Buyers' perspectives on improving performance and curtailing supplier opportunism in supplier development: A social exchange theory approach

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A B S T R A C T

Supplier development initiatives, instituted by buyers, may have both positive (performance improvement) and negative (supplier opportunism) outcomes. Consequently, it is important to understand the factors that increase the likelihood of positive outcomes and decrease supplier opportunism. Drawing on Social Exchange Theory, we introduce and validate a model whereby socially embedded commitments mediate the effects of investment in suppliers on supply chain outcomes. Structural Equation Modelling, utilizing a sample of 204 buyers in the fruit and vegetable supply chain in Vietnam, indicates that supplier development not only improves buyer performance, but also simultaneously increases supplier opportunism. However, the degree to which supplier development initiatives lead to positive or negative consequences depends on goal congruence and long-term orientation. The design of supplier development initiatives should, thus, be geared to fostering suppliers' long-term orientation and goal congruence between parties.

1. Introduction

In B2B markets, improving the quality and quantity of suppliers' outputs is a major concern, with buyers often investing in supplier development initiatives. These initiatives are "any effort by a buying firm to improve a supplier's performance and/or capabilities to meet the manufacturing firm's short- and/or long-term supply needs" (Krause, Ragatz, & Hughley, 1999, p.206). Both suppliers and buyers can benefit from the implementation of supplier development initiatives (e.g., W. Li, Humphreys, Yeung, & Cheng, 2012; Wagner, 2010). The latter can lead to positive outcomes such as improved product and delivery performance (Wagner, 2010), as well as the enhancement of suppliers' operational potential (Krause, Handfield, & Scannell, 1998). Therefore, the outcomes of supplier development initiatives are often characterized as a 'win-win' for suppliers and buyers alike (Pilar, Elsebeth, & Luitzen, d. B., 2012).

However, empirical evidence suggests that supplier development initiatives can trigger opportunistic behavior by suppliers, which is endemic in some market environments (Tran, Gorton, & Lemke, 2021). In Vietnam, for example, a cooperative funded an initiative to help their

farmers follow national good agricultural practices (i.e., VietGap), to improve the quality of sourced products. Farmers accepted the agreements on following good practices, because they believed it advantageous financially to be certified. However, the farmers still deliberately used chemicals on their farms which were not permitted under VietGap certification (Nam, 2014). Consequently, realizing 'win-win' benefits is not a default outcome, rather supplier development initiatives can create a 'win-lose' situation. Investments in suppliers by buyers may suffer from opportunism (S. T. Li, Kang, & Haney, 2017; Liu, Liu, & Li, 2014), which is defined as "self-interest seeking with guile" and a deceptive breach of business responsibilities (Williamson, 1998, p. 255). This can take numerous forms, including deliberately withholding information in the early stages of the relationship and giving fake information on processes and transactions (Cavusgil, Deligonul, & Zhang, 2004; M. Y. Wang, Zhang, Wang, & Sheng, 2016; Wathne & Heide, 2000). If the buyer falls victim to supplier opportunism their investments in suppliers can thus prove to be counterproductive. This turns attention to how buyers can suppress supplier opportunism while also preserving and heightening the benefits accrued from supplier development.

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To understand how buyers can suppress supplier opportunism while also preserving and heightening the benefits accrued from supplier development, it is important to comprehend how buyer-seller exchange relationships are socially embedded. Consequently, a conceptual framework that integrates both economic as well as social dimensions of business relationships is required for three main reasons. Firstly, supplier development research has been traditionally conducted within the framework of Transaction Cost Theory (TCT) (Humphreys, Li, & Chan, 2004; S. T. Li et al., 2017) and the Resource-Based View (RBV) (Krause, Scannell, & Calantone, 2000). These theoretical frameworks focus on structural or strategic perspectives, but ignore how social factors influence exchange outcomes, especially where business partners foster socially embedded commitments to each other (Lambe, Wittmann, & Spekman, 2001). Moreover, while socialization tactics are identified as strategies to curb supplier opportunism (Wathne & Heide, 2000) and enhance performance (David A. Griffith, Harvey, & Lusch, 2006), there is a lack of theory regarding their specific form, how they work, and supporting empirical evidence in the context of supplier development initiatives (Cadden et al., 2021). Consequently, there is a need for further investigation of the effectiveness of socially embedded commitments on curbing supplier opportunism (Tran et al., 2021), to provide a better understanding of the effects of buyer-initiated supplier development and the factors that affect the outcomes of investments made by the buyer into the relationship.

Secondly, TCT provides one explanation of how supplier development could lead to opportunistic behavior (Williamson, 1998). For buyers that invest much time and resources in trying to improve their suppliers' performance, they can become more dependent on them and the bargaining power of the supplier rises if the value of the investment is lower outside the specific relationship (Crosno & Dahlstrom, 2008; Humphreys et al., 2004; Q. Wang, Li, Ross, & Craighead, 2013). However, supplier development involves close collaboration between suppliers and buyers, increasing social interaction between the actors. The latter may lead to outcomes at odds with TCT, due to the greater social embeddedness of the buyer-supplier relationship, suppressing opportunism (Zhou, Zhang, Zhuang, & Zhou, 2015). Empirically, S. T. Li et al. (2017) indicate that supplier development relates negatively to the risk of opportunism from outsourcing. Thus, there is a need to explain how supplier development initiatives can lead to both win-win and win-lose outcomes.

Thirdly, extant research investigates various strategies to curb supplier opportunism, including monitoring (Heide, Wathne, & Rokkan, 2007; Musarra, Robson, & Katsikeas, 2016), incentives (Wathne & Heide, 2000; Wathne & Heide, 2004), formal safeguards (Verbeke, Hutzschenreuter, & Pyasi, 2021), non-coercive influence strategies (Jia, Wei, Jiang, Hu, & Yang, 2021), mutual specific investments (Wathne, Heide, Mooi, & Kumar, 2018), and superior partner selection and supplier qualification (Wathne et al., 2018; Wathne & Heide, 2000). In contrast, the social aspects of relationships, which have been extensively studied in terms of inter-firm relationships (e.g., Morgan & Hunt, 1994; Voss, Tanner, Mohan, Lee, & Kim, 2019), have received much less attention in the supplier development literature (Cadden et al., 2021; Shahzad, Ali, Takala, Helo, & Zaefarian, 2018). Yet, the notion that economic exchanges are influenced by social commitments is central to economic sociology (Bercovitz, Jap, & Nickerson, 2006; Gibbons, 1999; Granovetter, 1985), and the question as to how social aspects affect the likelihood of supplier development initiatives leading to either positive (performance improvement for buyers) or negative (supplier opportunism) outcomes warrants further attention.

This paper addresses this gap in the literature, drawing on the augmented Social Exchange Theory (SET) of Cropanzano, Anthony, Daniels, and Hall (2017) to answer two research questions: (a) *what are the effects of supplier development initiatives on buyer performance and supplier opportunism?* And (b) *how do social factors mediate the relationships between a buyer's investment in a supplier and the positive* (i.e*., performance improvement) and negative outcomes* (i.e*., opportunism) of*

supplier development initiatives? Specifically, we seek to uncover the social exchange factors that mediate the relationships between supplier development initiatives, performance improvement, and supplier opportunism from the buyer's point of view, developing and validating a model using Structural Equation Modelling (SEM). In so doing, the paper makes two main contributions. Firstly, theoretically we extend Cropanzano et al.'s (2017) augmented SET to a supplier development context by conceptualizing the mediating role of social elements (i.e., goal congruence, supplier long-term orientation) in the relationship between supplier development initiatives and outcomes. This extends the literature, acknowledging that supplier development initiatives can generate both positive and negative outcomes (Rokkan, Heide, & Wathne, 2003), through a consideration of the role of social exchange factors in the process. Secondly, we provide empirical evidence regarding the factors influencing the outcomes of buyer-initiated supplier development and investments made by the buyer into the relationship, to generate a set of theoretical and managerial implications.

The remainder of the paper is structured as follows. First, we discuss the theoretical background of the research, focusing on SET, followed by the development of hypotheses. The subsequent section presents the research methodology, including sampling and data collection, research context, and construct measures. The next section documents the SEM results. The last sections discuss the theoretical and managerial implications of the research, before reflecting on limitations and suggestions for future research.

2. Theoretical background and hypotheses development

2.1. Theoretical background

Developed by sociologists to explain social behavior, SET postulates that actors commence and maintain relationships due to expected rewards. These include not only financial benefits but also social rewards like friendship and emotional satisfaction, with positive exchange interactions fostering relational norms that govern actors' interactions (Emerson, 1976; Lambe et al., 2001). In a social exchange, one party's action evokes a reaction from another (Cropanzano & Mitchell, 2005). The initiating party's actions could either provide benefit or lead to harm to the target (Cropanzano et al., 2017). Generally, where an actor provides a benefit to another, the receiving actor will reply in kind by engaging in positive, reciprocating actions (Whitener, Brodt, Korsgaard, & Werner, 1998). Consequently, a series of successful reciprocal exchanges can convert a transactional exchange relationship into a high-quality social exchange relationship (Cropanzano et al., 2017). However, because the responsive behavior is volitional, a positive initiative may not be reciprocated in all cases (Whitener et al., 1998). Rather, deviant responses may occur, particularly where an actor gains hedonic benefits from failing to reciprocate positively. According to SET, opportunism is a deviant response, violating implicit or explicit rules believed to govern the interaction, which eventually undermines the integrity of the interacting parties' roles and leads to negative emotional and behavioral responses (Leonidou, Aykol, Fotiadis, Christodoulides, & Zeriti, 2017). When one party is a victim of another acting opportunistically, they are likely to respond negatively, seeking to limit their likelihood of falling victim to such behavior in the future and may also engage in retaliatory actions (Cropanzano et al., 2017).

Whether a positive action by one party (such as a supplier development initiative) is reciprocated by another positively or negatively cannot be entirely predicted in advance and is, thus theoretically ambiguous (Cropanzano et al., 2017). However, the degree of commitment between partners mediates the effect of an initiating action on relationship outcomes (van Knippenberg & Sleebos, 2006). In this analysis, we focus on two specific forms of commitment – goal congruence and long-term orientation. Goal congruence is a form of shared values, which is defined as "the perception that what is beneficial for one party is also in the best interests of the other party" (Anderson &

Gerbing, 1988, p.252). Long-term orientation is a shared expectation "to maintain long-term cooperation in the future" (A. B. S. Lee, Chan, & Pu, 2018, p.290). The remainder of this section hypothesizes the relationships between constructs.

2.2. Supplier development and buyer performance improvement

According to SET, generally where an actor provides a benefit to a target, the recipient will reciprocate positively (Cropanzano et al., 2017). Supplier development initiatives are positive investments in suppliers which through improving the latter's performance (Krause et al., 2000) also can improve a buyer's performance in purchasing as well the organization's overall effectiveness (W. Li et al., 2012). Supplier development initiatives should thus provide mutual benefits so that improvements in suppliers' capabilities enhance the resources and capabilities of the buyer (Chen, Lin, & Huang, 2006), with investments in a supplier's capabilities leading to improvements in the buyer's performance (W. L. Li, Humphreys, Yeung, & Cheng, 2007). Empirically, several studies indicate that supplier development initiatives offered by a buyer enhance the latter's competitive capabilities. For example, W. Li et al. (2012) develop a path analytic model of supplier development, indicating how it can strengthen the buyer's competitive advantage. Similarly, Humphreys et al. (2004) and W. L. Li et al. (2007) found a positive relationship between supplier development and improvement in a buyer's competitive advantage, using regression analysis and SEM respectively.

Following the above discussion, we propose that:

Hypothesis 1. *Supplier development positively affects buyer performance.*

2.3. Supplier development and opportunism

SET acknowledges that not all good deeds are rewarded (Cropanzano et al., 2017). Rather, the positive actions of one party to another may not be reciprocated positively and deviant behavior can occur. The latter is more likely when it yields benefits, particularly financial ones, so that self-interest overrides any perceived obligation to reciprocate another actor's positive actions. Consequently, supplier development initiatives can be risky investments where they create opportunities for the investment to be misappropriated or misused by the recipient to their advantage (Brown, Dev, & Lee, 2000).

In the case of supplier development, suppliers may misappropriate investments made in them by the buyer, for instance using credit or physical inputs for unintended purposes, or deviating from agreed production procedures. Consequently, supplier development initiatives may not always generate favorable outcomes from the buyer's perspective (Maestrini, Luzzini, Caniato, & Ronchi, 2018).

Moreover, supplier development initiatives involve specific investments (i.e., human-specific or asset-specific), whereby the value of the investment is less, or even worthless beyond the supplier-buyer relationship (Crosno & Dahlstrom, 2008; Q. Wang et al., 2013). High asset specificity (Lui, Wong, & Liu, 2009) in investments from a buyer in a supplier-buyer relationship increases 'lock in' and their dependence on a supplier (D. A. Griffith, Hoppner, Lee, & Schoenherr, 2017). Consequently, the supplier becomes more powerful in dealing with the buyer, exposing the buyer to greater risk and uncertainty (Humphreys et al., 2004; Huo, Wang, & Tian, 2016). Hence, supplier development initiatives can increase the likelihood of supplier opportunism (Rokkan et al., 2003), so that:

Hypothesis 2. *Supplier development increases the likelihood of supplier opportunism.*

2.4. The mediating role of goal congruence

SET assumes that the degree to which an exchange relationship is socially embedded affects the likelihood of whether positive actions by

one party to another are reciprocated or not (Cropanzano et al., 2017; Cropanzano & Mitchell, 2005). Social embeddedness refers to the degree of commitment between parties (Rooks, Raub, Selten, & Tazelaar, 2000), which typically increases through successive, positive interactions (Emerson, 1976; Lambe et al., 2001). Goal congruence, refers to the degree to which business partners believe that common goals can be achieved (Samaddar, Nargundkar, & Daley, 2006), so that mutual interests between parties exist, in this case between a buyer and supplier (Eliashberg & Michie, 1984). Goal congruence plays an important role in business relationships because if actors have mutual goals, problems encountered are more likely to be solved satisfactorily for both parties (Cuevas, Julkunen, & Gabrielsson, 2015). In contrast, a perceived lack of mutual interests increases the likelihood of deviant behavior (Bergen, Dutta, & Walker, 1992). Consistent with SET, studies of workplace organizations demonstrate that goal congruence between supervisors and employees reduces deviant behavior by the latter (De Clercq, Bouckenooghe, Raja, & Matsyborska, 2014).

Generally, in a traditional buyer-supplier relationship, the two parties have contrasting objectives: buyers want to procure at a lower price for better quality, or require more (i.e., innovation, sustainability, risk avoidance) for less (i.e., cost). Suppliers, on the other hand, wish to fulfil requirements with the highest achievable profit margins or potential value for them (Jap & Anderson, 2003). In dealing with such conflicts in goals, supplier development might play an important role (Maestrini et al., 2018). Typically supplier development initiatives focus on improving the quality and quantity of a supplier's output, which has mutual benefits for both parties, reducing information asymmetry (e.g., through training activities and quality assessment) and facilitating the recognition and achievement of congruent goals (e.g., improving the quality and quantity of a supplier's output) (Maestrini et al., 2018). Consequently, supplier development initiatives can strengthen goal congruence between a buyer and supplier.

Drawing on SET, goal congruence channels the activities of buyers and suppliers in congruent directions (Kwon, 2008), so that common goals and interests between partners increase mutual commitment (Morgan & Hunt, 1994). When goal congruence exists, both parties are more likely to pursue cooperative behaviors, such as acting on constructive feedback and mutual problem solving, maintaining a high commitment to the relationship (Jap & Anderson, 2003), and less likely to engage in deviant or opportunistic behavior (De Clercq et al., 2014). This implies that goal congruence is both likely to increase the likelihood of positive outcomes from a buyer-supplier relationship and decrease the likelihood of a negative outcome, specifically opportunism. Empirical evidence suggests that goal congruence increases offers of support between parties (Lakemond, Berggren, & van Weele, 2006). Accordingly, Maestrini et al. (2018) suggest that goal congruence makes a 'win-win' situation more likely and triggers the search for resolutions that benefit both parties. Consequently, it is expected that:

Hypothesis 3a. *Goal congruence mediates the effect of supplier development on buyer performance improvement, so that supplier development increases goal congruence which in turn increases improvement in buyer performance.*

Hypothesis 3b. *Goal congruence mediates the effect of supplier development on supplier opportunism, so that supplier development increases goal congruence which in turn decreases opportunism.*

2.5. The mediating role of long-term relationship orientation

Long-term orientation, is another dimension of commitment between parties (Cannon, Doney, Mullen, & Petersen, 2010), defined as a shared expectation "to maintain long-term cooperation in the future" (Lee, Shin, Hwang, Kuper, & Kang, 2018, p.290). Long-term orientation is an important form of social embeddedness, implying that a partner prioritizes future goal achievements (Chang, Tsai, Chen, Huang, & Tseng, 2015; Ganesan, 1994) with a degree of relationship commitment

(Chang et al., 2015). Consequently, according to SET, a long-term oriented partner is more likely to make sacrifices in the short-term, and refrain from deviant behavior, in anticipation of long run returns (Beugelsdijk, Koen, & Noorderhaven, 2009; Chung, 2012; Lambe et al., 2001).

Long-term orientation may emerge from supplier development initiatives given that the latter are relationship-specific investments. Relationship-specific investments represent commitments made in the supplier on the expectation of future benefits (Chang et al., 2015). Such expectations help maintain and reinforce relationships between partners (Crosby, Evans, & Cowles, 1990). Specific investments also serve to improve the capabilities of the partnership (Chang et al., 2015), through, for example, improving the quality and quantity of the supplier's output. Secondly, from a SET perspective (Lambe et al., 2001) by improving the resources of the supplier, supplier development can increase suppliers' perceptions that the buyer performs actions that benefit them (Glavee-Geo, 2019). Such perceptions increase the likelihood of positive reciprocal actions (Cropanzano et al., 2017) further enhancing commitment and social embeddedness, thus increasing switching costs (Barnes, Leonidou, Siu, & Leonidou, 2010) and decreasing the likelihood of deviant behavior (De Clercq et al., 2014).

SET postulates that commitment is critical to sustaining a rewarding social exchange relationship (Lambe et al., 2001) and once generated long-term orientation can lead to positive relationship outcomes and curb negative ones like opportunism (Chang et al., 2015). As a social aspect, long-term orientation provides an informal safeguard to a buyer-seller relationship (Lui & Ngo, 2012), which can help regulate cooperative relationships. In other words, a shared expectation to maintain long-term cooperation in the future is a form of social embeddedness, whereby there is an alignment of expected mutual benefits which curb a supplier's engagement in opportunistic behavior (Wathne & Heide, 2000). This is consistent with insights from game theory (Nasr, Kilgour, & Noori, 2015) - from the perspective of prisoner's dilemma theory, a one-off interaction is more likely to generate non-co-operative outcomes, as when there is no prospect of future exchanges, the loss of the future benefits of co-operation are discounted. However, taking a long-term orientation approach, where the 'game' is repeated, the motivation to cheat at a particular point in time is mitigated by the potential loss of future benefits (Jarillo & Ricart, 1987). Hence, long-term orientation may curb the likelihood of partner opportunism.

Supporting a SET approach, empirical evidence suggests that a long-term relationship orientation improves the outcomes of supply chain relationships. For example, Sheu, Rebecca Yen, and Chae (2006) indicate long-term orientation positively affects information sharing quality, inventory system development, and coordination structures. In addition, conflict decreasing and satisfaction increasing relationship outcomes also are associated with partners' long-term orientation (David A. Griffith et al., 2006). Similarly, Lusch and Brown (1996) find that long-term orientation is associated with improved relational behavior, which in turn impacts positively on wholesale-distributor performance. Thus, it is expected that long-term orientation helps enhance performance outcomes in buyer-seller relationships (Hofer, Smith, & Murphy, 2014).

The above discussion suggests that buyers' investments in their suppliers fosters a long-term orientation toward the supplier-buyer relationship that can inhibit opportunistic behavior by the supplier and improve buyer performance, so that:

H4a. *Supplier long-term orientation mediates the impact of supplier development on buyer performance improvement, so that supplier development increases long-term orientation which in turn increases improvement of buyer performance.*

H4b. *Supplier long-term orientation mediates the impact of supplier development on supplier opportunism, so that supplier development increases long-term orientation which in turn decreases opportunism.*

Following the discussion of the theoretical background and

hypotheses development, Fig. 1 summarizes the conceptual model underpinning the research.

3. Research method

3.1. The research context

We chose the fruit and vegetable sector in Vietnam as an empirical context. In emerging economies, strong, formal contract enforcement is often difficult to achieve (Saenger, Torero, & Qaim, 2014), with high levels of opportunism that weaken the international competitiveness of the industries (X. H. Wang & Yang, 2013). Vietnam has a substantial fruit and vegetable sector, which supplies both large domestic markets (e.g., Ho Chi Minh City) and, to a lesser extent, international clients. There is an established set of processors that procure fruit and vegetables through cooperative arrangements (Yang, Pham, Yang, Sun and Tran, 2022) and, in some cases, through direct relationships with producers. Supplier development initiatives are commonplace. For example, under a business contract, industrial buyers can provide credit and physical inputs (e.g., seeds, fertilizers) to their suppliers. However, because of weak formal contract enforcement mechanisms and difficulties in monitoring, suppliers can misuse the investment (Bellemare, 2010). Consequently, buyers may consider terminating support, impacting negatively on product safety, quality, and the quantity of production (Gow & Swinnen, 2001). According to Cadilhon, Moustier, Poole, Tam, and Fearne (2006), these supply chain problems are endemic to the Vietnamese fruit and vegetable sector.

3.2. Sampling and data collection

A self-administered questionnaire was used to collect data in Vietnam and the target respondents were CEOs, directors, or managers of buying organizations who directly participated in supplier management. The survey was developed in English, translated into Vietnamese, and then back-translated, following established procedures (Brislin, 1970). After reviewing and comparing the two English versions, minor changes related to word choice for some questions let to the refinement of the final Vietnamese version. Subsequently, a discussion with appropriate Vietnamese academic staff confirmed the understanding of the questionnaire, including the appropriateness of its format, before a pilot test was carried out. We followed the suggestions of Kent (2007) for undertaking a survey pilot with experts. The survey pilot was conducted with five practitioners in the agri-food industry as well as with five academic staff from a renowned university in Vietnam. Respondents received a copy of the questionnaire together with explanations of the pilot study's purpose. Experts reviewed the questionnaire and provided their opinions on the format, degree of comprehension, and the overall content. Feedback from the pilot study's respondents resulted in some changes to wording in the questionnaire.

Data collection occurred between July and October 2019. We approached potential respondents in different ways for data collection, using a professional research agency after directly contacting members of the Vinafruit Association (*Hiệp Hội Rau Củ Việt Nam*), which is the largest fruit and vegetable association in Vietnam. The professional research agency identified potential organizations that satisfied the research criteria based on their internal database and institutional networks, which had not already been contacted via the Vinafruit Association. Research assistants were trained by the lead author to ensure they fully understood the purpose of the research, data collection process, questionnaire structure, and reporting mechanism. Depending on the contact information available, the assistants contacted target respondents by telephone, email, or directly face-to-face. Based on the respondents' preferred method of participation, research assistants employed the drop and collect survey technique to distribute the paper questionnaire or sent a direct link to the online survey. One supervisor of the agency undertook quality control by telephone with all respondents.
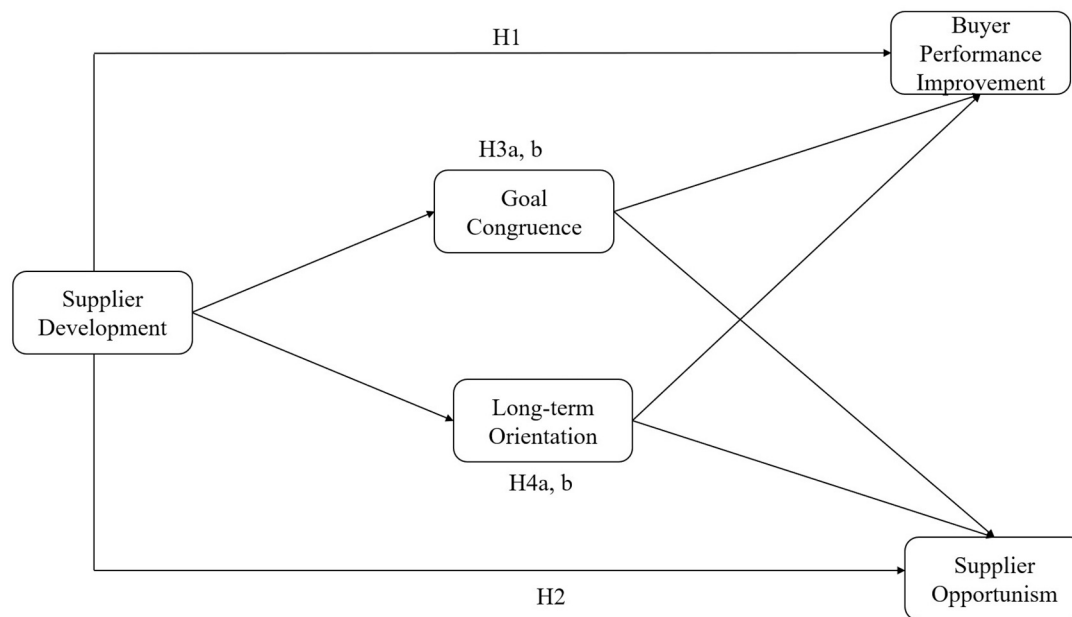
Fig. 1. Conceptual model.

This check confirmed that the collected questionnaires were genuine and appropriate for data analysis. The calls were recorded with the consent of respondents.

In total, 233 questionnaires were collected, of which 83 were completed online and 150 were paper-based. From this, 17 were classified as incomplete (i.e., <80% progression), 10 as unengaged (i.e., respondents gave vague responses or the same rating for all questions)

and 2 as high missing values (i.e., have >10% missing values). Consequently there were 204 completed questionnaires suitable for data analysis (87.6% usable response rate), which exceeds the recommended threshold for covariance-based SEM (Hair, Black, Babin, & Anderson, 2010; Kline, 2010). Since we employed two different methods for participating in the survey (i.e., online and paper-based), we assessed whether there were significant differences between the samples. Given

Table 1

Independent sample *t*-test results for comparison between internet and paper based samples.

Items	Levene's test for Equality of Variance		t-test for Equality of Means				Mean difference	St. Error Difference
	F	p	t	df	Significance			
					One-sided p	Two-sided p		
SupDev1	0.325	0.570	0.155	100	0.439	0.877	0.059	0.380
SupDev2	0.661	0.418	−0.148	100	0.441	0.883	−0.059	0.399
SupDev3	0.538	0.465	−0.245	100	0.403	0.807	−0.078	0.320
SupDev4	2.047	0.156	−1.002	100	0.159	0.319	−0.392	0.391
SupDev5	0.940	0.335	0.796	100	0.214	0.428	0.294	0.370
SupDev6	0.032	0.859	−0.502	100	0.308	0.616	−0.176	0.351
SupDev7	0.009	0.924	0.133	100	0.447	0.894	0.039	0.295
SupDev8	0.201	0.655	−0.626	100	0.266	0.533	−0.176	0.282
SupDev9	1.286	0.260	−0.150	100	0.440	0.881	−0.039	0.261
SupDev10	0.813	0.370	0.671	100	0.252	0.504	0.235	0.351
BPerImp1	0.047	0.830	0.647	100	0.260	0.519	0.235	0.364
BPerImp2	0.002	0.965	−0.113	100	0.455	0.911	−0.039	0.348
BPerImp3	0.679	0.412	0.410	100	0.341	0.683	0.157	0.383
BPerImp4	0.001	0.978	−0.160	100	0.437	0.874	−0.059	0.369
BPerImp5	2.107	0.150	0.511	100	0.305	0.611	0.176	0.346
BPerImp6	0.082	0.775	−0.851	100	0.198	0.397	−0.314	0.369
BPerImp7	7.449	0.008	−0.566	91.368	0.286	0.573	−0.098	0.173
Opp1	3.049	0.084	−0.207	100	0.418	0.837	−0.039	0.190
Opp2	2.149	0.146	−0.222	100	0.412	0.825	−0.039	0.176
Opp3	4.716	0.032	−0.545	95.209	0.294	0.587	−0.098	0.180
Opp4	1.804	0.182	−0.418	100	0.338	0.677	−0.108	0.258
Opp5	0.114	0.736	0.000	100	0.500	1.000	0.000	0.230
Opp6	2.694	0.104	−0.094	100	0.463	0.925	−0.020	0.209
GoalCon1	0.005	0.945	0.297	100	0.383	0.767	0.078	0.264
GoalCon2	0.203	0.653	0.625	100	0.267	0.533	0.157	0.251
GoalCon3	0.013	0.908	1.563	100	0.061	0.121	0.373	0.238
GoalCon4	0.767	0.383	0.314	100	0.377	0.754	0.078	0.250
Lgterm1	0.482	0.489	0.581	100	0.281	0.563	0.118	0.203
Lgterm2	3.243	0.075	−0.847	100	0.200	0.399	−0.176	0.208
Lgterm3	0.378	0.540	0.663	100	0.255	0.509	0.157	0.237
Lgterm4	5.145	0.025	0.000	85.516	0.500	1.000	0.000	0.223

the small size of the internet based sample, invariance testing was infeasible, so we calculated propensity scores for respondents from the two sampling methods, and then matched 51 pairs of online and paper based surveyed respondents based on the scores (Guo & Fraser, 2010). Subsequently, independent samples *t*-tests indicated no significant differences between the methods of collection (Table 1).

Table 2 below presents an overview of respondents' organizations including the age of organizations, organizational type, number of employees, and total revenue. As respondents were asked to complete the survey with respect to a specific supplier with which they have a current working relationship, the sample characteristics provide information on the supplier, including relationship length, the certificates which the supplier possesses, and if the supplier is a member of a cooperative (one form of farmer-farmer collaboration in Vietnam).

Approximately half of the sampled organizations had operated

Table 2
Descriptive statistics for survey respondents.

	Category	Frequency	Percent (%)
Organization Age	<1 year	10	4.9
	1 year – <3 years	42	20.6
	3 years – <5 years	46	22.5
	5 years – <7 years	40	19.6
	7 years – <10 years	22	10.8
	10 years or more	37	18.1
	Missing	*7*	*3.4*
	Total	**204**	**100%**
Organization Type	Cooperative	45	22.1
	Retailer (non-supermarket)	25	12.3
	Supermarket	37	18.1
	Export Company	28	13.2
	Domestic Agricultural Company	47	22.5
	Others	21	10.3
	Missing	*1*	*0.5*
	Total	**204**	**100%**
Number of Employees	<10 employees	88	43.1
	10–100 employees	93	45.6
	101–200 employees	8	3.9
	>200 employees	12	5.9
	Missing	*3*	*1.5*
	Total	**204**	**100%**
Total Revenue	< 130,000 USD	59	28.9
	130,000–218,000 USD	106	52.0
	>218,000–8,710,000 USD	19	9.3
	>8,710,000	16	7.8
	Missing	*4*	*2.0*
	Total	**204**	**100%**
Supplier Type	Household farmers	76	37.3
	Agri Company	55	26.5
	Cooperative	52	25.5
	Trader	17	8.3
	Others	5	2.5
	Total	**204**	**100%**
Relationship Length with the Supplier	<1 year	8	3.9
	1 year – <3 years	78	38.2
	3 years – <5 years	54	26.5
	5 years – <7 years	30	14.7
	7 years – <10 years	16	7.8
	10 years or more	18	8.8
	Total	**204**	**100%**
Supplier Cooperative Membership	Yes	111	54.4
	No	52	25.5
	Not sure	41	20.1
	Total	**204**	**100%**
Supplier Certification	VietGap	108	52.9
	GlobalGap	7	3.4
	VietGap and GlobalGap	42	20.6
	Other certificates	13	6.4
	No certificate	25	12.3
	Do not know	9	4.4
	Total	**204**	**100%**

between three and seven years (42.1%) with only a small percentage established less than one year ago (4.9%). Domestic agricultural companies and cooperatives account for 22.5% and 22.1% responses respectively. Other organization types include supermarkets (18.1%), export companies (13.2%), and non-supermarket retailers (12.3%).

Regarding the size of organizations, nearly half of the sample had between ten and 100 employees, with 43.1% possessing fewer than ten employees. In terms of the organization's revenue, more than half had a total revenue ranging from 130,000 to 208,000 USD per year. Buyers have been working with suppliers for between one and more than ten years. More than half of suppliers were members of a cooperative, and most suppliers possess VietGap and/or GlobalG.A.P. certification, which are the two most common quality certificates in Vietnam. About 7% of suppliers possessed other certifications (e.g., USDA, EU Organic Bio, Participatory Guarantee System-PGS), and about 12% of suppliers were not certified.

3.3. Measures

The current study adopts the measurement items for *supplier development* initiatives from Wagner (2011) and Salimian, Rashidirad, and Soltani (2017), with adaption to the supplier development measures most commonly available in Vietnam. The items were measured on a 7-point Likert scale. Here we follow Wagner (2011) as well as recent studies by Glavee-Geo (2019) and S. T. Li et al. (2017) in treating supplier development as a unidimensional construct. This fits with our focus on the consequences of the construct, albeit recognizing that there are several alternative conceptualizations of the construct in the literature (Joshi, Kharat, Raut, Kamble, & Kamble, 2017; Krause & Scannell, 2002; Sánchez-Rodríguez, Hemsworth, & Martínez-Lorente, 2005; Wagner, 2006). For measuring buyers' *performance improvement*, we adopted the scale of Wagner (2011), to which we added one item to capture the importance of the quantity available for buyers and the variety of products, which are important in the fruit and vegetable chain context.

Supplier opportunism measurement items were adapted from D. Yang, Sheng, Wu, and Zhou (2018). Respondents were asked to report the opportunistic behavior of their designated supplier. We did not investigate respondent's (i.e., buyers') own opportunism as social desirability could lead to bias in their responses.

Goal congruence was measured using the scale of Maestrini et al. (2018) and we followed Cannon et al. (2010) to measure supplier's *long-term orientation*. A 7-point Likert scale was applied to all constructs and Table 3 reports the items.

For control variables, we included the type of supplier (e.g., cooperative, or non-cooperative), certification possessed by the supplier (e.g., VietGAP or not) and the length of time that the buyer and supplier had cooperated.

Employing a marker variable is a popular technique for detecting Common Method Variance (CMV) (Simmering, Fuller, Richardson, Ocal, & Atinc, 2015). In order to control for CMV, the Confirmatory Factor Analysis marker technique (Williams, Hartman, & Cavazotte, 2010) requires the marker variable to be theoretically unrelated to all other substantive variables (Lindell & Whitney, 2001). In addition, an ideal marker variable should be perceptual and subjective and chosen a priori. Also, it should be similar in format with at least one of the substantive variables. Prior to data collection, we selected 'Mood' as an ideal marker variable. The variable is measured by three 7-point Likert scale items, which is consistent with the scales of other variables. Three items adopted from Mayer and Stevens (1994) for mood were 'I know exactly how I am feeling', 'I know why I feel this mood', and 'My mood is clear'.

3.4. Reliability and validity

We employed both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to validate the constructs, using SPSS 26.0 and AMOS 27.0 software. The EFA indicated that the measurement

Table 3
Measurement constructs.

Item code	Item wording	Source
Supplier Development		
SupDev1	Giving production related advice to supplier X (e.g., processes, machining process, machine set up).	
SupDev2	Training farmers from supplier X.	
SupDev3	Giving product development related advice (e.g., processes, project management).	
SupDev4	The transfer of employees to supplier X.	
SupDev5	Giving technological advice (e.g., materials, software).	Adapted from Wagner (2011) and Salimian et al. (2017)
SupDev6	Recognizing supplier's X achievements/ performance in the form of awards.	
SupDev7	Site visits by our organization's personnel to supplier X premises to help them improve performance.	
SupDev8	Site visits by our organization's personnel to supplier X premises to assess their production process.	
SupDev9	Evaluating supplier X's price, quality and delivery performance regularly.	
SupDev10	Offering guaranteed sales.	
Buyer Performance Improvement		
BPerImp1	Improve our delivery reliability.	
BPerImp2	Increase the satisfaction of our customers.	
BPerImp3	Improve the reliability of our product.	Adapted from Wagner (2011)
BPerImp4	Improve the quality of our product.	
BPerImp5	Improve the quantities of our product.	
BPerImp6	Improve the number of our product lines.	
BPerImp7	Offer safer product to our customer.	
Supplier Opportunism		
Opp1	On occasion, this supplier/buyer lies about certain things to protect their interests.	
Opp2	This supplier/buyer sometimes promises to do things without actually doing them later.	
Opp3	This supplier/buyer does not always act in accordance with our contract (s).	
Opp4	This supplier/buyer sometimes tries to breach informal agreements between our companies to maximize their own benefit.	Yang et al. (2018)
Opp5	This supplier/buyer will attempt to take advantage of "holes" in our contract to further their own interests.	
Opp6	This supplier/buyer sometimes uses unexpected events to extract concessions from our firm.	
Goal Congruence		
GoalCon1	My organization and supplier X in this category share the same goals in our relationships.	
GoalCon2	My company and supplier X in this category have compatible goals.	
GoalCon3	My company and the major suppliers in this category support each other's goals.	Maestrini et al. (2018)
GoalCon4	My company and supplier X in this category have compatible views on how to achieve our goals.	
Long-term Orientation		
Lgterm1	Maintaining a long-term relationship with us is important to supplier X.	
Lgterm2	Supplier X believes that over the long run our relationship will be profitable.	
Lgterm3	Supplier X focuses on long-term goals in this relationship.	Cannon et al. (2010)
Lgterm4	Supplier X expects us to be working with them for a long time.	

model achieved adequacy (KMO = 0.892, Bartlett's test Chi-square = 4206.985, df = 435, $p < 0.0001$). After removing the variable *BPerImp5* due to cross-loading, a clear pattern matrix was created (i.e., no cross-loading). As detailed in Appendix A, all factor loadings were above 0.5, indicating factors in accordance with theory and the correlations between factors do not exceed 0.7. This meets the threshold for convergent validity (Reio & Shuck, 2015; Tabachnick & Fidell, 2013) and discriminant validity (Hair et al., 2010; Pallant, 2020). From the results presented in Table 4, all of the factors have Cronbach's alpha coefficients above 0.7 which indicates good internal reliability of the constructs.

We conducted a CFA using robust maximum likelihood estimation. After the removal of two items *SupDev4* and *SupDev6* from the supplier development construct, according to widely accepted criteria (Hu & Bentler, 1999), the results revealed good model fit: $\chi^2 = 538.760$, $\chi^2/df = 1.623$, CFI = 0.945, TLI = 0.938, SRMR = 0.057, RMSEA = 0.055, pclose = 0.148 (Hair et al., 2010; Hu & Bentler, 1999; Kline, 2010). In support of convergent validity, all items loaded on their respective constructs (p values < 0.001), with standardized loadings above 0.7, and importantly, the Average Variance Extracted (AVE) by each factor exceeded the 50% threshold recommended by Fornell and Larcker (1981), as shown in Table 5. In addition, discriminant validity was examined by checking the cross-loadings of indicators to the other constructs (i.e., the heterotrait-monotrait ratio). The threshold for establishing discriminant validity with reference to the heterotrait-monotrait (HTMT) ratio is below 0.85 (Henseler, Ringle, & Sarstedt, 2015; Kline, 2010), as shown in Table 6. The two assessments confirm discriminant validity for the measurement constructs.

We use Composite Reliability (CR) as a measure of internal consistency and to assess construct reliability in the CFA. Table 5 reveals high values of CR for all latent constructs (>0.80). Therefore, the constructs are reliable.

After the assessments of the measurement model using both EFA and CFA, the final model consists of five latent factors, representing supplier development initiatives, opportunistic behavior by the supplier, buyer performance improvement, goal congruence, and supplier long-term orientation. Table 4 shows the retained indicators for the final measurement model with each indicator's factor loading, standard deviation, t-value, and significance level.

3.5. Common method variance

The study employs two post-hoc statistical tests to assess CMV. First, Harman's single-factor test is conducted by including all items from the measurement model into an EFA to extract a single factor (Aulakh & Gencturk, 2000), or using CFA to test the hypothesis that a common latent factor can account for all of the variance in the dataset (Iverson & Maguire, 2000). Results of Harman's single-factor test in EFA reveals five factors with an eigenvalue >1 and the first only accounts for 29.9% of total variance. The CFA test for a common latent factor model does not achieve a good fit (χ^2 = 1855.659, χ^2/df = 5.410, CFI = 0.600, TLI = 0.559, SRMR = 0.168, RMSEA = 0.147, pclose = 0.000). Second, a CFA marker technique test was performed following the procedure of Williams et al. (2010), using *Mood* as the marker variable. Different models were built and the Chi-square comparison between models indicated that no bias in substantive variable relationships existed due to CMV. Moreover, the effects of the marker variable did not significantly bias factor correlation estimates. The results of Harman's single-factor test and marker variable test for CMV demonstrated that Common Method Bias is unlikely to be detrimental to this study.

4. Analysis and results

4.1. Overview of path structure models

The conceptual model for testing includes two direct effects between

Table 4
Full measurement model for CFA before and after modification.

Construct		Original model					Final measurement model			
	Code	Com	λ	S.E.	t-value		λ	S.E.	t-value	**Sig.**
	SupDev1	0.594	0.753	n/a	n/a		0.714			
	SupDev2	0.557	0.734	0.105	10.550***		0.684	0.099	11.058	***
	SupDev3	0.414	0.640	0.086	9.085***		0.579	0.084	8.903	***
Supplier Development	*SupDev4*	*0.388*	*0.604*	*0.108*	*8.533****		Item removed			
(SupDev)	SupDev5	0.681	0.801	0.100	11.638***		0.818	0.117	10.804	***
α - 0.875	*SupDev6*	*0.355*	*0.582*	*0.104*	*8.207****		Item removed			
	SupDev7	0.604	0.775	0.077	11.221***		0.794	0.087	10.811	***
	SupDev8	0.535	0.708	0.067	10.138***		0.772	0.077	10.184	***
	SupDev9	0.458	0.659	0.065	9.377***		0.658	0.072	8.961	***
	SupDev10	0.443	0.653	0.095	9.290***		0.656	0.105	8.943	***
	Opp1	0.727	0.845	n/a	n/a		0.830			
Opportunism	Opp2	0.665	0.815	0.065	14.290***		0.787	0.057	16.044	***
(Opp)	Opp3	0.671	0.814	0.070	14.245***		0.828	0.074	13.955	***
α - 0.932	Opp4	0.787	0.885	0.064	16.379***		0.905	0.068	15.918	***
	Opp5	0.667	0.824	0.062	14.543***		0.791	0.067	13.054	***
	Opp6	0.675	0.817	0.065	14.351***		0.796	0.070	13.176	***
	BPerImp1	0.529	0.699	n/a	n/a		0.670			
Buyer Performance Improvement	BPerImp2	0.553	0.742	0.121	9.858***		0.720	0.113	10.692	***
(BPerImp)	BPerImp3	0.744	0.832	0.102	10.964***		0.834	0.114	10.327	***
α - 0.899	BPerImp4	0.726	0.831	0.106	10.958***		0.840	0.118	10.382	***
	BPerImp6	0.539	0.731	0.133	9.720***		0.737	0.146	9.318	***
	BPerImp7	0.628	0.773	0.114	10.250***		0.779	0.126	9.764	***
	GoalCon1	0.641	0.779	n/a	n/a		0.780			
Goal Congruence	GoalCon2	0.732	0.850	0.084	13.208***		0.849	0.083	13.240	***
(GoalCon)	GoalCon3	0.778	0.869	0.072	13.564***		0.870	0.072	13.634	***
α - 0.910	GoalCon4	0.782	0.884	0.076	13.861***		0.882	0.076	13.874	***
Long-term Orientation	Lgterm1	0.523	0.706	n/a	n/a		0.658			
(Lgterm)	Lgterm2	0.688	0.782	0.102	10.376***		0.749	0.096	11.424	***
α - 0.870	Lgterm3	0.824	0.901	0.112	11.619***		0.920	0.137	10.376	***
	Lgterm4	0.596	0.776	0.098	10.295***		0.786	0.115	9.586	***

S.E. - standard error t-value - unstandardised t-value *** significant level at p < 0.001
α - Cronbach's alpha Com - communality λ - factor loading.
Indicators in italic are eliminated for the final measurement model.

Table 5
Reliability, Validity results and Fornell-Larcker criteria for discriminant validity.

	CR	AVE	SupDev	Opp	BPerImp	GoalCon	Lgterm
SupDev	0.891	0.509	**0.714**				
Opp	0.927	0.679	0.095	**0.825**			
BPerImp	0.894	0.586	0.379***	−0.138†	**0.766**		
GoalCon	0.910	0.716	0.479***	−0.186*	0.702***	**0.846**	
Lgterm	0.863	0.614	0.417***	−0.136†	0.646***	0.586***	**0.784**

Note: Significance of Correlations: † $p < 0.100$ * $p < 0.050$ ** $p < 0.010$ *** $p < 0.001$.
Numbers along the diagonal indicate square roots of the variance extracted of each construct.

Table 6
Heterotrait-Monotrait (HTMT) ratio.

	SupDev	Opp	BPerImp	GoalCon	Lgterm
SupDev					
Opp	0.100				
BPerImp	0.425	0.145			
GoalCon	0.510	0.168	0.720		
Lgterm	0.488	0.096	0.646	0.589	

the independent variable supplier development initiatives and two dependent variables (buyer performance improvement and supplier opportunism). There are two mediation effects, relating to goal congruence and long-term orientation, on the relationships between supplier development initiatives and buyer performance improvement and supplier opportunism. Therefore, a baseline path structure model and a full model path structure mediation effect model were built for examination, as represented in Fig. 2 and Fig. 3 respectively. Fig. 2 shows the baseline model with the result of direct effect standardized regression weights and the significance of the structural paths. Fig. 3

illustrates the path structural mediation effects for goal congruence and long-term orientation, also with the direct effect and indirect effect standardized regression weights, and the significance of the structural paths.

The evaluation of the structural models includes an examination of the significance of the structural paths and model fit. Table 7 presents the model fit for the path structure models, which achieved a good fit. While the type of supplier (i.e., cooperative) and the type of suppliers do not have any significant effect on either buyer performance improvement or supplier opportunism, the duration of the supplier-buyer relationship significantly effects supplier opportunism. Specifically, longer relationships between the supplier and buyer reduce supplier opportunism.

4.2. Hypothesis testing

Table 8 presents the results relating to the direct effects. Hypothesis 1 proposed that supplier development *positively affects* buyer performance, and this is supported ($\beta = 0.328, p < 0.001$). Hypothesis 2 proposed that supplier development *increases* supplier opportunism, and this is also
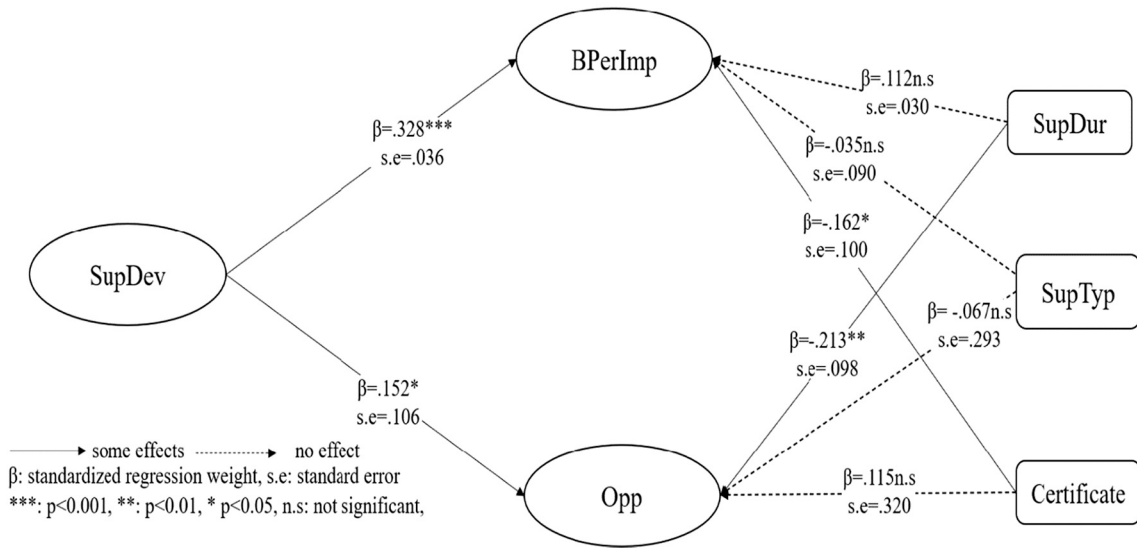
Baseline model

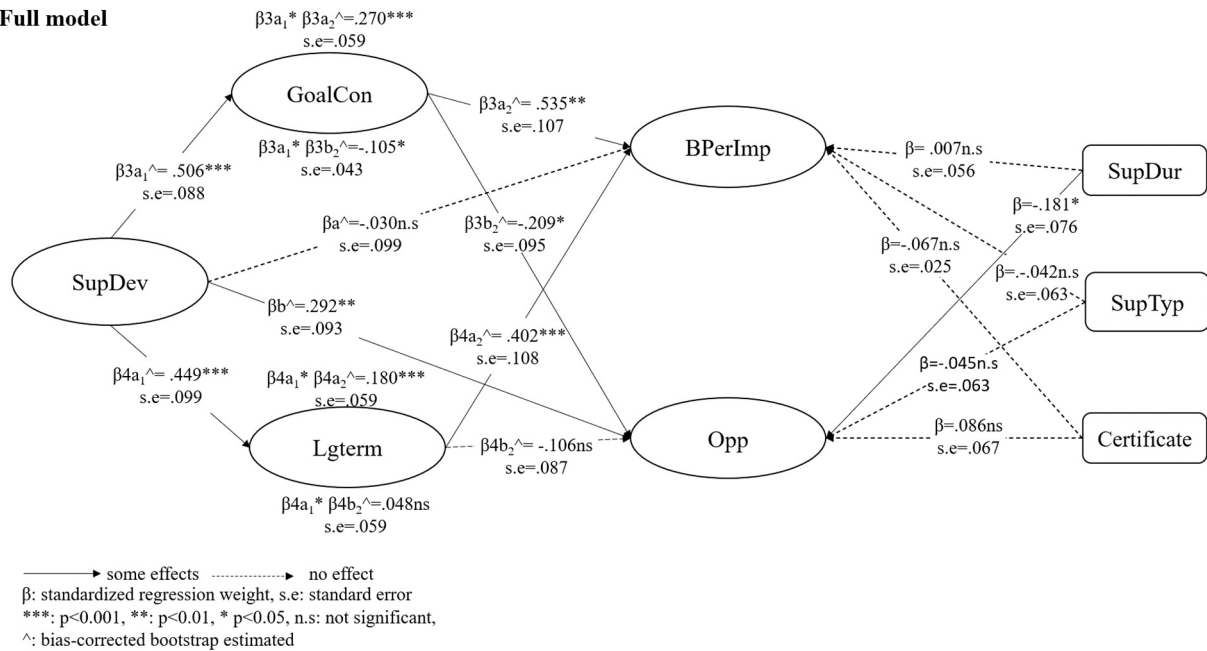**Fig. 2.** Path structure direct effects (baseline model).

Full model

Fig. 3. Path structure model for the mediation effects.

Table 7
Model fit indices for path structure models.

Model	Path structure	χ^2	df	χ^2/df	CFI	SRMR	RMSEA	PClose
Baseline	**SupDev- > Opp** **SupDev- > BPerImp**	310.495	212	1.465	0.961	0.059	0.048	0.612
Full	**SupDev- > Opp** **SupDev- > BPerImp** **SupDev - > GoalCon- > Opp** **SupDev- > GoalCon- > BPerImp** **SupDev- > Lgterm- > Opp** **SupDev- > Lgterm- > BPerImp**	675.148	409	1.651	0.930	0.081	0.057	0.077

Cut-off value: χ^2/df - between 1 and 3, CFI >0.90, SRMR<0.08, RMSEA<0.06, PClose>0.05.
Baseline model includes one independent variable, two dependent variables and three control variables.
Full model incorporates GoalCon, and Lgterm as mediators to the baseline model.

Table 8
Results of direct effect testing.

			B	β	S.E.	t	P
BPerImp	<−−	**SupDev**	0.144	0.328	0.036	4.029	***
Opp	<−−	**SupDev**	0.210	0.152	0.106	1.975	0.048
BPerImp	<−−	SupTyp	0.046	0.035	0.090	0.510	0.610
Opp	<−−	SupTyp	−0.277	−0.067	0.293	−0.944	0.345
BPerImp	<−−	Certificate	−0.231	−0.162	0.100	−2.321	0.020
Opp	<−−	Certificate	0.516	0.115	0.320	1.615	0.106
BPerImp	<−−	SupDur	0.048	0.112	0.030	1.595	0.111
Opp	<−−	SupDur	−0.285	−0.213	0.098	−2.914	0.004

B = unstandardized regression weight, β = standardized regression weight, S.E. = standard error, t = t value, p = p value.

supported ($\beta = 0.152, p < 0.05$). Taken together, the results thus confirm that supplier development both simultaneously creates positive and negative outcomes.

The conceptual model proposes that two factors (goal congruence, and long-term orientation) mediate the relationships between supplier development and two outcomes, namely buyer performance improvement and supplier opportunism. The mediation effects were tested with the bias-corrected bootstrap technique of 2000 resamples. Table 9 presents the mediation results.

Hypothesis 3a proposes that goal congruence mediates the impact of supplier development on buyer performance improvement, so that supplier development increases goal congruence which in turn increases buyer performance. There is a significant positive relationship between supplier development and goal congruence ($\beta = 0.506, p < 0.001$) and a significant positive relationship between goal congruence and buyer performance improvement ($\beta = 0.535, p < 0.001$), as detailed in Fig. 3. The indirect effect of supplier development on buyer performance improvement through the mediator goal congruence was positive ($\beta = 0.270, p < 0.001$). The standardized direct effect of supplier development on buyer performance changed from significant ($\beta = 0.328, p < 0.001$) to non-significant when goal congruence was added as a mediator. This indicates that goal congruence fully mediates the relationship between supplier development and buyer performance. These findings support Hypothesis 3a.

Hypothesis 3b suggests that goal congruence mediates the impact of supplier development on supplier opportunism, so that supplier development increases goal congruence which in turn decreases opportunism. The direct path from goal congruence to supplier opportunism is negative ($\beta = -0.209, p < 0.01$), indicating that goal congruence decreases supplier opportunism. The result of bias-corrected bootstrap estimation shows that the indirect effect of supplier development on opportunism through the mediation of goal congruence was also significantly negative ($\beta = -0.105\ p < 0.01$). The standardized regression of the direct effect of supplier development on supplier opportunism remains significant but changes in its weight when goal congruence is included as a

Table 9
Mediation effects.

Path structure	Direct β w/o mediation	Direct β with mediationˆ	Indirect β	Mediation type observed
SupDev-> GoalCon-> BPerImp	0.328***	.030 ns	0.270***	Full
SupDev -> GoalCon-> Opp	0.152*	0.292**	−0.105*	Partial
SupDev-> Lgterm- > BPerImp	0.328***	.030 ns	0.180***	Full
SupDev-> Lgterm- > Opp	0.152*	0.292**	−0.048	No mediation

*** p < 0.001 ** p < 0.01 *p < 0.05 ns - not significant ˆ - bias-corrected bootstrap estimated.

mediator, indicating partial mediation. Thus, Hypothesis 3b is partially supported. Specifically, supplier development increases goal congruence between supplier and buyer, which in turn reduces supplier opportunism.

Hypothesis 4a proposes that a supplier's long-term orientation mediates the impact of supplier development on buyer performance, so that supplier development increases long-term orientation which in turn improves buyer performance. The direct effect of supplier development on long-term orientation is significant ($\beta = 0.449, p < 0.001$), and the direct effect of long-term orientation on buyer performance improvement is also significant ($\beta = 0.402, p < 0.001$), as Fig. 3 indicates. Supplier development also has a significant indirect effect ($\beta = 0.180, p < 0.001$) on buyer performance improvement through the mediation of long-term orientation. The direct effect of supplier development on buyer performance was significant ($\beta = 0.328, p < 0.001$) but becomes non-significant when adding long-term orientation as a mediator, indicating full mediation. The findings, thus, support Hypothesis 4a.

Finally, hypothesis 4b advances that long-term orientation mediates the impact of supplier development on supplier opportunism, so that supplier development increases long-term orientation which in turn decreases supplier opportunism. The results indicate no significant indirect effect of supplier development on supplier opportunism through the presence of long-term orientation. Thus, Hypothesis 4b is rejected.

5. Discussion

5.1. Theoretical implications

Buyers make substantial investments in their suppliers through supplier development initiatives, to improve their own performance. However, buyers' investments in suppliers do not always pay off (Rokkan et al., 2003; Wathne & Heide, 2000; Yang et al., 2022). Consequently, there is an interest in the factors that amplify and decrease the severity of supplier opportunism (Heide, Kumar, & Wathne, 2014; S. T. Li et al., 2017; Rokkan et al., 2003; Skowronski, Benton Jr., & Hill, 2020). To date, much of the literature considers either the potential upsides or downsides of supplier development initiatives separately (Abosag, Yen, & Barnes, 2016; Gu, Zhou, Cao, & Adams, 2021; Tran et al., 2021). Yet we find that supplier development initiatives can both help buyers improve their performance but simultaneously also trigger opportunism. This is consistent with SET that positive actions by one party can generate both reciprocal and deviant responses (Cropanzano et al., 2017). Given this problem, there is a need to identify the factors that mediate the relationships between supplier development initiatives, supplier opportunism, and buyer performance improvement. To do this we draw on SET, and specifically, investigate the roles of goal congruence and long-term orientation. Our analysis draws on empirical evidence for buyer-supplier relationships in Vietnam's fruit and vegetable sector, a context where opportunism is widespread.

According to TCT, the potential for supplier opportunism is endemic where buyers make relationship specific investments (Williamson, 1998). This approach informs much of the B2B literature on the topic, with a search for structural solutions in contracting which increase the

costs of acting opportunistically, to incentivize compliance (Gow, Streeter, & Swinnen, 2000). However, TCT and other transactional/structural approaches, ignore the importance of social factors in shaping exchange outcomes (Tangpong, Li, & Hung, 2016). Drawing on SET, this paper investigates whether goal congruence and long-term orientation mediate the relationships between supplier development and both positive (improved performance) and negative (supplier opportunism) outcomes.

We, thus, extend the use of SET to the context of supplier opportunism stemming from buyer investments, by examining the mediating role of social elements (i.e., goal congruence, supplier long-term orientation) in the relationship between supplier development initiatives and outcomes. We find support for the applicability of SET to the context of buyer investments-supplier opportunism, in that the extent to which supplier development initiatives are associated with positive or negative consequences depends on the degree of goal congruence and long-term orientation. This insight closes a gap in the literature which mainly focuses on the transactional and structural aspects of supplier development, often adopting the theoretical lens of TCT and the RBV (Bhattacharya, Singh, & Nand, 2015; Verbeke et al., 2021).

We controlled for supplier-buyer relationship duration in the full model, finding, as maybe expected, that the longer a buyer works with a supplier, the less likely supplier opportunism is to occur. However, relationship duration is not in itself a solution to opportunism - the effect of supplier development on opportunism remains even after controlling for relationship duration. Consequently, investments made in long-term suppliers may still suffer from opportunistic behavior. Moreover, the results indicate that the duration of a supplier-buyer relationship has no significant effect on buyer performance improvement. This implies that buyers cannot assume that they will benefit from longstanding relationships per se - the benefits to the buyer from supplier development may not just naturally accumulate over time. Rather, consistent with SET, it is the degree of social embeddedness and commitments between suppliers and buyers that matter, specifically in the form of goal congruence and long-term orientation. Supplier-buyer relationships flourish where there are mutual commitments and shared goals, rather than just simply having a long-time relationship.

The mediating roles of goal congruence and long-term orientation in the relationships between supplier development and its outcomes, support the notions of Blonska, Storey, Rozemeijer, Wetzels, and de Ruyter (2013) who suggested that supplier development does not automatically bring benefits to suppliers and buyers, but rather relational capitals 'bridge' supplier development and supplier-buyer benefits. When supplier development initiatives such as monitoring or supplier incentives are unsuccessful in fostering stronger mutual commitments, they may fail to lead to positive exchange outcomes (Maestrini et al., 2018). In contrast, when goal congruence is nurtured, it acts as a bridge between supplier development and performance outcomes and curbs suppliers' negative behaviors. Supplier development when managed correctly, thus, helps to foster mutual goals between buyers and suppliers, which in turn increases buyer performance and decreases supplier opportunism. Importantly, however, not all aspects of social exchange mediate the effect of supplier development initiatives on relationship outcomes. Specifically, we find no support for the importance of long-term orientation as a mediating factor for supplier opportunism. However, goal congruence curbs supplier opportunism stemming from supplier development initiatives. This provides empirical evidence regarding the merits of socialization strategies (Wathne & Heide, 2000) for curbing opportunism.

5.2. Managerial implications

The analysis allows us to provide specific recommendations for managers, regarding the deployment of supplier development initiatives. Firstly, managers should be cognizant that supplier development initiatives can simultaneously have both positive and negative outcomes, so that they look beyond either solely 'win-win' and 'win-lose' perspectives which infuses many guides for managers (Bowen & Vitasek, 2018), and rather embrace a more nuanced understanding. Besides recognizing the potential upside of supplier development initiatives, buyers should be aware of the relationship with supplier opportunism and consider how they can minimize this outcome.

Given that goal congruence and a supplier's long-term orientation, mediate the relationships between supplier development and outcomes, buyers should focus on supplier development activities that foster such commitments. When deploying supplier development activities, managers should communicate goals clearly with specific efforts to identify and resolve any goal conflicts. While some procurement managers already operate in such a manner, many others adopt a transactional, hierarchical orientation which fosters resentment amongst suppliers (Khan & Nicholson, 2014). When launching supplier development initiatives, buyers should also explicitly communicate the long-term benefits to suppliers, rather than only focusing on solving a short-term problem that arises from the buyer-supplier relationship.

Given the mediation effects uncovered, buyers are advised to select suppliers with matching goals and who are interested in building long-term strategic relationships. Against this background, buyers should screen and then differentiate between suppliers that follow short and long-term perspectives. Buyers often implement screening processes for potential suppliers (Choi & Kim, 2008) and these can benefit from incorporating an assessment of the degree to which goals are mutual and the long-term orientation of suppliers. While these may be more difficult to assess than some other aspects like whether a supplier has a particular quality certification, venture capitalists, for example, developed tools to assess long-term relationship fit with potential partners (Faber, Castaldi, & Muskens, 2016), which have wider relevance in cases where buyers make investments in a supplier.

Managers often seek to switch to vertical integration when confronted with widespread supplier opportunism (Handley & Benton, 2012; Wathne & Heide, 2000). However, this governance structure has several downsides, relating to the fragmentation of managerial resources, increased demand on corporate capital, and the potential for creating overly rigid organizational structures (Hoffmann, Neumann, & Speckbacher, 2010). The analysis indicates however that even in a context of high opportunism, like Vietnam's fruit and vegetable sector, opportunism can be curbed without recourse to vertical integration, through goal congruence between suppliers and buyers.

6. Limitations and future research

While this paper contributes to the supplier development literature, several limitations can guide future research. First, this study only captures buyers' assessments regarding their suppliers' behaviors and perceptions. A dyadic investigation, incorporating both buyers and suppliers (Skowronski et al., 2020), could validate the robustness of the model from the perspective of suppliers. Secondly, governed by an interest in improving supplier development outcomes, this paper focuses on particular social exchange factors that improve buyer performance and curb supplier opportunism. There may be further social exchange factors, such as norms of opportunism (Tran et al., 2021), that increase the likelihood of adverse outcomes and warrant further investigation. Specifically, future research could develop a scale to measure norms of opportunism, to better capture this 'dark side' of social exchange and its effect on the outcomes of supplier development. Finally, this study employs cross-sectional data which may not fully capture the relationship life-cycle (Wagner, 2011) and the dynamics of social exchange. A longitudinal design is, thus, recommended. Notwithstanding these limitations, the paper provides insight into how social elements mediate the relationships between supplier development initiatives, buyer performance improvement and supplier opportunism.

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Declaration of Competing Interest

none.

Appendix A. Supplementary data

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