Comparative Inquiry into the Axiom of Business Relationship Management: Insights from Japanese and Australian Manufacturers

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Competitive Paper

Consideration for **Special Track on the Methodological Research Approach**

Abstract

The Industrial Marketing and Purchasing (IMP) Group researchers have generated rich account of an evolution of business relationship and a co-evolution of organisations through the relationship. One of their research foci has been on inter-firm adaptation-making as the driver of the evolution and co-evolution. Explicit in this research perspective is a view that a business relationship is an evolving pair of relationship commitment of those involved. This paper aims to generate cross-country, comparative insights into the axiom of business relationships based on data collected from 118 Japanese and 123 Australian leading manufacturers. It investigates the relationship between a supplier's relationship commitment as perceived by the customer between the customer's relationship commitment, with customer relationship satisfaction and trust as mediating variables in a multiple-group structural equation modeling framework. For the purpose, the study reported in this paper adopted the following three unique research design features. First as opposed to the conventional quantitative empirical research in the field, the study focused on business relationships in the multiple sourcing context. It examined business relationships which sample manufacturing firms had with their second or third preferred in-suppliers for one of their key outsourced inputs. Second, the study modeled trust as a second-order factor construct building on Sako's (1992) conceptualization of trust with contractual, competence and goodwill trust. Lastly, it employed multiple-group confirmatory factor analysis (MGCFA) to compare Australian manufacturer-supplier relationship management practice with the so-called best practitioners of supplier relationship management, Japanese manufacturers. In so doing, the study explores the metric and factor variance/covariance invariance between the two sample data and tests a proposed structural model under the invariance constraints. While supporting importance of perceived supplier relationship commitment for a further evolution of the relationship from a customer manufacturer's perspective, the study findings also shed valuable comparative insight into different structural patterns of the model constructs across the two sample groups in the multiple-sourcing context.

Key words: trust, relationship commitment, structural equation modeling, multiple sourcing, and cross-country comparative research

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The Industrial Marketing and Purchasing (IMP) Group researchers have generated rich account of an evolution of business relationship and a co-evolution of organisations through the relationship. One of their research foci has been on inter-firm adaptation-making as the driver of the evolution and co-evolution. Explicit in this research perspective is a view that a business relationship is an evolving pair of relationship commitment of those involved. This paper aims to generate cross-country, comparative insights into the axiom of business relationships based on data collected from 118 Japanese and 123 Australian leading manufacturers. It investigates the relationship between a supplier's relationship commitment as perceived by the customer between the customer's relationship commitment, with customer relationship satisfaction and trust as mediating variables in a multiple-group structural equation modeling framework. For the purpose, the study reported in this paper adopted the following three unique research design features. First as opposed to the conventional quantitative empirical research in the field, the study focused on business relationships in the multiple sourcing context. It examined business relationships which sample manufacturing firms had with their second or third preferred in-suppliers for one of their key outsourced inputs. Second, the study modeled trust as a second-order factor construct building on Sako's (1992) conceptualization of trust with contractual, competence and goodwill trust. Lastly, it employed multiple-group confirmatory factor analysis (MGCFA) to compare Australian manufacturer-supplier relationship management practice with the so-called best practitioners of supplier relationship management, Japanese manufacturers. In so doing, the study explores the metric and factor variance/covariance invariance between the two sample data and tests a proposed structural model under the invariance constraints. While supporting importance of perceived supplier relationship commitment for a further evolution of the relationship from a customer manufacturer's perspective, the study findings also shed valuable comparative insight into different structural patterns of the model constructs across the two sample groups in the multiple-sourcing context.

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INTRODUCTION

No business organisation exists in a vacuum. It exists within a particular business environment and interacts with the environment of which it is dependent. To any business organisation, its most manifested aspects of the environment are those who come to interact with it. Decisions which the organisation makes as for in which organisations to engage and how to interact with them collectively shape its competitive posture in the business landscape. For this, management of business relationships constitutes one of primary functions of business management as well as challenges in it.

The Industrial Marketing and Purchasing (IMP) Group literature presents rich accounts of an evolution of business relationship and a co-evolution of organisations to the relationship. It informs that when two business organisations come to interact, they need to make inter-firm adaptations to facilitate interface in activities, resources and actors between the parties to the

relationship. In established business relationships these inter-firm adaptations are said to be made routinely and jointly to better respond to and/or to initiate changes in the business landscape. In this light, a business relationship can be viewed as an evolving pair of commitments to the relationship.

This paper presents cross-country, comparative insights into this axiom of business relationships. Based on data collected from 118 Japanese and 123 Australian leading manufacturers, it examines, from the customer firm's perspective, the relationship between perceived supplier relationship commitment on their relationship commitment with their relationship satisfaction and trust as mediating variables in a structural equation modeling framework.

BACKGROUND

The Industrial Marketing and Purchasing (IMP) Group have spearheaded research inquiries into the business relationships since its inception in 1976. Their earlier research entailed rich accounts of the process of inter-firm interactions or a business relationship (Cunningham 1980; Ford 1980; Ford, Håkansson, and Johnson 1986; Håkansson 1982; Håkansson and Wootz 1979). And more recently they have shifted and expanded their inquiry into the subject from a network perspective (Anderson, Håkansson, and Johanson 1994; Ford 1990; Ford, Berthon, Brown, Gadde, Håkansson, Naudé, Ritter, and Snehota 2002; Håkansson, Ford, Gadde, Snehota, and Waluszewski 2009). The defining and distinctive feature of their research approach has been of constructivist, inducitve inquiry and focused on relationships as a unit of analysis. These points mark a stark contrast with the North American, positivist research tradition built on the modeling research paradigm and an organisation-centric perspective. As a result, the IMP literature is primarily driven by research inquiry around the how of business relationships development and a co-evolution of the organisations to the relationship while the North American literature is more often concerned with the why of a long-term cooperative business relationship pursuit and the how of relationship governance mechanism.

According to the IMP literature, a business relationship necessitates on-going, mutual inter-firm adaptations so as to facilitate effective and efficient interface of resources, activities and actors of the two organisations (Ford, Håkansson, and Johnson 1986; Håkansson 1982). It is the scope and magnitude of adaptations that determine the nature of co-evolution of the organisations in the relationship and, in a broader sense, in the business landscape. For instance, long-term, collaborative business relationships are characterised by greater 'integration' between the organisations as a product of on-going inter-firm adaptations made for attainment of superior joint operational efficiency and strategic effectiveness (Ford, Gadde, Håkansson, Lundgren, Snehota, Turnbull and Wilson 1998). Notably these adaptations are more than often relationship-specific investments (RSIs). RSIs are commonly of little value outside of the relationship but signify the organisation's pledge to the relationship (Anderson and Weitz 1992; Heide 1994; Heide and John 1990, 1992).

Unarguably adaptation-making is the key ingredient of relationship capacity and asset building. However, it also has a dark side to it. It makes the organisation dependent on and vulnerable to the counterpart in the relationship. This point underscores the prevailed management dilemma as for to which business relationship the organisation should devote more attention and a scope

and magnitude of inter-firm adaptations or RSIs. When a wrong relationship and organisaiton are chosen, the organisation will suffer from lost opportunities, increased operational uncertainty and risks and, in the case of relationship termination, substantive sank costs. Extant literature on business relationships informs that the organisation seeks to safeguard itself by forging a relationship either/both with an organisation which has more compatibilities (Ford, Håkansson, and Johnson 1986; Håkansson 1982) or/and with an organisation which is trustworthy and willing to reciprocate RSIs (Anderson and Weitz 1992; Dwyer, Schurr and Oh 1987; Heide and John 1990; Morgan and Hunt 1994). The underlying logic here is a lesser need for RSIs requirement to the relationship for the former and for the latter, risk management against potential opportunistic behaviour of the counterpart in the relationship.

Trust has been posited as one of central research constructs in the study of both horizontal and vertical inter-firm relationships (i.e., Anderson and Narus 1990; Brennan and Turnbull 1996; Dwyer, Schurr and Oh 1987; Fontenot and Wilson 1997; Ford 1980; Ford, Håkansson and Johanson 1986; Ganesan 1994; Håkansson 1982; Joshi and Stump 1999; Morgan and Hunt 1994; Nishiguchi 1994; Sako 1992; Schurr and Ozanne 1985; Wilson 1995). It evolves through one's growing knowledge and understanding of others, especially via direct interaction experiences (Dwyer, Schurr and Oh 1987; Ford 1980; Håkansson 1982). The customer firm's trust in its supplier has been found to influence its attitude and behaviours toward the supplier (Schurr and Ozanne 1985; Morgan and Hunt 1994; Rexha and Miyamoto 2000).

Many theoretical and operational definitions have been proposed from wide ranging social sciences disciplines like sociology, group psychology, political sciences, institutional economics, marketing and management. As for literature on business relationships, trust is understood as a multifaceted construct and commonly operationalised as one's confidence in another along key facets of trust relevant to the focal study (Anderson and Narus 1990; Butler 1991; Morgan and Hunt 1994; Sako 1992). For instance, Sako (1992) identified three facets of trust crucial for the development of customer-supplier relationships, namely contractual, competence, and goodwill trust. In her UK-Japan comparative qualitative study of business relationships in the manufacturing sector, she found that in the U.K context customer manufacturers' trust manifests itself more around competence trust on the contrary to the dominance of goodwill trust in the case of the Japanese context. A similar finding for this country-specific operation of trust was submitted by Miyamoto's (2001) Japan-Australia comparative structural equation modeling study on customer-supplier relationships. Here it is worthy to point out that one should not equate these cross-country studies with cross-cultural studies for neither of them employed national cultural values as research variables in their studies.

Thorelli (1986) asserts trust as a future-oriented concept. It is this very future orientation that makes the concept important in understanding expectations for cooperation and planning in a long-term relationship (Dwyer, Schurr and Oh 1987; Håkansson 1982, Morgan and Hunt 1994). Theoretically it should be distinct from its antecedent, relationship satisfaction – i.e., one's affective evaluation of past and present experiences in the relationship. However, it has not always been the case in the empirical modelling research. As reported earlier in Leuthesser's (1997) study, empirical data can fail to provide support for the discriminant validity for relationship satisfaction and trust. And this seems to have tempted some researchers to adopt an amalgamated smokescreen construct, relationship quality, comprised of the two constructs and

even commitment to mask empirical confusion associated with construct validation of the key model constructs in business relationship research. Yet it should be noted that this seemingly pragmatic approach is highly problematic for the following three reasons. First of all, such an attempt ignores theoretical relationships, or temporal orders and causalities, among relationship satisfaction, trust and relationship commitment posited as first order factors of the controversial construct. Furthermore, it should also be noted that for this very reason of the causal relationships, the constructs are not to be operationalised as indicators (neither reflective nor formative) of relationship quality. Lastly empirical modelling researchers with this controversial parcelling treatment will never be able to respond to a call for empirical cross-country validation of workings of key business relationship research constructs (e.g., Samiee and Walters 2003).

This present study aims to generate cross-country, comparative insights into the premise of inter-firm relationships. That is, a business relationship is an evolving pair of commitment or pledge to the relationship of the organisations in the relationship. Based on data collected from 118 and 123 leading manufacturers in Japan and Australia, respectively, the study examines the relationship between customer perceived supplier relationship commitment and customer relationship commitment, with customer relationship satisfaction and trust as mediating variables in a structural equation modeling framework. The study is noteworthy for the following three unique research design features. First as opposed to past quantitative empirical research in the field, it focuses on business relationships in the multiple sourcing context. More specifically, it examines the business relationships which responding manufacturing firms had with the second or third preferred in-suppliers for one of key outsourced inputs. Second, it models customer trust as a second-order factor model building on Sako's (1992) conceptualisation of trust, namely contractual, competence and goodwill trust. Lastly, it employs multiple-group confirmatory factor analysis (MGCFA) to explore and test the metric and factor variance/covariance invariance of nine model constructs across the two sample groups and compare their structural relationships between the two sample groups. In particular, given the literature's treatment of Japanese manufacturers' supplier relationship management as the best practitioner (e.g., Womack, Jones and Roos 1990), the study is expected to shed some benchmarking insight of the best practitioners.

METHODS

Data Collection and Sample Firms

Data used for this study constitute a sub-set of data which were collected for the author's PhD research project a decade ago, but left untouched. Given the current limitations and confusion in empirical literature in the field, benefits derived from this study were believed to compensate for the limitation associated with the decade old data – i.e., the time relevance of the data.

Based on the assumption of strong association between sophistication of supplier relationship management and organisational success, high performing manufacturers were deemed to be ideal research sample. To secure a sufficient number of sample firms for model testing, the top 150 manufacturing firms, in terms of annual turnover, across six manufacturing sectors were initially considered for inclusion to the sampling frame. The sectors concerned were: 1) food and kindred products, 2) chemicals and allied products, 3) industrial and commercial machinery and computer equipment, 4) electronic and other electrical equipment and components, except

computer equipment, 5) transportation equipment, and 6) measuring, analysing, controlling instruments: photographic, medical & optical goods; watches & clocks. These sectors were selected as they were believed to possess greater needs for operational efficiency and product innovation. For identification of the top 150 firms across the sectors, commercial data base was consulted: *Teikoku Databank: Zenkoku Arekore Kigyo Ranking 1998* (Teikoku Databank 1999) for Japan and *Dun & Bradstreet Marketing Database* for Australia. Due to the shortcoming of the Japanese data base (i.e., inclusion of some non-manufacturing firms in ranking lists across the sectors), the final Japanese sampling frame only contained 749 firms compared with 900 firms in the Australian sampling frame.

For data collection, a single key informant method was used and those in charge of the firm's purchasing/procurement function were defined as key informant. Mail survey packages (i.e., a cover letter and a questionnaire) were sent out to a total of 1649 firms (i.e., 749 in Japan and 900 in Australia) in November 1999 and whenever individual information was available the packages were addressed to a manager in the purchasing/procurement function at each firm. This generated 72 and 79 usable responses from Japan and Australia, respectively. Then in late January another mail package (a follow-up reminder letter and the questionnaire) were sent out. This generated further 46 and 44 usable responses from Japan and Australia, respectively. An effective response rate for Japan and Australia was 16.1% and 16.4%, respectively.

A nonresponse analysis was performed by comparing early versus late respondents as recommended by Armstrong and Overton (1977) for both Japanese and Australian responses. To assess non-response bias, early responses obtained prior to the mail out of the second package and those after the mail out were compared along their demographic characteristics (i.e., manufacturing sectors, turnovers and number of full-time employees), three informant qualifying questions, and 53 variables of the model constructs. A series of χ^2 tests and independent-samples t tests were conducted for categorical data and interval data, respectively. These tests did not imply any significant differences between the two response groups for each country, suggesting absence of non-response bias in the obtained data.

Table 1 presents distributions of sample firms across the six manufacturing sectors in the two sample data. When this observed sample firm-sector distribution pattern was examined against that of the sampling framework for each country, the sample firms were found to represent their respective sectors in the sampling frame reasonably well across the sample groups, except that, in both groups, fewer samples represented the 'measuring, analysing, controlling instruments: photographic, medical & optical goods; watches & clocks' sector. And the Japanese sample consisted of more firms from 'the transportation equipment sector' but less from 'the food and kindred product sector' than their Australian counterpart. This country-specific firm-sector distribution pattern was statistically significant ($\chi^2_{(5)} = 11.63$, $p < .05$). It is also noteworthy to point out that firms in the Japanese sample were found to be substantially larger than those in the Australian sample by the annual turnover. While 106 Australian sample firms (86.1%) fell under the turnover category of less than $200 million, only 6 Japanese sample firms (5.1%) did so. This pattern was totally reversed in the largest category. There were only 5 (4.1%) Australian sample firms whose annual turnover exceeded $800 million while 70 (59.3%) of Japanese sample firms fell in the category. This seems to reflect the distinctive economic structures of the

two sample countries – Japan with the strong manufacturing sector and Australia as an economy driven by the resources and services sectors.

Table 1: Sample Firm Distribution across Six Manufacturing Sectors

	Japan (N = 118)		**Australia (N = 123)**	
• Food and Kindred Products	15	12.7%	28	22.8%
• Chemicals and Allied Products	20	16.9%	27	22.0%
• Industrial and Commercial Machinery and Computer Equipment	35	29.7%	27	22.0%
• Electronic and Other Electrical Equipment and Components, except Computer Equipment	15	12.7%	20	16.3%
• Transportation Equipment	27	22.9%	13	10.6%
• Measuring, Analysing, Controlling Instruments: Photographic, Medical & Optical Goods; Watches & Clocks	6	5.1%	7	5.7%
• No response	0	0%	1	0.8%

As for descriptive characteristics of the focal supplier in the data, it was found that the Japanese sample consisted of 30 second and 88 third preferred in-suppliers while the Australian sample contained 49 second and 74 third preferred in-suppliers. A χ^2 test statistically supported this group-specific distribution pattern of preferred in-suppliers ($\chi^2_{(1)} = 5.68$, $p < .05$) – i.e., more second preferred in-suppliers in the Australian data. On average, the second and third preferred in-supplier had 30% and 14% of sourcing share of the focal product in the Japanese data, respectively. In the Australian data, these figures were 22.5% and 11%, respectively.

Model Constructs and Base Structural Model

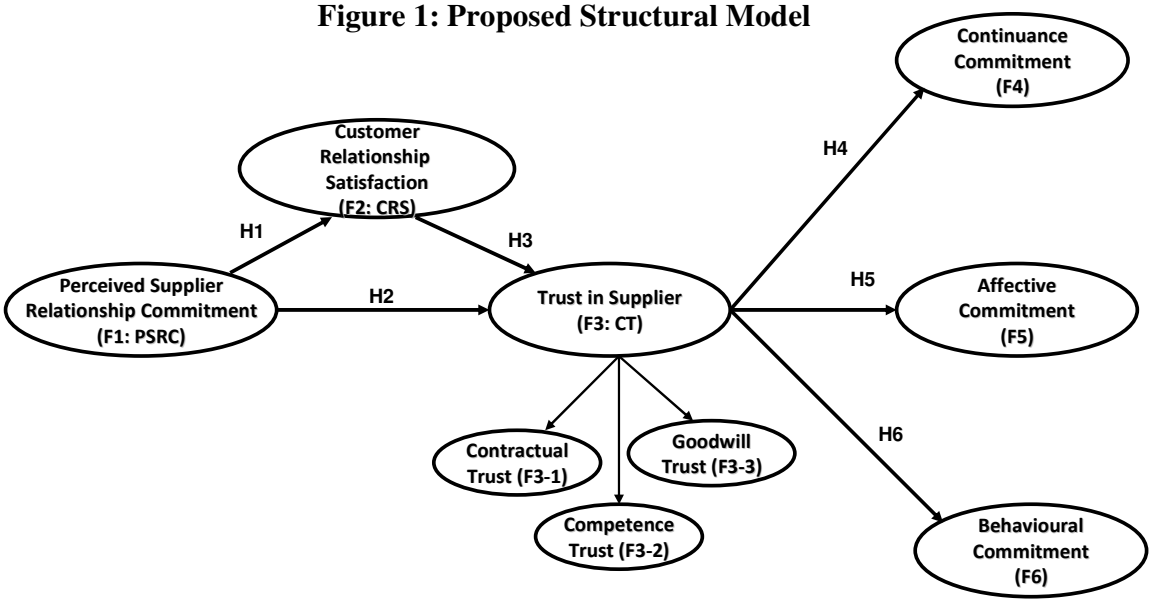
This study examines the axiom of business relationship management from the customer manufacturer's perspective. That is, the heart of business relationship - an evolving pair of commitments of those involved in the relationship. Drawing on the earlier discussions in the Background section, this study posits customer relationship satisfaction and trust as mediating variables between supplier relationship commitment as perceived by the customer firm and the customer firm's relationship commitment. Figure 1 presents a proposed structural model in this study. Two features of the model deserve some attention. First in this study trust is modeled as a second-order factor construct comprising of contractual, competence and goodwill. In addition, the model incorporates three types of customer relationship commitment, namely continuance, affective and behavioural commitment. These model constructs will be discussed below.

Perceived Supplier Relationship Commitment

Instrumental to the success of suppliers is conscientious customer relationship management in light of present and future values associated with each customer and the relationship. Strategic benefits derived from each customer relationship are of significant importance to business marketing planning, as suppliers commonly develop and enhance their competencies through RSIs (Ford, Gadde, Håkansson, Lundgren, Snehota, Turnbull and Wilson 1998). As discussed earlier, active inter-firm adaptations and RSIs made by a supplier signal and signify the supplier's pledge to the relationship to the customer. Manipulation of supplier relationship commitment entails different interaction processes and outcomes, which, in turn, create different

natures of relationship atmospheres (Håkansson 1982). Accordingly, the customer places significant importance on supplier relationship commitment as perceived in the relationship in the management of supplier relationships (Ford 1980). Along with Morgan and Hunt's (1994) definition of relationship commitment, ***supplier relationship commitment*** is defined as a supplier's willingness to extend effort and resources to maintain and strengthen a business relationship with a customer based on the belief that the ongoing relationship with the customer is so important to its business as to warrant maximum efforts at maintaining it. To measure perceived supplier relationship commitment, a three-item scale was employed which encompassed perceived supplier loyalty, relationship commitment, and priority placed on the customer.

Figure 1: Proposed Structural Model



Customer Relationship Satisfaction

In the absence of commitment to the relationship, little resources will be mobilised for the development and maintenance of the relationship, whereas active RSIs and strong commitment to the relationship enable interacting parties to overcome operational challenges and explore strategic opportunities (Ford, Gadde, Håkansson, Lundgren, Snehota, Turnbull and Wilson 1998). A supplier with greater relationship commitment engages in more active adaptation-making through RSIs, to create not only satisfactory interaction outcomes, but also satisfactory interaction processes over time (H1). In this study, ***customer relationship satisfaction*** is defined as a customer's present affective state resulting from its overall appraisal of a business relationship over time (c.f., Anderson and Narus 1984). To measure this construct, Leuthesser and Kohli's (1995) five-item satisfaction scale was adapted with some minor adjustments.

Customer Trust: contractual, competence and goodwill trust

Trust has been posited to promote constructive dialogue and cooperative problem-solving between the organisations to the relationship (Dwyer, Schurr and Oh 1987; Morgan and Hunt 1994; Sako 1992; Ford, Gadde, Håkansson, Lundgren, Snehota, Turnbull and Wilson 1998). Hallen, Johanson, and Seyed-Mohamed (1991) contend 'hows' of supplier adaptation-making is

a trust-forming social exchange process. Ford (1986) and Miyamoto and Rexha (2004) found that a supplier's commitment to the development and maintenance of a relationship entails enhanced customer trust (H2). On the other hand, the present overall satisfaction with previous exchange episodes nurtures trust between exchange parties (H3) because they feel that they are not exploited and are concerned with each other's welfare in the exchange relationship (Ganesan 1994).

Along Sako's (1992) theoretical definitions of the three key facets of trust, the following operational definitions were adopted: ***contractual trust*** as a customer's confidence in a supplier that it will perform (verbally and contractually) agreed tasks reliably; ***competence trust*** as a customer's confidence in a supplier competence capacity; and ***goodwill trust*** as a customer's confidence in supplier sustaining commitment to better serve a customer's needs and wants for the development of the relationship. As with perceived supplier relationship commitment, a multiple-items scale was developed for each construct based on findings from case studies of Japanese leading manufacturers which were conducted as part of another research project (Miyamoto 2001).

Customer Relationship Commitment

In the past empirical modelling research, trust has been posited as a major determinant of relationship commitment (H4, H5 and H6) (Dorsch, Swanson and Kelley 1998; Ganesan 1994; Doney and Cannon 1997; Morgan and Hunt 1994). In this study, three constructs of customer relationship commitment were examined, namely continuance, affective and behavioural commitment. In line with Kumar, Schueer, and Steenkamp (1995), ***continuance*** and ***behavioural commitment*** were defined as the customer's intent to continue a business relationship with the supplier as a reflection of the relationship stability and the customer's desire to enhance the business relationship with the supplier by making further investments in the relationship, respectively. These two constructs were measured by four-item and three-item scales adapted from Kumar, Schueer, and Steenkamp (1995). On the other hand, ***affective commitment*** was defined, drawing from Meyer and Allen (1984), as a customer's desire to continue the business relationship with the supplier because of positive affect toward the supplier and operationalised by Kim and Frazier's five-item scale.

Data Analysis/Findings

For data analysis, a series of multiple group confirmatory factor analyses (MGCFAs) were performed with the maximum likelihood estimation (MLE) method, using the structural equation modeling program EQS 6.1 for Windows (Build 94) (Bentler and Wu 2007). EQS is commonly known for its unique feature – i.e., availability of robust statistics like the Satorra-Bentler scaled statistics, or SBχ^2, SBχ^2-based goodness of fit index, and robust standard errors which have been found to be robust against violation of multivariate distributional assumptions (Byrne 2006). However, it should be noted that the attractive robust statistics are not immune to a shortcoming. As cautioned by Satorra (2000), a simple χ^2 difference test based on SBχ^2 statistics does not yield the correct SB scaled χ^2 difference test statistics for model comparison. Such test statistics need to be obtained manually from three model parameters (χ^2, SBχ^2, and degrees of freedom) obtained from two competing models of interest (Satorra and Bentler 2001). In this study, all χ^2 difference tests were based on corrected SB scaled χ^2 difference statistics. In addition, for

assessment of model fit, the study employed two SBχ^2-adjusted goodness-of-fit model measures: one from 'comparative' fit measures (i.e., comparative fit index (CFI)) and another from 'absolute' fit measures (i.e., a root mean-square error of approximation (RMSEA) with its 90% confidence interval).

As a model testing strategy, the study adopted Anderson and Gerbing's (1988) two-step approach. It started with the development of the best fitting measurement model as a base model for testing structural models, and then moved to the testing of the proposed model and the identification of the best fitting structural models through subsequent model respecifications based on sequential χ^2 difference tests. This approach was also used for testing of metric invariance (i.e., equality of the factor loading of model construct indicators to the target construct) and factor variance/covariance invariance between the Japanese and Australian samples. Empirical inquiry into the between-group metric invariance tests the notion that people drawn from different sample groups respond to the scale items in the same way (Steenkamp and Baumgartner 1998). Put it another way, when the invariance were empirically supported, researchers can claim that their multi-item scale measures the target construct in the same way across the sample groups; thus the basis for between-group comparison of a structure of focal constructs. The metric invariance tests were conducted based on the best fitting measurement model with no equality constraints. When the equality constraint was not supported for a variable, another MGCFA was run without the constraint. According to Byrne (2006), as long as a given construct has at least one invariant measure between sample groups, in addition to one whose factor loading is set at 1 for the construct identification purpose, one can make a claim for partial metric invariance for the construct. Factor variance/covariance invariance was explored on the measurement model with the partial metric invariance. For assessment of the adequacy of these model equality constraints was made based on the conventional χ^2 difference test, but based on the corrected SB scaled χ^2, and a CFI difference between unconstrained and constrained models.

Precursor to a full scale MGCFA for a measurement model, preliminary MGCFAs were conducted for four sub-measurement models: a 3-item, 1-factor model for perceived supplier relationship commitment (PSRC), a 5-item, 1-factor model for customer relationship satisfaction (CRS), 14-item, 3-factor model for customer trust (CT) and 12-item, 3-factor model for customer relationship commitment (CRC). For each MGCFA run, in line with the principle of confirmatory factor analysis, the configural invariance condition was imposed where a factor loading pattern between each indicator and its respective target construct was set identical across the Japanese and Australian sample groups. The objective of data analysis at this stage was to develop not the best but an acceptable measurement model as an input to a full-scale MGCFA by screening out, if any, deviant scale items. Model respecification decisions were informed by available multivariate Lagrange Multiplier (LM) test and Wald test outputs available from EQS as well as the business relationship and network literature knowledge. As Anderson and Gerbing (1988) noted earlier, these tests provide information on the next most likely unconstrained and constrained models within a single computation for the testing of the focal model, respectively.

Following preliminary MGCFA runs on a 3 factor trust model with contractual, competence and goodwill trust constructs, the proposed second-order factor trust model was developed from the 9-item, 3-factor trust measurement model. This MGCFA produced identical goodness-of-fit

statistics with the base model for the same degrees of freedom (i.e., $\chi^2_{(48)}$ =79.899; $SB\chi^2_{(48)}$ =61.89; CFI= .988; RMSEA= .049, 90% C.I. .000, .081). Next, the metric invariance constraint condition was introduced onto the second-order factor model in two stages: first factor loading equality constraints within each of the first-order constructs except for those whose factor loading was set at 1 for the unit identification purpose, and then, on factor loadings of the three factors across the two sample groups. The first MGCFA prompted for releasing of the equality constraint on one of contractual trust indicators. The second MGCFA without the equality constraint produced an acceptable overall model fit statistics ($\chi^2_{(53)}$ =86.08; $SB\chi^2_{(53)}$ =67.35; CFI= .987; RMSEA= .048, 90% C.I. .000, .079). A χ^2 difference test with the corrected SB scaled χ^2 different test statistics was in support of the partial measurement invariance for the first-order factors – i.e., $\Delta SB\chi^2_{(5)}$ = 5.35 (p >.05). The fractional decline in CFI also provided support (i.e., ΔCFI = .001). Next the second layer of equality constraints was imposed on factor loadings of the three first-order factors. This model produced: $\chi^2_{(56)}$ =87.44; $SB\chi^2_{(56)}$ =68.96; CFI= .989; RMSEA= .044, 90% C.I. .000, .075, with no indication of unacceptable metric invariance constraints across the groups. This full-scale partial metric invariance was also support by $\Delta SB\chi^2_{(8)}$ = 6.67 (p >.05) and even a fractional increase in CFI (i.e., ΔCFI = .001).

This second-order factor trust model, with the partial metric invariance constraints, was combined with the remaining three sub-measurement models to form a full scale measurement model. An initial MGCFA run with this full-scale measurement model (27 indicators and 3 latent indicators) produced unsatisfactory goodness-of-fit statistics ($\chi^2_{(620)}$ =1092.66; $SB\chi^2_{(620)}$ =931.53; CFI= .931; RMSEA= .065, 90% C.I. .056, .073) and promoted some respecification. This led to model respecifications for the development of a best-fitting 'base' full-scale measurement model against which full-scale metric and factor variance/covariance invariance conditions were to be tested. After releasing the equality constraint on the factor loading from CT to contractual trust and discarding three items (2 items from customer relationship satisfaction scale and 1 item from affective commitment), the best fitting measurement model was thought to have obtained ($\chi^2_{(475)}$ =744.72; $SB\chi^2_{(475)}$ =633.87; CFI= .959; RMSEA= .053, 90% C.I. .041, .063). However, close examination of model parameter estimates discovered a critical problem – absence of empirical support for the discriminant validity between CRS and CT in the Australian sample. The estimated correlation parameter between the two constructs was .982 with the estimated standard error of .019. As the complementary assessment of discriminant validity with the estimated standard error indicated (.982 +.019*2 > 1.00), the χ^2 difference test with the corrected SB scaled χ^2 different test statistics failed to support the discriminant validity of the two model constructs ($\Delta SB\chi^2_{(1)}$ = 2.85; p >.05). This necessitated some modification to the initial model development and testing approach.

The following three alternative courses of action were considered: 1) to combine CRS and CT to form a super-ordinate construct and proceed with a 5 factor model; 2) to break down the second-order factor trust model and proceed with a 8 factor model (i.e., PSRC, CRS, 3 trust and 3 commitment constructs); and 3) to retain the second-order factor trust model but proceed with a 5 factor model without CSR. The first option was found to be not appealing for the unacceptable model fit to the data (i.e., $\chi^2_{(478)}$ =823.90; $SB\chi^2_{(478)}$ =693.79; CFI= .945; RMSEA= .061, 90% C.I. .051, .071) as indicated by the obtained CFI value less than the Hu and Bentler's (1999) revised cut-off point of .95. One of major sources of the observed model-data misfit was the model's inability to take into account the relationship between PSRC and goodwill trust. The

second option was rejected as it contradicted with one of the aims of the present study – i.e., to model trust as the second-order factor model with contractual, competence, and goodwill trust constructs. Accordingly, the third option was adopted for the study. However, before proceeding any further, some discussions would be worthy on distinctive patterns of estimated correlations among the three constructs, PSRC, CRS and CT, between the two sample groups.

In addition to the lack of empirical support for the discriminant validity between CRS and CT, the Australian model also had yet another large correlation estimate between PSRC and CT – i.e., r = .943 with the standard error estimate of .027) as opposed to r = .849 of the Japanese sample. To explore a source of this observed phenomenon, a series of MGCFAs were conducted with the 3-item, 8 factor measurement model; first without the metric and factor variance/covariance invariance constraints and later with them. The initial MGCFA resulted in: $\chi^2_{(453)}$ = 678.71; $SB\chi^2_{(453)}$ = 579.90; CFI= .968; RMSEA= .048, 90% C.I. .036, .059. On this measurement model, factor loading equality constraints were imposed on all 24 indicators. This MGCFA rejected the equality constraint on some of the indicators. To examine the extent of metric invariance between the two sample data, a series of MGCFA were run after removing the constraint on an indicator in the light of the multivariate LM test output, one at each MGCFA run. After four additional MGCFA run, four factor loading equality constraints were found to be unattainable ($\chi^2_{(468)}$ = 695.94; $SB\chi^2_{(468)}$ = 598.20; CFI= .967; RMSEA= .048, 90% C.I. .036, .059). They included an indicator of each of four model constructs, customer relationship satisfaction, contractual trust, continuance commitment, and affective commitment constructs. This partial metric invariance was supported by ($\Delta SB\chi^2_{(15)}$ = 18.11; p > .10 and ΔCFI = .001). Next to explore the extent of invariance of correlations among the eight model constructs between the two sample groups, 28 factor covariance equality constraints were added to this measurement model. (Note that in the base measurement model all factor variances were set at unity; thus this model with factor covariance equality constraint examined the invariance of correlations among the eight model constructs across the two sample groups.) The first MGCFA run suggested some factor covariance constraints problematic. This necessitated a series of MGCFA runs by releasing the constraint on a pair of model factors in light of the multiple LM test outputs. After removing five constraints, the remaining correlations between 23 pairs of the model factors were found to be attainable: $\chi^2_{(491)}$ = 739.47; $SB\chi^2_{(491)}$ = 627.81; CFI= .965; RMSEA= .048, 90% C.I. .036, .059. This model with the partial factor covariance invariance was supported by $\Delta SB\chi^2_{(23)}$ = 29.65; p >.15 and ΔCFI = .002). Table 2 presents a summary of correlation estimates between PSRC, CRS, and three trust first-order factors from the MGCFA with the partial measurement invariance model and factor variance/covariance invariance constraints.

The presentation of square roots of average variance extracted (AVE) from the focal model constructs in Table 2 necessitates some background discussion on the AVE. The author of this paper is aware of the recent article by Farrell (2009) which addresses one of important aspects of structural equation modeling research. He promotes Fornell and Larcker's (1981) conservative factor-based assessment of discriminant validity with average variance extracted from a latent model variable as a benchmark measure against the squared correlation between the variable and another model latent variable (i.e., the shared variance between the two model constructs), or alternatively the square root of the AVE against the correlation as presented in Table 2. In the paper, he proposes a 5-step procedure for the assessment of discriminant validity with the

conservative test as well as the more conventional Anderson and Gerbing's (1988) SEM-based χ^2 difference test. Interestingly, however, the paper does not provide any discussion on the relationship between the two alternative tests (e.g., independent or interdependent?) nor justification for the need for the two tests as well as the proposed sequence between the two tests in the procedure. In short, the paper does not resolve the current divide between the two competing discriminate validity testing practices – i.e., the extent of rigour acceptable for the establishment of discriminant validity. The divide whose origin dates back to Bagozzi (1981) who raised a philosophical concern with the blurred boundary between the domains of theory and statistics in Fornell and Larcker's (1981) interpretation of the shared variance between two SEM model constructs. The present study adopted the conventional SEM-based discrimiant validity test based on a χ^2 difference as well as a CFI difference for the purpose. Yet, for those interested in the AVE-based discriminant validity tests, this study also obtained and presented the relevant statistics and present in Table 2 and later in Table 3.

Table 2:

Correlations, Standard Errors and Square Roots of Average Variance Extracted Estimates

	F1 **J/A**	**F2** **J/A**	**F3-1** **J/A**	**F3-2** **J/A**	**F3-3** **J/A**
F1: PSRC	**.87 / .87**	.044 / .044	.049 / .049	.050 / .050	.038 / .038
F2: CRS	.73 / .73	**.90 / .90**	.042 / .030	.052 / .034	.037 / .037
F3-1: Contractual Trust	.73 / .73	.75/ .88	**.90/ .85**	.045 / .056	.034 / .054
F3-2: Competence Trust	.59 / .59	.70 / .83	.76 / .76	**.77 / .80**	.044 / .044
F3-3: Goodwill Trust	.84 / .84	.82 / .82	.86 / .74	.73 / .73	**.88 / .85**

Note: Square roots of average variance extracted estimates are presented on the diagonal in the table while correlation estimates and their corresponding standard error estimates are presented below and above the diagonal, respectively. For those three pairs of inter-factor correlations underlined, the factor covariance (i.e., correlation) equality constraints were not supported. Of these model constructs in the table, two constructs failed to meet the test of full metric invariance. CRS and contractual trust had one indicator each which was freely estimated.

Table 2 contains three pairs of group-variant correlations – i.e., two pairs of correlations of CRS with contractual and competence trust, and another between contractual trust and goodwill. The higher correlations between CRS and the two trust constructs as well as the weaker correlation between two trust constructs, contractual and goodwill trust seem to be responsible for the empirical confusion about the boundary of psychometric properties of the two constructs in the Australian data. Insights obtained from this exercise are highly indicative of different workings of three trust constructs between the groups. This point will be elaborated later in the discussion section.

An MGCFA analysis resumed with the modified full-scale measurement model after dropping the CRS construct. It produced acceptable goodness-of-fit statistics: $\chi^2_{(359)} = 590.368$; $SB\chi^2_{(359)} = 503.9195$; CFI= .955; RMSEA= .058, 90% C.I. .046, .069. On this base model, two levels of invariance constraints were introduced: first the metric invariance condition and then the factor variance/covariance invariance condition. An MGCFA run with the metric invariance constraints prompted release of the equality constraint on some variables. After releasing the constraints on two variables in addition to the existed metric invariance on the second-order trust factor, the final measurement model with partial metric invariance (20 out of 24 metric invariance constraints) was obtained: $\chi^2_{(369)} = 604.107$; $SB\chi^2_{(369)} = 517.560$; CFI= .954; RMSEA= .058, 90% C.I. .046, .069. And this partial metric invariance condition was supported

by $\Delta SB\chi^2_{(10)} = 13.58$; $p < .05$ and $\Delta CFI = .001$. Then ten factor covariance invariance constraints were introduced to this partially metric invariant model. The initial MGCFA suggested presence of problematic factor invariance constraints, promoting release of the constraints on some paired model constructs. After releasing five factor invariance constraints one at the time produced support for the correlation equality constraints on five pairs of model constructs, the MGCFA produced the following acceptable model fit measures: $\chi^2_{(374)} = 611.76$; $SB\chi^2_{(374)} = 521.29$; CFI= .954; RMSEA= .057, 90% C.I. .045, .068. The factor covariance equality constraints were supported by $\Delta SB\chi^2_{(5)} = 4.66$; $p < .05$ and $\Delta CFI = .000$. Table 3 presents correlation estimates, the estimated standard errors and square roots of average variance extracted from each model construct.

Table 3: Correlations, Standard Errors and Square Roots of Average Variance Extracted

	F1 J/A	**F3 J/A**	**F4 J/A**	**F5 J/A**	**F6 J/A**
F1: PSRC	**.88 / .87**	.061 / .030	.064 / .064	.052 / .052	.085 / .069
F3: Customer Trust	.79 / .93	**.89 / .85**	.045 / .045	.045 / .045	.100 / .007
F4: Continuance Commitment	.53 / .53	.68/ .68	**.88/ .75**	.057 / .057	.079 / .080
F5: Affective Commitment	.67 / .67	.77 / .77	.56/ .56	**.78/ .78**	.089 / .068
F6: Behavioural Commitment	.25 / .59	.21 / .63	.16/ .54	.39 / .63	**.84 / .87**

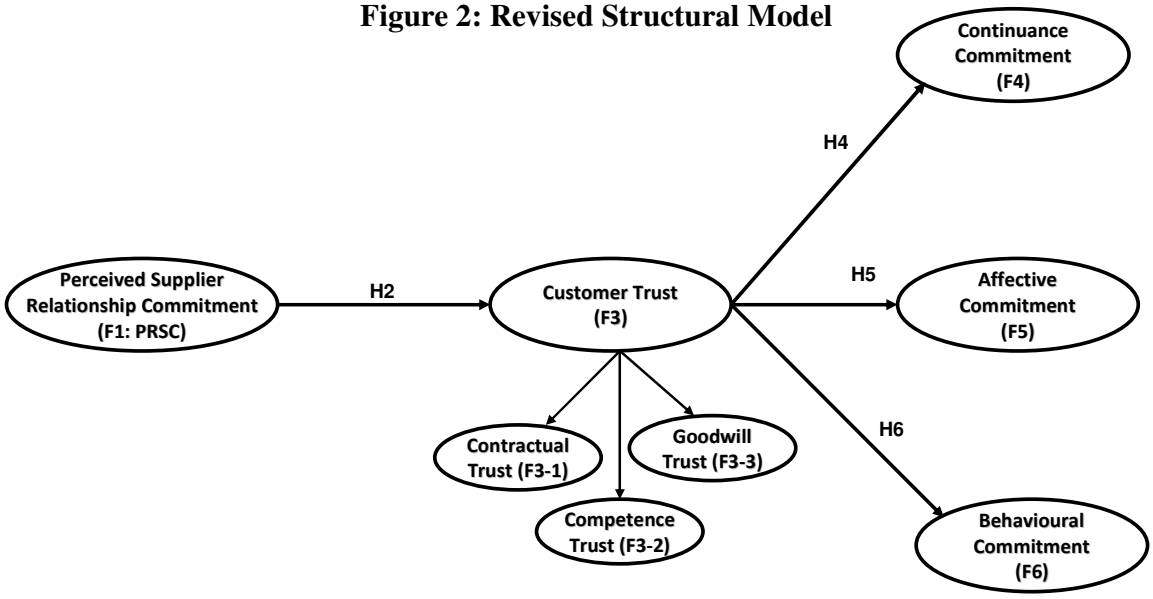
Note: Square roots of average variance extracted estimates are presented on the diagonal in the table while correlation estimates and their corresponding standard error estimates are presented below and above the diagonal, respectively. For those inter-factor correlations underlined, the factor covariance (i.e., correlation) equality constraints were released.

As for assessment of the internal model fit, no parameter estimates were deemed to be unacceptable. All inter-construct correlation estimates were significant at $p < .05$. As expected, a large correlation was estimated for the pair of PSRC and CT for the Australian sample – i.e., .929 with the estimated standard error of .030. Again a series of χ^2 difference tests were conducted with the corrected SB scaled χ^2 different test statistics. All test results supported discriminant validity for the pair of model constructs, including PSRC and CT in the Australian data (i.e., $\Delta SB\chi^2_{(1)} = 13.17$; $p < .05$ and $\Delta CFI = 0.017$). Whereas this high correlation between PSRC and CT characterises the Australian data, the consistently lower correlations of behavioural commitment with the remaining model constructs can be viewed as the defining feature of the Japanese sample data. Notably in the Japanese data estimated the behavioural commitment construct had larger correlation estimates with PSRC (r = .25) and especially affective commitment (r = .39) than its theoretical determinant, CT (r = .21). These inter-construct correlation structures of the two sample groups indicate a significant between-group variance in the structural models.

Figure 2 presents the revised structural model for the present study. For testing of the proposed structural model, its base model was developed from the final measurement model by replacing the model specification approach to the unit identification of model constructs from the factor variance 1.0s to factor loading 1.0s setting (except those three trust constructs as this was introduced earlier when the second-order factor CT model was developed). An MGCFA run with this model produced almost identical overall goodness-of-fit statistics with the previously reported MGCFA without CRS construct and invariance constraints: $\chi^2_{(358)} = 590.367$; $SB\chi^2_{(358)}$

= 503.69; CFI= .955; RMSEA= .058, 90% C.I. .046, .070. Then the partial metric invariance constraint was imposed on this model. Here it should be noted that this imposed model had five less degrees of freedom than the previously reported MGCFA with the partial metric invariance constraint as a result of the model respecifications for the model construct unit identification. The MGCFA run produced the following model fit index: $\chi^2_{(364)}$ = 597.20; $SB\chi^2_{(364)}$ = 509.63; CFI= .955; RMSEA= .058, 90% C.I. .045, .069. And the remaining 12 metric constraints on the base model for the structural model testing were supported by $\Delta SB\chi^2_{(5)}$ = 5.91; p >.05 and ΔCFI = 0.000). As for the factor covariance equality constraint, the current study chose not to introduce it to the model testing for the following two practical reasons: 1) inability to obtain standardised path estimates for the focal model constructs with the factor covariance invariance constraint, and 2) only two correlations are group invariant as reported earlier in relation to Table 3 (i.e., between PSRC and CT and between CT and behavioural commitment). In addition to the revised model, its rival model was also developed by adding three extra paths from PSRC to each of the three CRC model constructs. In essence, this rival model was developed to test the extent of the CT role as the mediating variable between PSRC and the three CRC constructs.

Figure 2: Revised Structural Model



The MGCFA runs for the revised and competing models generated the following goodness-of-fit statistics: $\chi^2_{(376)}$ = 622.43; $SB\chi^2_{(376)}$ = 530.46; CFI= .952; RMSEA= .059, 90% C.I. .046, .070 and $\chi^2_{(370)}$ = 611.60; $SB\chi^2_{(370)}$ = 521.55; CFI= .953; RMSEA= .059, 90% C.I. .046, .070, respectively. A χ^2 difference test between these two models supported the former (i.e., the model in Figure 2) with $\Delta SB\chi^2_{(6)}$ = 8.90; p >.05. One noteworthy finding from these MGCFA runs was that in the rival model none of the posited path relationships from PSRC to the three CRC constructs was statistically supported. This provides empirical support for the critical role of customer trust as the mediating variable between PSRC and the three CRC constructs. Put it another way, PSRC has no direct effect on any of the three CRC model constructs.

Examination of model parameter estimates from the revised model, however, found a source of model misspecification in the Japanese model. An estimated structural path from CT to

behavioral commitment was found statistically non-significant at the $p < 0.05$ level (i.e., $\lambda = .20$, $t = 1.87$). Thus, another MGCFA was conducted by removing the path from the Japanese model while retaining all structural paths in the Australian model. As expected from the earlier observation concerning Table 3, the multiple LM test suggested a need of model respecification to accommodate a relationship between affective commitment and behavioural commitment in the Japanese model. Given the future directed property of the latter, addition of a structural path from the former to the latter was deemed to be appropriate. An MGCFA run with this model respecificaiton produced the following acceptable goodness-of-fit statistics: $\chi^2_{(376)} = 615.79$; $SB\chi^2_{(376)} = 525.02$; CFI= .954; RMSEA= .058, 90% C.I. .045, .069. Inspection of the model parameter estimates as well as the multivariate Wald and LM test did not indicate a need of any further substantive model specification. Finally to validate this model, the Anderson and Gerbing's nested model testing procedure was employed. This sequential χ^2 difference test, together with the respective CFI differences, supported the superiority of the final structural model as presented in Table 4.

Table 4: Summary Statistics from the Sequential χ^2 Difference Test

Model	S-Bχ^2 (χ^2)	*d.f.*	CFI	Model Comparison	Corrected ΔS-Bχ^2 (Δ*d.f.*)	Δ*CFI*
Ms: Base model with the partial metric invariance	509.63 (597.20)	364	.955	-	-	-
Mu: Final structural model without a path from CT to behavioural commitment in the Japanese model	523.57 (614.34)	375	.954	Mu vs. Ms	14.01 (11)	.001
Mt: Final Structural Model with a path from CT to behavioural commitment in the Japanese model	**525.02 (615.79)**	**376**	**.954**	**Mt vs. Mu**	**1.45 (1)**	**.000**
Mc: Final Structural Model with a path from CT to behavioural commitment in the Japanese model	534.13 (626.66)	377	.951	Mc vs. Mt	8.30 (1)	.003

Table 5 presents standardised structural path coefficient estimates, their respective t-statistics and coefficients of determination obtained from the final MGCFA run. (For the list of model construct indicators and their reliability statistics, please refer to the Appendix).

Table 5: Summary of Structural Model Estimates

		Endogenous Constructs			
F1: Perceived Supplier Relationship Commitment	**Sample Group**	**F1: PSRC**	**F3: CT**	**F5: AC**	R^2
F3: Customer Trust	Japan	H2: .75 (6.74)			.56
	Australia	H2: .93 (12.34)			.86
F4: Continuance Commitment	Japan		H3: .72 (9.58)		.52
	Australia		H3: .63 (6.98)		.40
F5: Affective Commitment	Japan		H4: .75 (7.73)		.57
	Australia		H4: .81 (13.53)		.65
F6: Behavioural Commitment	Japan			.33 (3.18)	.11
	Australia		H5 .69 (7.75)		.48

$\chi^2_{(376)} = 615.79$; $SB\chi^2_{(376)} = 525.02$; CFI= .954; RMSEA= .058, 90% C.I. .045, .069

Discussion

The present study generated valuable cross-country insights into buyer-supplier relationships as well as a new insight into business relationship management in the multiple sourcing context. Initially the study provided empirical support for the partial metric invariance of all nine model constructs, or cross-country reliability and convergent validity of indicators of the model constructs across the two sample groups, Japan and Australia. However, without validation of model construct discriminant validity, the assessment of goodness of measures is incomplete. On this issue, the study encountered a problem. The Australian data failed to support the discriminant validity for customer relationship satisfaction (CRS) and customer trust (CT) which was modeled as a second-order factor with contractual, competence and goodwill trust. It is here that the current study built on MGCFA produced valuable insight into the issue from a comparative perspective.

To explore a source of the empirical inseparability of the two model constructs in the Australian data, the study converted the measurement model into an 8 factor measurement model by decomposing the second-order CT construct and tested the metric and factor variance/covariance invariance with the MGCFA. This process produced empirical support for the partial metric and factor variance/covariance invariance between the sample groups. The data supported the metric invariance on the same set of variables while supporting the factor variance/covariance invariance for 14 pairs of the model constructs out of 28. Table 2 presented some key findings from this process, focusing on the focal five model constructs (i.e., PSRC, CRS and three trust constructs). As evident in the table, the two sample groups presented unique structural patterns among the focal model constructs. The Australian data produced stronger correlations between CRS and two customer trust constructs, contractual and competence trust, but a weaker correlation between contractual and goodwill trust. And given the invariance of correlations for the remaining pairs of the focal model constructs, these variant correlations were deemed to be the source of the confusion between the psychometric boundaries of the two model constructs in the Australian data. While the stronger association between CRS and the two trust constructs brought CRS closer to the second-order factor CT construct, the weaker association between the two trust constructs seems to have failed to make the internal coherence of the second-order factor CT construct in the Australian data.

As for the different workings of three trust constructs between the groups, one might attribute it to one of parameters of the present study. That is, the status of the focal suppliers. As reported earlier, the Japanese data were composed of more of the third preferred in-suppliers (i.e., 74.6%) as the focal in-supplier than the Australian data (i.e., 60.2%). In the Japanese sample data, these suppliers had on average 14% of sourcing share of the focal product at the sample firms compared to 30% of the second preferred in-suppliers. Taking this sourcing share as one of manifestations of the customer's relationship commitment, the inclusion of more of the third preferred in-supplier in the Japanese sample data could be argued to have resulted in relatively smaller correlations between CRS and contractual and competence trust. However, this logic does not seem to be in line with the observed equal correlation between CRS and goodwill trust across the two sample groups and more notably the larger correlation between competence and goodwill trust in the Japanese sample data. For this, a country and sector variable appears to offer more consistent reasoning. As reported earlier, the Japanese sample data had more

responding firms from the Transportation Equipment sector (22.9% vs. 10.6%) but less from the Food and Kindred Products sector (i.e., 12.7% vs. 22.8%) than the Australian data. When compared to the Australian data, the Japanese responses to measures of contractual and competence trust constructs would have been derived more from the customer firm's objective knowledge of the focal supplier's performance and competence as a result of their rigorous performance assessment against the set criteria under their famous total quality management practice. On the other hand, the Australian responses to measures of contractual and competence trust would have reflected more of the subjective assessment of the atmosphere of the focal exchange relationship as projected by CRS. This argument also seems to be in line with the observed correlation invariance between CRS and goodwill trust, which captures one's rather subjective belief, confidence, in the other's willingness to do more than what it is required of contractually. Moreover the stronger correlation between contractual and goodwill trust observed from the Japanese data seems to support Sako's (1992) earlier research finding on the distinctive property of Japanese buyer-supplier relationships. Earlier she reported that contractual trust constitutes the core of customer trust in any exchange relationship. However according to her, contractual trust is necessary but not sufficient for a long-term business relationship. Customer firms are said to seek such a relationship only with a supplier who also possesses other attributes of trust, namely competence and goodwill trust. In her cross-country study, she found that goodwill trust becomes a defining feature of customer trust in the Japanese buyer-suppler relationships while in the U.K context, it is replaced by competence trust. The observed distinctive inter-factor correlation structures between the sample groups in Table 2 are supportive of these earlier research findings. In the Japanese data, contractual trust had a stronger correlation with goodwill trust than competence trust (i.e., .86 vs. .76) whereas in the Australian data it was competence trust that has a larger correlation with the base trust construct (.76 vs. .74).

Following the finding of the empirical inseparability of CRS and CT constructs in the Australian data, a revised structural model was developed by dropping CRS as well as its rival model by adding three structural paths from PSRC to three constructs of customer relationship commitment (CRC), namely continuance, affective and behavioural commitment. MGCFAs for the testing of these competing models were conducted with the partial metric invariance condition. The failure to support the full metric invariance resulted from the metric variance of four indicators (one indicator for each construct). They included contractual trust and the second-order factor CT construct, indicative of a country-specific construct structure of CT. MGCFAs for the testing of the structural models found that the rival model was not attainable. In other words, the study supported the notion that PSRC has no direct effect on any of CRC constructs; its effect on three CRC constructs was all mediated by CT. As for the revised model, the subsequent MGCFA runs revealed a better fitting structural model for the Japanese data. In short, the Japanese sample was found to have a different structural model from the Australian sample. The Australian data supported the revised model where PSRC shapes CT and CT, in turn, influences all three CRC components as presented in Table 3. On the contrary, with the Japanese sample data, not CT but affective commitment was found to be the determinant of the future driven commitment construct, behavioral commitment. Since the model invariance constraint was limited to the metric invariance level, quantitative comparison of structural path coefficient estimates can not be made across the sample groups. On this, the findings presented in Table 3 provide some valuable insight into the distinctive inter-factor structural patterns across

the two sample groups. Earlier it was reported in relation to Table 3, the two sample data differed in the correlation between PSRC and CT and all correlations concerned with customer behavioural commitment construct. The Australian data had higher correlation estimates for all pairs of these constructs. Especially the noteworthy observations here are a larger correlation between PSRC and CT in the Australian data and a stronger correlation of behavioural commitment with affective commitment than with its theoretical determinant, CT, in the Japanese data. These unique variance/covariance properties of the two sample groups remained intact in their final respective structural models. That is, the Australian structural model characterised by a greater path coefficient from PSRC to CT (i.e., .93 vs. .75) and the Japanese model distinguished by the absence of the structural path from CT to behavioural commitment but the present of a structural path from affective commitment to the future commitment.

In summary, the Australian data supported the existing knowledge on the buyer-supplier relationship in the multiple sourcing context. That is, supplier relationship commitment, as perceived by the customer firm, is the antecedent of customer relationship commitment and customer trust is the mediating variable between the two. Yet, this model failed to gain full support from the Japanese data. The Japanese structural model is highly indicative of the importance of a long time horizon for the development of the buy-supplier relationship. As opposed to the Australian data which supported CT's role as the sole determinant of behavioural commitment, the Japanese data underscored affective commitment's role as a mediating variable between CT and behavioural commitment. Japanese manufacturers seem to place more importance on the existing relationship and the assets in the relationship than its present confidence in the focal supplier when making a decision for adaptations to the relationship. Using marker variables of behavioural and affective commitment constructs in the model (see Appendix), this can be restated as follows: the closer business relationship the customer firm has developed with the focal supplier, the more willing the former is to put more effort and investment into building a closer business relationship with the latter. These findings collectively support trust's instrumental role for the development of the buyer-supplier relationship. As the literature reminds us, however, trust is not something that can develop over night. A supplier firm has to earn and manage it by continuously signaling the commitment to the focal relationship through dedicated attention to the customer needs and wants in the relationship. With the hard earned customer trust, the supplier firm can expect 1) a continuing exchange relationship, 2) an integration of its operations with the customer firm, and 3) the customer's inter-firm adaptations, or relationship-specific investments. However, when the Japanese manufacturers in the multiple-sourcing context are concerned, new and those in-suppliers other than the most preferred need to be cautioned. The customer's willingness to make investments into the relationship is shaped not by the customer's present confidence in the supplier but by relationship assets which have been built between the two parties. This finding is also in line with the commonly held view of the long time horizon in Japanese-style buyer-supplier relationships.

Limitations

The present study examined the premise of a business relationship – an evolving pair of relationship commitment by those involved – from the cross-country perspective. It generated valuable cross-country insights into buyer-supplier relationships as well as a new insight into

business relationship management in the multiple sourcing context. However, the findings and the implications from this study need to be interpreted in the light of potential limitations associated with the study. First as discussed earlier, there are alternative views on the extent of rigour required for discriminant validity test. The present study adopted the conventional SEM-based discriminant validity test as well as ΔCFI. Should the more stringent Fornell and Larcker's (1981) factor-based test have been employed, the MGCFA analysis reported in this study would not have been possible as PSRC failed the test for the correlation with the second-order factor CT construct ($\sqrt{AVE}$ = .87 to r = .93 in Table 3). In relation to the factor-based discriminant validity test, there was an interesting observation in Table 2. The table presented correlation and their respective standard error estimates of the selected model constructs from the MGCFA with eight first-order factors – i.e., PSRC, CRS, three each for CT and CRC constructs – as well as square roots of AVE estimates of the model constructs. If the Fornell and Larcker's (1981) discriminant validity test were to be applied, subsequently three model constructs in the Australian data will be ruled out as empirically inseparable, namely CRS, contractual trust and competence trust, as the square roots of AVE extracted from the latter two model constructs fail to exceed their correlations with CRS ($\sqrt{AVE}$ = .85 to r = .88 and $\sqrt{AVE}$ = .80 to r = .83). However, given the size of the estimated correlation and its estimated standard error between the two trust constructs (i.e., r = .76, .056), such a ruling is not easy to digest and follow. Secondly, the data used for this study are a decade old. For this, the implications drawn from this study may have lost its relevance to the current practice of supplier relationship management. On this issue, however, the study is believed to have generated more valuable insights in the subject which more than compensate for the limitation. For instance, the study is still one of few cross-country SEM-based empirical studies with leading Japanese manufacturing firms whose supplier relationship management practice was earlier claimed to have revolutionaised the industry across the world. Furthermore, the present study is one of few empirical studies which modeled trust as a second-order factor construct and examined its construct and nomological validity in a cross-country context. Lastly the present study was not able to rule out the source of the observed structural relationship between affective and behavioural commitment in the Japanese data – whether it is a global phenomenon across all buyer-supplier relationships in Japan, irrespective of the status of the focal supplier.

Conclusion

This study examined the axiom of business relationship management from a cross-country, comparative perspective – i.e., an evolving pair of relationship commitment of those involved. For the purpose, the study used data collected from 118 Japanese and 123 Australian leading manufacturers about their business relationships with the second or third preferred in-suppliers in the multiple-sourcing context. The study analysed the data with multiple group confirmatory factor analyses under two levels of invariance constraint on the model – i.e., metric and factor variance/covariance. It generated valuable cross-country insights into buyer-supplier relationships as well as a new insight into business relationship management in the multiple sourcing context. The study supported the metric invariance of the model construct between the two sample groups not fully but partially. The observed non-equality of factor variance/covariance of some model constructs provided a valuable platform for future inquiries in the research field. Among them is the empirical inseparability between customer relationship satisfaction and customer trust constructs in the Australian data. Future research effort should be

directed at a source of the confusion – theoretical or methodological. The study findings also illuminated the distinctive property of the Japanese buyer-supplier relationships. That is, the long time horizon for the development of business relationship, in the multiple-sourcing context. On the contrary to the Australian sample firms, the Japanese sample firms were found to base their inter-firm adaptation making decision not on its current confidence in the supplier but on the relationship assets. Over the past decade the emphasis of business relationships study has shifted from business relationships to business network relationships. Yet, this is not to suggest that the literature on dyadic business relationships is complete. There is still a need for further research on the topic to address unresolved research problems as suggested in this study. Empirical insights from quantitative, model based research are also expected to benefit business network researchers by offering valuable empirical insights into their research problems which would not be obtained from their own research perspective.

APPENDIX:

Model Construct Indicators and Reliability Statistics from the Final Structural Models

Model Constructs indicators	***SFL*[1]** ***J/A***	***P*[2]** ***J/A***	***AVE*[3]** ***J/A***
Perceived Supplier Relationship Commitment (F1)	-	.90/.91	.74/.77
This supplier is very loyal to your firm.	.81/.88		
This supplier is highly committed to the business relationship with your firm.	.97/.93		
This supplier gives priority to your firm.	.80/.81		
Customer Trust (F3)		.92/.89	.78/.73
****Contractual Trust (F3-1)***	.86/.86	.92/.90	.79/.75
*This supplier possesses integrity in conducting business.	.91/.75		
Promises made by this supplier are reliable.	.93/.94		
Your firm does not need to expend significant efforts in monitoring this supplier's performance.	.83/.90		
Competence Trust (F3-2)	.81/.78	.80/.85	.58/65
Your firm has confidence in this supplier's commercial competencies.	.76/.83		
This supplier is very capable of providing value to your firm.	.91/.92		
When your firm experiences some operational problem with the Focal Product, your firm can rely on this supplier's technological expertise.	.59/.66		
Goodwill Trust (F3-3)	.98/.92	.90/.89	.75/.73
This supplier cares for your firm.	.89/.89		
If your firm experienced some operational problem, this supplier would do their best to find a solution for your firm.	.86/.85		
This supplier is like a best friend on whom your firm can always count.	.		
Customer Relationship Commitment (CRC)			
Continuance Commitment (F4)	86/.83	.90/.95	.75/.87
Your firm is going to continue the relationship with this supplier for many years.	.96/.97		
Your firm expects the business relationship with this supplier to last for a long time.	.93/96		
*Your firm may have to sever their business relationship with this supplier soon. (R)	.68/.87		
Affective Commitment (F5)		.80/.80	.58/.58
This supplier's business is closely meshed with your firm's business.	.56/.64		
*Your firm lacks a strong business link with this supplier. (R)	.85/.62		
Your firm has developed a close business relationship with this supplier.	.84/.98		
Behavioural Commitment (F6)		.87/.83	.70/.62
If this supplier requests, your firm would be willing to make further investment to better facilitate its business relationship.	.95/.87		
Your firm is willing to put more effort and investment into building a closer business relationship with this supplier.	.96/.91		
In the future, your firm will invite this supplier to participate in planning your firm's business strategies.	.54/.54		

Note: 1: Standardised factor loading coefficients; 2: composite reliability and 3: average variance extracted; Indicators with asterisks (*) are the measures which were found to be variant between the sample groups.

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