

Which Collective Signals Drive High Performance in the E-Marketplace? A Configurational Perspective

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1. Introduction

2. Theoretical foundations

3. Research Model and Hypotheses

4. Method and Results.

5. Discussion & Conclusion

1. Introduction

- **E-marketplace platforms** (e.g. Taobao, Tmall, and E-bay) nowadays play an increasingly important role in the era of e-commerce. (China 2018 GMV, US\$1.14trillion).
- E-marketplace platforms provide sellers with various **online functions** (e.g. time-limited discounts, “buy-it-now” function, and money-back guarantees)
- **Gap:** lack of collective understanding of multiple functions
 - Importance: seller normally take multiple functions.
 - inconclusive findings of previous researches (e.g. positive, negative, non-significant)
- **Solution:** Configuration theory; fsQCA; collective signals

The screenshot shows a product page for 'Spirulina' (螺旋藻片) by 'Sanyue' (纽徕佛). The product is priced at 178.00. The page features several promotional elements:

- Cash Coupon:** A blue callout pointing to a '20元' (20元) discount coupon.
- Time-Limited Discount:** A blue callout pointing to a '限时折扣' (Time-Limited Discount) banner.
- Credit Card:** A blue callout pointing to the '信用卡' (Credit Card) payment option.
- Cash On Delivery:** A blue callout pointing to the '货到付款' (Cash on Delivery) payment option.
- Bundling:** A blue callout pointing to a '搭配套餐' (Bundling) section showing a package of five products for 346.00, saving 424.00.

The bundling section includes the following items:

Product	Original Price
纽徕佛 螺旋藻片	178.00
纽徕佛 葡萄籽	158.00
纽徕佛 蛋白质	258.00
纽徕佛 易得精	88.00
纽徕佛 鱼油	88.00

2. Theoretical foundations

Review of Platform-Based Functions Literature in the E-Marketplace

Performance impact of platform-based functions

- Effectiveness of individual functions (Li et al. 2015);
- Moderation effects (li et al. 2009; Wang et al. 2018);
- Structure characteristics (Li et al. 2019)

High order interaction among multiple functions- from regression/ experiments to fsQCA

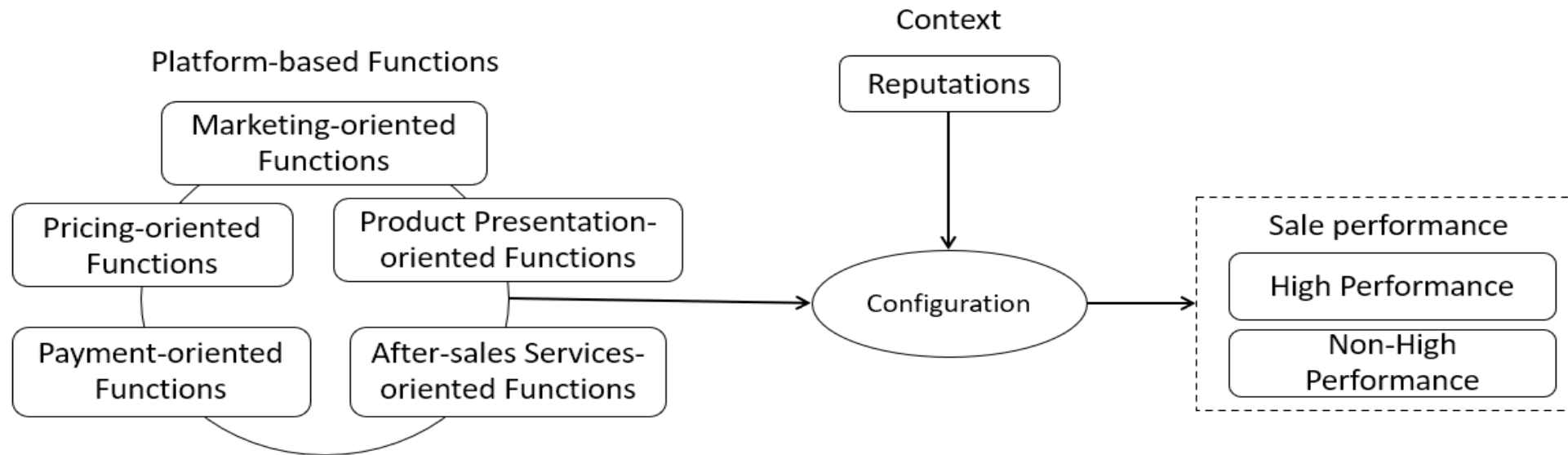
Signal theory

- signaling theory is fundamentally concerned with reducing information asymmetry between two parties (Stiglitz 2002).
- signal refers to “a cue that a seller can use to convey information credibly about unobservable product quality to the buyer” (Wells et al. 2011, p. 375).

3. Research Model and Hypotheses

Mechanism–context–outcome configuration(Henningsson and Kettinger 2016).

- Mechanisms: interventions of five types of platform-based functions in the current study;
- Context condition: Reputation will serve as the context conditions for its moderation effect identified by previous literature in the e-marketplace (Li et al. 2019)
- Outcome of sellers’ sale performance: high performance versus non-high performance.



3. Research Model and Hypotheses

Table 2. Classification Framework of Signalling Functions

Signals	Functions
Product Quality Direct Signals	Product Presentation-oriented Functions (PPOT): Provides detailed product information to mitigate the lack of “touch and feel” in the e-marketplace, e.g. zoom, alternative photos (De et al. 2013).
	After-sales Service-oriented Functions (ASOT): Supports the customer during and after the sales process, e.g. money-back guarantee (Ba 2001; Ba and Pavlou 2002; Fang et al. 2014)
Product Quality Indirect Signals	Pricing-oriented Functions (PROT): Allows sellers to specify the degree of, and time for, product discounts, e.g. time-limited discount, buy-it-now option, price bounding (Bockstedt and Goh 2011; Luo et al. 2012).
	Marketing-oriented Functions (MKOT): Enhances retailer visibility in the e-marketplace, e.g. sponsored searching advertisements, luxurious shop interface (Bockstedt and Goh 2011; Luo et al. 2012)
Seller Credibility Signals	Payment-oriented Functions (PAY): Provides online customers with diverse payment options in the acquisition stage of CSLC, e.g. credit card payment, cash-on-delivery.
	Reputation (sellers’ overall rating): Defined as “a perception of a seller’s past actions and future prospects” (Bockstedt and Goh 2011, p. 237) e.g. sellers’ rating

3. Research Model and Hypotheses

Collective Signals Hypothesis

- Seller credibility signals (i.e. Reputation, PAY) enhance the visibility and credibility of sellers.
- Direct product quality signals (i.e. PPOT, ASOT) could reduce the uncertainty of product.
- Indirect quality signals (i.e. PROT, MKOT) could attract customers.

Different types of signals will work collectively for three reasons.

- Dual information uncertainties(dimoka et al. 2012; pavlou et al. 2007)
- Positive interactions between these two types of signals.
- Consistency among different types of signals (Connelly et al. 2011; Li et al. 2009)

Hypothesis: Credibility signal combined with Direct quality signal or indirect quality signal will work as sufficient conditions for achieving high performance.

4. Method and Results.

Qualitative comparative analysis (QCA)

- Conjunctural causation
- Equifinality
- Causal asymmetry

Data

- Balanced panel data set of 40 weeks' observation in the cosmetics industry from Taobao.com, 3,333 sellers.

3. Research Model and Hypotheses

Analysis procedure

- Calibration Criteria
- Analysis of Necessary Conditions
- Configuration Analysis

Configuration results.

- PROT*MKOT*PAY*ASOT
- ~PROT*~MKOT*PPOT*~PAY*ASOT
- ~PROT*~MKOT*PPOT*PAY*reputation
- MKOT*PPOT*PAY*ASOT*~reputation

Table 6. Configurations for Achieving High Performance

Conditional Variable	High Performance				Non-high performance	
	1	2	3	4	1	2
C1PROT	●	⊗	⊗		⊗	⊗
C2MKOT	●	⊗	⊗	●	⊗	⊗
C3PPOT		●	●	●		●
C4PAY	●	⊗	●	●	⊗	⊗
C5ASOT	●	●		●	⊗	⊗
High Reputation			●	⊗	⊗	
Raw Coverage	0.332	0.080	0.072	0.153	0.333	0.439
Unique Coverage	0.187	0.037	0.034	0.015	0.102	0.207
Consistency	0.919	0.696	0.730	0.887	0.750	0.742
Solution coverage	0.427				0.540	
Solution consistency	0.834				0.736	

Note: “●” indicates the presence of a condition; “⊗” indicates its absence; large circles indicate core conditions; small ones indicate peripheral conditions, and blank spaces indicate “don't care.”

5. Discussion & Conclusion

Findings

- Confirm the existence of collective signal
- None of the conditions alone could serve as a necessary condition
- Confirm the equifinality of QCA (Fiss 2011)

Contributions

- Empirically addresses the collective usage of platform-based functions
- Extends singular signals into collective signals
- Enriches the e-commerce studies methods by incorporating a rigorous fsqca approach

Practical Implications:

- Seller could release collective signals on product quality and seller credibility to help achieving high-performance

Thanks for your attention

Comments & Questions