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IDENTIFYING MARKET PERFORMANCE INDICATORS THAT CAN BE INFLUENCED BY ELECTRONIC INTERMEDIARIES

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Abstract

Electronic intermediaries enable and support electronic markets with their services. This paper provides a framework based on industrial dynamics theory, for the analysis of the influence of electronic intermediaries on the performance of markets. We define five market performance indicators based on the analysis of 10 well-described cases from the literature on electronic markets that were set up by some kind of intermediary. These indicators are categorized according to four different market performance goals. We also define success factors in three categories –market structure, market conduct, and external factors- that influence market performance.

Keywords: Industrial dynamics, Intermediaries, market performance, Electronic markets.

INTRODUCTION

An intermediary is an organization that occupies the gap between other organizations, thereby offering services which bring the different actors together in a market or a business network setting. From an economic perspective, some intermediaries buy goods or services from producers and resell them to buyers (Spulber, 1996), other intermediaries do not buy or own the goods and services but help both sides to meet and transact (Straub, 2004).

Information systems and networks, especially the internet, increasingly interconnect organizations with each other, which has changed (and is still changing) the role of intermediaries in supply chains and business networks. Malone, Yates and Benjamin’s seminal article forecasted the electronic brokerage effect, which means that traditional brokers can be bypassed by using the advantage of reduced transaction costs on electronic markets to identify buyers or sellers and transact directly (Malone, 1987). This inspired a lot of research but turned out to be too simple. For example, Soh et al. (2006) have shown that business strategy is a crucial factor. Other authors also predicted a move towards more direct transactions via electronic networks, thereby cutting out the intermediary to save the associated costs (Benjamin and Wigand, 1995; Gellman, 1996). However, there are many examples that show that intermediaries still exist. E-commerce models (such as eBay, Amazon, and Expedia) are often successful because they conduct business through electronic intermediaries that can make transactions cost-effective as well (Abernathy et al., 1983). The rise of e-commerce is essentially driven by the interplay of buyers and sellers, and the development of electronic marketplaces. It is clear that electronic intermediaries are an essential part of these marketplaces and are the backbone of electronic commerce. Therefore, it is important to understand the role and influence of electronic intermediaries in electronic markets. This paper aims to provide insights into the role and influence of electronic intermediaries in electronic markets.
This article takes a broader perspective on the phenomenon of electronic intermediation. The previously mentioned work mainly analyzes the effects of the IT-induced transformation of economic coordination on the prospects of intermediaries and their changing roles in markets and hierarchies. The market is conceived as a dwelling in equilibrium until it gets transformed by electronic intermediation, then turning into another stable state. However, intermediaries are contained in a market and markets have their own dynamics (Shepherd, 1985; Smits and Jansen, 2008). The question is what role electronic intermediation plays in these dynamics: how is intermediation promoted or blocked, and what effects does it have. To answer this question, the market dynamics model needs to be made more operational than it is to date. As a first step, the goal of this article is to identify indicators of market performance that can serve as a basis for analyzing the influence of electronic intermediaries on markets. We use well-documented cases from the literature that describe the creation of electronic markets by some kind of intermediary. The indicators are identified in a bottom-up approach from the cases and are then sorted into several market performance categories derived from economic theory.

2 LITERATURE REVIEW ON MARKET PERFORMANCE

2.1 Markets and Electronic Markets

The word 'market' originates from the Latin word *mercatus*, which means "trade" (a process) and "place to trade" (a location). In the very traditional understanding, the word market has the meaning of a physical place where people go to buy their fruits, vegetables, meat and other daily supplies. The more abstract understanding of the term market describes the gathering of actors, their interactions, the transaction processes, and the legal rights to trade at a certain physical place (Driedoncks et al., 2005; Swedberg 1994). Economists define a market as "any arrangement that facilitates buying and selling" (Parkin and King 1995) or as "a group of buyers and sellers of a particular good or service" (Mankiw 2004). The understanding emerged that markets have coordinative tasks in an economy by offering "an abstract price making mechanism that is central to the allocation of resources in an economy" (Swedberg 1994). The exchanges that happen on a market are defined as market transactions if there is an exchange of goods or services for money. Market transactions consist of different phases, like information, agreement and settlement phases, according to the interaction processes among market participants that lead to the exchange (Lindemann and Schmid 1999).

The ample emergence of IT to support information exchange and automation of inter-organizational processes affected markets in many ways. The term 'electronic market' describes new, IT-enabled market forms. Broadly defined, "an electronic market is where a supplier and a customer exchange goods or services for money, where the information exchange between these parties is partially or fully automated by IT" (Papazoglou and Ribbers 2006). An electronic marketplace is the "physical space" or platform (such as an inter-organizational information system or network that connects different organizations participating in a market) on which the electronic market transactions take place (Le 2002). A narrower definition, used by Soh et al. (2002), for electronic markets (EMP) is: "independently owned, IT-enabled intermediaries that connect many buying organizations with many selling organizations". In this paper we take the generic view. Although the form of an independently owned intermediary is perhaps the most common type, it is not the only one.

The market structure-conduct-performance model (Figure 1) is a tool for managing these complex relationships. In the market structure-conduct-performance model, the intermediate and dependent variables of market performance are market structure, market conduct and market performance. Market structure can be described by the numbers and size distribution of firms (including intermediaries), market shares, concentration and entry barriers. Market conduct is determined by the strategies of the different players in a market and the way in which strategies are implemented in intra- and inter-organizational business processes to execute market transactions. Market performance is determined by the interaction of market structure and market conduct on the one hand and the external factors on the other hand. Market performance is a measure of the success of a market in delivering the goods and services that are expected by its customers (Scott 1995). The performance of a market is measured by its market share, profitability, growth, etc. A market is said to be successful if it is able to achieve a high level of market share, profitability and growth.

2.2 The Market Structure-Conduct-Performance Model

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2.3 Measurement of Market Performance

Market performance is measured by a variety of indicators. These indicators are grouped into three categories: financial indicators, market share indicators and customer satisfaction indicators. Financial indicators include the market share, profitability, growth, etc. Market share indicators include the market share, the number of customers, the number of transactions, etc. Customer satisfaction indicators include the customer satisfaction, the customer retention, the customer loyalty, etc.

2.4 Market Success Factors

Market success factors are the factors that influence the market performance. These factors can be grouped into three categories: market conditions, market strategies and market processes. Market conditions include the market size, the market growth, the market stability, etc. Market strategies include the market entry strategy, the market growth strategy, the market diversification strategy, etc. Market processes include the market processes, the market procedures, the market rules, etc.

2.5 The Market Environment and Scoping

The market environment and scoping are important factors that influence the market performance. The market environment includes the economic environment, the technological environment, the social environment, etc. The economic environment includes the economic conditions, the economic growth, the economic stability, etc. The technological environment includes the technological conditions, the technological growth, the technological stability, etc. The social environment includes the social conditions, the social growth, the social stability, etc.
We have chosen Shepherd's industrial dynamics theory because it focuses on the dynamic interactions between market structure, conduct, and performance and the development of markets over time. We did not choose a micro-economic model because such models focus on price formation and market equilibrium and do not address such dynamic interactions (Smith, 2000).

The general hypothesis of industrial organization is that external factors like IT and legislation can influence structure, conduct and performance. Market structure affects market performance, as indicated by the arrows (Shepherd, 1985, p. 7). The influence can either be direct (e.g., in a monopoly the market structure influences prices) or indirect (e.g., the presence of certain actors in the market can influence competitive behaviour, ultimately influencing prices). Shepherd explains that causation can also run the other way; for example, when a firm makes good profits with a certain product offering, this can lead to new behaviour of other market participants and new market entrants. Also, changes in market structure, behaviour and performance can lead to changes in external determinants (like government policies).

In the Shepherd model, electronic intermediation has to do with market structure: A new intermediary is a market participant, a new locus of concentration and a new pattern of linkages between market participants. The amount of electronic intermediation vs. non-electronic intermediation in terms of market share is a market structure indicator. Following the Shepherd model, we can consider the causes and effects of this change in market structure. For example, high market transparency offered by the sell-side may attract customers because transparency may lead to lower prices. Sellers will only join a market with low prices if the market provides compensatory benefits that fit business strategies (conduct).

External determinants (like government policies) may lead to changes in market structure and new market entrants. Also, changes in market structure and new market entrants can lead to changes in market performance. Shepherd explains that causation can also run the other way: for example, the emergence of certain actors in the market can influence compensatory benefits (e.g., the emergence of a new intermediary). The influence can either be direct (e.g., a monopoly) or indirect (e.g., through the market structure changes).

The general hypothesis of industrial organization is that external factors like IT and legislation can influence structure, conduct and performance. We have chosen Shepherd's industrial dynamics theory because it focuses on the dynamic interactions between market structure, conduct, and performance and the development of markets over time. We did not choose a micro-economic model because such models focus on price formation and market equilibrium and do not address such dynamic interactions.
2.3 Defining market performance

Market performance is a key concept in the Shepherd model. After having conducted an extensive literature and web search, we must conclude that the term "market performance" is not much used as such in economics and business literature. The performance of a market should describe "how well a market does", but it needs to be clarified in which categories and dimensions 'good performance' can be measured. In recent economist's work it is acknowledged that it is important for different stakeholders like theorists, policy makers and entrepreneurs to have objective ways to measure market performance of different market types (Friedman, 2007). Economists traditionally understand a well doing market as one in which the allocation of supply and demand works most efficiently, which means that maximum earnings are achieved for each participant. Friedman calls this static efficiency and furthermore suggests dynamic efficiency measures, such as learning costs and evolutionary stability (Friedman, 2007). Learning efficiency takes into account that some market formats reach a settled state faster than others, while the evolutionary stability implies that some market formats are more robust than others in the presence of changes in the economic environment or other factors.

An efficient market may be one that benefits overall welfare, but it is also clear that gains for one group of market participants often mean losses for another group. Identifying factors that influence the costs and benefits of certain markets for different participants and that constitute market performance is thus a complex undertaking and requires simplification in order to keep analysis tractable (O'Hara, 1995). It is further to be noticed that successful markets or marketplaces are not necessarily those that are the most efficient, i.e. that have the best performance (O'Hara, 1995). Market participants may have no choice but using a certain marketplace due to the market power of their most important client (e.g. small suppliers in the automotive industry) or vice versa.

For our further analysis we will use the classification of market performance that Shepherd puts as a basis in his book about the economics of industrial organization. According to Shepherd, the performance of a market is determined by 4 performance goals: (1) The efficiency of the allocation of resources in the market, (2) the technological progress that can be witnessed, (3) equity in distribution of resources and (4) other dimensions like cultural factors (Shepherd, 1985). The four categories are summarized in Table 1.

<table>
<thead>
<tr>
<th>Efficiency of Resource Allocation</th>
<th>1. Internal efficiency: Firms are well managed, drawing maximum effort from employees and avoiding any slack in operations (firm level efficiency).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Allocative efficiency: The economy's total resources are allocated among goods to maximize total output. No revision of production could raise the value of output. In all firms, prices are set equal to long-term marginal cost and average costs.</td>
</tr>
<tr>
<td>Technological Progress</td>
<td>3. Technological Progress: The advance of technology and its uses in practice are as rapid as possible.</td>
</tr>
<tr>
<td></td>
<td>4. Equity in Distribution: The income and wealth distribution in the market is fair (in line with the society's standards).</td>
</tr>
<tr>
<td></td>
<td>Other dimensions: Such other values as individual freedom of choice, security from extreme risk, and cultural diversity are provided.</td>
</tr>
</tbody>
</table>

Table 1. Market performance goals according to Shepherd (1985).
2.4 Market performance indicators versus success factors

In the industrial dynamics model, market performance indicators are thus to be distinguished from success factors of markets. A performance indicator (PI) is a measure that indicates the degree to which an objective is reached (see e.g., Kaplan and Norton, 1996). A success factor (SF) is a condition that influences the degree of success (see e.g., Boynton and Zmud, 1984). Fairchild et al. (2004) find seven success factors; four factors relate to market context and three to inter-organizational business processes.

Market context success factors can be summarized as:
1. Market context
2. Business process
3. Transaction context

1. Market context
   - High number, high volume, high variability, and high frequency of transactions
   - Low complexity, low specificity, and high value of the product
   - Convergence of stakeholder motives
   - Presence of government regulations

2. Business process
   - Low learning costs and low entry barriers
   - Availability of multiple transaction mechanisms
   - Trust, based on neutrality of the market, partnership with domain experts
   - High quality of product- and trading partner information, security of information, and local focus

In the rest of this paper, we specify the market performance indicators and market success factors that have been used in information management literature to assess the impact of electronic intermediaries on markets.

3 Method

The exploratory nature of this research, within the context of complex relationships between factors and the distinction between success indicators and success factors, guided the authors to adopt a qualitative and interpretive approach to the inquiry. To identify performance indicators of dynamic electronic markets, we studied well-documented cases from the literature that describe the creation of electronic markets which have been set up and maintained by some kind of intermediary. We identify indicators in a bottom-up approach from the cases and sort the indicators into market performance indicators and success factors derived from economic theory. This case-based research strategy is applicable when control over events is not needed and when there is a focus on the analysis of events and multiple level analyses (Yin, 1994).

We collected 10 articles on cases of electronic markets from information management literature in the period 1990-2008. We took this long period to avoid bias due to technological and societal changes. An important criterion for a case to be selected is that the market described in the case must be enabled or supported by some kind of information technology, i.e., the information exchange between the parties should partially or fully be supported by some sort of IT, following the definition of Papazoglou and Ribbers (2006). So not only internet-enabled e-markets are of interest, but also e.g., physical auctions which use some kind of information technology to support the auctioning process, e.g., via computer screens and keyboards at the seats. The ten electronic markets we found are all business to business markets and operate in different industries, ranging from trading cut flowers to used cars. An overview of the cases is given in Table 2.

<table>
<thead>
<tr>
<th>Electronic Market Case</th>
<th>Case summary</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pig Trading in Singapore</td>
<td>The Singapore's Hog Auction Market (HAM) is a marketplace for pig trading. The impact of the HAM system on the pig trading process is analyzed and compared to the previous system.</td>
<td>Neo 1992</td>
</tr>
<tr>
<td>Dutch Flower Auctions</td>
<td>Description and comparison of different IT initiatives in the Dutch flower markets and their implications for different exchange processes.</td>
<td>Van Heck and Ribbers 1997</td>
</tr>
<tr>
<td>Electronic Markets in Logistics</td>
<td>Conceptualization of an all-inclusive Logistics Brokerage System, based on different cases from the logistics sector.</td>
<td>Gudmundsson and Walczuck 1999</td>
</tr>
<tr>
<td>Hong Kong's Air Cargo Community</td>
<td>Impact of an electronic network in Hong Kong's air cargo community to support inter-organizational business processes. The case shows the reluctance of stakeholders towards a fully functional electronic market (with disadvantages for stakeholders on the sell-side (freight forwarders, shippers)).</td>
<td>Damsgaard 1998</td>
</tr>
<tr>
<td>Aircraft parts industry</td>
<td>This case study investigates under which conditions buyers (airlines) in the aircraft parts industry use an electronic market (Inventory Locator Service, ILS) and the effect of this market on prices, inventory levels, and the role of brokers.</td>
<td>Choudhury, Hartzel et al. 1998</td>
</tr>
</tbody>
</table>

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Table 2. Overview of 10 electronic market cases as found in information management literature.

<table>
<thead>
<tr>
<th>Case Indicators of Market Performance (PI) and Factors contributing to Market Success (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pig Trading in Singapore (HAM)</td>
</tr>
<tr>
<td>1. Degree to which market prices correctly reflect market situation (supply and demand)</td>
</tr>
<tr>
<td>2. Price determination process (prices determined by middlemen or by supply/demand forces)</td>
</tr>
<tr>
<td>3. Entry barriers (Low entry barriers for new sellers and buyers = better)</td>
</tr>
<tr>
<td>4. Information disclosure (price disclosure without discrimination of certain recipients)</td>
</tr>
<tr>
<td>5. Flexibility of prices (lower and more flexible prices are regarded as good)</td>
</tr>
<tr>
<td>6. Speed of information provision</td>
</tr>
<tr>
<td>7. Size of traded product lots (small size enables more flexible purchasing)</td>
</tr>
<tr>
<td>8. Coupling of informational and physical trading processes (ordering/purchasing processes)</td>
</tr>
<tr>
<td>9. Auction function (buyer/seller)</td>
</tr>
<tr>
<td>10. Degree to which market price corresponds to actual market situation (supply and demand)</td>
</tr>
</tbody>
</table>

4 RESULTS

Table 3 shows the results of the first step of the analysis, listing 32 indicators found during the bottom-up screening of the cases. The right hand column identifies indicators of market performance (PI) and market success factors (SF). An example of a SF of market performance is 'the coupling of informational and physical trading processes'. This SF may influence (improve) the market performance indicator (PI) by lowering the transaction costs for certain market buyers (internal market efficiency).
In the second step of the analysis, the 32 indicators and factors listed in Table 2 are categorized according to the four market performance goals (Table 1) and the three market success factors structure, conduct and external conditions (Figure 1). Redundant indicators are left out, leaving 24 indicators listed below. These represent the findings in 10 cases, a representative but still limited perspective. More indicators of factors and performance goals may be found in other cases.

We identify five indicators of market performance, of which three relate to ‘efficiency of resource allocation’, one to ‘technological progress’, and one to ‘equity in distribution’, respectively:

\(/g120\) Degree of price variation (case 5):
The degree to which prices on a market vary is an indicator of dynamic allocative efficiency. Price variation influences the ability of buyers and sellers to predict profits and estimate the right moment to do a market transaction. Influencing: market conduct.

\(/g120\) Degree to which market prices correctly reflect market situation (case 1):
Market prices reflect the supply and demand ratio and the quality of the traded goods. If information asymmetries (market structure) are low, transaction costs will be low, indicating an efficient dynamic allocation of resources. Induced by market conduct.

\(/g120\) Amount of search costs (cases 6, 10):
Total search costs for a transaction in a measure of internal efficiency (on the firm level) and allocative efficiency (on the market or network level). High costs may be a cause of high search for a transaction in a measure of internal efficiency.

\(/g120\) Degree of technical functionality of marketplace (case 3):
This is an indicator of technological advances and its use in the market. Influencing: market allocative and internal efficiency.

\(/g120\) Degree of mismatch between demand and supply (case 4):
A mismatch between demand and supply results in market participants encountering risks of over-capacity or shortages in their resource allocations. Influencing: market allocative and internal efficiency.

We identify eight indicators of market structure:

\(/g120\) Degree of coupling of informational and physical trading processes (cases 2, 6, 8):
If the physical and informational parts of a trading process are physically decoupled, both parts can be handled more efficiently. The informational part of a trading process can be supported by IT, while the physical part can be outsourced. The efficiency gains contribute to internal efficiency (lower costs and faster processes) and to allocative efficiency (improved allocation of resources between trading parties and lower total costs). Highly decoupled processes (a market structure indicator) enable IT-based innovations reflected in ‘technological progress’ (indicator of market performance). Influencing: market efficiency + technological progress.

\(/g120\) Degree of competitive/geographical fragmentation of buyer/seller population (case 5):
Geographical dispersion of buyers and sellers makes it more difficult to come to an agreement efficiently, because it can make several steps of a market transaction (e.g., information exchange and quality inspection) more difficult. Influencing: market efficiency.

\(/g120\) Existence of entry barriers (cases 1, 2):
Entry barriers lead to unequal distribution of opportunities for (potential) market participants and imply monopoly rents for those who benefit from entry barriers. Influencing: market internal efficiency and equity in distribution.

Table 2. Market Performance Indicators (PI) and Success Factors (SF) found in 10 cases.

<table>
<thead>
<tr>
<th>PI</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Car Auction</td>
<td>23. Costs of the informed (transaction costs)</td>
</tr>
<tr>
<td>9. Auctioneer beetle</td>
<td>22. Protection of the marketplace by key stakeholders</td>
</tr>
<tr>
<td>8. Net margin of profit</td>
<td>21. Rates of failure of key decisions</td>
</tr>
<tr>
<td>7. Art and Antiques Trade</td>
<td>20. Confounding of information and physical trading processes (physical inspections of goods)</td>
</tr>
<tr>
<td>6. Auctioneer</td>
<td>19. Fragmentation of buyer population</td>
</tr>
<tr>
<td>5. Online coffee auctions in India</td>
<td>18. Fragmentation of market resources possible</td>
</tr>
<tr>
<td>4. Australian Beef Industry</td>
<td>17. Election of market resources to buy or sell that they know, not (therefore) at market prices</td>
</tr>
<tr>
<td>3. Care-Auction</td>
<td>16. Social, cultural and functional derivatives of market participants (e.g., art)</td>
</tr>
</tbody>
</table>

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\(/g120\) Existence of entry barriers (cases 1, 2):
Entry barriers lead to unequal distribution of opportunities for (potential) market participants and imply monopoly rents for those who benefit from entry barriers. Influencing: market internal efficiency and equity in distribution.
We identify seven indicators of market conduct. Our analysis shows complex, dynamic relations between price transparency and market success. Price transparency is a core concept in many explanations for electronic market places increasing market efficiency. Price transparency is "the degree to which market participants know the prevailing prices and qualities of goods or services on offer" (Clemons, 2002). The theoretical argument is that, for some products, and for some market structures (e.g., many buyers and sellers), the emergence of electronic intermediaries should lead to increased price transparency and lower product prices (Soh et al, 2006). Our study does not identify price transparency as a market performance indicator, but we do find transparency as a structure indicator. Increased transparency might be enabled by IT, but, as argued independently by (Soh et al, 2006), using IT for transparency is a strategic choice rather than a structural property of the market.

2. APPLYING THE FRAMEWORK ON PRICE TRANSPARENCY

We identify four indicators of external determinants (case 3, 4, 6, 9): external market regulations, social, cultural and regional embeddedness of market participants, regional transformation influences, and the social expectation of market conduct. Actual market conduct (intermediary) is measured against these influences.

Price transparency is an aspect of allocation of money. The faster and more accurate information about the market is provided to the market participants, the more likely that demand and supply are accurately fulfilled (without excesses). Information that is withheld by some market participants leads to unequal distribution of welfare, as the potential recipients of this information might not get a full picture of the market situation. In cases of high linking-up and switching costs (case 3), participants with less market power may be discriminated. Influencing: internal efficiency and equity in distribution.

Volatility of product availability may be an indicator of a market's dynamics. If external market regulations allow flexible pricing of goods or services, the market situation changes. If buyers and sellers can trade with flexibly sized product lots, it becomes more likely that demand and supply are accurately fulfilled (without excesses). Influencing: market conduct + market structure; indirectly: market internal and allocative efficiency.

Possibility to enforce market rules may be an indicator of a market's dynamics. If the rules of the market cannot be enforced by certain mechanisms or authorities, market mechanisms (conduct) might not work accordingly, entry barriers may remain too high (structure) and lower market performance (internal and allocative efficiency). Influencing: mechanisms or authorities, market mechanisms (conduct) + market structure; indirectly: market internal and allocative efficiency.

Way of price determination may be an indicator of a market's dynamics. If price determination is part of transaction an auctioning processes, it can lead to good and bad market performances. Influencing: market conduct + market structure; indirectly: market internal and allocative efficiency.

We identify four indicators of internal determinants (case 1, 2, 5, 10):

- Frequency of transactions: Transaction frequency determines whether it is attractive for companies to purchase via a marketplace or go into long-term (network-like) relationships for purchasing. Influencing: market conduct (purchase decisions and networking decisions).
- Degree of geographical limitations of the marketplace: Marketplaces that are only available in certain regions of the world may hinder good performance of the market due to limited access for participants outside the geographical core region and other factors. Influencing: internal efficiency + equity in distribution.
- Amount of linking-up and switching costs: High linking-up and switching costs (case 3, 4) imply high barriers to market entry and make the market less attractive. Influencing: internal efficiency + equity in distribution.
- Speed and Accuracy of information provision: The faster and more accurate information about the market is provided to the market participants, the more likely that demand and supply are accurately fulfilled (without excesses). Influencing: market conduct (allocation of money), where ultimately the prices reflect the true demand and supply forces because of the margins the middlemen keep. Influencing: market conduct + market structure; indirectly: market internal and allocative efficiency.

Price regulations may be an indicator of a market's dynamics. If external market regulations allow flexible pricing of goods or services, the market situation changes. If middlemen are allowed to set the price, it becomes more likely that demand and supply are accurately fulfilled (without excesses). Influencing: market conduct + market structure; indirectly: market internal and allocative efficiency.

Volatility of product availability may be an indicator of a market's dynamics. If external market regulations allow flexible pricing of goods or services, the market situation changes. If buyers and sellers can trade with flexibly sized product lots, it becomes more likely that demand and supply are accurately fulfilled (without excesses). Influencing: market conduct + market structure; indirectly: market internal and allocative efficiency.
buyers or sellers on a market. Some buyers and sellers may decide (market conduct) to use the intermediary services, others may stick to a classic intermediary, which leads to new sub-markets (market structure). Some sellers make strategic choices to disclose information on their prices, others may not disclose (market conduct), which influences the degree of competitive and geographical market fragmentation (market structure). Also, these effects influence market performance measured as ‘the degree of price variation’, ‘the degree to which prices reflect the market situation’, ‘search costs’, ‘technological advances of the market’, and ‘degree of mismatch between demand and supply’.

6 CONCLUSION

In this study, we found that industrial dynamics theory adds analytical power to electronic markets research. Our research focus is to assess the impact of (electronic) intermediaries on market performance goals. Shepherd's structure-conduct-performance model from industrial dynamics theory helps to distinguish between indicators of market performance, market structure, market conduct, and market context. We categorize indicators relating to the market performance goals into resource allocation efficiency, technological progress, equity in distribution and other goals. This is a necessary step for the operationalization of the market dynamics model of Shepherd (1985). The Shepherd conceptual model (Fig. 1) can be criticized for being too complex: it seems as if everything can influence everything. However, each of the arrows in the model – and the feedback ones – gets some support in our literature survey, except for the feedback of market conduct on market structure. On the basis of the results in this paper, a first step of future research is a thorough conceptual analysis of the indicators found. This will result in a more complete and possibly adapted market dynamics model. Once a more complete market dynamic model is in place and validated, it will be possible to describe not only the direct effects of electronic intermediaries, but also the secondary and long-term effects. This is a second topic for future research. The outcome will be useful as it says something about the sustainability of the electronic markets, and can be taken into account by entrepreneurs, providers, and managers with respect to strategy and management.

References


