

Teacher Notes: The Digital Finance Analyst’s Canvas

Theory Background, Model Answers, and Slide-by-Slide Guidance

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Contents

1 Purpose and Pedagogy	1
2 Theoretical Framework	2
2.1 Q1 Theory: Transaction Cost Economics	2
2.2 Q2 Theory: Two-Sided Markets and Network Effects	2
2.3 Q3 Theory: Behavioral Finance	3
3 Slide-by-Slide Instructor Notes	3
3.1 Slide 1: Title	3
3.2 Slide 2: The \$1M Investment Dilemma	3
3.3 Slide 3: The Analyst’s Canvas Overview	3
3.4 Slide 4: Q1 – Who Pays Whom? (Coinbase Prompt)	4
3.5 Slide 5: Q1 Supporting – Coinbase Revenue Anatomy	4
3.6 Slide 6: Q1 Supporting – The TCE Translation	4
3.7 Slide 7: Q2 – Who Must Show Up? (Coinbase Prompt)	4
3.8 Slide 8: Q2 Supporting – Four Critical Dependencies	4
3.9 Slide 9: Q2 Supporting – Cold-Start Strategy	5
3.10 Slide 10: Q3 – What Can Break This? (Coinbase Prompt)	5
3.11 Slide 11: Q3 Supporting – Fragility Evidence	5
3.12 Slide 12: Q3 Supporting – Behavioral Amplification	5
3.13 Slide 13: Coinbase Canvas Verdict	5
3.14 Slide 14: The Canvas Generalises	6
3.15 Slide 15: What the Canvas Predicted	6
3.16 Slide 16: Solo Practice Setup	6
3.17 Slide 17: Wise Context and Numbers	6
3.18 Slide 18: Wise Q1 and Q2	6
3.19 Slide 19: Wise Q3 and Verdict	7

1 Purpose and Pedagogy

The Canvas is a diagnostic tool derived from three bodies of economic theory. Students encounter three plain-language questions; this document provides the theoretical scaffolding behind each one, enabling instructors to answer “why does this framing work?” when challenged, and to probe deeper when a student gives a superficial answer.

The questions are intentionally operational: a first-year BSc student can apply them after one worked example. The depth comes from *what you look for* once you start asking.

Pedagogy note: Do not introduce the theory labels (TCE, Two-Sided Markets, Behavioral Finance) at the opening. Let students build intuition through the Coinbase walk-through first. Reveal the theory framing only when a student asks “why does this framework work?” The hook at Slide 2 anchors everything to a real investment decision from Day 5A – use that tension.

2 Theoretical Framework

2.1 Q1 Theory: Transaction Cost Economics

Core claim (Coase, 1937; Williamson, 1985): Firms and markets exist not only to produce goods but to reduce the cost of transacting. Three types of transaction costs determine whether a firm, a market, or a technology platform wins.

The three cost categories:

Search costs The cost of finding a suitable counterparty. Coinbase eliminates search cost by aggregating buyers and sellers in one order book.

Verification costs The cost of confirming the counterparty is legitimate and the asset is genuine. Blockchain smart contracts embed verification in code; the protocol checks balances and authorises transfers without a trusted intermediary.

Enforcement costs The cost of ensuring the agreed transaction completes. DeFi relies on irreversible on-chain execution: once a smart contract releases funds, no enforcement is needed because reversal is impossible.

Why Q1 maps to TCE: “Who pays whom, and why?” is really asking “which transaction cost is this business eliminating, and is the customer willing to pay to have it eliminated?” A business that cannot name a specific cost it removes is not a business – it is a feature.

2.2 Q2 Theory: Two-Sided Markets and Network Effects

Core claim (Rochet & Tirole, 2003; Parker & Van Alstyne, 2005): Platforms serve two or more distinct user groups that provide each other with network benefits. The platform’s role is to solve the coordination problem: neither side joins unless the other side is already there.

Key concepts:

Indirect network effects Value to buyers increases with the number of sellers, and vice versa. A crypto exchange with 1,000 trading pairs is vastly more useful than one with 10.

Cold-start strategies Platforms resolve the chicken-and-egg problem through: (1) subsidising one side (Uber drivers with guaranteed minimums), (2) starting narrow and winning one corridor completely (Wise with UK–US), or (3) using a single-player mode where one user extracts value alone.

Platform pricing asymmetry The profit-maximising price structure depends on price elasticity and cross-side externalities. Coinbase charges traders while listing tokens at low cost to issuers: the issuer subsidy attracts assets, asset variety attracts traders, traders provide fee revenue.

Regulatory gatekeepers as a third side In digital finance, regulators act as an implicit third side: the platform cannot operate unless regulators allow it. Compliance is a participation condition, not a competitive feature.

2.3 Q3 Theory: Behavioral Finance

Core claim (Kahneman & Tversky, 1979; Thaler, 1985; Shiller, 2000): Markets and institutions systematically deviate from rational expectations because human decision-making is governed by heuristics and biases. In digital finance, these biases are amplified by speed, anonymity, and social media.

Relevant biases for Q3 diagnosis:

Overconfidence Decision-makers overestimate forecast precision. Terra-LUNA’s Do Kwon publicly offered to bet \$1M that LUNA would be higher in a year: textbook overconfidence that drew billions into a fragile model.

Herding Agents imitate observed actions of others. When large institutions allocated to FTX, smaller investors inferred due diligence had been done. Herding accelerated both the boom and the collapse.

Authority bias Signals from high-status sources receive disproportionate weight. FTX’s celebrity endorsements and Sequoia backing caused investors to underweight publicly available balance sheet anomalies.

Information cascade Cascades form when individuals act on inferred signals rather than private information. Bank runs are cascades: depositor A’s withdrawal gives depositor B a signal, prompting withdrawal, and so on. SVB collapsed in 48 hours by this mechanism.

Automation bias Operators over-rely on automated systems and fail to intervene when they malfunction. Knight Capital’s \$440M loss in 45 minutes resulted from a deployment error with no human circuit breaker.

3 Slide-by-Slide Instructor Notes

3.1 Slide 1: Title

No instructor action needed. Use transition time to ask: “Yesterday we dissected Coinbase’s revenue – today we ask whether you would invest in it.” This plants the Day 5A connection before Slide 2 makes it explicit.

3.2 Slide 2: The \$1M Investment Dilemma

Purpose: Problem-first opening. Students have the Day 5A numbers in memory – this slide forces immediate application.

Discussion management: Give pairs exactly 3 minutes. Do not let discussion run long. The goal is to surface gut reactions, not correct answers. Common responses:

- “Yes, strong brand” – probe: what happens to revenue in a bear market?
- “No, too volatile” – probe: what would make you change your mind?
- “Need more data” – probe: which three data points? This is exactly Q1/Q2/Q3.

The payoff: when students realise the three things they “need to know” map to Q1, Q2, and Q3, the Canvas feels like their own discovery, not a framework imposed from outside.

3.3 Slide 3: The Analyst’s Canvas Overview

Purpose: Introduce the three-question structure before applying it.

Key talking point: The labels under each question (Revenue mechanics, Two-Sided Markets, Behavioral Finance) reference theory the students have seen. Do not lecture on the theory now –

just signal that these questions have intellectual backing. Theory depth is in these teacher notes, available if challenged.

Timing note: Slide 3 should take under 3 minutes. It is a map, not a destination.

3.4 Slide 4: Q1 – Who Pays Whom? (Coinbase Prompt)

Purpose: First Socratic prompt. Students generate the answer before seeing it.

Model answer (reveal on Slide 5): Retail traders (0.5–1.5% fee) are the primary paying customer. Institutional clients, token issuers, and float income are secondary. Most of the 110M verified users never paid a fee.

Common errors to correct:

- “All users pay” – incorrect; free users are subsidised by active traders
- “Coinbase earns from crypto price appreciation” – incorrect; Coinbase holds no proprietary crypto positions (unlike FTX’s Alameda sister)

3.5 Slide 5: Q1 Supporting – Coinbase Revenue Anatomy

Purpose: Reveal the data. Let students compare their estimates to the actual 75% retail concentration figure.

Key insight to emphasise: Revenue concentration in one segment (retail fees) means the business is exposed to one behavioral variable (retail trading appetite). Q3 will show where this leads.

3.6 Slide 6: Q1 Supporting – The TCE Translation

Purpose: Connect the fee to economic theory without lecturing.

Key talking point: “The 0.7% premium over a DEX is the price of trust. When crypto users become sophisticated enough to self-custody, this premium compresses. TCE predicts Coinbase’s retail margin will erode as the user base matures.” This is a prediction, not a judgment – ask if students agree.

3.7 Slide 7: Q2 – Who Must Show Up? (Coinbase Prompt)

Purpose: Second Socratic prompt. Students often name only buyers and sellers – push them to name the non-obvious participants.

Model answer (reveal on Slide 8): Four dependencies: (1) commercial banks for fiat rails, (2) regulators for money-transmitter licences, (3) token projects for listing, (4) liquidity providers for tight spreads.

Key probe: “Which of these four could disappear tomorrow? What would happen to Coinbase’s revenue within 48 hours?”

3.8 Slide 8: Q2 Supporting – Four Critical Dependencies

Purpose: Show the platform is four-sided, not two-sided. Each side has veto power.

Key insight: The SEC can revoke the ability of banks to process crypto transactions (Operation Chokepoint 2.0 is the reference). Coinbase’s banking relationships are its most fragile dependency, more so than regulatory approval.

3.9 Slide 9: Q2 Supporting – Cold-Start Strategy

Purpose: Explain how Coinbase bootstrapped network effects.

Key talking point: “Compliance was the subsidy. Coinbase paid years of legal and compliance costs before it was profitable. That investment is now the moat – a new entrant must repeat the same investment without Coinbase’s brand.” This connects to platform strategy: compliance as a cold-start subsidy.

3.10 Slide 10: Q3 – What Can Break This? (Coinbase Prompt)

Purpose: Third Socratic prompt. Stress the Q1 answer: “What happens when retail traders stop trading?”

Model answer (reveal on Slide 11): Bear market cuts trading volume by 80%+, which cuts fee revenue by 75%. Regulatory reclassification of tokens as securities removes the product. FTX-style contagion triggers a confidence cascade against all centralised exchanges including Coinbase.

Key question: “Were these risks predictable before 2022? Were they in the public data?” – Yes. Q3 is not hindsight; it is pre-mortem thinking.

3.11 Slide 11: Q3 Supporting – Fragility Evidence

Purpose: Show the failure mode already happened (twice).

Key numbers:

- 2022: revenue –75%, staff cut by 1,100
- 2023: revenue +168% (bull market returned)
- Pattern: the cycle will repeat. Q3 predicted both directions.

Key insight: The 2022 data was not an outlier; it was the model behaving exactly as Q3 would have predicted.

3.12 Slide 12: Q3 Supporting – Behavioral Amplification

Purpose: Show that revenue falls faster than asset prices because behavioral dynamics amplify the revenue effect.

Key talking point: “Coinbase earns on volume, not on price. When price falls 40%, volume can fall 80% (no directional view, no need to trade). Revenue falls faster than the asset price. This is non-linear fragility.”

FTX contagion note: Authority bias caused investors to trust FTX because of its backers. When it collapsed, the same authority bias reversed: no centralised exchange was trusted. Coinbase was collateral damage despite being solvent.

3.13 Slide 13: Coinbase Canvas Verdict

Purpose: Synthesise all three answers. Return to the \$1M decision.

Key talking point: “The Canvas does not say buy or sell. It says: you are buying exposure to crypto market sentiment, not to exchange infrastructure. Whether that risk is priced correctly is a separate question requiring a DCF or comparable multiples. The Canvas maps the risk. Pricing the risk is finance 201.”

3.14 Slide 14: The Canvas Generalises

Purpose: Show that the same three questions apply beyond Coinbase.

Key talking point: “Terra-LUNA’s Q1 answer was: nobody pays, the system creates value from price appreciation. That should have been a red flag. Q1 on Terra-LUNA predicts fragility before the collapse.” Invite students to suggest other companies. Any digital finance business can be diagnosed in under 10 minutes with these three questions.

3.15 Slide 15: What the Canvas Predicted

Purpose: Bridge to the afternoon session (Day 6B: When Digital Finance Fails). Preview the four failure cases.

Key talking point: “This afternoon you will be the detective. Each of these four companies left Q3 signals in public data before they collapsed. Your job is to find them.”

Do not reveal the Q3 answers yet – save them for Day 6B.

3.16 Slide 16: Solo Practice Setup

Purpose: Transition to independent work.

Instructor action:

1. Distribute the Wise handout (or project the key numbers)
2. Set a visible 15-minute timer
3. Circulate silently during the first 8 minutes
4. In the last 7 minutes, begin stopping at tables to ask Q1 cold

Rationale for individual writing: Writing before discussion prevents anchoring. Students who write “I think Q3 is regulatory risk” and then see the debrief slide will remember their own reasoning, not the slide.

3.17 Slide 17: Wise Context and Numbers

Purpose: Reveal the company, orient students who did not recognise it, begin the debrief.

Key contrast to establish: Wise’s revenue is usage-based; Coinbase’s is cycle-dependent. This one structural difference changes Q3 entirely.

Model answer for Q1: Senders pay a transparent FX fee (0.4–1.0% plus a small fixed charge). Business accounts pay a monthly SaaS fee. Float income on £1B+ in transit. Revenue follows transaction volume – not asset prices.

3.18 Slide 18: Wise Q1 and Q2

Purpose: Class debrief of student answers against the model.

Common Q2 errors:

- Missing the banking partners in each corridor (the settlement rails are the business – without them, no money moves)
- Missing the e-money licence per jurisdiction (regulatory risk is not one licence, it is 160+ licences)

Key insight: Wise’s bilateral banking network took 13 years to build across 160+ countries. A bank launching today with Wise’s margin model must replicate that network from scratch. Replication time is the moat.

3.19 Slide 19: Wise Q3 and Verdict

Purpose: Complete the Wise diagnosis. Final comparison with Coinbase.

Key contrast:

- Coinbase Q3: behavioral cascade (herding, loss aversion, information cascade)
- Wise Q3: structural risks (regulatory, banking partner, corridor closure)

Wise has no behavioral cascade risk because revenue does not depend on sentiment-driven trading volume. The fragility is institutional and regulatory, not psychological.

Closing prompt: “Given what you now know, how would you revise your \$1M allocation from Slide 2? Would you split it? What changed in your thinking?” This closes the narrative loop opened at the start.

End of teacher notes. Distribute the main slide deck (lecture_day6a_analysts_canvas.pdf) to students. Retain this document for instructor use only.