

# **Transaction Cost Economics as a contributing theory to Supply Chain Management: an assessment and application on theoretical basis**

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## **ABSTRACT:**

Supply Chain Management is known to incorporate multi-disciplinary fields of science and business practices. Due to the tremendous amount of available organizational theories, this topic shows necessity for reducing the scope to a relevant set of applicable theories. Among decades, the Transaction Cost Economics, or better known as the ‘Make-or-Buy’ decision, represents a useful approach for explaining firm boundaries, contractual arrangements and the existence of organizations. For assessing the potential of this framework as a contributing theory to Supply Chain Management, with respect to four key decision points within purchasing, this paper outlines an extensive literature review regarding the Transaction Cost Economics as such. Having confirmed the Transaction Cost Economics as an actual scientific theory by a given set of criteria, the applied framework indicates not only relevance, but also potential for valuable insights and practical use within Supply Chain Management.

## **Keywords**

Transaction Cost Economics, Supply Chain Management, Purchasing decision points, Theory assessment, Life-cycle analysis

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# 1. AN INTRODUCTION TO SUPPLY CHAIN MANAGEMENT, TRANSACTION COSTS ECONOMICS AND THE NEED FOR APPLICABLE THEORIES

Supply Chain Management as a concept first emerged in the 1980s and received higher attention among the following decades (Cooper, Lambert, & Pagh, 1997, p. 1). Since then, discussions regarding the definition of the term 'Supply Chain Management' persisted: While authors such as Stevens (1989, p. 3) describe it as a concept dealing with the total control of material stream among business functions, systems and suppliers, Cooper et al. (1997, p. 1) perceive it as an 'integrative philosophy' for managing the flow in the whole value chain (Mentzer et al., 2001, p.6). Indeed, as a consequence of globalization which incorporates both opportunities and threats to a company's flow of materials, the need for effective coordination by management has strongly increased (Mentzer et al., 2001, p.2). Moreover, criteria such as time or quality became key success factors for competing against other companies (Mentzer et al., 2001, p.2). Effective Supply Chain Management however depends on purchasing as a critical driver (Chen, Paulraj, & Lado, 2004, p. 505). The impact on the importance of the purchasing function itself increased tremendously: Purchasing began to demonstrate a strategic role rather than just a mere operative function and helped to attain competitive advantage in the long run through a more effective use of the supply base (McIvor, Humphreys, & McAleer, 1997, p. 166). A more specific and strategic approach of the purchasing function is also referred to as 'Supply Management' which represents the active involvement in long-term buyer-supplier relationships for sourcing critical commodities (Kraljic, 1983, p. 111).

Due to the interdisciplinary view on Supply Chain Management, incorporating a variety of subtypes, and the consequential complexity in research, clear conceptual boundaries within this scientific field need to be established (New, 1997, p. 15). Although the research activity regarding Supply Chain Management has increased, much of the contemporary literature does not necessarily create added value in terms of academic insights or conceptual explanations (Van Weele & Van Raaij, 2014, p. 57). Given the high number of theories which is discussed and used in the context of Supply Chain Management, researchers struggle to choose the most appropriate ones for their studies (Vos & Schiele, 2014, p. 2).

One of these theories, which is often represented in theoretical and empirical scientific literature regarding Supply Chain Management and purchasing, is the Transaction Cost Economics. Transaction Cost Economics (or in short 'TCE') is the study of protection against hazardous exchange relationships between firms (Shelanski & Klein, 1995, p. 336). Due to bounded rationality and opportunism by human actors, the contracts, or transactions in a broader sense, for acquiring an economic good are described as incomplete, resulting in additional rents for the organization (Hart, 1995, p. 680; Shelanski & Klein, 1995, p. 337). Protection against such rents is given by choosing an appropriate governance form for the organization, which is given by either vertical integration, hence producing the economic good within the own organization, or market contracting, so buying the good from the market (Shelanski & Klein, 1995, pp. 336-337). In common literature, such a decision is often referred to as 'Make-or-Buy' decision.

With regard to the Transaction Cost Economics and the necessity for providing academic value in Supply Chain

Management and purchasing, this paper aims to provide detailed knowledge about the relevance of this theory within the context of the given scientific field. In order to contribute to the contemporary scientific literature, the following research question is thoroughly examined within this thesis:

*Does the concept of Transaction Cost Economics fulfill the determining characteristics of a scientific theory and to what extent does it contribute to the key decision points in purchasing?*

This paper is structured in two major parts: The first section aims to provide a critical full-perspective insight into the Transaction Cost Economics which covers the area of history, core constructs, empirics and a critical assessment of the theory. After a detailed analysis has been provided, the second section establishes the context to the topic of purchasing by applying the theory to four critical decision points within this scientific field: The actual 'Make-or-Buy' decision, which initiates the beginning of the procurement process, is followed by the point of choosing an appropriate sourcing strategy for the given commodity. Consequently, a supplier strategy needs to be acquired in order to finish the purchasing process within the last decision point of contracting. Lastly, the paper will be completed by critically reviewing the identified findings in respect to the research question proposed.

## 2. TRANSACTION COST ECONOMICS: A COMPLEX THEORY WITH THE NECESSITY FOR DETAILED ANALYSIS AND CRITICAL EVALUATION

### 2.1 From the idea of transactions to actual operationalization: Commons, Coase and Williamson as key influencers for the development of Transaction Cost Economics

Observing the historical development of the theory, three main influencers created, shaped and operationalized the Transaction Cost Economics among the last century: John Rogers Commons, Ronald Harry Coase and Oliver Eaton Williamson, all of them being scientists and researchers in the field of economics.

In 1931, a first approach towards transactions as the unit of analysis was introduced by Commons (1931) in his work 'Institutional Economics'. Within his paper, Commons (1931, p. 649) discusses the actual characteristics of institutions or organizations, as well as the economic exchange between those. Rather than seeing commodities as the unit of analysis for exchange, he proposes the concept of transactions which is defined as the "alienation and acquisition [...] of property and liberty created by society [...]" (Commons, 1931, p. 652). According to him, transactions need to be negotiated on between organizations and are seen as a necessary requirement for the factors of production to be enabled.

With the release of 'The nature of the firm' in 1937, Coase (1937) followed up on the work of Commons. By that time, zero transaction costs were assumed which theoretically makes the market running in the most efficient state (Williamson, 2008, p. 6). According to this logic, producing economic goods in-house is always inferior to market contracting. Due to that, Coase questions the existence of entrepreneurial organizations, since especially these emerge by developing in-house capabilities first instead of making use of market contracting. This thought represented a first discussion for different governance modes and the possible choices between them

(Coase, 1937, pp. 388-389). Furthermore, Coase (1937, p. 390) examines transaction costs as the unit of analysis in a closer context and differentiates between certain types of transaction costs, such as search and information, bargaining or policing and enforcement costs. The discussion stagnated for decades until Coase followed up on his ideas in 'The problem of social cost', released in 1960: Being formulated as the 'Coase-Theorem' by other scientists, he assumes in his research that bargaining leads to efficient economic allocation with the constraint that the transaction costs of bargaining are low (Coase, 2000, pp. 88-92). However, due to the availability of externalities such as governmental intervention, low transaction costs cannot be reached and the assumed efficient allocation is prevented (Coase, 2000, p. 116). In the context of governance modes, this implies that organizations can indeed have benefits by choosing a specific way of contracting depending on the amount of the resulting transaction costs.

Nevertheless, the question was which factors actually have an impact on the decision of taking a specific governance form. Such a transaction cost analysis requires operationalization which was firstly introduced by Williamson in 'Markets and Hierarchies' (1973). Instead of keeping the discussion entirely within the discipline of economics, Williamson not only proposes concrete key characteristics influencing transaction costs, but also human factors which interfere with the decision of how to conduct the economic exchange in his work (Williamson, 1973, pp. 316-319). Over the years, Williamson's 'Transaction Cost Economics' followed to enjoy higher popularity due to the applicability in real business activities, leading to a large increase in empirical research and to further discussions among scientists. In order to give further insights into the framework, the next section introduces the discussion of Williamson's proposed assumptions by human agents.

## **2.2 Bounded rationality and opportunism by human agents representing the key assumptions of the framework**

As already stated in the introduction, it is important to clarify that the focus is set on the logic of Williamson's Transaction Cost Economics framework, implying a certain set of relevant factors, influences and especially underlying assumptions. In contrast to the versions of Coase (1988, p. 33) or North (1990, p. 362), which will be discussed in more detail in section 2.8, Williamson's theory shows strong interrelations with other fields of sciences (Williamson, 2007, p. 4). This emphasizes the need for an interdisciplinary perspective on this Transaction Cost framework, namely economics, contract law and social sciences. Contemporary scientific literature dealing with Transaction Cost Economics has reduced their view down to two relevant key assumptions from the field of social sciences: Bounded rationality and opportunism. Both factors are subject to the cognitive ability of human beings, who are also described according to Williamson (1998, p. 30) as 'human agents' in the context of Transaction Cost Economics.

Bounded rationality assumes that individuals are not able to act or decide on a rational basis due to their limited perspective of the environment surrounding them and because of the unavailability of complete information (Simon, 1955, p. 114). As a consequence, own benefits are maximized by acting in a satisfying manner within their cognitive limit. Applying the context of Transaction Cost Economics to this assumption, incomplete contracts for example are subject to bounded rationality since economic agents fail to decide on the impact of terms and agreements to be added (Hart, 1995, p. 134). In a broader sense, contracting in terms of economic organization

also needs to be seen as incomplete, since the most efficient economic allocation can and will never be established (Williamson, 1998, pp. 30-31). Next to bounded rationality, the factor of opportunism also represents a relevant assumption. Hereby, opportunism is described as the self-interest seeking behavior by individuals (Williamson, 1985, p. 30). Opportunistic behavior among economic actors, either being the principal or the agent, is therefore shown by following own intentions although having promised to act in good faith towards the other party (Williamson, 1981, p. 554). Opportunism by at least some human agents is always given to some extent within an organization. Thus, the impact on contract incompleteness is also recognizable in this case (Williamson, 1998, p. 31). Moreover, the unavailability of opportunism would make the actual discussion regarding a governance choice of an organization irrelevant, since cooperation via market contracting would therefore be more beneficial and safer than vertical integration (Williamson, 1985, p. 31).

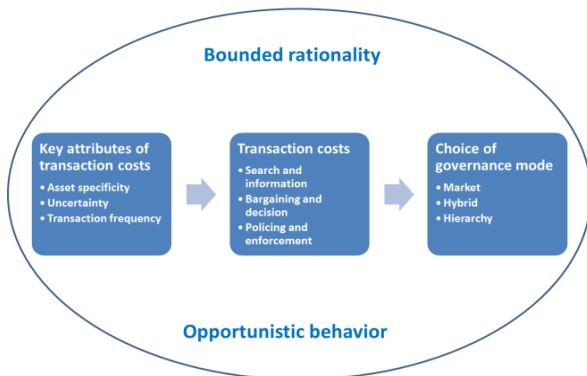
In conclusion, human agents are subject to both bounded rationality and opportunism. According to Williamson (1973, pp. 316-317) these assumptions form the theoretical foundation for the Transaction Cost Economics and rather reflect requirements for enabling the theory in order to make it relevant. Therefore, the analysis pays further attention to the actual core construct of Williamson's framework within the next section.

## **2.3 Reducing a complex framework to a simplified model: transaction costs, its key attributes and the choice of governance modes as the core components of the theory**

Having identified and explained the assumptions on which the Transaction Cost Economics are based on, the focus is set on the actual core construct of the theory. In general, the Transaction Cost Economics represent a complex framework including a vast variety of different variables, attributes and interferences. Especially the high number of possible variables underlines the difficulty in concrete operationalization. However, this critical aspect will be discussed in more detail in section 2.7. Instead, this section aims to present the most relevant key variables which basically influence the choice of the governance form, as well as the relationships between them. While these relationships are illustrated in 'Figure 1', the descriptions and explanations to each factor will be provided step by step within this section. For the purpose of this paper and the sake of simplicity, a simplified core model incorporating the elements and relationships (Figure 1) based on the idea of Williamson (1973, p. 316) has been created. The core model differentiates between three main key segments: transaction costs, the key attributes of transaction costs and the choice of the governance form.

Transactions are, according to Williamson (1992, p. 337), explained either in terms of contractual agreement or physical exchange: A contract between two parties includes both the negotiated and agreed terms and the actual execution and policing enforcement (Williamson, 1992, p. 337). Furthermore, transactions are also understood as a good or service exchanged via a technological interface (Williamson, 1992, p. 337). Considering these definitions, transaction costs can therefore be described as the cost for agreeing on and executing the economic exchange. More specifically, contractual transaction costs can also be separated into different types. Due to imperfect information, the economic agent is required to invest effort and resources in order to initiate an exchange, which are

described by search and information costs (Dahlman, 1979, p. 148). Bargaining and decision costs rather deal with the effort spent on negotiations between both parties (Dahlman, 1979, p. 148). Lastly, policing and enforcement costs occur in case of violation of the contractual agreements negotiated on (Dahlman, 1979, p. 148). While the first two transaction cost types are described as 'ex-ante' costs, hence costs incurring before the exchange is conducted, the last type is relevant after the actual exchange, therefore referred to as 'ex-post' costs (Dyer & Chu, 2003, p. 59).



**(Figure 1: A simplified TCE version including transaction costs, its key attributes and the governance choice.)**

In Williamson's Transaction Cost Economics, the degree of transaction costs is influenced by three specific key attributes: asset specificity, uncertainty and transaction frequency. Asset specificity represents firm-specific resources which are critical for creating or preserving strategic advantage (Williamson, 1981, p. 555; Zhao, Luo & Suh, 2004, p. 526). Depending on the object of specificity, this key attribute can be further distinguished into physical, human or site specificity (Williamson, 1981, p. 555). Furthermore, uncertainty is described as a disturbance or negative externality which requires adaption by the organization (Williamson, 2008, p. 8) whereas frequency refers to the degree of how often a transaction occurs (Williamson, 2008, p. 8).

The last segment of the simplified model addresses the actual choice of a governance form by the organization. Initially, the basic principle of the 'Make-or-Buy' decision differentiates between two types of governance forms: acquiring an economic good from the market via contracting or producing it in-house by vertically integrating it. Pure market contracting implies no dependency between the exchanging organizations (David & Han, 2004, p. 40). Terms and agreements are negotiated on between those parties and captured in a legal contract (David & Han, 2004, p. 40). On the contrary, the hierarchy represents the complete administrative control of assets by keeping the property rights within the organization (Arnold, 2000, p. 24). Although the 'Make-or-Buy' decision is often perceived and referred to as a simple dichotomy between vertical integration and market contracting, another option is represented by hybrid contracting: Choosing this governance mode implies the presence of external disturbances, partly influenced by the key attributes of transaction costs (David & Han, 2004, p. 40). As a consequence, contracts are kept flexible in order to adjust specific critical clauses in a future time period (David & Han, 2004, p. 40).

Establishing a reference to the initial core model (Figure 1), the degree of transaction costs is influenced by its key attributes, namely asset specificity, uncertainty and transaction frequency. Transaction costs themselves can be separated into search and

information costs, bargaining and decision costs, as well as policing and enforcement costs. Within empirical research, most relationships between the key attributes of transaction costs and the choice of the governance mode are directly observed. As long as there is no intention to directly measure the degree of transaction costs by one of the key attributes, the segment of transaction costs should rather be seen as an implicit and separate continuum. Therefore, the governance modes serve as the dependent variables, whereas the key attributes of transaction costs are of independent nature (Shelanski & Klein, 1995, p. 338). Nevertheless, depending on the degree of transaction costs, the model requires the organization to choose either for pure market contracting, hybrid contracting or integrating the good vertically within the own hierarchy. All these influencing activities occur with regard to the assumptions of bounded rationality and opportunistic behavior, which represent the causes for the actual inefficiency in economic allocation. While section 2.5 will provide more explicit statements and influences of the key variables, a greater variety of relationships and hypotheses by empirical evidence is examined within section 2.6.

## 2.4 Applying the determining criteria of a theory: Transaction Cost Economics qualify as a scientific theory despite few limitations

Initially, the purpose of this paper serves to analyze and assess the relevance of Transaction Cost Economics as a contributing theory in Supply Chain Management. At first, however, this requires the Transaction Cost Economics to be confirmed as an actual scientific theory, since relevance can only be assigned if the proposed concept fulfills certain criteria. Thus, the theory analysis follows to identify and validate the Transaction Cost Economics according to a set of determining characteristics suggested by Vos and Schiele (2014, pp. 3-6). The determining characteristics consist of two categories: While the 'theory construction' represents the given components for conceptual development, the 'empirical construction' implies the requirements and possibilities for actually testing the theory (Vos & Schiele, 2014, p. 4).

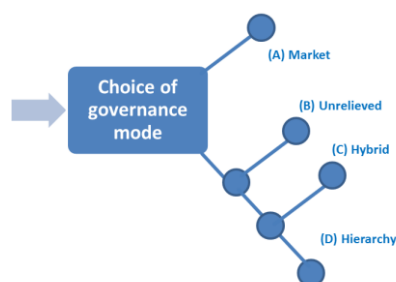
In Transaction Cost Economics, the unit of analysis being studied since Commons' proposal in 1931 is the transaction (Commons, 1931, p. 652). Under the assumption of bounded rationality and opportunism (Williamson, 1998, pp. 30-31), organizations intend to assess and choose specific transactions for the reason of undertaking the most efficient economic exchange. Influenced by its key attributes, the degree of transaction costs determines which type of contracting, or governance mode, is chosen for the own organization (laws of interrelation). In practice, the most efficient set of transactions is represented by the lowest total cost (value boundary) (Shelanski & Klein, 1995, p. 336). No physical restriction is given for choosing specific transactions. However, negative externalities influence predictions and outcomes of the theory (space boundary) (Coase, 2000, p. 116). Relevance in time begins with the intention to acquire an economic good and is restricted to the point until the transaction for this good is legally terminated (time boundary). System states are complicated to assess within Transaction Cost Economics: Although Williamson (1973, pp. 316-319) proposes the key factors which allow empirical testing, discussions regarding complete inclusiveness are still continuing. Furthermore, since transaction costs represent a rather abstract term, difficulties in measurement are given (David & Han, 2004, p. 40). However, despite the complexity of this framework, the operationalized variables are known to be persistent (Carter & Hodgson, 2006, p. 461).

Next to conceptual characteristics for the theory development, also the criteria for practical applicability of the Transaction Cost Economics require an analysis and assessment. As already indicated, Williamson's Transaction Cost Economics offer operationalization on a satisfying measurement level (empirical indicator) (Carter & Hodgson, 2006, p. 461), which allows and favors empirical research. Due to the high complexity of Transaction Cost Economics, propositions can acquire the most different contexts among the framework, making statements regarding governance modes (Argyres & Liebeskind, 1999, pp. 59-60), the effects of the key attributes or firm performances (Ellram, Tate, & Billington, 2007, pp. 3-4). Having an impact on the degree of transaction costs, these transactions have clear influences on the consequential choice of a governance form (Chiles & McMackin, 1996, pp. 74-75). The large variety in known and unknown variables from business practice provides opportunities for vast, but mostly qualitative hypothesis testing, which is for example given by Lyons (1995, p. 436), Aubert, Rivard and Patry (2004, p. 924) or David and Han (2004, p. 40).

In conclusion, the Transaction Cost Economics fulfill the requirements for a theory to almost full extent. Despite the difficulty in identifying the exact boundaries and system states, as a consequence of incorporating a huge variety in topics and influences, the theoretical construction is given. Furthermore, the framework supports empirical testing by the possibility to construct propositions and hypotheses. With the core factors of the theory discussed and their existence confirmed the analysis proceeds with a deeper insight on what the theory exactly states.

## 2.5 Analyzing the key statements: the logic of the governance choice being based on a contracting decision-tree

The initial purpose of the Transaction Cost Economics is to provide insights on how the organization can protect itself from relationship-specific rents (Shelanski & Klein, 1995, p. 336). Priority and focus are hereby set on acquiring the economic good for the lowest total cost, with respect to the organization's given resources and information available (Shelanski & Klein, 1995, p. 336). While section 2.3 already gave a descriptive view on the key factors relevant for choosing the right mode governance mode, the current section aims for providing an explanatory perspective on how the key factors interact in the economic environment and why specific mode is chosen. Thus, for clarifying the main statements of the Transaction Cost Economics, a visualized decision-making framework by Williamson (1998, p. 38; Appendix A) is included and adjusted to the core model in this paper (Figure 2). Based on the theoretical components discussed within section 2.3, Williamson's 'simple contractual schema' illustrates to what extent the key attributes of transaction costs can have an impact on the actual decision-making for a governance mode.



(Figure 2: Extended version of the TCE framework including the contractual scheme by Williamson [1998].)

Assuming that the organization has the choice of either procuring a good from the market or producing it within the own firm, the asset specificity of the good is evaluated at first. In case of no firm-specific assets available, the transaction would not represent any threat for procuring the good from the market. Therefore, market governance will be chosen (Node A, Figure 2) (Williamson, 1985, pp. 38-39). However, if asset specificity is given, the organization is possibly subject to higher relationship-specific investments. Consequently, the need for contractual safeguards is evaluated. Contractual safeguards for example contain penalties or information disclosure agreements (Williamson, 2008, p. 9). Both uncertainty and transaction frequency can provide reasons for negotiating on contractual safeguards: In situations of environmental, performance or behavioral uncertainty, the organization has to evaluate whether one of these external factors will increase ex-post transaction costs (Rindfleisch & Heide, 1997, p. 31). Nevertheless, the organization still conducts market contracting (Node B, Figure 2) if no contractual safeguards are necessary for the transaction, although a certain degree of asset specificity is given. Lastly, the final decision point requires a cost evaluation regarding the contractual safeguards: If costs outweigh the benefits of market contracting, the good will be organized and administered within the own firm-related hierarchy (Node D, Figure 2) (Williamson, 1998, pp. 38-39). However, in case of lower total costs for market contracting, a hybrid mode (Node C, Figure 2) is chosen which require a higher focus on relational governance (Grover & Malhotra, 2003, p. 460).

Although the key statements of this framework in terms of the governance choice and the resulting reach for higher economic efficiency are logical, the illustrated example represents a rather simplified version of how the main factors interact with each other. Thus, the applicability of the extended model tends to be difficult in actual business practice, since empirical evidence indicates a more complex system with other intervening variables. In order to follow up on the main statements of Transaction Cost Economics, not only the mentioned key relationships need to be empirically verified, but also other potential influences from business practice in the context of Supply Chain Management and purchasing.

## 2.6 Empirical evidence in Transaction Cost Economics: a literature review approach

### 2.6.1 An introduction to the systematic literature search

Due to the extensive number of scientific literature available, this paper aims to provide a review of the past and current research on a systematic level. In order to do so, the literature is selected according to three specific criteria: relevance, variety and continuity. Relevance is given by choosing literature which either explicitly focuses on Transaction Cost Economics as a whole or a part of the concept, or which takes the framework as a scientific lens to acquire another perspective. Furthermore, variety in terms of tested variables and researched perspectives needs to be ensured, especially due to the complexity of this framework. Lastly, continuity among time is favored: A long theoretical progression implies a change in empirical research factors. Whereas core concepts and relationships are tested at an early stage of operationalization, the degree of detail and specificity within research can increase over time which offers valuable insights in empirical development.

For acquiring the necessary data, the scientific search engines ScienceDirect, Scopus and Google Scholar have been used. The main search term for this paper is given by the key words of

'Transaction Cost Economics'. Searching literature with these main key words, the total number of available articles reaches 3.043 results at Scopus, 1.770.000 results at Google Scholar and 74.084 results at ScienceDirect. Due to this large amount of literature, Scopus offers the option to filter the search down to articles only within 'social sciences' (2.131 counts), while Google Scholar and ScienceDirect do not provide such functions. In order to make further specifications in literature search, either the key words 'Transaction Cost Economics' or 'Transaction Cost' (15.467 counts unfiltered and 9.662 counts filtered) have been combined with the following search terms: 'Asset Specificity', 'Assumption', 'Criticism', 'Empirical Evidence', 'Evidence', 'Efficiency', 'Firm Boundaries', 'Frequency', 'Governance', 'Hierarchy', 'Hybrid Contracting', 'Hybrid', 'Make-or-buy', 'Measurement', 'Organization', 'Resource-based view', 'Risk', 'Social Exchange Theory', 'Test', 'Theory', 'Uncertainty', 'Variables' or 'Vertical Integration' in various combinations. Specifically for purchasing-related literature, the key words 'Transaction Cost Economics' or 'Transaction Cost' were searched in combination with 'Buyer', 'Buyer-supplier relationship', 'Contracting', 'Outsourcing', 'Purchasing', 'Strategy', 'Supply', 'Supply Management', 'Supplier', or 'Sourcing'. After the results were presented by the search engines, the given articles were sorted according to their degree of relevance. Finally, the literature search was followed by the given criteria proposed at the beginning of this section. A general list of the journals in which the selected articles are published can be found within 'Appendix B'.

### *2.6.2 General empirical findings: support for the Transaction Cost Economics core model is visible*

Due to the vast amount of variables and the variations in possible relationships, the literature review for this section requires certain limitations. Therefore, attention is paid to the key attributes of transaction costs (asset specificity, uncertainty, and transaction frequency) and their impact on the governance choice, more specifically the degree of vertical integration. Moreover, next to further general findings of the key attributes with impact on other factors and phenomena, the human factors as mentioned in section 2.2 are observed.

Generally, empirical validation is needed for the most relevant relationships of the Transaction Cost Economics, as proposed in the core model within section 2.3. Therefore, the direct influences of the transaction costs' key attributes on the governance choice or the degree of vertical integration are reviewed first: Levy (1985, p. 438), being one of the earlier researchers to test Williamson's approach, recognized a positive influence of the combined factors of asset specificity and uncertainty in relation to the degree of vertical integration. Later studies from Coles and Hesterly (1998, p. 407) for example go further into detail in terms of asset specificity and recognize the same patterns for both physical and human types of this key attribute. While also studies from Geyskens, Steenkamp and Kumar (2006, p. 532) confirm the positive effect of uncertainty availability on the tendency towards hierarchical governance, Balakrishnan and Wernerfelt (1986, p. 347) found contradicting evidence where a negative relationship between these two factors is observed. For the case of transaction frequency, Rindfleisch and Heide (1997, p. 31) and Geyskens, Steenkamp and Kumar (2006, p. 524) criticize the low number of studies conducted for this variable regarding the direct impact on the governance choice. However, Maher (1997, p. 168) observes that higher transaction frequency is associated with a higher tendency towards the hierarchy, therefore implying a careful validation of this relationship.

Going further into detail within the empirical data, more specific relationships between the key attributes of transaction costs and other context-related factors were analyzed. Asset specificity, representing a more dominant role over the other key factors (Shelanski & Klein, 1995, p. 337), is also observed the most within other literature reviews and case studies (David & Han, 2004, p. 45; Geyskens, Steenkamp & Kumar, 2006, p. 528; Rindfleisch & Heide, 1997, pp. 33-39). A visible impact is reflected by the topic of market integration: since relationship-specific investments bear costs for either developing the technology or training the employees for producing it, higher asset specificity implies a stronger tendency to make use of integration within foreign markets channels (Klein, Frazier, & Roth, 1990, pp. 79-80). A similar case of preferring integrated channels in presence of high asset specificity is also supported by Anderson and Coughlan (1987, p. 71). In general, Joskow (1988, p. 115) assigns high relevance to asset specificity when relationship-specific investments are involved, since the attribute may reflect a source of high ex-post transaction costs when contractual relations are not monitored precisely enough (Pilling, Crosby, & Jackson Jr, 1994, p. 237).

Within common literature, the key attribute of 'uncertainty' is often differentiated into certain types: Behavioral uncertainty implies an increase in salesperson opportunism, which however can be countered by inducing higher goal congruence (Anderson, 1988, p. 247). Furthermore, firms show a tendency to avoid external reseller channels and integrate those within their organization in presence of behavioral uncertainty (John & Weit, 1988, p. 351). Environmental uncertainty instead reflects its relevance in terms of demand risk, since more risk within the partnership is accepted when the degree of uncertainty is low (Jin & Doloi, 2008, p. 719). Moreover, Fink et al. (2006, p. 519) indicate that technological uncertainty does not necessarily lead to a tendency towards hierarchical integration, but also gives evidence for the preference of active relational governance.

As already indicated, the availability of studies related to transaction frequency is limited. Next to Maher's (1997, p. 168) research, transaction frequency shows a positive relationship to outsourcing (Maltz, 1994, p. 245). However, this rather applies for services than goods, since sourced goods can bear higher volatility in supply and ordering costs.

Not only are the key attributes empirically researched within the context of Transaction Cost Economics, but also the social factors reflected by the underlying assumptions. Opportunism, often taken into consideration with the factor of trust, is negatively related to the tendency towards relationalism (Lado, Dant, & Tekleab, 2008, p. 417). The same support is found by Liu et al. (2009, p. 305), with the addition that the factor of trust positively influences relationship performance. Since a majority of the studies examines the social and relational aspects in a closer buyer-supplier context, a more detailed analysis is provided within section 2.6.3.

In order to summarize the general findings, not only significant support for the key attributes of transaction costs in direct relation to the choice of vertical integration is identified, but also their impact on other factors within the context of Transaction Cost Economics. More specifically, their influences are either from strategic, cost-related or behavioral nature. The high variety in possible variables to examine represents a difficulty in providing a full-perspective literature review. Therefore, limitations in total inclusiveness of the available empirical data are emphasized. However, a more detailed approach towards purchasing in particular is provided within the next section.

### 2.6.3 *Purchasing-related findings: a wide field for applications is researched and empirically tested*

Within Transaction Cost Economics, a strict differentiation between general and specific empirical findings related to purchasing and Supply Chain Management is difficult to attain. Due to having the context between buyer and supplier firms established, overlaps in literature exist. Therefore, the literature review within this section either contains articles which directly address 'Transaction Costs' and 'Purchasing' or 'Supply Chain Management' as key words, or articles which emphasize the background of these scientific fields in their research.

In order to establish a connection to the presented data from section 2.6.2, the discussion continues to focus on interactions between buyer and supplier. In general, Heide and Stump (1995, p. 57) state that buyer-supplier relationships are not only conducted to protect the organization from uncertainty and asset specificity, but that the synergy of both results in reduced transaction costs. Establishing such a relationship to protect the organization against uncertainties and support supply stability can also result in forming alliances (Lee, Yeung, & Cheng, 2009, p. 190). Taking the factor of 'trust' as a requirement, especially the customer side benefits from transaction cost savings in relationships (Bharadwaj & Matsuno, 2006, p. 68). Having active buyer-supplier interactions also implies relationship-specific investments: Wagner and Bode (2013, p. 65) observe that active relationship-specific investments stimulate the supplier's motivation for process level innovations. However, after performing a case study with hospitals and their suppliers, Castano and Mills (2013, p. 157) emphasize attention to contract incompleteness for such investments, which represent a source for higher transaction costs.

Transaction Cost Economics are also often considered as a 'measurement tool' or 'theoretical perspective' for specific business practices within purchasing. Although products may be outsourced due to lower costs, internal production knowledge has a positive effect on preventing transactional hazards and increases efficiency (Kumar, 2013, p. 261). Intra-organizational knowledge is also favored for the implementation of Supply Chain Management practices, such as Just-In-Time, which should be considered with respect to the degree of transaction costs (Gonzalez-Benito, Suarez-Gonzalez, & Spring, 2000, p. 279). Wever et al. (2010, p. 228) instead use the Transaction Cost approach to conduct a case study, where transaction costs are used as a measurement for identifying unnecessary rents within quality management systems.

Moreover, the Transaction Cost Economics serve to provide insights for sourcing or outsourcing strategies in terms of products and services. Parmigiani (2007, p. 305) examines that companies choose for concurrent sourcing in order to ensure both the access to strategic resources and capabilities. The importance of accessibility to such resources is underlined by a study of Ettl and Sethuraman (2002, p. 365) which supports the advantages of global sourcing, although transaction costs are lower when firms source locally. Furthermore, Ang and Straub (1998, p. 535) consider production costs next to transaction costs within information systems outsourcing strategies, which even shows higher influence in this context.

Derived from the content, three major fields of application for Transaction Cost Economics have been found. The empirical research in buyer-supplier relationship underlines the social component within purchasing and acts as a source of potential transaction costs. Furthermore, transaction costs are also intended to be measured by identifying the impact of other

variables on it or by using Williamson's framework as a scientific lens for identifying them within practices. Lastly, it shows relevance for choosing sourcing strategies, either in terms of local or global sourcing, or the outsourcing of goods and services in general. Since again the variety in possible variables is too high, limitations in terms of information inclusiveness need to be considered.

### 2.6.4 *Conducting a life-cycle analysis: the strong representation in virtues drives the progression of the theory*

As stated in section 2.4, a scientific theory requires a complete theoretical and empirical construct in order to proceed with its natural progression. With regard to the conducted analysis within this paper, both from conceptual and empirical nature, the potential of a theory develops through its virtues (Vos & Schiele, 2014, p. 3). Virtues reflect characteristics in terms of quality and scientific value (Vos & Schiele, 2014, p. 6). Therefore, the criteria for good virtues reviewed by Vos and Schiele (2014, pp. 3-6) are applied on the Transaction Cost Economics theory in order to assess the quality of progression.

Regarding the internal virtues, the strong difficulty in assessing internal consistency and coherence represents a conflicting point in Transaction Cost Economics: Due to the complexity of the framework, also as a consequence of including organizational theories and social components, a lack of consensus among scientists exists (David & Han, 2004, p. 40). Before Williamson's version of the Transaction Cost theory has been introduced in the 1970s, operationalization was not given and thus no concrete possibilities for empirical validation and verifiability. However, with regard to the reviewed empirical evidence from sections 2.6.2 and 2.6.3, validation is not only found for the core variables, but also for other context-related factors, which indicates high discrimination in hypothesis forming. Nevertheless, especially Williamson (2007, p. 25) emphasizes the need for further operationalization, since the current dimensions are sufficient for empirical testing, but are also not identified precisely enough.

For the external virtues, the Transaction Cost Economics address a wide scope of critical topics within economics, organizational sciences and contract law (Macher & Richman, 2008, p. 2) and represent, indicated by the evidence in section 2.6.3, applicability in management practice on both high and narrow abstraction level. Although being a complex theory, external consistency of the Transaction Cost Economics is strongly given: Due to its application as a broad and abstract scientific lens in empirical research, shown by sections 2.6.2 and 2.6.3, and its use in combination with other scientific theories external literature incorporates and supports the framework (Argyres & Zenger, 2012, p.2; Silverman, 1999, p.1110; Young-Ybarra & Wiersema, 1999, p.440). Furthermore, the aspect of conservatism is not observed. Instead, the virtues of other persistent Transaction Cost theories compete with those of Williamson's version which will be discussed in more detail within section 2.8. Lastly, the theory provides fruitful knowledge due to its strong potential in explaining phenomena in business practice, especially in the field of purchasing and Supply Chain Management. Nevertheless, the aspect of further operationalization is required in order to ensure a value-adding progression.

Reviewing the internal and external virtues for positive theory development, the Transaction Cost Economics is able to confirm a majority of the named criteria. After describing the conceptual foundation in section 2.4 and the drivers for further development within this section, the life-cycle positioning of the theory can be determined. Seeing theories as generally

progressive, several degeneration criteria which inhibit the development of the theory are proposed (Vos & Schiele, 2014, p. 9). Due to the long progression in Transaction Cost Economics since the 1930s, the initial Transaction Cost approaches have often been subject to reformulations in conceptual backgrounds, core factors and assumptions. Attempts in operationalization were tried in the 1960s by Coase until Williamson presented a sufficient version in the 1970s. However, arguments regarding the correct conceptual foundation persisted, which lead to alternative Transaction Cost theories by Coase himself who favoured an economic emphasis on transaction costs (Mikami, 2011, p. 50) or North (1990, p. 362) who applies his Transaction Cost theory in a political perspective.

In conclusion, the conducted life-cycle analysis and the given evidence assess the Transaction Cost Economics as progressing. Nevertheless, there is the possibility that future research will stagnate due to the incapability in defining and measuring all relevant variables. As a consequence, reformulations will be demanded and have to succeed against others, else conceptual stagnation will continue. Since the discussion regarding the persistence of the theory is complicated and requires a wider perspective on this topic, it will be followed up in more detail within the next section.

## **2.7 A critical assessment of the theory: varied opinions on empirical evidence, the level of measurement and the underlying assumptions**

Within this paper, the Transaction Cost Economics has been described to possess strong explanatory value about why organizations exist and in which way core activities are chosen to be contracted. Especially Williamson, taking a lead role in the creation development of the Transaction Cost Economics, does not retain to praise his own framework. (Williamson, 2000, pp. 605-607) Despite the possibility of Williamson being biased by his own ideas, there is a general need to identify the criticism among researchers for such a complex theory.

In general, positive features of the framework are represented by the ability of determining boundary choices. Assigning strategic importance to this topic, Poppo and Zenger (1998, p. 853) describe the Transaction Cost Economics as being superior towards other theories to identify firm boundaries. Furthermore, varied critique to the empirical support is given: although the number of empirical studies strongly increased over the years and relationships have been significantly confirmed by research (Geyskens et al., 2006, p. 524), reviews such as from Carter and Hodgson (2006, p. 461) or David and Han (2004, p. 40) came up with mixed results. (Macher & Richman, 2008, p. 1) Regarding hybrid contracting, unconformity is visible and indicates strong influences by other unknown factors (Macher & Richman, 2008, p. 1). Furthermore, as already indicated in the sections before, the operationalization of dimensions did not occur to full extent: Carter and Hodgson (2006, p. 474) criticise the lack of direct measures on transaction costs. Moreover, Zhao, Luo and Suh (2004, p. 538) mention the aspect of measurement inequivalence in context with the factor of uncertainty. However, strongest critique is related to the underlying assumptions regarding human actors on which the Transaction Cost Economics are based. Ghoshal and Moran (1996, p. 14) criticize the assumption of opportunism: describing it as a “self-fulfilling prophecy” (p.14), opportunistic behaviour fosters the need for sanctions and monitoring, which however increases again opportunistic behaviour even more in return (Ghoshal & Moran, 1996). Next to opportunism, Klein

and Foss (2005, pp. 7-8) review strong critique by many researchers about the limited use of bounded rationality within the framework. Moreover, Chiles and McMackin (1996, p. 74) address the importance of risk neutrality as a third behavioural assumption to be included.

In conclusion, three key points of criticism have been identified: mixed empirical support which is maybe caused by the incapability of recognizing important variables, wrong methodological procedures or due to the lack of operationalization. Especially the latter might act as a future source of complications, since the lack of dimensionalization again leads to problems in empirical testing. Lastly, the strongest point of criticism is represented by the wrong conceptual foundation in terms of assumptions: not only have the current assumptions been criticized, but also new ones proposed. Reviewing the facts and opinions regarding Transaction Cost Economics, the variety in different perspectives emphasizes again the strong complexity of this interdisciplinary theory. Since this interdisciplinary view is reflected by comparing and contrasting Williamson’s framework to other scientific theories, section 2.8 will continue the discussion regarding this topic.

## **2.8 Differentiation and evolutionary tendencies: an efficiency framework showing potential for co-evolution with other theories**

Although the paper sets its main emphasis entirely on the framework of Transaction Cost Economics, it should not be viewed in isolation of other theories. Differences in Transaction Cost theories have already been indicated within section 2.6.4. Coase (1988, p. 33) follows an economic tendency, being more superior to social sciences, and therefore seeks to operationalize calculative measurements for transaction costs (Mikami, 2011, p. 50). On the contrary, a more altered version of the Transaction Cost approach is represented by North (1990, p. 362): based on the assumptions of instrumental rationality and neoclassical theory, the efficiency is sought within the political environment, more specifically between government and the public sector (North, 1990, p. 362).

In general, the Transaction Cost Economics are assigned to the field of new institutional economics, stating that economic activity is not isolated from social influences, but rather influenced by these to a larger extent (Rutherford, 2001, p. 173). Comparing for example the social exchange theory to the Transaction Cost framework, the latter provides insights on strategic interaction between organizations as such (Young-Ybarra & Wiersema, 1999, p. 439), while the social exchange theory goes further into the social component by examining the personal and relational backgrounds among the economic agents (Granovetter, 1985, p. 490). Next to such a socio-organizational approach, also knowledge-based theories like the resource-based view show conceptual contrasts: in terms of firm boundaries, the resource-based view emphasizes the need of resource exploitation to the market, rather than isolating the capabilities within the own hierarchy (Silverman, 1999, p. 1109). Since the Transaction Cost Economics aim to determine the exact firm boundaries for maximizing transaction efficiency, two different approaches for value generation, being either efficiency focus or resource synergy, are visible and represent two contrasting views for organizations.

The literature indicates that theories indeed may merge together as a consequence of evolutionary development and form a completely new perspective on how to examine phenomena. Logical tendencies of co-evolution are represented by the idea of combining the often compared Transaction Cost theory and the



resource-based view: Jacobides and Winter (2005, p. 406) propose that the vertical integration of production is rather decided by selection mechanisms of the resource-based view. Continuous integration and disintegration of specialized capabilities forces the market to increase efficiency which is in the interest of the transaction cost approach. Furthermore, Foss and Foss (2004, p. 119) even propose a more abstract approach by viewing resources as a collection of property rights, so basically the whole set of transactions, to attributes.

Summarizing the central issue of differentiation and evolutionary tendencies, the Transaction Cost Economics have always been subject to conceptual changes and competed with other transaction cost versions of different scientific fields. Differentiation towards other theories is visible in terms of providing an interdisciplinary view on economic, organizational and social sciences, instead of having a pure focus on only one field. Moreover, the combination with the resource-based view indicates possible evolutionary co-development proposed by researchers.

### **3. TRANSACTION COST ECONOMICS APPLIED TO PURCHASING: AN ANALYSIS OF FOUR KEY DECISION POINTS**

#### **3.1 Decision point ‘Make-or-Buy’: the essence of the Transaction Cost Economics showing strong relevance for this choice**

With respect to the discussed facts and findings so far, the decision point of ‘Make-or-Buy’ basically represents the essence of the Transaction Cost Economics. Multiple studies have been performed in order to assess the validity of its core variables for determining the governance choice and thus whether a good is produced in-house or procured from the market. Direct influences by the key variables on the governance choice or the tendency towards vertical integration are observed and accepted, although a minority of studies disagrees (Carter & Hodgson, 2006, p. 461; David & Han, 2004, p. 40; Geyskens et al., 2006, p. 524; Rindfleisch & Heide, 1997, pp. 33-39; Shelanski & Klein, 1996, p. 337). However, the given evidence confirms the theory mostly in isolation of other purchasing-related factors. Therefore, a wider context within Supply Chain Management needs to be established.

Williamson (2008, p. 1) attempts to create a first connection between the Transaction Cost Economics and the topic of outsourcing in Supply Chain Management within his paper. In general, outsourcing is referred to as “contracting out of activities that were previously performed within a firm, to subcontractors outside a firm.” (Girma & Görg, 2004, p. 817) Due to influences of external organizations, strong collaborations with suppliers and the opportunity to form alliances, Williamson (2008, p. 14) indicates possible governance choices by organizations which would deviate from the usual propositions. The higher emphasis on social interactions in forms of buyer-supplier relationships, networks and alliances is not only indicated by the evidence within section 2.6.3, but also by studies from Madhok and Tallman (1998, p. 326) which examine a direct connection between the social or organizational factors and the governance choice.

Going further into detail, purchasing-related literature often examines the Transaction Cost Economics for organizations incorporating a hybrid governance form. According to the basic logic discussed so far in this paper, the requirements for

choosing hybrid governances are both high asset specificity and the presence of uncertainty, which is usually given within Supply Chain Management; else there would be no need to conduct it. As long as administrative costs and potential value through collaboration do not outweigh the benefits of vertical integration, the organization decides on hybrid contracting. (Williamson, 1998, p. 39) However, deducted by common literature, the observed findings in section 2.6.3 and this discussion, hybrid organizations imply exactly these social interactions in form of buyer-supplier relationships, networks and alliances. Not only do these social interactions represent a key aspect in this field of science, but also become of crucial importance within the upcoming decision points when choosing the appropriate sourcing and supplier strategies. Despite the supporting evidence regarding Transaction Cost Economics, it is known that the framework struggles with the operationalization of those, mostly unknown, social influences and factors. Thus, a higher interference by variables from social sciences increases the complexity of applying the theory to a buying or outsourcing situation and therefore the difficulty in measuring the exact determinants for a ‘Make-or-Buy’ decision.

Furthermore, the Transaction Cost Economics aim to increase economic efficiency by choosing the set of contracts with the least transaction costs (Williamson, 2008, p. 5). However, the degree of transaction costs should not directly be associated with the total value of a transaction: following a sourcing strategy or taking market investments may possibly result in higher costs than producing a good in-house. However, benefits such as the access to technology and knowledge, resources and markets represent opportunities for increasing the overall value of an organization (Gereffi, Humphrey, & Sturgeon, 2005, pp. 86-87). Limiting the view down to a pure efficiency focus within the firm boundaries can reduce costs, but potential value or synergy effects in either monetary or intangible form might be forgone when vertical integration is chosen just for the reason of reducing costs (Holcomb & Hitt, 2007, p. 478). Thus, organizations which either deal with mature product life-cycle stages, implying a need for cost efficiency, or which do not require additional resources in form of assets or innovations rather benefit from a ‘Make-or-Buy’ decision through a transaction cost perspective than organizations showing the opposite tendencies.

In conclusion, the Transaction Cost Economics primarily addresses the core problem of this decision point. Its core factors and relationships provide significant evidence for the reasons of choosing a more efficient governance form given the options of making, buying and hybrid contracting. Especially the latter represents a dominant role in Supply Chain Management. Nevertheless, two critical discussion points for the theory were derived: the complexity to assess transaction costs in presence of social interference and the higher focus on efficiency. In Supply Chain Management, organizations adapt to their external environment and their internal capabilities, which requires a more dynamic approach of identifying and measuring the resulting degree of transaction costs. Furthermore, as long as efficiency is not the primary criterion for an organization to choose for either to make or to buy, Williamson’s theory should be applied with care, since potential value in form of resources or synergy effects might be lost. Despite the criticism, the Transaction Cost Economics enjoys both conceptual and empirical relevance for determining a ‘Make-or-Buy’ situation and therefore reflect a strong theory for this decision point.

### **3.2 Decision point ‘Sourcing strategies’: transactions as key influencers for choosing sourcing strategies**

Together with the decision to procure a good from the market, a specific sourcing strategy needs to be acquired by the buying firm. While aiming for cost efficiency and reliability in supply (Freytag & Kirk, 2003, p. 136), choosing an appropriate sourcing strategy represents high strategic importance for the organization (Gadde & Hakansson, 1994, pp. 27-28). Depending for example on factors such as firm location, production process steps or the type of components, different sourcing strategies like ‘offshore sourcing’, ‘local sourcing’ or ‘complex sourcing’ have emerged (Kotabe & Zhao, 2002, p. 14).

Referring to the examined literature within this paper, the impact of the transaction cost attributes on sourcing strategies is not only significant, but even represents the actual reasons why proper Supply Chain Management needs to be conducted. Especially asset specificity reflects the basic necessity for even dealing with the topic of sourcing strategies. Although high asset specificity often relates to internal sourcing, a lack of resources or capabilities may force the organization to procure the good from the market with the requirement of contractual safeguards (Williamson, 2008, pp. 9-10). Furthermore, uncertainty of any kind is avoided or even proactively counteracted by monitoring the supply chain or making use of business practices (Heide & Stump, 1995, p. 57; Gonzalez-Benito, Suarez-Gonzalez, & Spring, 2000, p. 279). Lastly, the attribute of transaction frequency, being the quantitative measure for how often economic exchanges occur, becomes crucial when contracts need to be set up and monitored which implies further transaction costs (Williamson, 1979, p. 246). Assuming a business situation where the theory is applied in practice, the manager would conduct a transaction cost analysis to identify as many of these critical transactions as possible and assess their degree of costs arising for each sourcing strategy intended.

However, both identification and application in real-life sourcing challenges bear complications and difficulties. Due to the persistent incapability in quantifying the exact degree of transaction costs (Wang, 2003, pp. 1-9), transaction estimations by managers can turn out to be imprecise. While the measurement of the basic transaction cost types has a good chance for more accurate estimations (Dahlman, 1979, p. 148), although still being difficult for a manager to conduct, abstract types such as opportunity costs become relatively impossible to determine (Collins & Fabozzi, 1991, p. 27). Furthermore, Kim and Rucker (2005, pp. 10-11) fail to apply the transaction cost theory for determining sourcing strategies because of choosing an industry where perfect information is available. Thus, the applicability of a transaction cost analysis varies again among organizations industries, with reference to the discussion regarding firm boundaries in section 3.1. Although Schneider et al. (2011, p. 252) give support and relevance to the theory within a global sourcing situation, a practical application by managers is refused due to the lack of human factors within the framework.

Summarizing the discussed facts, the Transaction Cost Economics provide reasons for the necessity of sourcing strategies and present a unit of measurement in form of the transactions themselves. While this framework helps to gather insights about which strategic factors possibly have an impact on the degree of transaction costs, limitations in identification and application of the framework need to be considered.

Nevertheless, the evidence shows that the transaction cost lens provides a useful perspective for qualitatively assessing the degree of transaction costs in order to decide on a sourcing strategy based on cost efficiency. Therefore, conceptual and empirical relevance can also be assigned to this decision point.

### **3.3 Decision point ‘Supplier strategies’: critical buyer-supplier relationships representing a source for hazardous transactions**

After a specific sourcing strategy has been chosen by the organization, the consequential action would be to decide on how to actually interact with the supplier. Such buyer-supplier relationships are initiated with the purpose of increasing value for both parties, or for reducing costs of the economic exchange, which under certain degrees also represent a critical factor for overall success (Zaheer, McEvily, & Perrone, 1998, p. 141). Collaborative features such as trust, satisfaction and commitment form the basic requirement for the cooperation between buyer and supplier (Cannon & Homburg, 2001, p. 29).

Since this section identifies and discusses the conceptual connection between Transaction Cost Economics and supplier strategies, either market governance or hybrid governance need to be assumed. Generally, the transaction cost characteristics have a key impact within buyer-supplier relationships and represent actual reasons for entering such collaborations: Firstly, the presence of high firm-related asset specificity requires the organization to carefully conduct quality control, monitoring and enforcement efforts (Buvik, 2000, p. 101). Secondly, further effort in commitment, knowledge sharing and relationship-specific investments protect the organization from technological uncertainty (Bensaou & Anderson, 1999, p. 460). Moreover, transaction frequency not only increases the willingness for cooperation like the other key attributes, but also the foster the improvement of business process with the implicit intention to reduce transaction costs (Iskandar, Kurokawa, & LeBlanc, 2001, p. 506). Lastly, additional studies examine other influences than of the key attributes and address how relational factors are related to the aim of reducing transaction costs: Hallikas (2002, pp. 3529-3530) for example emphasizes the time factor within the relationship, stating that long-term relationships bear less transaction costs and less risk, but instead result in higher dependency towards the supplier and therefore a lower strategic position.

Going further into long-term relationships, managers can become subject to the factors of trust and opportunism, which have higher relevance in the Transaction Cost Economics. While a positive relationship between inter-organizational trust on avoiding exchange hazards is identified (Gulati & Nickerson, 2008, p. 703), Bharadwaj and Matsuno (2006, p. 68) examine a case where the increase of the vendor’s order management cycle performance was positively affecting trust, which again has further reduced transaction costs. According to the given logic, both the degree of trust or opportunism provide reasons for the organization to accept the risks or avoid them: Either, trust is not given (or opportunistic behavior is) and the firm decides to protect itself from hazards by including additional clauses and terms, or trust is given (or opportunistic behavior is not) and the degree of transaction costs decreases since no need for contractual safeguards is available.

Although several statements of the previous discussion can be assigned to section 3.4, the review shows that the core components of the Transaction Cost Economics firstly provide reasons for entering a buyer-supplier relationship and secondly

emphasize the factors of trust and opportunism for making transaction decisions. The given literature observes and states relationships as relevant within this decision point and confirms the applicability of the theory for identifying supplier strategies. However, exact proposals for supplier strategies within this context are either not existing or were not found. Therefore, limitations in terms of information for this section need to be stated.

### **3.4 Decision point ‘Contracting’: Transaction Cost Economics for identifying incomplete contracts and the need for safeguards**

When the organization has succeeded to decide on a sourcing and supplier-interaction strategy, the final critical step in purchasing involves the actual contract set-up in order to capture all agreements on a legal basis. Wen et al. (2011) describe a purchasing contract as “one of the economic contracts, which refers to a lawfully effective, formal, written agreement signed by both supply and requisition parties to definite their rights, duties and obligations so as to perform supply and marketing tasks” (p. 1). For this decision step, it needs to be clarified that the contracting does not represent the actual choice of the governance mode, but rather the process of contracting itself. The choice on the governance mode is logically taken in decision point 3.1.

Applying the Transaction Cost Economics in the context of the contracting procedure, the scientific literature strongly addresses the problem of contract incompleteness. As a result of bounded rationality, being a key assumption of the theory, and thus the lack of complete information, human beings are not able to include all necessary safeguards (Hart, 1995, p. 134). More specifically, contract incompleteness is given by the factors of uncertainty, information asymmetry, unobservability and the difficulty in defining the product (Castano & Mills, 2013, p. 159). Furthermore, information asymmetry again has a positive impact on the factor of opportunism which can enhance conflicts within contractual bargaining (Parker & Hartley, 2003, p. 107). Not only the contractual bargaining represents a type of potential transaction costs (Dahlman, 1979, p. 148), but also the exact specification of property rights in strategic alliances requires investments of time and resources in agreeing and monitoring (Oxley, 1997, p. 388). Within a case study, Saussier (2000, p. 204) applies the Transaction Cost framework to the topic of contract incompleteness and identifies a significant trade-off between ex-ante and ex-post transaction costs: Either uncertainty requires the organization to agree on detailed contractual safeguards already during the set-up, or flexibility in terms and agreements is preferred and the risk of additional ex-post transaction costs is taken into account. This trade-off relates to the risk dilemma mentioned in section 3.3.

Deducting the given facts, not only human failure has been identified as a cause for incomplete contracts, but also strategic reasons for coping with asset specificity, uncertainty and transaction frequency. By agreeing on contractual safeguards in forms of terms and clauses in order to avoid influences by the given key attributes, the organization determines its exact transactions and thus the degree of transaction costs. Moreover, the intended sourcing or supplier strategies which shall be conducted by the organization are agreed upon before the actual contracting and realized in form of transactions. Therefore, the final decision point of contracting benefits from a transaction cost view and assigns high relevance for this theory.

## **4. DISCUSSION AND CONCLUSION**

### **4.1 The Transaction Cost Economics as an approach for seeing the bigger picture in Supply Chain Management**

The aim of this study is to answer the research question: “*Does the concept of Transaction Cost Economics fulfill the determining characteristics of a scientific theory and to what extent does it contribute to the key decision points in purchasing?*”

In general, the Transaction Cost Economics show a mature historical progression implying a lot of complications in development. Problems in conceptualization and operationalization for Transaction Cost theories have persisted until an appropriate framework has been created in the 1970s. Since then, it clearly reflects the determining characteristics of a scientific theory proposed by Vos and Schiele (2014, pp. 3-6): core components, laws of interrelation as well as boundaries, which form the basis of a theory, have been identified and assessed. Furthermore, the empirical construct also applies to the Transaction Cost Economics: the given components are testable, while proposed interactions and relationships can be observed or at least studied. However, complications can emerge as soon as the exact units of interaction or the interactions between them (with reference to system states) are studied within research, since a closer observation in complex organizational or economic environments often leads to different results. Such problems are criticized among scientists as a consequence of incomplete operationalization, so the incapability of determining all relevant influences, and also due to building the theory on possibly wrong assumptions of human nature. In the context of theoretical characteristics and virtues, these facts may hinder progression or even show a degeneration of the theory in a future point of time. Discontinuity in empirical research implies stagnating value-added insights into the concept or a higher lack of application in business. Nevertheless, such a temporal state has not been reached yet. The reviewed empirical evidence within this paper shows a sound development in insights and relevant factors, especially due to tested applicability in organizational theory and practice. Given the fact that the Transaction Cost Economics incorporate good internal and external virtues, a higher positioning within the theoretical life-cycle is identified and assigned. In addition, evolutionary drifts in other conceptual directions are proposed by scientists. With respect to the historical development, where Transaction Cost theories already separated from each other into different approaches, such evolutionary drifts are not unfounded and there is definitely a chance for another one, especially in case of empirical stagnation or concrete rejection of the criticized assumptions.

Considering the discussed facts, including the conformance with the criteria of a theory, the observed virtues and the proposed life-cycle classification, sufficient evidence for qualifying the Transaction Cost Economics as a theory is given. Therefore, in reference to the research question, *the concept of Transaction Cost Economics does fulfill the determining characteristics of a scientific theory.*

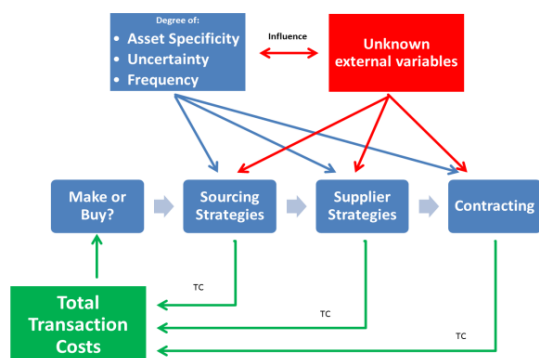
Next to reviewing the Transaction Cost Economics and classifying it as a scientific theory, also the degree of relevance and applicability to the key decision points in purchasing and Supply Chain Management is intended to be assessed. For this purpose, the Transaction Cost Economics has been evaluated in the areas of the ‘Make-or-Buy’ decision, the choice of appropriate sourcing and supplier strategies, as well as the procedure of contracting. A short overview of the decision

points, including the analyzed influences and recommendations by the theory, is provided in ‘Appendix C’. Firstly, the Transaction Cost Economics framework represents a well-developed perspective for analyzing a ‘Make-or-Buy decision’. However, since hybrid modes reflect the relevant governance types within Supply Chain Management, the theory needs further research in those social components between buyer and supplier to make a complete and correct decision. In addition, the focus on transaction efficiency may reject value opportunities which exceed firm boundaries. For the sourcing strategies, the theory acts as a valuable scientific lens to identify potential transaction costs for sourcing. However, measurement is restricted to qualitative levels, which decreases the degree of preciseness for the Transaction Cost analysis. Furthermore, next to the known key transaction cost attributes, the factors of opportunism and trust show each a significant impact on whether a certain set of transactions within a buyer-supplier relationship is chosen or not. Lastly, the topic of contract incompleteness describes one of the problems the Transaction Cost Economics aim to solve. Perfect information is impossible to reach as an organization and thus, exposure to hazardous rents is not to avoid. Therefore, contractual safeguards will always be an essential necessity when procuring strategic goods from a supplier.

Identifying much supportive, but also contradicting evidence emphasizes the limitations and complexity of the Transaction Cost Economics and additionally underlines the need for further operationalization. Nevertheless, transaction costs are consistently present in contracting and as long as market transactions are conducted, the theory always shows applicability in each of the analyzed decision points. To summarize, having both conceptual and empirical relevance given within purchasing and Supply Chain Management, enough evidence is provided for further answering the research question. Thus, *the concept of Transaction Cost Economics*, with the prerequisite of being qualified as a theory, *does contribute to the key decision points in purchasing to a large extent*.

## 4.2 Proposal: A simplified Transaction cost model in purchasing

In actual business the direct use of the Transaction Cost Economics is often refuted and not possible due to the lack of exact dimensions and operationalization (Carter & Hodgson, 2006, p. 474). However, the need for direct applicability in business practice is given. Therefore, based on the reviewed theory and the discussed findings when applying the Transaction Cost Economics on the key decision points in Supply Chain Management, a simplified decision-making framework is proposed within figure 3.



(Figure 3: Simplified Transaction cost model on key decision points in Supply Chain Management.)

With reference to the original addressed problem to choose for the most efficient governance option in terms of transactions, the model views the ‘Make-or-Buy’ decision as a collection of total transaction costs added up by the necessary sourcing strategies, supplier strategies (or supplier-specific investments) and the contracting. According to the reviewed evidence within this paper, the degree of transaction costs is influenced on one hand by its key attributes and on the other hand by other unknown variables which have a possible impact on each of the three key decision points. The total transaction costs resulting from each key decision point will be offset against the total cost of producing the good within the hierarchy.

For this framework, the ‘buy’ decision is referred to as either the pure market governance mode or the hybrid mode, although the latter one represents higher relevance within this model. In addition, it rather provides simplistic and isolated decision-making options. Due to the main emphasis on transaction cost efficiency, further dimensions have not been added. Moreover, both the total cost of production and the total transaction costs are based on estimations by the organization. Therefore, limitations in terms of measurement need to be considered. Further dimensionalization of variables and variances within the decision-making paths are recommended for future research.

## 4.3 Limitations

With respect to the answered research question, this paper has conducted a systematic literature review of the Transaction Cost Economics in order to provide new academic value in the field of Supply Chain Management. In order to proceed with such a research, a highly varied perspective including theoretical backgrounds, different views and empirical evidence needed to be observed. These factors also represent sources for possible limitations. As indicated, the Transaction Cost Economics are subject to a long process of progression. Certain critical facts or sequences of development are therefore understood wrong or maybe not taken into account at all. In addition, the theory is known to be criticized in terms of conceptual foundation. Furthermore, for a sufficient literature review, as many contributing perspectives should be included as possible. Although this paper intended to do so, limitations can still be given. Lastly, as already described within section 2.6.1, the presented empirical evidence might lack of relevant or even critical scientific information. Since a full-perspective view in empirical evidence for such a framework requires higher resources and capabilities for research, this may represent another source for limitations. Nevertheless, given the fact that this paper represents academic work in form of a bachelor thesis, restrictions and limitations in executing the actual research are already implicitly given.

## 4.4 General recommendations for future research

Recommendations for further research can be stated for the area of application within decision points of Supply Chain Management. Since this paper rather provided an exploratory approach, more emphasis needs to be put on the exact dimensions of relevance within the given decision points. As already stated, restrictions were given for this paper. Therefore, more capabilities and resources should be invested in obtaining a bigger perspective for applying the theory. Furthermore, the proposed model in section 4.2 provides a limited view of Transaction Cost Economics and its impact on the decision points. Thus, further specification of relevant variables, decision criteria and paths for the given model is necessary.

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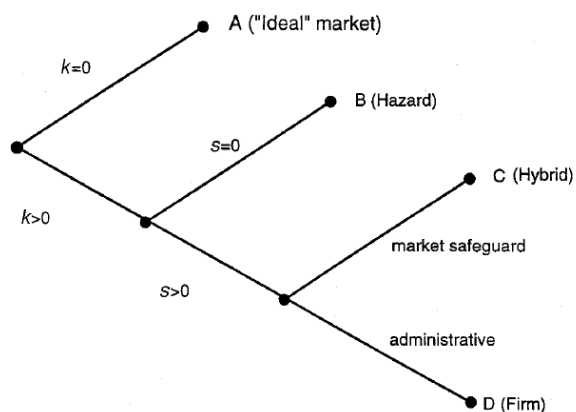
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## 5. APPENDIX

**Appendix A: 'Simple contracting scheme' by Williamson** (1998, p.38)



**Appendix B: List of journals included within the literature review**

Academy of Management Journal, American Journal of Sociology, Asia Pacific Journal of Management, Business and Politics, Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship, Classic Papers in Nature Resource Economics, Clothing and Textiles Research Journal, Construction Management and Economics, Economic Journal of Hokkaido University, *Economica*, European Journal of Purchasing & Supply Management, Financial Analysts Journal, Harvard Business Review, Health and Policy Planning, Industrial of Corporate Change, Information & Management, International Journal of Logistics Management, International Journal of Production Economics, Journal of Business Research, Journal of Economic Behavior and Organization, Journal of Economic Literature, Journal of Economic Perspectives, Journal of International Business Studies, Journal of Law, Economics & Organization, Journal of Marketing, Journal of Operations Management, Journal of Physical Distribution and Logistics Management, Journal of Production Research, Journal of Supply Chain Management, Journal of Theoretical Politics, Management Science, Meat Science, MIS Quarterly, Organization Science, Review of Economics and Statistics, Review of International Economics, Review of International Political Economy, Strategic Change, Strategic Management Journal, Supply Chain Management, The Academy of Management Review, The American Economic Review, The Economic Journal, The Quarterly Journal of Economics



**Appendix C: An overview of the key decision points with regard to the analyzed findings in context with the Transaction Cost Economics**

| Theory                     | Decision Points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | DP1: Make-or-Buy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | DP2: Selecting sourcing strategies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | DP3: Selecting supplier strategies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DP4: Contracting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Transaction Cost Economics | <p>The key attributes of the TCE framework have a significant influence on the governance choice, therefore showing high applicability for a Make-or-Buy decision. Limitations in terms of firm boundaries (the efficiency focus restricts external factors in SCM which may increase total firm value) and social influences (which represent a core activity in SCM) are given. Thus, a Make-or-Buy decision from a TCE perspective should not be viewed in isolation of other theories and practices. In presence of asset specificity and technological or environmental uncertainty, TCE recommends to either enter a strategic buyer-supplier relationship (hybrid contracting) or produce the good in-house. Else, if contractual safeguards are not necessary for the given transactions, the theory supports pure market contracting.</p> | <p>The choice for a specific sourcing strategy depends on the degree of transaction costs arising for each activity within a strategy. Due to the significant impact of the key attributes on how sourcing strategies need to be chosen, the firm needs to pay attention to which set of activities results in lower transaction costs and thus a more efficient sourcing strategy.</p> <p>However, difficulties in measurement of transaction costs and direct applicability within a business environment prevent a precise use of the TCE. Recommendations for practical use are therefore restricted to a qualitative TC analysis only.</p> | <p>According to the TCE, buyer-supplier relationships are a critical source for transaction costs. The degree of trust and opportunism, being core issues and assumptions in the theory, represent reasons for either taking risk in sourcing from a supplier or protecting the investments via contractual safeguards: If trust between partners is not given (or opportunism is) then exchanges may be subject to high transaction costs. Therefore, the TCE recommends a stable and cooperative relationship between buyer and supplier, in order to prevent costly safeguards due to mistrust between partners.</p> | <p>Due to information asymmetry and uncertainty, all necessary terms and agreements cannot be included in a contract. Therefore, contract incompleteness reflects a trade-off between flexibility and safety for the buyer, both strongly varying in the degree of transaction costs arising. Viewing this problem from a TCE perspective, the management is advised to carefully analyse their contractual options with regard to their business environment: Either risk in terms of possible ex-post transaction costs is accepted and the firm benefits from the flexible contract, or safeguards in form of ex-ante transaction costs are set up in order to ensure safety for the exchange. The resulting cost trade-off needs to be analyzed and decided by the management.</p> |

