Benchmark Formation in Commodity Markets: An Institutional Framework



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> ***Commodity markets require more than just efficient price discovery (liquid trading) to influence long-term economic activity; they must undergo a distinct "Benchmark Formation" phase that builds trust, integrity, and widespread adoption. True economic influence, or Pricing Influence, emerges only when external stakeholders trust a price as a reliable reference, requiring a deliberate shift from simply increasing trading volume to establishing institutional confidence in four key areas: representation, trust, integrity, and adoption.***

WHY DO ONLY SOME PRICES BECOME BENCHMARKS?

Commodity markets discover prices every day. But only a handful of those prices become benchmarks that continue to influence commercial decisions after the original trade has concluded. Most prices disappear with the next trading session. A few become enduring economic references. Why?

The significance of a benchmark lies in its ability to travel beyond the transaction that produced it. It becomes a common point of reference for commercial and financial decisions across a much wider market.

This distinction is important for market development. Organised markets routinely generate prices through competitive trading, but only a small number produce benchmarks that attract sustained confidence across an industry. Liquidity, transparency and trading efficiency explain how prices are discovered. They do not fully explain why certain prices acquire a wider role in economic coordination.

The question has particular relevance for India. As commodity markets deepen, attention naturally focuses on improving participation, strengthening trading infrastructure and enhancing market efficiency. Those objectives remain essential. The larger opportunity, however, lies in creating the institutional conditions under which domestically discovered prices become sufficiently trusted to guide decisions well beyond the exchange.

International benchmark markets illustrate the point. Brent crude, Henry Hub natural gas and the London Metal Exchange's reference prices became influential over time because market participants came to rely on them as credible representations of value. Their histories are different, reflecting the characteristics of their underlying commodities and market structures. What they share is representative trading, trusted institutions and sustained commercial acceptance.

Between Price Discovery and Pricing Influence lies an intermediate institutional process that receives comparatively little attention. The Benchmark Formation framework proposed here explains how market-generated prices evolve into trusted economic references. The distinction helps explain why some markets gradually become reference-setting, while others continue to rely primarily on benchmarks established elsewhere, despite achieving increasingly efficient price discovery.

India's evolving electricity markets provide a useful institutional laboratory for examining this process. Although electricity serves as the principal illustration, the framework is intended to contribute to broader discussions on commodity market development and benchmark creation across India's commodity ecosystem.

THE LIMITS OF PRICE DISCOVERY

Price discovery occupies a central place in the study of commodity markets. It describes the process through which dispersed information about supply, demand, expectations and risk is incorporated into prices through competitive trading. Well-functioning markets strengthen this process by encouraging participation, improving liquidity and supporting transparent price formation.

Without credible price discovery, markets cannot allocate resources efficiently or support effective risk management. Much of the policy discussion surrounding commodity exchanges therefore concentrates, quite appropriately, on market design, surveillance, settlement systems, participation and trading infrastructure.

Even so, efficient price discovery does not by itself explain why some prices become enduring economic references.

Many organised markets generate transparent and economically efficient prices. But fewer markets generate prices that become embedded in commercial contracts, procurement practices, financing arrangements or valuation across an industry. A discovered price and a benchmark are not the same thing. Something changes between those two stages.

Much of the discussion on benchmark governance has focused on issues such as methodology, transparency, governance and protection against manipulation. International reforms have further strengthened expectations around benchmark integrity and oversight. The question considered here comes earlier - how do market-generated prices acquire the institutional characteristics that allow them to become recognised benchmarks in the first place?

The distinction is straightforward. Price Discovery explains how markets reveal value. The Benchmark Formation framework explains how those prices acquire sufficient institutional credibility to function as shared economic references. Pricing Influence emerges when market participants begin organising commercial decisions around those references.

Benchmark emergence is therefore better understood as an institutional process than as a direct consequence of successful trading. Markets produce information through prices. Whether those prices shape behaviour beyond the exchange depends on the confidence that participants place in the institutions producing them. For economies seeking greater influence through the prices they generate, that distinction becomes consequential.

THE BENCHMARK FORMATION FRAMEWORK

If Price Discovery explains how markets generate information about value, a second question follows naturally - how does that information come to influence decisions beyond the market in which it originated?

A price discovered through competitive trading reflects prevailing market conditions at a particular moment. It conveys information about supply, demand and expectations, enabling buyers and sellers to transact with greater confidence. Most such prices, however, remain confined to the markets that generate them. Only a small number acquire a wider role, serving as common reference points across an industry. The transition from

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market price to benchmark cannot be explained by trading activity alone.

The Benchmark Formation framework describes that transition as the institutional process through which market-generated prices acquire the credibility, transparency and market acceptance necessary to become trusted economic references.

Institutions occupy the centre of this process. Regulation can establish market architecture, but it cannot decree benchmark status. Likewise, active trading and growing liquidity do not automatically produce benchmark prices. Markets generate information. Institutions determine whether that information becomes sufficiently credible for others to rely upon.

Four conditions shape this evolution: Representative Markets, Institutional Trust, Information Integrity, and Market Adoption. They are analytically distinct, but they reinforce one another as markets mature.

REPRESENTATIVE MARKETS

Benchmark formation begins with the quality of the underlying market.

Representative prices emerge where participation is broad, liquidity is sufficient, price formation is genuinely competitive, and market design allows diverse information to be reflected in trading outcomes. Markets that remain thin, fragmented or persistently distorted may still facilitate transactions, but participants are less likely to regard their prices as reliable indicators of prevailing market conditions.

International benchmark markets such as Brent crude, Henry Hub natural gas and the London Metal Exchange reference prices illustrate the principle. Each evolved within its own institutional and commercial context, shaped by the characteristics of the underlying commodity and the market it served. Despite those differences, all came to be regarded as credible representations of value because market participants developed confidence in the markets and institutions producing those prices.

INSTITUTIONAL TRUST

Representative prices are only the starting point. Market participants must also trust the institutions through which those prices are produced.

That confidence rests upon governance arrangements, regulatory oversight, surveillance mechanisms, settlement systems, benchmark administration and the consistent application of market rules. Collectively, these reduce uncertainty about whether prices are being generated fairly and transparently.

Benchmark users frequently extend far beyond active traders. Manufacturers, lenders, investors, procurement agencies and policymakers may rely upon benchmark prices without participating directly in the underlying market. Their confidence depends less on individual transactions than on confidence that the institutions supporting the market remain credible over time.

The experience of international benchmark reform following the investigations into manipulation of the London Interbank Offered Rate (LIBOR) illustrates the point. Confidence in a benchmark ultimately depends as much upon institutional credibility as it does upon market efficiency.

INFORMATION INTEGRITY

Institutional confidence must be supported by confidence in the information surrounding benchmark prices.

Information integrity concerns the transparency, accessibility and consistency with which benchmark prices are calculated, disseminated and explained. Market participants are more likely to rely upon a benchmark when they understand how prices are generated and when the underlying methodology is applied consistently over time.

Transparent methodologies, publicly available market data and clear governance arrangements reduce informational asymmetry and allow participants to evaluate benchmark credibility independently. In that sense, information performs an institutional function comparable to clearing or settlement infrastructure. It strengthens confidence in the prices that markets produce.

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It does not, by itself, create benchmark adoption. It does, however, make adoption substantially more likely.

MARKET ADOPTION

A benchmark derives its significance from use rather than existence.

Prices begin to function as benchmarks when they are adopted for purposes extending beyond the transactions that originally produced them. Long-term supply contracts, procurement formulas, indexed invoices, financing arrangements, collateral valuation, portfolio management and hedging decisions all represent observable forms of benchmark adoption. At that stage, participants are no longer responding only to market prices; they are organising commercial relationships around them.

The process is cumulative. Wider adoption attracts additional participation and liquidity, strengthening the credibility of the benchmark itself. Greater credibility, in turn, encourages broader adoption. Confidence and usage reinforce one another.

Benchmark status is therefore neither automatic nor permanent. Markets experiencing declining liquidity, weakened governance or diminishing participant confidence can gradually lose benchmark relevance.

FROM BENCHMARK FORMATION TO PRICING INFLUENCE

The four conditions are best understood as a reinforcing institutional system rather than a linear sequence. Representative markets generate credible prices. Institutional trust and information integrity encourage confidence in those prices. Market adoption extends their influence into commercial and financial decision-making. As reliance expands, deeper participation and stronger confidence reinforce one another.

The relationship between the three concepts proposed in this analysis is therefore straightforward. Price Discovery reveals value. Benchmark Formation establishes confidence in that value as a shared reference. Pricing Influence emerges when those references begin shaping decisions across the wider economy.

India's organised electricity markets provide an opportunity to observe this evolution while it is still unfolding. They do not yet exhibit the characteristics of a mature international benchmark. They do, however, illustrate how benchmark formation develops through institutional change rather than through trading activity alone.

INDIA'S ELECTRICITY MARKETS: AN INSTITUTIONAL ILLUSTRATION

The Benchmark Formation framework is intended to explain how benchmark prices emerge across commodity markets. India's organised electricity markets offer a particularly useful illustration because the process remains visible. Rather than examining an established benchmark retrospectively, electricity allows the institutional evolution itself to be observed.

Electricity occupies a distinctive position within India's commodity ecosystem. Long-term power purchase agreements (PPAs), regulated tariffs and bilateral procurement continue to dominate the sector, while organised markets are assuming a steadily larger role in operational and commercial decision-making. That coexistence makes electricity especially useful for examining benchmark formation as an evolutionary process rather than as a completed outcome.

The first element of the framework, Representative Markets, has strengthened as organised electricity markets have expanded over the past decade. Market segments such as the Day-Ahead Market (DAM), Real-Time Market (RTM), Green Day-Ahead Market (GDAM) and ancillary service mechanisms have broadened opportunities for competitive price discovery under changing system conditions. Growing participation and continuing product innovation have, in turn, improved the representativeness of market-generated prices.

Institutional development has progressed alongside market expansion. Successive regulatory interventions by the Central Electricity Regulatory Commission (CERC) have refined market design, scheduling, settlement arrangements, surveillance mechanisms and trading rules. Current discussions on market coupling, capacity adequacy and market integration indicate that institutional development remains active rather than complete. Confidence grows when market participants see that market design continues to evolve alongside the sector itself.

Information Integrity has strengthened in parallel. Exchange platforms publish prices, traded volumes and operational

data through transparent methodologies that enable participants to understand how prices are formed. Utilities, traders, large consumers, investors and regulators are therefore able to assess prevailing market conditions using information that is both timely and openly available.

Perhaps the clearest indication of institutional progress is the changing role of exchange-derived prices. They increasingly inform short-term procurement decisions, commercial planning and market assessments undertaken by utilities, traders and large consumers, even though bilateral contracts and long-term PPAs remain the dominant procurement mechanism. Exchange prices have not displaced established contractual arrangements. Their role has gradually expanded alongside them.

India's electricity markets should therefore be viewed neither as a completed benchmark nor as simply another organised exchange. They illustrate how representative markets, institutional development and growing commercial confidence can gradually extend the influence of market-generated prices. The broader lesson is relevant across commodity markets. Trading platforms create the opportunity for benchmark emergence. Whether benchmarks ultimately develop depends upon the institutions that sustain confidence in the prices those markets produce.

BUILDING BENCHMARK MARKETS

The distinction between Price Discovery and Benchmark Formation has implications that extend well beyond electricity. It offers a broader way of thinking about how commodity markets acquire economic influence.

Much of the discussion on strengthening India's commodity markets focuses, understandably, on expanding liquidity, broadening participation, improving warehousing and logistics, strengthening assaying and delivery infrastructure, introducing new products and deepening financial participation. These are essential elements of market development because they improve the quality and representativeness of price discovery.

They do not, however, answer a different question - why do some market-generated prices become reference points for an entire industry while others remain confined to the exchanges on which they originate?

The experience of internationally recognised commodity benchmarks suggests that benchmark influence develops gradually. No benchmark becomes influential simply because trading volumes increase or market infrastructure improves. Commercial users must first come to regard the prices as sufficiently representative, transparent and institutionally reliable to organise their own decisions around them.

Although electricity provides the principal illustration, the underlying institutional logic is not unique to electricity. Agricultural commodities, metals and energy products differ in their physical characteristics, storage economics and trading structures, but benchmark development across each depends upon broadly similar conditions. Markets must generate representative prices. Institutions must sustain confidence in those prices. Commercial users must then choose to rely upon them.

That final stage is often the least visible, still it determines whether benchmark influence actually emerges.

Benchmark adoption becomes evident when market-generated prices begin appearing outside the exchange itself. They are incorporated into long-term supply contracts, procurement formulas, indexed invoices, financing arrangements, collateral valuation, portfolio management and risk management practices. At that point, prices are no longer serving only traders. They begin coordinating commercial activity across a much wider market.

Benchmark adoption becomes evident when market-generated prices begin appearing outside the exchange itself.

As benchmark use expands, a reinforcing cycle develops. Wider adoption attracts greater participation. Deeper participation improves price quality. Better prices strengthen confidence, encouraging still broader adoption. Benchmark influence is therefore sustained as much by continuing market confidence as by trading activity itself.

The policy implications are straightforward. Investments in market infrastructure should be viewed not only as measures to improve trading efficiency, but also as investments in institutional confidence. Transparent governance, credible regulation, reliable market information and consistent market design all contribute to the conditions under which market-generated prices become trusted economic references.

This perspective becomes increasingly relevant as India seeks to strengthen benchmark development across metals, energy and agricultural commodity markets. Market depth will remain indispensable, but enduring benchmark influence will depend just as much upon the credibility of the institutions supporting those markets.

For analytical purposes, it is useful to distinguish between price-taking economies and reference-setting economies. Price-taking economies organise commercial activity around benchmarks established elsewhere. Reference-setting economies generate benchmarks that others voluntarily adopt because they are regarded as credible representations of value. The transition from one to the other depends less on the absolute size of markets than on the confidence that market institutions are able to sustain over time.

CONCLUSION

Commodity markets are widely recognised for their role in discovering prices. Their wider economic significance lies in the ability of those prices to become trusted reference points beyond the market in which they originate.

This paper has argued that an important institutional process connects Price Discovery and Pricing Influence. The Benchmark Formation framework describes that intermediate stage through which market-generated prices acquire the credibility, transparency and market acceptance necessary to function as shared economic references. Benchmark status, in other words, is not produced by trading activity alone. It emerges through the interaction of representative markets, institutional trust, information integrity and sustained market adoption.

India's organised electricity markets illustrate this process while it is still evolving. Exchange-derived prices continue to coexist with long-term power purchase agreements, regulated tariffs and bilateral procurement. But their expanding role in commercial planning, operational decisions and market assessment shows how benchmark influence can develop incrementally, without displacing existing market arrangements. The value of the electricity example lies less in the sector itself than in the institutional insights it offers for commodity market development more broadly.

The framework proposed here also suggests a broader way of assessing market development. Market depth, broad participation and competitive trading remain indispensable because they enable effective Price Discovery. Whether those prices evolve into benchmarks depends upon institutional confidence. Benchmark Formation is the process through which that confidence is established. Pricing Influence is the consequence when market participants begin relying upon those benchmarks across an expanding range of economic decisions.

For India, the long-term challenge is therefore larger than improving the efficiency of price discovery. It is to build markets whose prices command sufficient confidence to become reference points for others. That is ultimately how commodity markets extend their influence beyond trading floors and become institutions that help coordinate economic activity.