Payments and Fintech

10-Slide Mini Lecture

Joerg Osterrieder

University of Zurich

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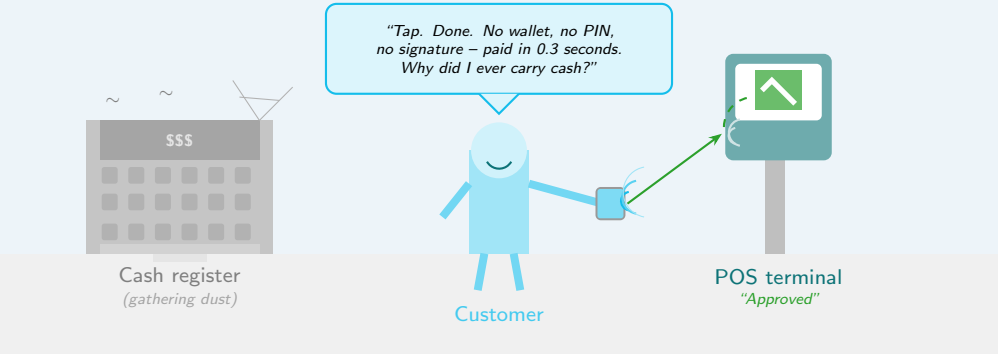
Why Payments Changed: The Tap That Replaced the Till



Slide 1/10 — WHY — Global card-present transactions exceeded 400 billion in 2023 (illustrative). The shift from cash to tap took less than a decade.

A Moment of Reflection: Your Last 10 Transactions

The Payment Mix You Actually Use

Payments are invisible until they fail. Before we analyse systems, let us look at your own behaviour as the data point.

Open your banking or payments app and review your last 10 transactions. For each one, note:

- **Channel:** card, mobile wallet, bank transfer, cash?
- **Speed:** instant, same-day, or multi-day?
- **Visibility:** did you see any fees charged to you?
- **Network:** Visa, Mastercard, domestic scheme, crypto?
- **Consent:** one-click, biometric, PIN, or contactless?
- **Cross-border:** same currency or FX conversion?

Quick Tally

How many of your 10 transactions were **card-based**? How many were **instant bank transfers**? Is there a single one that used **crypto**? What does your personal mix reveal about payment adoption in

What Are the Payment Types? A Comparative Map

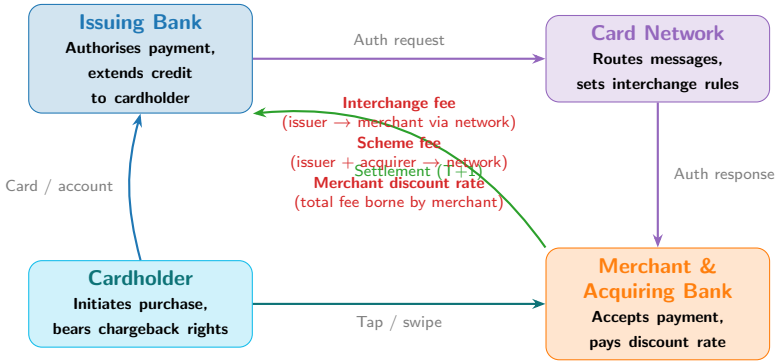
Dimension	Cash	Card (Debit/Credit)	Mobile Wallet	Crypto / Stablecoin
Settlement	Instant, final	1–3 business days	Varies (card rail or bank)	Seconds to hours
Reversibility	**None**	**Chargeback**	**Partial**	**None (on-chain)**
Anonymity	**High**	**Low**	**Low**	**Pseudonymous**
Merchant fee	Zero	1.5%–3.5%	1%–2.5%	<1% (varies)
FX / cross-border	Manual exchange	1%–3% surcharge	Platform-dependent	Low *but volatile*
Consumer protection	**None**	**Strong (PSD2/Reg E)**	**Moderate**	**Minimal**
Infrastructure needed	Physical cash	POS terminal, network	Smartphone + internet	Wallet + node access
Primary user pain	Loss / theft	Fraud; slow settlement	Acceptance gaps	Volatility; complexity

No Single Winner

Each type trades off speed, cost, protection, and anonymity differently. Market share reflects regulation and merchant incentives, not consumer preference alone.

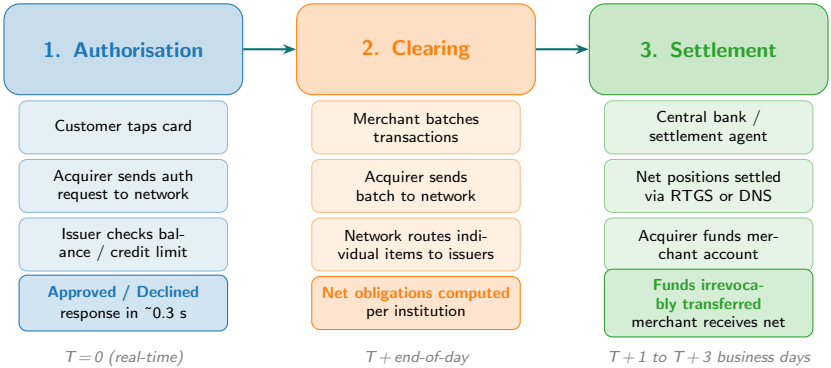
The Four-Party Model: How One Card Tap Involves Four Entities

Four-Party ("Open Loop") Payment Model



Slide 4/10 — CASE — Three-party schemes (e.g., Amex) collapse issuer and acquirer into one entity. Four-party schemes (Visa, Mastercard) separate them, enabling universal acceptance.

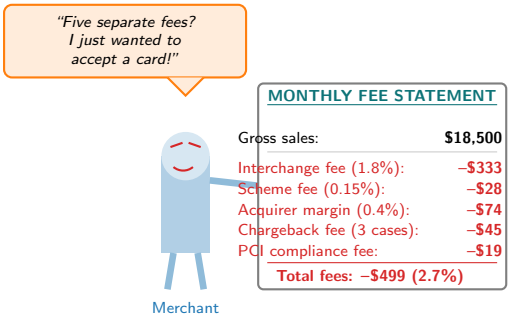
How a Payment Moves: Authorisation, Clearing, Settlement



Real-time payment schemes (e.g., UK Faster Payments, India UPI, EU SEPA Inst.) compress all three phases to under 10 seconds by pre-funding or guarantee mechanisms.

Slide 5/10 — HOW — The gap between authorisation (instant) and settlement (days) is where fraud, float, and counterparty risk live.

The Hidden Cost: A Merchant Reads the Fee Statement



Where the Risk Concentrates

Interchange opacity: Merchants rarely know the exact interchange rate per card type before accepting.

Chargeback liability: Card-not-present fraud shifts 100% of loss to merchant.

Scheme rule changes: Networks unilaterally adjust fee structures, sometimes with 30-day notice.

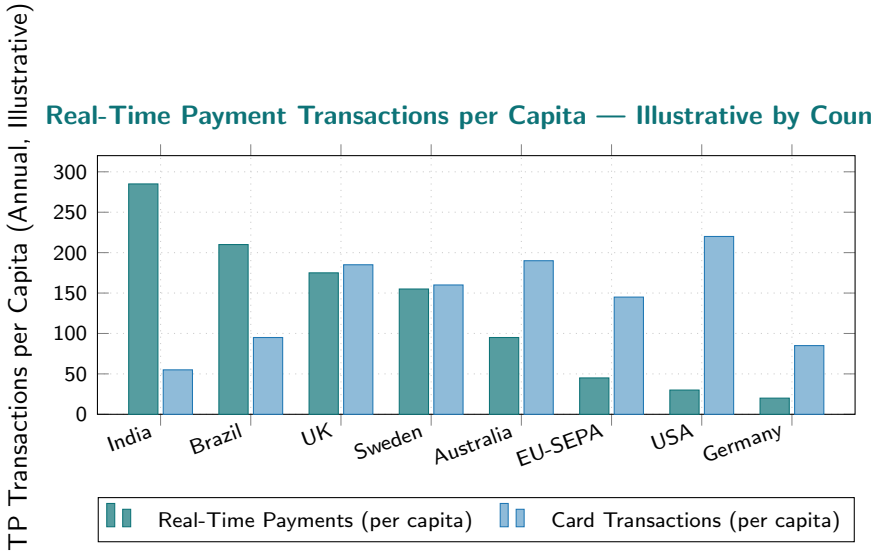
Lock-in: Switching acquirers requires hardware changes, re-certification, and new contracts.

Merchant Responses

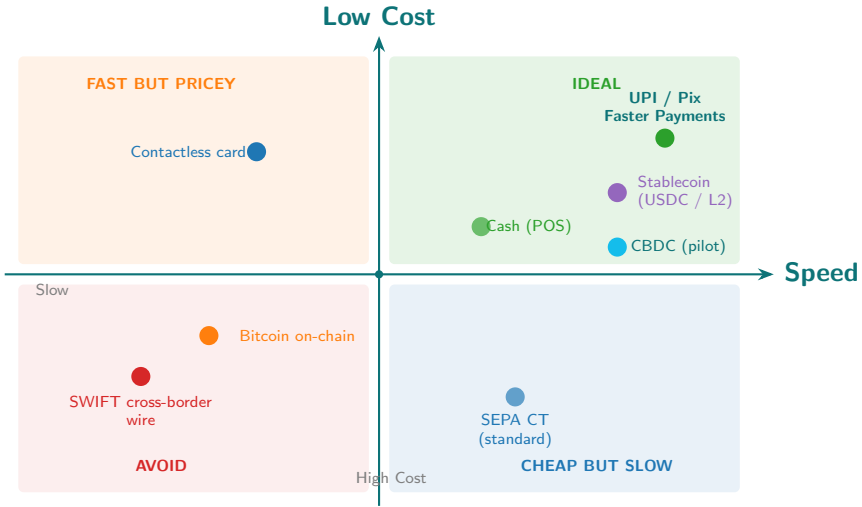
Surcharging (where legal), steering to lower-cost methods (debit over credit, ACH), or adopting alternative schemes (local RTP rails, crypto at POS for lower fees).

Slide 6/10 — RISK — All figures are illustrative. Actual interchange varies by card type, merchant category code (MCC), and acquiring contract.

Where Is Real-Time Payments Growing? Illustrative Adoption Snapshot



Impact Map: Speed vs. Cost Across Payment Methods



Slide 8/10 — IMPACT — Positions are illustrative. Real-time rail design is converging toward the top-right corner; legacy cross-border wires remain stranded in the bottom-left.

So What? Five Questions to Evaluate Any Payment System

1. **Who bears the cost?**
   Trace interchange, scheme, and acquirer fees: is cost hidden from the payer?
2. **How fast is settlement (really)?**
   Authorisation speed $\neq$ settlement finality. Who holds the float?
3. **What happens when it goes wrong?**
   Chargeback rights, fraud liability allocation, and dispute resolution.
4. **Which network is it running on?**
   Open-loop card scheme, closed-loop wallet, domestic RTP, or distributed ledger?
5. **Is it regulated – and where?**
   Licence type (e-money, banking, MSB) determines consumer protection floor.

When to Use This

- Assessing a payments startup pitch
- Evaluating a PSP for your business
- Writing a fintech regulatory memo
- Completing the Day-5 Payments Workshop exercise

Worked Example

UPI (India, 2016–)
Cost bearer: government subsidy
Settlement: near-instant (IMPS)
Wrong: NPCI dispute framework
Network: domestic RTP rail
Regulation: RBI licensed, NPCI governed

Slide 9/10 — SO WHAT — These five questions apply equally to cash, cards, mobile wallets, real-time rails, and crypto payment layers.

Act: Map a Payment Journey End to End

Your Task (15 Minutes)

Choose **one recent payment** you made (card, mobile, or transfer). Reconstruct the full lifecycle:

1. **Authorisation:** Who approved it, in how long, using what check?
2. **Clearing:** Which network carried the message? When was the batch sent?
3. **Settlement:** When did funds actually move? Who received net cash?
4. **Fees:** Estimate interchange + scheme + acquirer fees paid in total.
5. **Five-question test:** Apply the checklist from Slide 9. Any weak points?

Reflection Prompt

If you were the **merchant**, would you steer customers to a cheaper method? If you were the **regulator**, which fee layer would you cap

Discussion Starter

- Real-time payment rails are "free to users" – who actually funds them?
- Can crypto genuinely compete with Visa on cost *and* consumer protection?
- Why did the US adopt real-time payments (FedNow) a decade after the UK?

Next Lecture — L04

Fintech Security and Regulation: RegTech
From KYC to AML to algorithmic compliance: how technology is reshaping the regulatory frontier.

Prepare: look up your bank's AML disclosure in its annual report.