Post-Class Summary: Algorithmic Trading Business Models

Key Frameworks

Business Model Canvas for Algorithmic Trading

The Business Model Canvas decomposes any venture into nine interlocking elements — value proposition, customer segments, channels, revenue streams, key resources, key activities, key partners, cost structure, and customer relationships. Applied to algorithmic-trading firms, the Canvas reveals three sharply distinct archetypes that all touch the same order book. A prop shop has itself as the customer and earns from principal trading P&L; a broker or agency desk has institutional clients as the customer and earns from commissions and rebates; a vendor or platform has other trading firms as the customer and earns from subscription or per-message fees. Each archetype carries different key resources (research talent and capital, client coverage and routing technology, software intellectual property), and confusing the three explains many failed pivots when a firm tries to convert its Canvas into one of the others without rebuilding the underlying blocks.

Platform Economics Applied to Algorithmic Trading

Wholesale market makers operate as multi-sided platforms connecting retail-broker flow to institutional venues. These platforms exhibit cross-side network effects: more retail flow improves the predictability of the inventory the platform must warehouse, which sharpens the price-improvement signal the platform can offer institutions, which in turn justifies tighter quotes back to retail. The chicken-and-egg solution is to bootstrap the retail-broker side first by guaranteeing operational reliability and price improvement, so that institutional connectivity follows once flow scale exists. Unlike consumer-platform network effects, the flywheel is invisible to the end-investor, but it is decisive for which firms occupy the wholesale layer.

Unbundling-Rebundling Applied to Algorithmic Trading

Christensen's disruption framework explains how algorithmic firms enter and grow on a trading desk: they unbundle a single function from the historical broker-dealer offering — principal market making, ETF authorised-participant creation, continuous options quoting — and deliver it better, faster, or with lower friction. Over time, successful unbundlers rebundle, adding execution algorithms, transaction-cost analytics, and workflow tooling on top of the original wedge. The Virtu trajectory is the canonical case: from pure principal market making to an execution-services stack sold to the very institutions whose flow the firm once simply absorbed. The endpoint of disruption is re-creating the workflow that was disrupted.

Value Chain Deconstruction Applied to Algorithmic Trading

Evans and Wurster argued that information-rich value chains are vulnerable to deconstruction when digital alternatives reduce the cost of coordinating across firm boundaries. The institutional-trade lifecycle — order origination, routing and smart-order-routing, matching and internalisation, execution and risk warehousing, clearing and settlement, post-trade analytics — is a textbook case. Different algorithmic firms attack different links: Citadel Securities owns matching for retail flow, Jane Street owns ETF creation/redemption, Optiver owns continuous quoting in lit options venues. Banks defend the links where regulation, deep client relationships, or balance-sheet capacity create natural moats; algorithmic firms exploit the links where information asymmetry and speed give the largest leverage.

Regulatory Arbitrage Applied to Algorithmic Trading

Some algorithmic firms gain an early advantage by operating outside the regulatory perimeter that constrains traditional broker-dealers. Examples include high-frequency strategies that exploit asymmetric reporting timing, market-making activity in newer venues with lighter supervisory regimes,

and quant-research firms whose trading appears outside any traditional sales-and-trading classification. This arbitrage is inherently temporary: regulators eventually tighten reporting timing, clarify market-making obligations on each venue, and codify what constitutes a regulated trading firm. The strategic question for each firm is whether it can convert its head start into a durable compliance moat — building licensing, surveillance, and supervisory-relationship capability that itself becomes a barrier to later entrants.

Company Cases Summary

Company	Value Creation Mechanism	Key Framework	What Makes It Different
Citadel Securities	Wholesale market making sitting between retail-broker flow and institutional venues; principal liquidity provider on every fill	Platform Economics	Two-sided liquidity platform whose flywheel is invisible to the end-investor
Virtu	Started as pure principal market maker; rebundled algo execution, transaction-cost analytics, and workflow tooling on the same low-latency stack	Unbundling-Rebundling	Cleanest example of the wedge-then-platform arc on a trading desk
Jane Street	ETF authorised-participant role connecting primary basket creation to secondary quoting; expanded across asset classes	Value Chain Deconstruction	Owns the connective layer of the ETF lifecycle rather than any one customer-facing role
Two Sigma	Quantitative research firm whose returns depend on the discovery rate of fresh signals and the rate of decay of existing ones	Regulatory Arbitrage and Pipeline Renewal	Structural moat is research velocity, not any single strategy
Optiver	Continuous two-sided quoting in exchange-traded options; thrives on lit electronic venues, stalls in voice-driven RFQ markets	Platform Economics with Venue-Habitat Constraint	Vivid example of context dependency: the BM is bound to a specific venue architecture

The Five-Test Framework

Use these five tests to evaluate any algorithmic-trading firm's strategic position:

1. **Friction test.** Identify the single largest friction the firm removes from the trading process for its specific customer.
   Application: Citadel Securities removes the cost and reliability gap of routing each retail order across many fragmented venues; if that gap closed industry-wide, would the firm still have a reason to exist?

2. **Platform test.** Determine whether the firm connects two or more sides of the order-flow market and benefits from cross-side network effects.
   Application: Citadel Securities is a textbook two-sided wholesale-liquidity platform; a single-strategy prop shop is not.

3. **Rebundling test.** Assess whether the firm has begun — or is likely to begin — adding services beyond its original wedge product.
   Application: Virtu launched as a pure principal market maker, then added algo execution, transaction-cost analytics, and order-management workflow on the same stack.

4. **Infrastructure test.** Ask whether the venue habitat the firm depends on is expanding or contracting.
   Application: Optiver wins where lit electronic options venues spread; the firm stalls where voice-RFQ persists. The infrastructure direction matters more than any single strategy.

5. **Arbitrage test.** Evaluate the typical strategy half-life and the rate at which the research pipeline replaces decaying strategies.
   Application: Two Sigma's BM rises or falls on this metric. When half-lives shrink, the structural moat must be research velocity itself, not any single strategy.

Connections to Other Topics

The frameworks above connect directly to several other course themes. The unbundling-rebundling arc on a trading desk parallels the broader FinTech rebundling pattern explored in the FinTech business-models material in Lesson One, where the same wedge-then-platform logic appears on the consumer side rather than the institutional side. The platform-economics view of wholesale market making links to the broader market-microstructure material in this lesson, where the consequences of internalised retail flow on lit-venue price formation are examined directly. Finally, the venue-habitat constraint that defines where Optiver's BM thrives connects to the regulatory and operational-resilience material in Lesson Seven, where the architecture of trading venues is treated as the very piece of critical infrastructure whose continuity must be guaranteed.

