Cornerstone Research works with clients on high-profile market manipulation litigation and regulatory matters. Our external and internal experts are equipped with academic expertise and practical experience across the range of markets. This, together with our staff’s deep knowledge of economics and finance, enables us to support experts and clients with a robust, multidisciplinary approach.
Market Manipulation

Cornerstone Research conducts detailed analyses in a range of matters involving benchmark manipulation, spoofing and layering, corners and squeezes, and wash trading allegations. We work with clients to determine the appropriate analyses for each matter, applying advanced modeling techniques and econometric methods to address complex issues.

We bring substantial experience handling big data, complex source code, and forensic analysis of data and documents. Using large public datasets and proprietary company information, we offer insightful and effective analyses. We combine technical expertise with a deep knowledge of litigation and regulatory issues.

<table>
<thead>
<tr>
<th>PRODUCTS</th>
<th>MARKETS</th>
<th>AREAS OF SPECIALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Commodities</td>
<td>Electronic Exchanges and Over-the-Counter</td>
<td>Regulatory and Governmental Enforcement Actions</td>
</tr>
<tr>
<td>Crude Oil and Refined Products</td>
<td>Domestic and International</td>
<td>Class Certification</td>
</tr>
<tr>
<td>Cryptocurrencies</td>
<td>Primary Offerings and Syndication</td>
<td>Joint Defense Groups</td>
</tr>
<tr>
<td>Electricity</td>
<td>Physical and Financial</td>
<td>Criminal Matters</td>
</tr>
<tr>
<td>Equity Investments and Derivatives</td>
<td>Cash and Derivatives</td>
<td>Private and Internal Investigations</td>
</tr>
<tr>
<td>Fixed Income Securities and Derivatives</td>
<td>Wholesale, Intermediary, and Retail Markets</td>
<td>Litigation</td>
</tr>
<tr>
<td>Foreign Exchange</td>
<td></td>
<td>Research and Analysis</td>
</tr>
<tr>
<td>Interest Rate Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Gas and Natural Gas Liquids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precious and Base Metals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Benchmark Manipulation: Trading Misconduct

Reference rates of financial and real assets are widely used in the global financial system as benchmarks for a range of transactions and financial products and contracts. Benchmarks, however, can be set in a variety of ways. For example, they may be calculated using voluntary versus mandatory trade reports or survey-based versus transaction-based data.

Alleged misconduct around benchmarks often takes one or both of two forms: (1) manipulation through direct conduct in the relevant markets prior to or during benchmark setting periods, or (2) manipulation through misreporting to price reporting agencies (PRAs) trade prices, volumes, or other market information with the intent to distort the published benchmark.
Trading Misconduct

Evaluate allegations of trading behavior allegedly impacting or attempting to impact closing prices of different products and contracts.

Analyze detailed trade and order book data from proprietary and nonproprietary systems covering multiple years and spanning multiple trading desks to investigate allegations at issue.

Reconstruct daily positions, estimate exposure to market price movements, calculate portfolio values, and evaluate risk management metrics.

Analyze the instruments’ market structure, market-wide volatility and liquidity conditions, and market trading behavior.

Assess trading behavior in the context of intraday hedging, market making, and risk exposure.

Evaluate economic impact of the alleged conduct on market prices and on other market participants.

Highlighted Case Study

Foreign Exchange

In several matters on behalf of global financial institutions, Cornerstone Research has analyzed allegations of front-running large client trades across multiple FX products. We have assessed alleged collusive trading and front-running of client orders before fixing benchmarks, triggering of stop loss orders, the alleged impact on in-the-money or out-of-the money status of vanilla options, the impact on barrier triggers of exotic options, as well as trading and hedging around expiration of binary options and in proximity to barriers.

We have also performed qualitative analysis of chat room discussions, audio transcripts, and other communications describing trading activity in the context of traders’ underlying positions and trading behavior.

Selected Experience

Interest Rates and Swaps Products

In ISDAFIX investigations, we have analyzed chat room discussions, audio transcripts, and other communications describing trading activity in the context of traders’ underlying positions and behavior. Cornerstone Research has helped clients understand how traders evaluate their risk exposure created by client orders and expiring option positions around benchmark fixing processes as well as the trading strategies traders might employ to hedge these risks.

Agricultural Commodities

Cornerstone Research has worked on agricultural commodity matters involving alleged misconduct affecting the publication of agricultural price benchmarks and related futures contracts. In these matters, we analyzed trading data to investigate price impact and materiality.

Crude Oil and Associated Products

Cornerstone Research has analyzed misconduct allegations relating to trading in international crude oil, gasoline, and natural gas. These cases involved allegations of misconduct by the oil majors’ trades and orders that were incorporated into the assessments conducted by Platts and other PRAs and subsequently into the published benchmarks.

Assessing Regulatory Claims

On behalf of several of the oil majors, Cornerstone Research has analyzed subpoenas received from international regulators relating to trading in international crude oil products, domestic crude oils, domestic gasoline, and domestic natural gas and potential impacts on petroleum price benchmarks. In these matters, Cornerstone Research reviewed trading records and market data to assist in developing a response strategy and to evaluate potential claims relating to oil majors’ conduct in the trading markets around benchmark setting periods.
Benchmark Manipulation: Misreporting to Price Reporting Agencies

PRAs collect, aggregate, and distribute information on the prices of products transacted in physical and financial markets. The methodologies used by the PRAs vary considerably. For example, some PRAs apply largely subjective approaches based on the trading experience of their reporters; other agencies rely almost entirely on mechanical approaches based on consummated transactions or estimates directly observed in the market or submitted by traders.
Misreporting to Price Reporting Agencies

Evaluate trading data and positions to assess allegations of strategic misreporting of trade data to PRAs in order to benefit market positions.

Analyze purported trading strategies and objectives to evaluate whether actual trading activity is consistent with stated objectives and economic rationale.

Review chat room discussions, instant messages, emails, phone recordings, and other forms of communications to analyze trading conduct, price reports, and benchmark outcomes.

Analyze data from both physical and relevant financial markets, such as whether observed quantities and qualities of the commodity at issue are in line with the underlying contract and reported quantities and qualities.

Evaluate the allegedly impacted benchmark relative to alternative rate or price measures to develop an understanding of the expected benchmark level but-for the alleged misconduct.

Utilize available datasets to formulate and quantify alleged ill-gotten gains and damages exposures for financial institutions and trading firms.

Highlighted Case Study

Interest Rate Benchmark Investigations and Civil Litigation

In interest rate benchmark cases we have evaluated allegations of antitrust violations and market manipulation. Cornerstone Research has assessed submitted rates relative to alternative measures of rates. We have analyzed chat room comments and other forms of communications, conducted statistical analyses of the factors affecting submitted rates, and examined whether deviations generated by statistical models are consistent with relevant communications.

Selected Experience

Crude Oil and Associated Products

Cornerstone Research was retained to assess allegations of misreporting to PRAs in propane, butane, naphtha, and associated products. The analysis involved evaluating other market participants’ trading activity, quality and quantity of the products, location and shipping terms, and price movements.

Natural Gas

In natural gas price misreporting investigations, Cornerstone Research has analyzed company and market data to determine the number and characteristics of trades made by the company, whether these trades might have been considered reportable at the time they were made, and whether these trades or the related market conditions were accurately represented in reports to PRAs. We also conducted detailed analysis of company, desk, and trader positions to analyze the potential incentives or disincentives to misreport trade prices.

We have analyzed purported trading strategies and objectives to evaluate whether actual trading activity is consistent with stated objectives and economic rationale.
Spoofing and Layering

Allegations of spoofing and layering can arise in a wide range of market settings, whether on electronic platforms or voice-brokered markets. They can involve all financial instruments as well as physical assets. A deep understanding of market microstructure is critical to these cases.
Spoofing and Layering

Conduct forensic analysis of large proprietary financial datasets to identify potential problematic conduct (both manual and algorithmic), assess the scope of conduct in question, and analyze trading patterns.

Clean, process, and analyze large datasets with tick-level order and trade data, such as financial institutions’ internal order-level data, exchanges’ publicly available market depth data, and trading venues’ proprietary audit trail data.

Assess allegations of multiple traders’ coordinated spoofing conduct and evaluate their trading behavior in the context of chats and other documentary evidence.

Analyze the alleged trading behavior in the context of varying market conditions, as well as financial institutions’ risk management and market making activity.

Utilize available datasets to formulate and quantify alleged ill-gotten gains and damages exposures for financial institutions and trading firms.

Investigate the potential impact in correlated markets or products.

Highlighted Case Study

Fixed Income

In a consulting matter for a global bank responding to requests from two different international regulators, Cornerstone Research analyzed a large message-level database of government bond futures transactions. We assessed the state of the order book when the allegedly suspicious orders entered the market as well as their alleged impact on prices and quantities.

Selected Experience

Metals

We have been retained by global financial institutions in numerous matters involving spoofing allegations. We have conducted forensic analyses of precious and base metals futures markets to investigate traders’ trading strategies in varying market conditions. Our staff and experts have also assessed financial institutions’ risk management and market making activity.

Index Derivatives and Foreign Exchange

In matters involving spoofing allegations of index derivatives and foreign exchange markets, we have developed algorithms to identify potential order activity of interest. We have performed in-depth analyses to examine order activity in the context of markets and traders’ trading strategies, risk management, and market making activities. Our experience also covers cross-market spoofing activity between spot (cash) markets and the related derivative markets.

We have assessed allegations of multiple traders’ coordinated spoofing conduct and evaluated their trading behavior in the context of chats and other documentary evidence.
Corners and Squeezes

Corners and squeezes are the inappropriate exercise of market power in either an asset or the futures or forward contract referencing that asset. Allegations of corners or squeezes may require analyzing the evolution and size of portfolio positions and holdings of the relevant contracts and physical commodities. We put these positions into the context of the conditions affecting the physical supply and demand of underlying assets as well as factors impacting trading and pricing of the relevant contracts across multiple electronic and exchange trading venues.
Corners and Squeezes

Provide detailed structural analysis of the underlying physical market including the deliverable supply available or the ability of shorts to meet delivery obligations.

Analyze detailed trade and order book data from proprietary and nonproprietary systems covering multiple years and spanning multiple trading desks to recreate and investigate daily positions and exposures to movements in the underlying reference product.

Utilize audit trail, order book, and transaction-level data to analyze trading in derivatives and their respective underlying products.

Assess the impact of market participants’ trading on the underlying products.

Assess trading behavior in the context of intraday hedging and risk management, market making, and the execution of client orders.

Highlighted Case Study

Crude Oil and Associated Products

On behalf of a multinational oil and gas company, Cornerstone Research analyzed allegations that the company had cornered the market for propane. Our analysis involved evaluating physical and financial positions relative to market conditions and price movements.

Agricultural Commodities

Cornerstone Research has analyzed allegations of commodities market manipulation through trading activity in both futures and OTC markets, for example, CFTC Rules 180.1 and 180.2. We examined data and reports from proprietary trading systems, as well as publicly available data from the USDA, the CME, the CFTC, and other third-party sources. We also analyzed allegations of improper exercising of market power to create an artificial price.

Non-Agricultural Commodities

Cornerstone Research has evaluated claims of manipulative exercise of market power in light of existing supply and demand conditions. In particular, we evaluated the alleged impact of delivery through the futures contract delivery mechanism compared to taking physical possession of the underlying commodity. These analyses also assessed whether an abnormal price existed during the relevant time period.

Our staff and experts have utilized audit trail, order book, and transaction-level data to analyze trading in derivatives and their respective underlying products.
Wash, Round-Trip, and Prearranged Trading

Allegations of wash trading can occur for every market and financial instrument. Wash trading (also referred to as “round-trip trading” or “prearranged trading”) creates the appearance of purchases and sales without incurring market risk or changing the trader’s market position.
Wash, Round-Trip, and Prearranged Trading

Assess and quantify alleged damages as well as evaluate other potential explanations for observed trading behavior.

Evaluate pairs of similar trades to assess how they fit with purported trading strategies and techniques.

Utilize proprietary as well as publicly available data to assess in-depth trading behavior in the context of varying market conditions, as well as financial institutions’ risk management and market making activity.

Evaluate any potential impact of alleged trading on other market participants.

Selected Experience

Equity Index

On behalf of financial institutions and trading firms, Cornerstone Research has analyzed allegations of wash trading in equity index futures markets and treasury futures markets. The allegations at issue pertained to both voice trades and trades on electronic platforms. Our analysis focused on estimating the potential market impact of the events at issue.

Cryptocurrencies

Cryptocurrencies can be traded like other financial products. Even though official regulation governing cryptocurrency exchanges has not yet been implemented, many exchanges have imposed their own rules to prevent abusive trading conduct. A prominent example of a potentially abusive trading strategy that cryptocurrency exchanges have addressed in their self-regulatory frameworks is wash trading. This type of potentially abusive strategy has been alleged to artificially inflate trading volume on cryptocurrency exchanges, thereby fraudulently attracting more and more market participants. On behalf of cryptocurrency exchanges and market participants, Cornerstone Research has examined the exchanges’ volume integrity, including potential instances of wash trading. These investigations included assessing trading behavior in the context of varying market conditions as well as highlighting potentially prearranged trades.

Fixed Income

Cornerstone Research has investigated and analyzed patterns of potential round-trip trades among several traders of fixed income instruments. These complex structures involved three or more parties and multiple trades of varying sizes and at different prices. While they increased the parties’ market volume statistics, when viewed in aggregate, the structures appeared to comprise sets of transactions with no net change in positions. Using algorithmic coding, we were able to identify the occurrences of the structures at issue and analyze how they fit into the marketplace and impacted relevant positions and trading.
Cornerstone Research provides economic and financial consulting and expert testimony in all phases of complex litigation and regulatory proceedings. The firm works with an extensive network of prominent faculty and industry practitioners to identify the best-qualified expert for each assignment. Cornerstone Research has earned a reputation for consistent high quality and effectiveness by delivering rigorous, state-of-the-art analysis for over thirty years. The firm has 700 staff and offices in Boston, Chicago, London, Los Angeles, New York, San Francisco, Silicon Valley, and Washington.