

The Effect of Payment Reversibility on E-commerce and Postal Quality

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Introduction

- Strong growth in e-commerce
2013: +18% in Europe, +16% in the US
- Important growth opportunity for postal operators
- Credit cards dominate in payments, e.g. 90% in the US (B2C)
- Global card fraud > USD 10bn in 2012; charge-backs are the most important issue
- According to study commissioned by the European Commission, cross-border e-commerce is rather weak for the following reasons (among others)
 - Payment issues
 - Poor delivery quality
- Virtual currencies – Bitcoin – as alternative payment systems are still negligible (but growing)
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Virtual Currencies

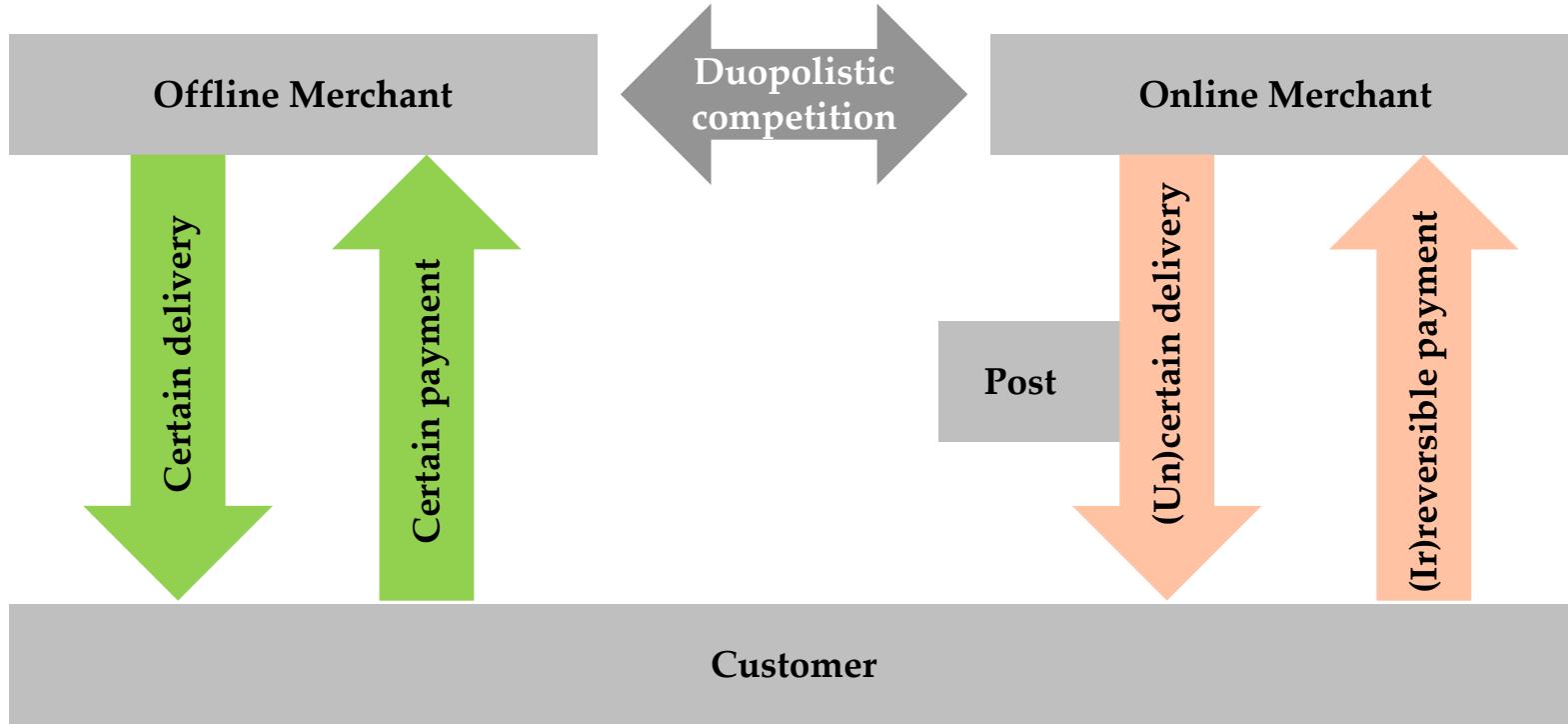
Characteristics and their Implications

	Characteristics	Implications
Currency	Algorithmic money creation No fractional reserve	Limited money supply No need for a central bank
	No «backing» Floating exchange rate	«Fair» value? High volatility
Payment system	Peer-to-peer transactions	No need for commercial banks and payment processors
	Decentralized ledger	Irreversibility of transactions

The Model Outline

- Competition between *offline* and *online* merchants selling to consumers
- Horizontal differentiation with regards to delivery method
- Offline trade: Reciprocal and simultaneous («over-the-counter»)
- Online trade: Possibility of unreliable delivery and non-payment
 - Unreliable delivery due delayed dispatch by online merchant or poor postal quality
 - Non-payment due to payment reversibility / charge-backs

Model Overview



- What is the effect of payment (ir)reversibility on competition between online and offline merchants?
- What is the role of postal quality in settings with reversible and irreversible payments?

Model Overview

Consumer's utility:

$$u(q_{off}, q_{on}, m) = m + q_{off} - \frac{\beta}{2}q_{off}^2 + \varphi q_{on} - \frac{\beta}{2}\varphi^2 q_{on}^2 - \alpha\beta\varphi q_{off}q_{on}$$

Merchants' profit functions:

$$\pi_{off} = (p_{off} - c_{off})q_{off}(p_{off}, p_{on}) \quad \text{bricks-and mortar retailer}$$

$$\pi_{on} = (\psi p_{on} - c_{on})q_{on}(p_{off}, p_{on}) \quad \text{e-retailer}$$

φ represents the possibility incorrect delivery

ψ represents the possibility of reversed payment

Assumptions and Results

Base Case

	Payment Reversibility	Payment Irreversibility
Unreliable delivery	–	✓
Non-payment	✓	–

- With payment reversibility, the risk of a transaction is fully on the merchant's side
→ Merchant charges a premium for compensation
- With irreversibility, it is fully on the consumer's side
→ Merchant grants a discount for compensation
- If overall risk is lower with irreversibility than with reversibility (merchants have more reputation to lose than consumers)
 - online merchant is more competitive with irreversible payments
 - competition is more intense → lower prices, higher quantities

Assumptions and Results

Case with Postal Delivery

	Payment Reversibility	Payment Irreversibility
Unreliable delivery	✓	✓
Non-payment	✓	—

* in scenario with Post

- Due to low postal quality, perceived online customer experience may be degraded also with reversible payment
- The marginal effect of postal quality on online demand is decreasing
- Postal quality is more important with irreversibility if payment moral is relatively high and/or the merchant's reliability is relatively low
- Payment irreversibility can strengthen incentive for postal quality

Conclusion

E-commerce is an important field of growth for postal operators.

Payment systems are still a stumbling block due to their cost and reversibility.

Payment with virtual currencies is irreversible. This shifts the risk from the merchant to the consumer but may reduce overall risk.

With payment irreversibility, online retailers' competitiveness is increased.

Postal quality may be more important with irreversible payments.

Thank you!

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Bitcoin address:

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