

Quiz: Strategic Toolkit and the Innovation Frontier

Day 7C – 20 Questions

Prof. Dr. Joerg Osterrieder

Digital Finance – Intensive Course

Question 1 – Porter Five Forces in Fintech

Stripe enters a market dominated by Adyen and PayPal. A Porter analyst evaluating the “threat of new entrants” force in 2010 EU online payments would have concluded that the force was:

- A LOW, because regulatory capital and PCI compliance create high barriers
- B HIGH, because cloud infrastructure and modular payment APIs lowered the capital required to launch a payment processor, making entry by well-funded startups credible
- C LOW, because incumbent network effects with merchants were already too tipped to challenge
- D HIGH, because the EU mandated that any new bank could provide payment services

Porter's threat-of-entry force depends on capital requirements; when infrastructure commoditises, the force rises and incumbent profitability falls.

Question 2 – BMC and the B2C to B2B2C Shift

A neobank originally sold direct-to-consumer (B2C) accounts via a mobile app. It pivots to B2B2C: it sells white-label banking infrastructure to non-bank brands (airlines, retailers) who put their own logo on the product. Which Business Model Canvas block changes **most**?

- A Key resources, because the technology stack stays identical
- B Customer segments and channels, because the firm now reaches end users through partner brands rather than its own marketing funnel
- C Cost structure, because servicing costs per account remain unchanged
- D Value proposition for end users, because the underlying account features stay the same

When a firm changes how it reaches end users, customer segments and channels change first; the rest of the BMC must re-cohere around them.

Question 3 – Helmer 7 Powers: Hardest to Acquire

Hamilton Helmer's 7 Powers are: Scale Economies, Network Economies, Counter-Positioning, Switching Costs, Branding, Cornered Resource, and Process Power. Which of these is generally considered **hardest to acquire from scratch** by a new entrant?

- Ⓐ Scale Economies, because they require only capital to build large facilities
- Ⓑ Switching Costs, because contracts can be written quickly with new customers
- Ⓒ Process Power, because it is tacit operational know-how built over years of disciplined execution and cannot be bought or copied
- Ⓓ Branding, because advertising spend translates directly into brand equity

Process Power is tacit and cumulative; it cannot be bought, only built over many years of disciplined execution.

Question 4 – Strategy Synthesis: Matching Moats

Match each fintech to its dominant Helmer Power source:

- Ⓐ Ant Group: Branding; Nubank: Cornered Resource; Stripe: Counter-Positioning
- Ⓑ Ant Group: Network Economies and Cornered Resource (Sesame data); Nubank: Branding and Switching Costs (low-CAC referral, daily-use card); Stripe: Process Power (developer-grade reliability + Counter-Positioning vs legacy acquirers)
- Ⓒ Ant Group: Process Power only; Nubank: Scale only; Stripe: Switching Costs only
- Ⓓ All three rely primarily on Scale Economies and nothing else

Each successful fintech wins through a different Power mix; “moat” alone is too vague, name the specific source.

Question 5 – BMC + Porter Applied to One Case

A Porter analyst scores Klarna's industry position in EU buy-now-pay-later (BNPL) 2024 as: rivalry HIGH (Affirm, Afterpay, Apple Pay Later), substitutes RISING (banks launching BNPL), buyer power RISING (merchants negotiating fees down). A BMC analyst notes Klarna's revenue is concentrated in merchant fees. The combined diagnosis is:

- A Klarna's industry is favourable and its business model is robust
- B Porter shows margin pressure from three forces; BMC shows the revenue stream most exposed is merchant fees. Klarna must either find a new Power source or diversify its revenue block before margin compresses further
- C Porter and BMC give contradictory results; only Porter should be used
- D Klarna should exit the industry because the forces are unfavourable

Porter diagnoses the industry; BMC localises where in the firm the pressure hits hardest. Use both; the diagnosis sharpens.

Question 6 – Rogers Segments and the Tipping Point

In Rogers' diffusion of innovations, the cumulative adoption curve crosses its steepest growth phase when the product moves from one specific segment to the next. Which transition typically drives the tipping point?

- A Innovators (2.5%) to Early Adopters (13.5%), because Innovators set the trend
- B Early Adopters (13.5%) to Early Majority (34%), because the Early Majority adopts only after a proven track record and represents the largest segment shift
- C Late Majority (34%) to Laggards (16%), because Laggards finally surrender
- D There is no tipping point; adoption is uniform across segments

The tipping point is the chasm between Early Adopters and Early Majority; many fintech launches stall here permanently.

Question 7 – Bass Parameters: Interpreting the Ratio

A fintech's Bass model is fitted with $p = 0.005$ (innovation push) and $q = 0.4$ (imitation pull). What does the ratio $q/p = 80$ imply about the firm's growth engine?

- A Advertising spend dominates adoption; word-of-mouth is negligible
- B Word-of-mouth dominates adoption by a factor of about 80x over the innovation push; the firm should invest in referral, NPS, and community rather than paid acquisition
- C The two parameters cancel out; growth is purely random
- D The market is already saturated and no further growth is possible

The q/p ratio is the strategic input; high ratio means word-of-mouth dominates and referral spend has higher ROI than advertising.

Question 8 – Bass Peak Adoption Time

For the Bass model, the time of peak adoption (when dN/dt is maximised) is approximately $t^* \approx \ln(q/p)/(p + q)$. Given $p = 0.005$ and $q = 0.4$, the approximate peak adoption year (counting from launch) is closest to:

- A About 2 years
- B About 5 years
- C About 11 years
- D About 25 years

Peak adoption time scales with $\ln(q/p)/(p + q)$; low p delays take-off, high q accelerates the climb once started.

Question 9 – Two-Sided Diffusion: Which Side Lags?

In a two-sided payments network (merchants and consumers), if the platform launches consumer-first, which side's adoption typically **lags** and why?

- A Consumer adoption lags, because merchants always move first
- B Merchant adoption lags, because merchants need a credible consumer base before paying for installation, integration, and ongoing fees; the cross-side externality runs from consumers to merchants
- C Both sides adopt simultaneously by construction
- D Neither side adopts because two-sided launches always fail

The side with higher join cost lags; cross-side externalities create chicken-and-egg dynamics that strategy must explicitly resolve.

Question 10 – Diffusion Patterns: CBDC vs Bitcoin

Compare CBDC rollout patterns (e-CNY in China, digital euro in EU) with Bitcoin adoption. The diffusion shapes differ because:

- A Both follow identical Bass curves because both are digital money
- B CBDC rollout is top-down (central bank pushes through banks and merchants, high p via mandate, low q initially); Bitcoin adoption is bottom-up (community-driven, low p , high q via word-of-mouth and speculation cycles)
- C Bitcoin had high p from corporate marketing; CBDC has high q from user enthusiasm
- D Diffusion theory does not apply to monetary instruments

Top-down and bottom-up adoption produce different $p : q$ profiles; the same diffusion framework reads both with opposite parameter values.

Question 11 – Henderson-Clark Applied to JPMorgan

JPMorgan invests heavily in mobile banking, in-house KYC, real-time FX, and lending technology, yet loses share to Revolut. From a Henderson-Clark perspective, which failure mode best describes JPMorgan's miss?

- A Radical innovation failure: Revolut invented entirely new components JPMorgan lacked
- B Architectural innovation failure: JPMorgan owns every component (KYC, payments, card, FX, lending) but Revolut re-wired the same components into a single mobile-first universal account; JPMorgan's siloed product structure could not be reorganised quickly enough
- C Incremental innovation failure: Revolut had a slightly better marketing budget
- D Modular innovation failure: Revolut substituted one component

Architectural innovation reorganises the same components; incumbents miss it because they fund component R&D, not architecture rewiring.

Question 12 – McKinsey Three Horizons in Growth Stage

A growth-stage fintech (Series C, profitable, 5m users, expanding into new product lines) is asked what the ideal Three Horizons allocation looks like for it. The most appropriate allocation pattern is approximately:

- A 95% H1 (extend core) / 4% H2 / 1% H3 – mirroring incumbent banks
- B Approximately 70% H1 (extend core product to more users) / 20% H2 (build the next product line) / 10% H3 (option-style bets on emerging technologies)
- C 100% H3 (pure option bets) because the firm is young
- D 50% H1 / 50% H3 with no H2 – skip the middle horizon

70/20/10 is the Three Horizons benchmark; growth-stage firms can afford the discipline that incumbents abandon and pure-option startups cannot fund.

Question 13 – Modularity Tradeoffs: API Economy vs Vertical Integration

A fintech faces a build-or-integrate decision: build its own KYC, fraud, and ledger systems (vertical integration), or assemble them from third-party APIs (modular API economy). The tradeoff is:

- A Vertical integration is always cheaper and faster than API integration
- B API economy delivers faster time-to-market and lower fixed cost, but the firm rents away the differentiation; vertical integration is slower and more capital-intensive but builds Helmer-style Process Power and Cornered Resource if executed well
- C API economy and vertical integration produce identical outcomes
- D Vertical integration eliminates all dependencies on regulators

Modular APIs win on speed; vertical integration wins on durable Powers. Choose deliberately; the choice shapes every Helmer score.

Question 14 – Applied Three Horizons Scoring

A traditional bank reports its 2024 R&D portfolio as: 85% incremental upgrades to existing products, 12% new digital products targeted at existing customers, 3% blockchain and quantum-finance pilots. Score this portfolio against the ideal 70/20/10 Three Horizons benchmark.

- A Allocation is well above ideal on H1, slightly under on H2, modestly under on H3; the bank is over-invested in extending the core and under-invested in the future
- B Allocation is ideal because most R&D should always go to existing products
- C Allocation is under-invested in H1 and over-invested in H3
- D The 70/20/10 benchmark does not apply to banks

Three Horizons benchmarking reveals incumbent under-investment in H2/H3; the gap is where fintech disruption lands.

Question 15 – Modular vs Open Innovation: When Open Wins

A fintech faces a choice between closed in-house development and open innovation (grants programmes, public bug bounties, open-source contributions). Open innovation is most likely to outperform closed when:

- A The problem is narrow, well-defined, and IP can be fully protected
- B The problem is broad, the solution space is uncertain, the firm benefits from a network of external contributors, and the value capture is in distribution rather than the code itself (e.g., Aave grants programmes, Visa Innovation Center)
- C The firm has unlimited internal R&D budget and prefers full control
- D Open innovation is never preferable

Open innovation wins on H3-style uncertainty; closed wins on H1 narrow optimisation. Match the boundary choice to the horizon.

Question 16 – AI in Finance: LLM Credit Underwriting and Akerlof

An LLM-based credit underwriter ingests bank statements, employment history, social signals, and transaction patterns to estimate borrower risk. From Akerlof's lemon-problem perspective, what does this technology do?

- A It worsens the lemon problem by adding noise to credit decisions
- B It reduces the lemon problem by giving lenders a richer signal of borrower quality, narrowing the information gap and allowing prices to better match risk; this expands credit access to previously rationed borrowers
- C It has no effect on the lemon problem because LLMs cannot read financial data
- D It eliminates the lemon problem entirely

Better signals shrink information asymmetry; the LLM credit moat is the data ingestion pipeline, not the model itself.

Question 17 – Tokenization: BlackRock BUIDL Significance

BlackRock launched BUIDL in 2024 as a tokenized money market fund on Ethereum, reaching about USD 1.7bn in 2026. The economic significance of this product is:

- A Cosmetic: BUIDL is identical to a traditional money market fund with a different label
- B Structural: BUIDL signals that the world's largest asset manager is willing to issue regulated traditional finance products on a public blockchain, validating tokenisation as institutional infrastructure rather than crypto-native experimentation
- C Negative: BUIDL undermines BlackRock's traditional fund business
- D Irrelevant: USD 1.7bn is too small to matter

Tokenisation moved from H3 option to H2 emerging business when BlackRock issued BUIDL; institutional legitimisation matters more than the immediate volume.

Question 18 – CBDC Design and Commercial Bank Deposits

A central bank is designing a retail CBDC. Which design choice has the **biggest implication** for commercial bank deposits and the risk of bank disintermediation?

- A Whether the CBDC uses a blockchain or a centralised database
- B The hold-limit: the maximum CBDC balance any individual may hold. A high or unlimited hold-limit lets households shift deposits from commercial banks to the central bank, draining bank liquidity; a low hold-limit (e.g., EUR 3,000 cap) preserves commercial bank deposit funding
- C The user-interface design of the digital wallet app
- D The colour scheme of the CBDC banknote equivalent

The CBDC hold-limit is the disintermediation lever; everything else is implementation detail relative to this monetary policy choice.

Question 19 – Stablecoin Reserves vs Fractional Reserve Banking

A USDC stablecoin issuer holds 80%+ in short Treasury bills and 15% cash. A traditional commercial bank holds about 10% of liabilities in central bank reserves and lends out the rest. Compare the monetary mechanics:

- A The two are identical because both issue dollar-denominated liabilities
- B USDC is fully-reserved (100% backed in safe assets, no money creation through lending); a commercial bank is fractional-reserve (creates new deposits through lending, expanding M2). The two have opposite implications for monetary aggregates and credit creation
- C USDC creates more money than a commercial bank
- D Commercial banks hold 100% reserves like USDC

Stablecoins are digital narrow banks; their share growth versus fractional-reserve banks reshapes credit creation, a structural monetary effect.

Question 20 – Forecasting: Which Segment Faces Most Uncertainty in 2027?

Given the 2024-2026 regulatory trajectory (MiCA fully phased, US GENIUS Act, EU DMA gatekeeper rules, PSD3 in draft, FCA crypto perimeter), which fintech segment faces the **most uncertainty** in 2027?

- A Payment processors (Stripe, Adyen): regulation is settled around interchange, AML, PSD2
- B Custody and brokerage: rules are well-established under MiFID II, FCA, SEC
- C DeFi protocols: still no consensus on whether they are regulated as financial intermediaries, securities exchanges, software providers, or unregulated; jurisdictions disagree (US vs EU vs Singapore vs Switzerland), and a single major enforcement action could redefine the segment overnight
- D Robo-advisors: established under MiFID II suitability rules

Forecasting names dependencies, not outcomes. The segment with the most binary unresolved regulatory question is the segment with the most 2027 uncertainty.