaping future supply.

18. Structural Demand Must Be Converted Into Units

Translate every narrative into physical quantity, intensity, timeframe and price.

Growth in an industry does not automatically create scarcity in its inputs.

19. Substitution Is Part of the Cure

High prices encourage consumers and engineers to find alternatives.

The response may be slow—but it can become permanent.

20. Technology Works on Both Sides

It can create new demand and unlock new supply.

Analyse the complete balance.

21. Capital Committed Is Not Supply Delivered

Projects can be delayed, diluted, cancelled or rendered uneconomic.

Follow evidence through every stage.

22. High Prices Finance Future Competition

Strong returns attract capital, expand capacity and encourage substitution.

Today's shortage can become tomorrow's excess.

23. Low Prices Destroy Future Supply

Weak returns reduce investment, close capacity and restore discipline.

Today's abundance can become tomorrow's scarcity.

24. A Bull Market in the Commodity Does Not Guarantee a Bull Market in Producers

Costs, debt, dilution, regulation and poor capital allocation can absorb the benefit.

The business must be researched independently.

25. Producer Equities Are Businesses Before They Are Proxies

Management, assets, balance sheets and per-share value matter.

Commodity exposure does not excuse poor corporate economics.

26. The Starting Price Determines the Opportunity

A vital commodity can be a poor investment when scarcity is over-discounted.

An oversupplied commodity can become attractive when capital destruction creates future change.

27. Positioning Changes the Path

Crowded markets can move further while becoming increasingly vulnerable.

Fundamentals and positioning must be examined together.

28. Sequence Matters

A liquidity contraction can weaken commodities before supply investment declines.

An easing cycle can lift prices before physical demand recovers.

The same force can create different outcomes at different stages.

29. Diversification Is Conditional

Broad commodity indices may be concentrated in particular sectors, contracts or drivers.

Understand what actually creates the diversification.

30. The Portfolio Role Comes Before the Product

Determine what the capital must do before selecting the commodity, vehicle or allocation.

A PRINCIPLE TO CARRY INTO PART III

Commodities are essential.

That does not make every commodity exposure investable.

A physically tight market can be accompanied by an unattractive futures curve.

A compelling structural demand story can already be reflected in price.

A rising commodity can coexist with a poorly managed producer.

A diversified commodity fund can be dominated by energy, methodology or roll effects.

And a correct long-term thesis can fail as an investment when leverage, timing or position size forces the member out before the cycle matures.

The member must still determine:

- What role the allocation will perform
- Which commodity expresses that role
- Which vehicle provides the appropriate exposure
- How the futures curve affects prospective return
- What evidence confirms the physical thesis
- What risks the exposure adds
- What existing risks it duplicates
- What would invalidate the thesis
- How much capital the opportunity deserves
- How the position will be monitored and eventually exited

The next question is therefore:

How should a CCI member research, select, size and monitor a commodity exposure within a real portfolio?

That is the work of **Part III — Researching and Applying Commodities**.

COMMODITIES

PART III

RESEARCHING AND APPLYING COMMODITIES

A CCI framework for defining the portfolio role, identifying the physical opportunity and selecting an exposure whose risks match the member's purpose.

RESEARCHING AND APPLYING COMMODITIES

Commodity investing begins with a physical market.

It ends with a portfolio decision.

Between those points, the member must connect:

1. **Purpose** — What is this capital required to do?
2. **Commodity** — Which market best expresses that purpose?
3. **Balance** — What is changing across supply, demand and inventories?
4. **Cycle** — Is capital creating scarcity, recovery or future excess?
5. **Vehicle** — What exposure will the member actually own?
6. **Valuation** — What expectations are already reflected in price?
7. **Allocation** — How much risk should the position contribute?

A sound physical thesis can become a poor investment through the wrong vehicle.

A commodity can rise while a futures-based fund underperforms because of its rolling methodology.

A producer can disappoint despite favourable commodity prices because costs, debt or poor capital allocation absorb the benefit.

A long-term shortage can be real while the current price already discounts an even more severe outcome.

And a correct thesis can fail inside a portfolio if leverage, illiquidity or excessive position size forces the member to exit before the cycle matures.

The objective is not simply to obtain commodity exposure.

It is to construct the right exposure, at the right price, in the right proportion, for a clearly defined portfolio purpose.

21. POTENTIAL PORTFOLIO ROLES

A commodity allocation should possess a specific role.

Without one, the member cannot determine:

- Which commodity belongs
- Which vehicle is appropriate
- How much capital to allocate
- What evidence to monitor
- When the position should be reduced or sold

Inflation Sensitivity

Commodities may provide sensitivity to rising input prices because they often sit near the beginning of the inflation process.

This role requires qualification.

Commodity performance depends on:

- The cause of inflation
- The breadth of the price pressure
- Physical market conditions
- Currency movements
- Monetary and fiscal policy
- Futures-curve structure
- Starting valuation
- Investment vehicle

A commodity allocation should therefore be described as possessing potential inflation sensitivity—not as guaranteed protection against every inflationary environment.

Diversification

Commodity prices may respond to forces that affect equities and bonds differently, including:

- Weather
- Supply disruption
- Inventory scarcity
- Geopolitical conflict
- Infrastructure failure
- Biological cycles

This can create diversification.

But diversification is conditional.

A broad commodity index may be dominated by energy.

A producer's equity may behave more like the wider share market than the physical commodity.

During a liquidity crisis, commodities may fall alongside other risk assets.

The member should identify which portfolio vulnerability the allocation is expected to diversify.

Exposure to Global Growth

Industrial metals and energy can provide exposure to:

- Manufacturing
- Construction
- Infrastructure
- Transport
- Electricity demand
- Capital expenditure

This role may be appropriate when growth is:

- Accelerating
- Commodity-intensive
- Broadening geographically
- Supported by credit
- Drawing down inventories

Headline economic growth alone is insufficient.

The member must determine whether the type of growth actually consumes the selected commodity.

Exposure to Physical Scarcity

A commodity position may express the view that available supply will fail to satisfy demand at the prevailing price.

The thesis should identify:

- Why supply cannot respond
- How much inventory is available
- Whether spare capacity exists
- How demand might adjust
- How long the imbalance may persist
- What price response is required

Scarcity is an investable thesis only when it exceeds what the market already expects.

Capital-Cycle Exposure

Producer equities may provide exposure to an industry emerging from:

- Underinvestment
- Capacity closures
- Balance-sheet repair
- Capital discipline
- Industry consolidation
- Improving commodity prices

The opportunity may arise before reported earnings recover.

This is ownership in businesses—not direct ownership of the commodity.

Geopolitical or Resource-Security Exposure

A commodity may benefit from:

- Trade fragmentation
- Strategic stockpiling
- Defence expenditure
- Domestic supply-chain investment
- Export restrictions
- Changes in energy security
- Duplicated infrastructure

The member must distinguish temporary disruption from a durable reorganisation of capital and trade.

Tactical Macro Exposure

A member may use commodities to express a view on:

- Improving liquidity
- Accelerating growth
- Currency weakness
- Restocking
- A supply shock
- Weather
- Policy change
- Positioning
- A turning capital cycle

A tactical position requires:

- A catalyst
- A timeframe
- An entry condition
- A risk limit

- An exit framework

It should not become a permanent allocation merely because the catalyst failed to arrive.

Speculation

A speculative position can be legitimate when recognised, sized and managed as speculation.

The danger arises when speculation is renamed diversification after the price falls.

The CCI Role Statement

Before selecting a product, complete this sentence:

This allocation exists to _____, and it should perform when _____ because _____.

If the member cannot complete that sentence clearly, the role has not yet been defined.

22. BUILDING A COMMODITY EXPOSURE

Once the role is clear, the member can select the market and vehicle.

Choose the Commodity

Begin with the intended economic driver.

Energy

Energy may be considered when the thesis concerns:

- Transport demand
- Electricity generation
- Industrial activity
- Weather
- Inventory scarcity
- Producer policy
- Geopolitical disruption
- Refining or infrastructure constraints
- Underinvestment

But crude oil, refined products, natural gas, coal, uranium and electricity possess different systems.

An energy thesis must identify the market.

Industrial Metals

Industrial metals may suit a thesis involving:

- Manufacturing
- Construction
- Infrastructure
- Electrification
- Urbanisation
- Supply discipline
- Declining grades
- Processing constraints
- Restocking

Copper, aluminium, nickel, zinc and iron ore do not share identical demand, supply or pricing structures.

Agriculture

Agricultural commodities may suit a thesis involving:

- Weather
- Yield
- Acreage
- Inventory
- Trade
- Biofuels
- Feed demand
- Government policy
- Biological supply cycles

Agricultural exposure requires respect for seasonality and forecast uncertainty.

Choose the Vehicle

Futures

Futures can provide relatively direct price exposure and liquid execution.

They require the member to understand:

- Contract specifications
- Notional value
- Margin
- Expiry
- Delivery
- Rollover
- Curve structure
- Basis
- Leverage

A position should never be entered without knowing whether it can result in a delivery obligation.

Exchange-Traded Products

Exchange-traded products may provide convenient access through a brokerage account.

Research should establish:

- What the product owns
- Which contracts it uses
- How contracts are selected
- When it rolls
- Whether exposure is concentrated
- Whether leverage is used
- What collateral is held
- What fees apply
- Whether the product tracks spot or futures returns

Convenience does not eliminate structural risk.

Commodity Indices

An index may offer broader exposure.

But the member should examine:

- Sector weights
- Commodity weights
- Contract selection
- Rebalancing
- Roll methodology
- Concentration limits
- Collateral treatment
- Currency
- Historical sensitivity

The word *diversified* should be verified mathematically.

Producer Equities

Producer equities may suit a thesis involving:

- Operating leverage
- Production growth
- Capital-cycle recovery
- Reserve or resource development
- Margin improvement
- Capital returns
- Corporate restructuring

They require analysis of the business as well as the commodity.

Royalty, Infrastructure and Processing Companies

These exposures may depend on:

- Production volumes
- Contracted revenue
- Throughput
- Storage demand
- Processing margins
- Counterparty strength
- Financing
- Regulation

Their returns may be less directly connected to the headline commodity price.

Options

Options may provide:

- Defined-risk exposure
- Convexity
- Event protection
- Hedging
- Tactical flexibility

The member must understand:

- Premium
- Strike
- Expiry
- Implied volatility
- Time decay
- Liquidity
- Exercise and settlement

A correct directional view can still lose money if the move is insufficient or arrives too late.

Strategic or Tactical?

A strategic allocation is intended to perform an ongoing portfolio role.

A tactical allocation seeks to capture a particular dislocation or transition.

This distinction affects:

- Vehicle
- Position size
- Holding period
- Rebalancing
- Monitoring
- Acceptable costs
- Exit rules

Single Commodity or Basket?

A single commodity provides focused exposure.

It also creates concentrated risk.

A basket may diversify:

- Weather
- Geology
- Geography
- Demand sectors
- Policy

- Individual supply shocks

But it may dilute the intended thesis or introduce unrelated risks.

The choice depends on whether the member possesses a market-specific insight or seeks broader regime exposure.

Currency

Ask:

- In which currency is the commodity quoted?
- In which currency is the product denominated?
- Is the exposure hedged?
- In which currency does the member measure wealth?
- Is currency movement part of the thesis?

Size by Risk

Position size should reflect:

- Portfolio role
- Volatility
- Liquidity
- Leverage
- Drawdown potential
- Confidence
- Time horizon
- Correlation
- Vehicle structure
- Member risk capacity
- Member risk tolerance
- Member risk requirement

A leveraged natural-gas position should not receive the same weighting as an unleveraged broad commodity exposure merely because both appear under the same asset-class heading.

Staged Allocation

A staged allocation may reduce dependence on one entry point.

Tranches may be linked to:

- Valuation
- Inventory evidence
- Curve confirmation
- Project cancellation
- Demand improvement
- Currency conditions
- Price behaviour

- Capital-cycle milestones

Staging must be predetermined.

It should not become repeated buying simply because the price continues to fall.

Rebalancing

A strategic allocation may be rebalanced when:

- Its portfolio weight changes materially
- The regime changes
- Scarcity becomes fully priced
- Curve economics deteriorate
- Correlations change
- A better expression becomes available
- The original role is no longer required

Rebalancing converts part of commodity volatility into investment discipline.

23. THE CCI COMMODITY RESEARCH HIERARCHY

CCI researches commodities through a deliberate hierarchy:

Mandate → System → Regime → Commodity → Physical Balance → Capital Cycle → Vehicle → Valuation → Portfolio

Mandate

What is the capital required to do?

Ask:

- Is the objective diversification, inflation sensitivity, growth or speculation?
- What risk is the position intended to address?
- How long can it be held?
- Is income required?
- How much volatility can the capital tolerate?
- How quickly might it be needed?

System

What is occurring across the broader economic and financial system?

Examine:

- Liquidity
- Growth
- Credit
- Inflation
- Interest rates
- Currency
- Fiscal policy
- Monetary policy
- Trade
- Geopolitics

Regime

Which combination of forces dominates?

Ask whether the environment resembles:

- Accelerating growth
- Inflationary expansion
- Supply shock
- Stagflation
- Liquidity contraction
- Recession
- Early recovery
- Restocking
- Geopolitical fragmentation
- Technological transition

Commodity

What is the physical good?

Define:

- Grade
- Quality
- Unit
- Benchmark
- Location
- Delivery period
- Principal uses
- Substitutes

Physical Balance

What is changing at the margin?

Examine:

- Production
- Consumption
- Imports
- Exports
- Inventories
- Spare capacity
- Recycling
- Processing
- Transport
- Weather
- Seasonality

Capital Cycle

What behaviour are price and profitability encouraging?

Ask:

- Is capital entering or leaving?
- Is capacity expanding?
- Are projects being delayed?
- Are acquisitions disciplined?
- Are producers increasing leverage?
- Are costs rising?
- Is current scarcity financing future excess?
- Is current weakness destroying future supply?

Vehicle

What will the member own?

Examine:

- Futures
- Fund
- Index
- Option
- Producer equity
- Infrastructure business
- Managed strategy

Valuation

What outcome does the current price require?

Compare:

- Cost curve
- Incentive price
- Inventory
- Curve structure
- Historical real price
- Related commodities
- Producer valuations
- Positioning
- Alternative assets

Portfolio

How does the exposure affect the complete portfolio?

Ask:

- What risk does it diversify?
- What risk does it duplicate?
- What is the maximum tolerable loss?
- Is the position liquid?
- Does it contain leverage?
- What is the opportunity cost?
- What would trigger rebalancing or exit?

This hierarchy prevents the attractiveness of a commodity narrative from bypassing portfolio discipline.

24. HOW CCI RESEARCHES A COMMODITY INVESTMENT

CCI moves from purpose to system, from physical market to vehicle and from thesis to portfolio.

Step One — Define the Mandate

State what the allocation is intended to accomplish.

Examples include:

- Add inflation sensitivity
- Participate in an industrial recovery
- Express a view on physical scarcity
- Diversify financial assets
- Invest in capital-cycle renewal
- Hedge a particular input exposure

Avoid statements such as:

- Commodities must rise.
- Copper is the future.
- Oil is too cheap.
- Everyone needs inflation protection.

These are assertions, not mandates.

Step Two — Identify the Dominant Force

Determine whether the opportunity is driven primarily by:

- Liquidity
- Growth
- Credit
- Inflation
- Currency
- Inventory
- Supply disruption
- Weather
- Policy
- Technology
- Positioning

- Capital-cycle discipline

Several forces may matter.

One or two will usually dominate the thesis.

Step Three — Define the Commodity Precisely

Identify:

- Benchmark
- Quality
- Location
- Delivery period
- Unit
- End use
- Relevant futures contract

Do not research “oil” when the investment is exposed to a particular crude benchmark, refined product, producer or regional differential.

Step Four — Map the Supply Chain

Trace the commodity through:

Production → Processing → Transport → Storage → Distribution → Consumption

At each stage, ask:

- Who controls capacity?
- Where are the bottlenecks?
- How much spare capacity exists?
- What could interrupt the flow?
- What would resolve the constraint?
- How long would that take?

Step Five — Analyse Production

Examine:

- Producing regions
- Major producers
- Production trend
- Decline or depletion
- Yield or grade
- Costs
- Spare capacity
- Maintenance
- Weather

- Political risk
- Project pipeline
- Producer guidance

Separate announced production from deliverable supply.

Step Six — Analyse Demand

Divide demand into its principal uses.

Ask:

- Which sector consumes the commodity?
- Is demand cyclical or structural?
- How price-sensitive is it?
- Can consumption be delayed?
- Can users substitute?
- Is intensity per unit changing?
- Which region drives marginal demand?
- Is the forecast consistent with broader growth and credit conditions?

Step Seven — Reconstruct the Balance Sheet

A simplified commodity balance may be written as:

Opening inventories + production + imports − consumption − exports = closing inventories

The exact structure differs by commodity.

The purpose is to determine whether inventories are likely to:

- Build
- Draw
- Remain stable

Analyse the assumptions behind every component.

Step Eight — Assess Inventory Quality

Determine:

- Where inventory is held
- Who owns it
- Whether it is usable
- Whether it is commercially available
- Whether it is reported reliably
- How it compares with consumption
- Whether seasonal adjustment is required

Do not confuse observable inventory with total inventory—or total inventory with available inventory.

Step Nine — Examine Spare Capacity and Response Time

Ask:

- Can existing producers increase output?
- How quickly?
- At what cost?
- Is the capacity politically available?
- Can trade be rerouted?
- Can processing expand?
- Can demand substitute?
- How long would new supply require?

This establishes the market's ability to absorb surprise.

Step Ten — Read the Futures Curve

Examine:

- Spot price
- Front-month contract
- Later maturities
- Calendar spreads
- Contango
- Backwardation
- Seasonality
- Curve changes

Then ask:

- Is the curve encouraging storage or release?
- Does it confirm the inventory thesis?
- What roll effect may the investment vehicle experience?
- Is near-term scarcity expected to persist?

Step Eleven — Locate the Capital Cycle

Determine:

- Historical producer returns
- Capital expenditure
- Exploration or drilling
- New project approvals
- Closures
- Acquisitions
- Leverage
- Share issuance
- Cost inflation
- Capital returns

Identify whether the industry is moving through:

- Opportunity
- Capital inflow
- Excess
- Contraction
- Scarcity
- Renewal

Step Twelve — Analyse Policy and Geopolitics

Map:

- Taxes
- Royalties
- Subsidies
- Sanctions
- Export restrictions
- Import dependence
- Strategic reserves
- Producer coordination
- Environmental regulation
- Permitting
- Trade routes

Focus on how policy changes physical incentives.

Step Thirteen — Analyse Technology and Substitution

Translate the structural narrative into:

- Units
- Commodity intensity
- Adoption rates
- Timelines
- Competing technologies
- Recycling
- Supply response

Determine whether technology strengthens demand, increases supply or does both.

Step Fourteen — Examine Positioning

Use evidence such as:

- Open interest
- Futures positioning
- Options activity
- Fund flows
- Producer hedging

- Consumer hedging
- Investor sentiment

The CFTC publishes Commitments of Traders data separating reportable positions into categories including producers and merchants, swap dealers and managed money. These data can help identify positioning, but they do not independently reveal whether a trade is profitable, directional or part of a broader hedge. Commodity Futures Trading Commission

Step Fifteen — Analyse the Vehicle

For a futures-based fund, examine:

- Contract selection
- Roll schedule
- Curve exposure
- Collateral
- Fees
- Leverage
- Liquidity
- Tracking

For a producer, examine:

- Assets
- Production
- Reserves
- Costs
- Capital expenditure
- Balance sheet
- Management
- Jurisdiction
- Hedging
- Per-share value

For an option, examine:

- Strike
- Premium
- Expiry
- Implied volatility
- Liquidity
- Maximum loss
- Required timing

Step Sixteen — Identify the Source of Return

Determine whether the prospective return depends on:

- Spot-price appreciation
- Curve movement
- Positive roll

- Collateral income
- Currency
- Margin expansion
- Production growth
- Capital returns
- Multiple revaluation
- A change in positioning

If the source of return cannot be identified, the thesis is incomplete.

Step Seventeen — Assess Valuation

Ask:

- What assumptions does the price contain?
- What does the curve imply?
- Where is the commodity relative to production economics?
- Is new supply required?
- What price incentivises it?
- How does the exposure compare with substitutes?
- Is positioning crowded?
- What margin for disappointment remains?

Step Eighteen — Build Scenarios

Develop:

- Base case
- Bull case
- Bear case
- Stress case

Include potential changes in:

- Growth
- Currency
- Production
- Demand
- Inventory
- Weather
- Policy
- Substitution
- Financing
- Positioning
- Curve structure

A scenario should connect cause to physical consequence and physical consequence to investment return.

Step Nineteen — Define Thesis Failure

Possible invalidating evidence includes:

- Demand fails to emerge.
- Inventories build persistently.
- Supply responds faster than expected.
- Spare capacity proves greater than estimated.
- Substitution accelerates.
- Policy destroys demand.
- The currency moves against the thesis.
- The futures curve erodes the expected return.
- Producer costs absorb the commodity benefit.
- Management misallocates capital.
- The vehicle fails to track the intended exposure.

A falling price may require review.

A broken thesis requires action.

Step Twenty — Compare Alternative Expressions

Compare the proposed investment with:

- Cash
- Inflation-linked bonds
- Producer equities
- Futures
- Options
- A commodity basket
- A related commodity
- An infrastructure business
- Another asset class

The most direct exposure is not always the most suitable exposure.

Step Twenty-One — Size the Position

Position size should reflect:

- Confidence
- Volatility
- Liquidity
- Leverage
- Drawdown potential
- Time horizon
- Portfolio role
- Correlation
- Risk capacity
- Risk tolerance

- Risk requirement

Risk requirement asks:

How much risk must this capital accept to achieve its objective?

If the objective can be achieved with less risk, the portfolio should not assume more merely because the commodity narrative is compelling.

Step Twenty-Two — Establish Monitoring Rules

Monitor the variables that make the thesis true.

These may include:

- Production
- Demand
- Inventories
- Spare capacity
- Curve structure
- Currency
- Freight
- Weather
- Policy
- Capital expenditure
- Project progress
- Costs
- Positioning
- Price response

Price should be monitored.

The thesis should not be reduced to price alone.

Step Twenty-Three — Establish Exit and Rebalancing Rules

An exposure may be reduced when:

- The thesis is fulfilled
- The thesis fails
- Scarcity becomes fully priced
- Inventories begin rebuilding
- Supply response becomes credible
- Demand is being destroyed
- Curve economics deteriorate
- Position size exceeds its role
- A superior opportunity emerges

Selling is part of the research process.

25. SOURCES OF COMMODITY RESEARCH EVIDENCE

Commodity research should combine physical, financial, corporate and policy evidence.

Energy Agencies

Useful sources may include:

- U.S. Energy Information Administration
- International Energy Agency
- National energy ministries
- Grid and pipeline operators
- Industry regulators

The EIA publishes extensive petroleum and natural-gas data covering production, consumption, trade, inventories and prices. EIA Petroleum Data EIA Natural Gas Data

Agricultural Agencies

Useful evidence may include:

- USDA WASDE reports
- Crop-production reports
- Planting and acreage estimates
- Export inspections
- Weather services
- National agricultural agencies
- Trade statistics

WASDE provides monthly estimates across major agricultural supply-and-demand balances. Because weather, yield and trade evolve, members should expect revisions rather than treating any forecast as permanent fact. USDA WASDE

Geological and Mining Sources

Relevant sources may include:

- USGS mineral summaries
- National geological surveys
- Mine-production statistics
- Reserve and resource estimates

- Trade data
- Recycling statistics
- Permitting documents

The USGS publishes annual information across more than 90 minerals and materials, including production, reserves and industry developments. USGS Mineral Commodity Summaries

Exchanges

Exchange data may provide:

- Contract specifications
- Prices
- Open interest
- Volume
- Delivery rules
- Warehouse stocks
- Margin requirements
- Settlement procedures

Always read the specification for the exact contract being considered.

Regulatory Data

Regulators may provide:

- Positioning reports
- Market-participant categories
- Futures-commission merchant information
- Market-event analysis
- Enforcement history

Positioning data are evidence of market structure.

They are not a standalone trading signal.

Company Disclosures

For producers and supply-chain businesses, examine:

- Annual reports
- Financial statements
- Production reports
- Reserve statements
- Technical reports
- Capital-expenditure guidance
- Cost guidance
- Debt
- Hedging
- Regulatory filings

- Sustainability reports

Management presentations are evidence.

They are also advocacy.

Government and Trade Data

Relevant evidence may include:

- Imports
- Exports
- Tariffs
- Sanctions
- Customs data
- Strategic reserves
- Industrial policy
- Infrastructure approvals
- Environmental rules

Physical-Market Evidence

Useful observations may include:

- Regional premiums
- Freight
- Treatment and refining charges
- Basis
- Processing margins
- Warehouse movements
- Delivery times
- Producer discounts
- Consumer substitution
- Procurement behaviour

Physical-market evidence can confirm—or challenge—the headline narrative.

Weather and Satellite Data

For agriculture and energy, research may include:

- Temperature
- Rainfall
- Drought
- Soil moisture
- Storms
- Snowpack
- Crop conditions
- Satellite imagery

Weather forecasts contain uncertainty.

The member should distinguish forecast, observed condition and realised production impact.

Independent Research

Specialist analysts, academic research and industry publications may provide useful interpretation.

Assess:

- Methodology
- Data sources
- Conflicts
- Assumptions
- Publication date
- Revision history
- Sensitivity

Authority should be earned through evidence.

26. THE MEMBER'S COMMODITY RESEARCH CHECKLIST

Mandate

- What is this allocation required to do?
- Is it strategic or tactical?
- What risk should it diversify?
- Over what timeframe?
- Is income required?
- How much volatility can be tolerated?

Commodity

- What exact commodity am I researching?
- Which benchmark applies?
- What quality, location and delivery period matter?
- What are its principal uses?
- What can substitute for it?
- How liquid is the market?

System and Regime

- What is happening to liquidity?
- What is happening to growth?
- What is happening to credit?
- Is inflation demand-led or supply-led?
- What is happening to the relevant currency?
- Which regime currently dominates?
- Which force is changing?

Supply

- Where is the commodity produced?
- Is production concentrated?
- Is output rising or falling?
- What is the decline, depletion or biological cycle?
- How much spare capacity exists?
- How quickly can supply respond?
- What projects are under development?

- Which bottlenecks constrain delivery?

Demand

- Who consumes the commodity?
- Why?
- Which region drives marginal demand?
- Is demand cyclical or structural?
- How price-sensitive is it?
- Can use be delayed?
- Can consumers substitute?
- Is intensity per unit changing?

Inventories

- How much usable inventory exists?
- Where is it held?
- Who owns it?
- Is it commercially available?
- How does it compare with seasonal norms?
- How many days of demand can it satisfy?
- How reliable are the data?

Market Balance

- Is the market in surplus or deficit?
- How is the balance calculated?
- Are inventories confirming it?
- Is spare capacity absorbing it?
- Is the condition temporary or persistent?
- What price response is required?

Futures Curve

- Is the curve in contango or backwardation?
- Why?
- Is the shape seasonal?
- What roll effect may apply?
- Do calendar spreads confirm physical conditions?
- Could the curve move against the investment despite a correct spot-price view?

Capital Cycle

- Is capital entering or leaving?
- Are projects being approved or cancelled?
- Are costs rising?
- Are producers increasing leverage?
- Are acquisitions disciplined?

- Is supply destruction occurring?
- When might current investment become future production?

Policy and Geopolitics

- Which governments influence production or trade?
- Are sanctions or export controls relevant?
- Are strategic reserves changing?
- Are taxes or royalties increasing?
- Which routes are vulnerable?
- Can supply be redirected?
- How might intervention alter future incentives?

Vehicle

- Do I own futures, a fund, an index, an option or a business?
- Which contracts are used?
- Is there leverage?
- How does the product roll?
- What fees apply?
- What collateral is held?
- What are the liquidity and counterparty risks?
- Can it create a delivery obligation?

Producer

- What assets does the company own?
- What is the production profile?
- What are the reserves and asset lives?
- Where does it sit on the cost curve?
- What capital expenditure is required?
- Is the balance sheet resilient?
- Does management allocate capital well?
- Is per-share value increasing?

Valuation

- What expectations are reflected in price?
- What is the incentive price for new supply?
- Is new supply actually required?
- Is positioning crowded?
- What return remains after roll, fees, currency and costs?
- What margin of safety exists?

Portfolio

- What risk does the exposure diversify?
- What risk does it duplicate?

- How large could the drawdown be?
- What is the maximum appropriate allocation?
- What is the opportunity cost?
- How will the position be rebalanced?
- What could force an untimely sale?

Monitoring and Exit

- Which variables must remain true?
- What evidence will be reviewed?
- How often?
- What would invalidate the thesis?
- What would indicate success?
- Under what conditions will the position be reduced?

If these questions cannot yet be answered, the research is not complete.

27. COMMON COMMODITY MISTAKES

Treating Commodities as One Market

Energy, metals and agriculture respond to different physical systems.

A common label does not create a common thesis.

Confusing Commodity Importance With Investment Value

A commodity may be essential to civilisation and still be oversupplied, overvalued or exposed to substitution.

Importance does not determine prospective return.

Ignoring Quality, Location and Time

Global supply may appear sufficient while the required commodity remains unavailable to the relevant buyer.

Deliverability defines the real market.

Treating a Deficit as Proof of Immediate Shortage

Inventories and spare capacity may bridge the gap.

Examine how long the buffer can last.

Assuming Low Inventories Guarantee Higher Prices

Demand can weaken.

Supply can recover.

Policy can intervene.

And the scarcity may already be priced.

Ignoring the Futures Curve

A correct commodity view can produce a disappointing fund return when negative roll effects erode performance.

Confusing Spot Return With Fund Return

Futures movement, roll, collateral, currency, fees and methodology all matter.

Using Leverage Without Understanding Notional Exposure

A small margin deposit can control a much larger commodity position.

Volatility can create margin calls and forced liquidation.

Failing to Read Contract Specifications

Quality, quantity, expiry, settlement and delivery rules define the position.

The ticker does not contain enough information.

Buying Producers for a Physical Commodity Thesis

Companies introduce:

- Management
- Costs
- Debt
- Dilution
- Jurisdiction
- Regulation
- Capital allocation

If the thesis requires commodity exposure, select an instrument that behaves accordingly.

Assuming Higher Commodity Prices Guarantee Producer Profits

Revenue can rise while labour, energy, taxes, financing and development costs rise faster.

Analyse margins—not price alone.

Confusing Resources With Economic Supply

A large geological resource may remain unavailable because of cost, metallurgy, infrastructure, financing, permitting or politics.

Ignoring Decline and Depletion

Existing production may fall even when reported reserves appear large.

Replacement investment is often required merely to maintain output.

Extrapolating Weather

A forecast is not a harvest.

Separate predicted weather, observed conditions, crop damage and final yield.

Treating Structural Demand as Immediate Demand

A technology may grow for decades while commodity demand arrives slowly, intensity falls or supply expands first.

Timing determines the investment outcome.

Ignoring Substitution

High prices encourage consumers to change materials, technology and behaviour.

Demand is not permanently fixed.

Ignoring Policy Response

Extreme prices attract intervention.

Policy may alter demand, supply, trade and shareholder returns.

Chasing Backwardation

Backwardation may indicate tightness and support roll return.

It can disappear quickly when inventories recover or demand weakens.

Treating Contango as Permanently Bearish

Contango may create a cost for some investment vehicles.

It can also encourage storage and help correct present oversupply.

Relying on One Data Series

Commodity data can be incomplete, delayed and revised.

Triangulate physical, financial and corporate evidence.

Confusing a Compelling Story With Mispricing

The market may already believe the story.

An investment requires expectations to be too low—not merely the narrative to be true.

Failing to Define the Exit

Commodity cycles eventually change.

A position without an exit framework can travel from opportunity through excess and back again.

Allocating Without a Portfolio Role

Owning commodities because inflation is discussed in the news is not a strategy.

The allocation must solve a portfolio problem.

28. KEY PRINCIPLES TO RETAIN

1. Commodities are physical systems.

Begin with production, processing, transport, storage and consumption.

2. Each commodity is different.

A broad category cannot replace market-specific research.

3. Define quality, location and time.

These determine whether supply is actually available.

4. Price clears the physical market.

It attracts supply, releases inventory, redirects trade and rations demand.

5. Inventories are time.

They determine how long an imbalance can persist before stronger adjustment is required.

6. Spare capacity is insurance.

It matters only when it is usable, deliverable and politically available.

7. The marginal unit matters.

Small changes in demand can create large prices when expensive supply is required.

8. Supply responsiveness differs by market.

Biology, geology, infrastructure and regulation create different timelines.

9. Demand is not fixed.

Price, income, technology, efficiency and substitution alter consumption.

10. A deficit is not necessarily a shortage.

The buffer determines the consequence.

11. A surplus is not necessarily accessible abundance.

Location, quality and ownership matter.

12. The futures curve is part of the commodity system.

It shapes storage incentives and investment returns.

13. Spot return is not total return.

Roll, collateral, currency, fees and structure must be included.

14. Inflation is not a standalone thesis.

Commodities can cause, reflect and eventually suffer from inflation.

15. Currency belongs in the analysis.

Producer, consumer, pricing and portfolio currencies may differ.

16. Liquidity influences physical and financial demand.

It affects financing, inventories, positioning and new capacity.

17. Growth must be translated into commodity units.

Not all economic growth consumes the same materials.

18. Credit finances present demand and future supply.

The same expansion can support prices before creating excess.

19. Geopolitics becomes powerful when buffers are thin.

Physical constraint determines the severity of the shock.

20. Policy changes incentives.

Near-term relief can weaken future supply.

21. Structural narratives require unit economics.

Translate every story into quantity, intensity, timing and price.

22. Technology creates demand and supply.

Analyse both sides of the balance.

23. High prices contain the seeds of future excess.

They attract capital, substitution and efficiency.

24. Low prices contain the seeds of future scarcity.

They destroy investment and marginal capacity.

25. Capital committed is not supply delivered.

Follow the project through construction and commercial production.

26. A commodity and its producers are different investments.

The business must be researched independently.

27. Production growth is not value creation.

Per-share returns and capital discipline matter.

28. Positioning affects the path.

Crowded markets possess less tolerance for disappointment.

29. Valuation is embedded expectation.

The thesis must outperform what the market already assumes.

30. Sequence matters.

The same force can affect the commodity differently at different stages.

31. Diversification is conditional.

Understand what actually drives the proposed exposure.

32. Position size should reflect risk—not enthusiasm.

Conviction does not remove volatility.

33. Evidence must govern the thesis.

Narrative should never outrank physical change.

34. The portfolio role comes before the product.

Purpose determines commodity, vehicle and allocation.

29. A PRINCIPLE TO CARRY FORWARD

Commodities begin with physical necessity.

But necessity alone does not establish investment value.

The world may require a commodity.

That does not tell us:

- How much is available
- Where it is located
- What it costs to deliver
- How quickly supply can respond
- How demand may adjust
- What the futures curve will do
- What expectations the price already contains
- Whether the chosen vehicle will capture the opportunity

Every commodity cycle is a conversation between scarcity and response.

Low prices discourage investment.

Underinvestment constrains supply.

Demand consumes the remaining buffer.

Scarcity raises prices.

High prices attract capital.

Capital finances capacity.

Capacity rebuilds inventories.

Excess reduces returns.

Poor returns restore discipline.

The cycle begins again.

The investor's task is not to declare commodities permanently scarce or permanently abundant.

It is to determine where a particular market sits within that sequence—and whether the available price provides sufficient compensation for the path ahead.

The final question is not:

Will commodities rise?

It is:

Which commodity exposure, owned through which vehicle, at what point in its physical and capital cycle, and in what proportion, improves the resilience and prospective return of your complete portfolio?

That is the question the CCI framework is designed to help you answer.

CONTINUE TO COMMODITY RESEARCH

Commodity Deep Dive Pathways Under Development

- Crude Oil and the Global Petroleum System
- Natural Gas, LNG and Regional Energy Markets
- Refined Products and Refining Economics
- Uranium and the Nuclear Fuel Cycle
- Thermal and Metallurgical Coal
- Copper and Electrification
- Aluminium and the Power-Intensive Metals Chain
- Iron Ore and Steelmaking
- Nickel, Lithium, Cobalt and Battery Materials
- Critical Minerals and Resource Security
- Grain Markets: Wheat, Corn and Soybeans
- Soft Commodities: Coffee, Cocoa, Sugar and Cotton
- Livestock and Biological Supply Cycles
- Fertiliser, Farm Economics and Agricultural Inputs
- Commodity Inventories and Physical Market Balances
- Contango, Backwardation and Futures-Based Returns
- Commodity Producers and Capital Allocation
- Commodity Funds, Indices and Investment Vehicles
- Commodities Across Market Regimes
- The Commodity Capital Cycle

As the CCI Commodity research library develops, these pathways will connect the framework established here with individual markets, companies, instruments and opportunities.

SELECTED FOUNDATIONAL REFERENCES

- U.S. Energy Information Administration — Energy Data and Market Analysis
- International Energy Agency — Energy Markets and Security
- U.S. Department of Agriculture — World Agricultural Supply and Demand Estimates
- U.S. Geological Survey — *Mineral Commodity Summaries*
- Commodity Futures Trading Commission — Commitments of Traders and Market Data
- CME Group — Commodity Contract Specifications and Market Resources
- Relevant commodity exchanges, regulators and clearing organisations
- National geological, agricultural, energy and statistical agencies
- Company financial statements, technical reports and production disclosures
- Fund, index, prospectus and product disclosure documentation

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Supply, demand, reserve, resource, production, inventory, crop, weather and price forecasts are uncertain and may be revised. Geological resources are not necessarily economically recoverable reserves, and announced production capacity is not necessarily deliverable supply.

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