

Bond Audit, A Method for Evaluating Business Relationships Related to BSC and TQM Cases from 14 Companies in Seven Industries

ABSTRACT

Bonds were found to be important regulators of business relationships in this study. By influencing the bonds using bond management one may have possibilities to strengthen or weaken the business relationship. The main finding of this paper is that a bond audit can be used as a tool for analyzing business relationships and for consulting activity with the aim of strengthening or weakening business relationships. The findings are based on 14 case studies including 14 companies in seven different industries.

INTRODUCTION

A focus on cooperative industrial business relationships has become increasingly important in studies of industrial relationships. Demands for lower prices and an increase in profits, shorter product cycles and global competition is some of the forces affecting suppliers and customers in the industrial market pressing them to have stronger relationships (Holmlund & Kock 1995). As a result the bonds between the companies become more important. This is due to the fact that bonds are building blocks of relationships that affect the stability in the cooperation between companies. The strength of bonds affects the strength of the total business relationship. Technical, time, knowledge, economic, legal, social, geographical, cultural, ideological, psychological and strategic bonds exist in a business relationship. By breaking up the business relationship and by analyzing and manipulating the bonds it is

possible to affect the relationship. If the relationships between companies are strong it is usually a sign that the companies will cooperate for a longer time and that may affect the companies' competitive and financial strength positively (Storbacka, Strandvik and Grönroos 1994). This is the fact since focus can be on cultivating the current relationship instead of building new relationships. Different bonds that exist between the companies affect the relationships. "A bond must exist, in however weak a form when economic exchanges take place between supplier and customer" (Easton & Araujo 1986, p.11). But how is it possible to strengthen and weaken relationships? Which parts of a relationship should managers focus on? It is always easy to discuss the importance of having strong relationships and the importance of weakening and terminating unprofitable relationships, but which parts of the relationship should be strengthened or weakened in order to get the desired effect on the business relationship? The purpose of this paper was to build a bond audit for auditing business relationships.

The findings in this paper is based on seven case studies in the truck producing industry of whom five are regarded to be major global players in the business. Seven case studies have also been conducted at manufacturers and service providers of metals, electrical engines, healthcare equipment, weather radars, sensors, and elevators and escalators all of which are major global players in their industries. All cases have confirmed the findings of the study. The cases studied and crosschecked were of different nature and their outcomes were different, these have been growing, stable, terminated and stagnating relationships as well as relationships with different amount of exchange and new business ventures. Approximately 140 interviews have been conducted with personnel from logistics, quality assurance, product development, sales, buyers, suppliers and other people involved in the cooperation between the companies. Systematic combining were the research framework, collection of data and analysis evolve at the same time has been used as the method for the empirical research in this

study. Systematic combining is based on the logic of the abductive approach (Dubois and Gadde, 1999, 2002). The questions of the interviews were semi structured in order to get the interviewee to answer the questions as completely as possible.

BONDS

There are different kinds of bonds that bind the customer and the supplier together. Bonds can be defined as exit barriers that tie the customer to the supplier and maintain the relationship (Liljander & Strandvik 1995). Even unsatisfied customers may have strong relationships to suppliers due to bonds that function as exit barriers (Liljander & Strandvik 1995). But bonds also have more positive connotations that are important for the continuation of the relationship or for the strengthening of the relationship. Companies have decreased the number of suppliers and have instead started more intense cooperation with the remaining suppliers. The strength of bonds affects the strength of the relationship. The nature of the character of bonds is that bonds may be viewed or perceived differently over time. Bonds are therefore dynamic and change over time. Dynamics refer to the change of bond strength and thus also relationship strength since bond strength affects relationship strength. Bonds do not have to remain at status quo but may also change in strength so that for instance strong bonds become weak and weak bonds become strong.

The model structure containing 11 bonds is the richest and most expanded view on bonds at present. It incorporates findings from sociology, industrial and services marketing and it is bridging gaps that have existed in the industrial business relationships literature. Gaps have existed regarding for instance cultural, ideological and psychological bonds. It is also a manageable structure that is easy to use and utilize for analyzing empirical material even

though the structure is rich and it is perceived to be the most suitable model for the purpose. Short examples of the bonds studied in this paper follow below.

Technical bonds stem from the characteristics of the products and services that are exchanged. Companies adjust the technical products and processes according to their counterpart's specifications (Easton 1989, 1992). **Time bonds** develop when the companies in the relationship adapt their logistic functions to each other (Johanson & Mattsson 1987). **Knowledge bonds** develop with time as the cooperating companies learn more about each other's strengths and weaknesses, opportunities and problems (Kock 1991; Proenca & Castro 1997). This happens when companies for instance develop products together. **Social bonds** develop between personnel from the companies that cooperate (Håkansson 1982; Kock 1991). **Legal bonds** are for instance long-term contracts (Palmer, Friedland & Singh 1986; Johanson & Mattsson 1987; Mattsson 1987). A contract overall or other articles of involvement or ownership can also constitute legal bonds (Halinen 1994). Quality certifications like ISO 9001, TS 16949, EMAS, etc. and environmental certifications like ISO 14001 or even more stringent military quality certifications than TS 16949 can also be considered as legal bonds between companies (Wendelin 2004). **Economic bonds**, special credit arrangements constitute economic bonds (Johanson & Mattsson 1987; Halinen 1994). Mutual investment in the business by the competing firms that is investing in each other's business also constitutes an economic bond (Proenca & Castro 1997, 1998, 2000). **Geographical bonds** have to do with how suitably located the supplier is from a buyer point of view. The view of how suitably located the supplier is can vary over time in the relationship. Wendelin (2004) **Cultural bonds** develop between suppliers and buyers with a similar cultural background (Liljander & Strandvik 1995). **Ideological bonds** are such bonds that make a buyer choose suppliers that for instance manufacture green products, or domestically manufactured

products (Liljander & Strandvik 1995). **Psychological bonds** develop when for instance the buyer is convinced that the products manufactured by the supplier or a service are of superior quality (Liljander & Strandvik 1995). **Strategic bonds** are bonds that emerge when the companies have it in their strategy and make a strategic decision to cooperate (Wendelin 2004, 2007).

Bonds are defined in the following manner. Bonds are the concrete or abstract technical, time, knowledge, legal, economic, geographical, social, cultural, ideological, psychological and strategic value creating, neutral or value reducing factors that form the building stones of the industrial business relationship. Bonds can be mutually or one-sidedly value creating or value reducing. The sum of the total package of bonds in a relationship equals to the total value of the relationship. Bonds are value reducing if they are causing negative effects in the relationship functioning as exit barriers or if they are weakened and lead to negative effects weakening the relationship.

FINDINGS

These are the findings based on the case studies.

Bond audit: a tool for analyzing networks and relationships

Bond audit is suggested as a tool for analyzing relationships and networks. Bond audit focuses on the product, capabilities, resources and actors of the relationship or network. The bond audit strives to analyze and measure all bonds and thus all of the parts that build the business relationship. It also presents the SWOT of the relationships/network.

The bond audit used in the study has been a qualitative one using interviews in order to find out what the important parts of the business relationships or network have been and what their status have been. Technically the bond audit can be placed between the Balanced Scorecard approach see for instance Kaplan & Norton (1996) and TQM see for instance Hradesky (1994). It is important to be aware of the important parts of the relationship/networks in order to be able to measure them using quantitative methodology in the long run. When doing the bond audit it is important to focus on the relevant issues and it should also be based on the future strategy for the business unit. It is important to know the growth areas that the company focuses on.

It is emphasized that bonds are very dynamic; they change over time with changes in strategy, sales, or decrease or increase in strength during the interaction. Bonds do affect the total value of business relationships. Dynamics refer to the change in bond strength and thus also affect relationship strength since bond strength affect relationship strength. Bonds do not have to remain at status quo but may change in strength so that for instance strong bonds become weak and weak bonds change into strong. As an example can be mentioned the fact that social relationships, technical relationships or economic relationships may change over time from being seen as positive or neutral to negative and vice versa.

Method for analyzing bond strength

The definitions of bonds were left on a higher abstraction level on the basis of the literature study. We were however forced to take into account issues connected to the definitions on a lower abstraction level when analyzing the material in order to be able to classify it. This was done after specifying all elements that was part of the theoretical specifications on the different bonds. Subcategories were noticed such as the fact that warehouses are connected to

adaptation of logistic functions in time bonds. The method used for analyzing bond strength was made by systematically following the elements of the definitions of different bonds as described below. We then searched for the elements in the empirical material. The findings of each case were analyzed one bond at a time in order to find out if the bond was weak, of medium strength or strong. An element of a definition could be for instance delivery precision as an element of time bonds. Parts of the element of delivery precision could be lead times, line stops, size of the production series etc. The outcome is that a tool is created that is not only usable on a theoretically high level of abstraction but also on a lower operational level. Analyzing the material created the tool. The material was analyzed and all elements of every single type of bond were categorized. The list for elements of bonds that stemmed from the literature was then checked against the empirical material and the list and the literature were then further developed. The developed definitions of the 11 different bonds are described below.

The definition of **technical** bonds includes the following elements: Technical adaptation to the counterpart in the cooperation includes product adaptation, process adaptation and outsourcing of production. Cooperation regarding technical development includes development activity, cooperation regarding design outsourcing of development and use of 3-D models in development of products. Investments include investments in equipment. Quality matters include product and technical quality. Technical lead as a patented product or process was also included in the technical bond as was bond due to brand in order to get spare parts or service.

The definition of **time** bonds includes the following elements: Adaptation of logistic functions included size of production series and warehouses. Delivery precision and issues connected to

delivery precision includes delivery precision, lead-time, line stops, flexibility of production (bottlenecks affects negatively), deliveries to alternative buyers (affects negatively). Flexibility of flow of information (e.g. EDI systems etc.) includes time of notice when orders are placed, EDI system for daily delivery information, Electronic shipping messages, On-line invoicing, exchange of CAD drawings, number of interfaces (small positive, large negative), agents used and communication systems, E-mail etc.

The definition of **knowledge** bonds includes the following elements: Familiarity with the strength, weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation. Cooperation regarding development of products including stage where involvement begins, testing of novel products, knowledge sharing, use of 3-D models. Mutual knowledge regarding rules and routines including language (similar positive, different negative), number of interfaces (small positive, large negative), turnover of personnel (low positive, high negative). Knowledge bonds are also based on personal experience.

The definition of **legal** bonds includes the following elements: Written contracts including purchase agreements, contracts regarding prices, volumes, development of products, contracts regarding deliveries, contracts regarding customized orders, quality agreements, non disclosure agreements, extended warranties, duration of contracts (short negative, long positive), rigidness of contract (very rigid, difficult to terminate and vice versa). Culture demanding written contracts, quality certifications as for instance TS 16949, environmental certificates as for instance ISO 14001.

The definition of **economic** bonds includes the following elements: Credit arrangements such as discounts and payment times. Price (low for buyer/high for supplier) including possible

opportunity costs. Profit margin (high positive, low negative). Share of supplied or bought products including size of series produced (large positive, small negative), single source agreements, production efficiency, bottleneck products, products that are smooth to produce. Additional costs or revenues that stem from the cooperation such as airfreight (negative costs).

The definition of **geographical** bonds includes the following elements: Geographical distance to buyer/supplier including delivery precision (good positive, poor negative), lead-times (short positive, long negative), line stops, airfreight (need for airfreight in times with poor delivery precision is considered to be negative), deliveries to alternative buyer, warehouses at buyers plant. Technical cooperation including residential staff such as residential engineers etc. and agents.

The definition of **social** bonds includes the following elements: Turnover of personnel (contact persons) in the cooperating companies (low positive, high negative). Contacts between personnel including frequency of contacts, management cooperation, team spirit, agents functioning as connecting elements, avoidance of contacts in order to avoid social bonds or in order to avoid corruption allegations. Personal relationships including unofficial contacts between personnel. Commitment, trust, attraction.

The definition of **cultural** bonds includes the following elements: Cultural background including agent as cultural interpreter (positive). Company culture including decision making, borders concerning responsibility (few interfaces positive, several interfaces negative), channels for communication (few interfaces positive, several interfaces negative), production philosophies (similar positive, different negative), handling of technical issues, manner of

handling quality audits (similar positive, different negative), similarities/differences in obedience to norms, guidelines and rules, agent as cultural interpreter (positive), computerization and transfer of delivery plans. Similarities or differences regarding generations of personnel (similar positive, gaps negative). Religion. Language (common positive, language problems negative) including agent as actual interpreter (positive), language courses in order to bridge language gap.

The definition of **ideological** bonds includes the following elements: Environmental awareness including possibility to recycle product, waste management, actual importance of environmental friendliness. Green product or process, e.g. ISO 14001 certified process etc. and domestic content of product.

The definition of **psychological** bonds includes the following elements: Perceived superiority, equality or inferiority of product, process or service including patented product, process or service, perceived superiority, equality or inferiority of raw material, level of innovation connected to the product, process or service. Brand name (strong positive, weak negative). Image (good positive, poor negative) as well as reputation of the counterpart in the cooperation (good positive, poor negative).

The definition of **strategic** bonds includes the following elements: Strategic decision to cooperate or terminate the cooperation. Strategic importance of buyer or supplier (economic view and/or technical view) included share of products delivered, share of products bought, size of production series, number of product numbers, competing suppliers or buyers, allocated production capacity, geographical distance to supplier or buyer, decisions for single

source. Development activities including focus of development activities. Strategic importance of product including possible entry product.

Visualization of the strength of different bonds

If bonds would be measured on a Likert scale then 1 would be the poorest grade equaling to a weak bond, 3 would be a medium grade equaling a medium strong bond and 5 would be an excellent grade equaling a strong bond. On a general level regardless of the bond one could argue that a weak bond is when problems exist in the cooperation, system do not function as well as they should and the personnel are voicing their irritation. A strong bond on a general level is when the cooperation works well, systems functions well and the personnel are positive to the cooperation and voice it. See Figure 1 and the example of technical and time bonds below.

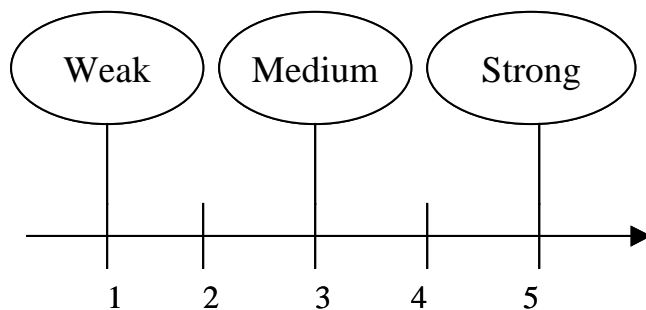


Figure 1. Bond strength visualized on a Likert scale

Technical bonds

A situation that would render a 5 on the scale, thus a strong bond would exist when adaptation of either process or product is taking place, the development activities are frequent and the counterparts start to take part in each others development activities at an early stage of the development. Outsourcing of development may take place and there may be resident

engineers at the counterpart's offices. There may be a technical lead such as in the form of a patented product or process and the technical quality is high.

A situation that would render a 3 on the scale, thus a bond of medium strength would exist when there are common development activities but the supplier/buyer is allowed to take part at a late stage of the development process. The process adaptation may be poor at the supplier's plant due to lacking product adaptation that may be due to the fact that the supplier is allowed to take part in the development process at such a late stage. The product or technical quality may be at an average level.

A situation that would render a 1 on the scale, thus a weak bond would exist when there is poor adaptation of process or product, no common development activities, no use of 3-D models in development, no investments in equipment and problems with product or service quality.

Product adaptation and quality is perceived to carry most weight. If the quality of the products are low and the adaptation of the products is poor and there is a risk that the product will become obsolete on the market due to new technological breakthroughs then there is a large risk for dissolution of the relationship.

Time bonds

A situation that would render a 5 on the scale, thus a strong bond would exist when no delivery problems have existed, adaptation of logistic functions have happened, the lead-times have been low, EDI contacts have been in place as for instance exchange of CAD drawings,

systems for delivery information have existed and the number of interfaces for communication is small.

A situation that would render a 3 on the scale, thus a bond of medium strength would exist when there have been some disturbances in the delivery precision, EDI contacts are in place but they are not updated every night, there are no systems for on-line invoicing that would render a higher grade.

A situation that would render a 1 on the scale, thus a weak bond would exist when big disturbances have occurred in the delivery precision, there is bottlenecks in the production, the lead-time is high, the processes are late, no EDI contacts exist and if EDI contacts exist they do not affect the delivery precision positively, no on-line invoicing exists and the number of interfaces in the production is high. The risk for dissolution is high.

Delivery precision is perceived to have the most weight; if the delivery precision is poor and the deliveries are late and line stops may occur then no other element is able to improve the strength of the time bond.

Conclusions

Bonds were found to be important regulators of business relationships. By influencing the bonds one may have possibilities to strengthen or weaken the business relationship. Strengthen the business relationship in order to increase business and revenue and weaken the relationship in order to terminate business where the revenue is low or where there may be other problems in the relationship. The bond audit can and has already been used as a tool for audits and consulting activity with the aim of strengthening business relationships as well as

networks and to improve business processes. By measuring the strength of different bonds it is possible to strengthen weak bonds in order to strengthen the business relationship. It may indeed be difficult to keep up strong bonds with all counterparts in the cooperation. The company must strategically decide what or which kind of companies it wants to cooperate with and act according to that decision. The decision can be made on monetary profits to be made, is it good for the reputation to cooperate with the company, is it good for technical development, logistics development, etceteras. When the strategic decision has been made then it is time to focus on strengthening the weaker bonds to the preferred companies and on keeping the strong bonds strong through investments and adaptations towards the counterpart in the cooperation or to phase out the cooperation in a controlled manner with companies where relationship dissolution is preferred.

Another important finding in this paper is that bonds can be divided into core and support bonds. Core bonds are very important bonds that have an immense importance for the relationship and for the continuation of the relationship. The core bonds are bonds that have such an importance for the relationship that if one of these bonds is drastically weakened or put under pressure it can cause the termination of the whole relationship. On the other hand the core bonds may strengthen the whole relationship when they are strengthened. The relative weight of the core bonds is thus higher for the relationship than the support bonds.

The support bonds does rarely cause the termination of a relationship single-handedly but they can cause the termination of the relationship in the long run when their effect is accumulated. These support bonds are however affecting the relationship, thus strengthening or weakening the relationship. In cases where a core bond has broken the relationship support bonds may still exist under the surface as residual bonds and the relationship may start again

thanks to residual social, cultural, knowledge, geographical, ideological or psychological bonds. Depending on the nature of the relationship the core and support bonds can vary and may for instance be different in different relationships.

Bond management can be used to affect the cooperation. Bond management is when bonds between cooperating firms are managed in order to strengthen or weaken the cooperation. By using bond management it is possible to strategically strengthen or weaken the bonds between the cooperating companies in order to strengthen the cooperation and tie the customer or supplier to the company or to terminate the relationship. The instrument for the management of bonds is to use the created bond audit in order to know which bonds, thus parts of the relationship resources should be focused on in order to increase or decrease their strength. Allocating too much resources on a part of the relationship that is of little or no importance to the customer means that the company is losing money on allocating resources on the wrong issues. Resources should be focused on important parts of the relationship, thus strengthening bonds that are important.

The instrument for the management of bonds is to use a bond audit in order to know which bonds resources should be focused on in order to increase or decrease their strength. Managerial implications were that a bond audit is easier to perform and also more covering using the model with 11 bonds. From a managerial point of view it is possible to use a bond audit in order to grasp the bonds better and then strengthen or weaken them with bond management to achieve the wanted position in the conceptual framework created.

By learning more about when risk for relationship termination occurs, companies can prevent that relationships are terminated. In cases where termination is unavoidable the process of

termination can be made as soft as possible both for the supplier and the customer so that no negative memories remain by either part if there is a chance for the cooperation to continue in the future.

The difference between a quantitative bond audit built on the qualitative audit and a normal customer satisfaction survey is that customer satisfaction surveys are usually based on several questions that are not very specific. The bond audit is more specified since an interview has been done before in order to find out what questions to ask. The second difference is that the levels of cooperation is measured but at the same time also the importance of the cooperation. This is followed up by a part that allow for more open answers regarding the most specific elements as well as wishes for the future cooperation. The quantitative bond audit is thus more focused and involves the surveyed person more due to the more specific and open nature.

The problem with the bond audit is that it is more expensive to make than a normal customer satisfaction survey due to the fact that interviews should be done with the involved departments. It however results in a more specific instrument that is focusing on specific questions that are in line with the surveyed persons daily work. A normal customer satisfaction survey can be done by simply mailing out questions that are connected to the problem but most questions are arbitrary for the result of the study.

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