

Sustainability in the face of institutional adversity: Market turbulence, network embeddedness, and innovative orientation

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Abstract

Drawing from research on strategic choice, this study investigates the relationship between market turbulence and firms' sustainable behavior, in the context of sustainability-related institutional adversity. It argues that the relationship between market turbulence and sustainability is mediated by network embeddedness, and this mediating role in turn is moderated by a firm's innovative orientation. Data collected from a sample of Ontario restaurants inform predictions about firms' propensity to adopt local wines in their portfolios, despite the limited market and normative support that these wines receive compared with imported wines. The study shows that market turbulence enhances sustainable firm behavior, through the development of strong network relationships. Furthermore, the mediating effect of network embeddedness is particularly salient among firms that exhibit a stronger innovative orientation. These findings reveal how and when turbulent market conditions can contribute to a firm's sustainable behaviors in the presence of limited institutional support for such behaviors.

Keywords: sustainability, market turbulence, network embeddedness, innovative orientation, strategic choice

Introduction

Research at the intersection of sustainability and business ethics points to the increasing prevalence of sustainability as a critical component of a firm's strategic endeavors (Borland and Lindgreen 2013), including proactive considerations of environmental issues (Fraj-Andrés et al., 2009; Roxas and Coetzer, 2012; Uhlaner et al., 2012). Such a focus on sustainability may contribute to a firm's competitive advantage (Du et al., 2011; Porter and Kramer, 2011), yet the goals of profitability and sustainability often are perceived as contradictory (Du and Vieira, 2012; Palmer, Oates, and Portney, 1995; Walley and Whitehead, 1994). To the extent that the incompatibility between these two goals is institutionalized in some industries (Anderson, 1998; Hoffman et al., 1999), firms may shy away from integrating sustainability into their strategic decision making (De Clercq and Voronov, 2011). We refer to such conditions, marked by limited institutional support for sustainable practices from customers or other stakeholders, as *institutional adversity*, such that the firm must engage in sustainable behavior in the absence of either market or normative demands to do so.

Yet even in the presence of institutional adversity, the competitive market context might serve as a source of opportunities for sustainable behaviors (Du and Vieira, 2012; Fraj-Andrés et al., 2009; Zheng et al., 2014). For example, information symmetry among competing firms might enable firms to combine sustainability and profitability concerns productively (Cohen and Winn, 2007; Dean and McMullen, 2007; Shane and Venkataraman, 2000). In light of this tension between the challenges *and* the opportunities that external environments may create in relation to sustainability, we need a better understanding of why some firms are more likely than others to engage in sustainable behavior in the face of institutional adversity (Hoffman et al., 1999; Porter and Kramer, 2011). Previous studies *theorize* about why certain external market conditions—

such as the nature of government subsidies and other economic incentives for sustainable behaviors (Dean and McMullen, 2007), values and paradigms that support such behaviors (Jennings and Zandbergen, 1995), or unequal information about environmentally superior production technologies (Sarasvathy et al., 2003)—may prompt firms to differentiate themselves through sustainable practices. But empirical research has not investigated how opportunities for sustainability in adverse institutional contexts might arise in the presence of *market turbulence*, or the unpredictability in competitive markets (Cohen and Winn, 2007). To address this gap, this study considers whether the likelihood of sustainable behavior increases, to the extent that a firm's competitive market is characterized by frequent changes in technology, customer demands, or competitor responses (Jaworski and Kohli, 1993; Slater and Narver, 1994).

Previous research also indicates that firms require capabilities to allocate relevant resources to sustainable activities, such as resources to support the development of complex environmental management processes (Hart, 1995) or marketing activities to achieve sustainable product market goals (Mariadoss et al., 2011). It has not explicitly acknowledged that firms might possess limited knowledge about which resources are needed for sustainable behaviors though. Nor does it explicate how firms' external network relationships and strategic orientations might produce such knowledge. A knowledge deficiency may be particularly challenging when limited institutional support exists for sustainable practices (Du and Vieira, 2012; Hoffman et al., 2002). Accordingly, we investigate how a firm's network embeddedness (Giuliani, 2013; Lahdesmaki and Suutari, 2012) may function as a critical mechanism *through* which market turbulence in adverse institutional contexts influences the strategic choice to adopt sustainable practices, as well as how this mediation might be invigorated by the firm's innovative orientation (Maltz et al., 2006; Mariadoss et al. 2011). Previous research acknowledges that competitive

market characteristics can help firms overcome a lack of institutional support for sustainability (Cohen and Winn, 2007; Dean and McMullen 2007; Du et al., 2011) but does not specify how and when a firm might be best positioned to leverage turbulent market conditions into sustainable behaviors. We explicate how a firm's capabilities—whether external, through embedded network partnerships, or internal, pertaining to the firm's propensity for innovation (Chabowski and Mena, 2011)—can help turn market conditions into sustainable behaviors. We define network embeddedness as the extent to which the firm develops strong informal relationships with network partners (Husted, 1994; Lee and Qualls, 2010); innovative orientation refers to its propensity to develop and adopt novel products or practices (Hurley and Hult 1998).

In turn, this article makes three main contributions. First, we investigate how firms can exploit market opportunities for sustainable behavior, afforded by their immediate competitive environment, *in spite of* limited institutional support for these pursuits. Thus, we seek to extend previous research by investigating a hitherto unexplored driver of firms' sustainable behavior in such institutional environments, namely, the unpredictability of their competitive markets. To develop our argument about the link between market turbulence and sustainable behavior, we draw from research on strategic choice (Child, 1997), a well-established theoretical perspective previously applied to business ethics research on sustainability (Zheng et al., 2014). This perspective is well suited for this study, in light of our objective to explain how the choice to engage in sustainability might constitute a direct strategic response to the presence of turbulent market conditions (Luo and Park, 2001; Venkatraman and Prescott, 1990).

Second, we investigate network embeddedness as a critical conduit by which market turbulence informs sustainable behavior in the context of limited institutional support for sustainability. We thus address the insufficient attention devoted to the role of firms' network

building in strategic decision making about sustainability (Cronin et al., 2011) and acknowledge the relevant knowledge that can be generated by strongly embedded relationships with external partners (Del Baldo, 2012; Du et al., 2011). We identify the development of strong network relationships as a key mechanism by which unpredictable market conditions prompt sustainability pursuits. In contrast with previous research that considers the indirect role of market turbulence, through its moderating effect on the relationship between firms' strategic positioning and performance outcomes (Grewal and Tansuhaj, 2001; Jaworski and Kohli, 1993), we explicate turbulent market conditions as a direct antecedent of a firm's strategic choice of sustainable behavior (Calantone and Schatzel, 2000; Child, 1997; Cui et al., 2005; Lapierre et al., 2008), a choice facilitated by strong relationships with external network partners.

Third, we acknowledge that the facilitating role of external network relationships in connecting market turbulence with enhanced sustainable behaviors cannot be taken for granted (Gedajlovic et al. 2013), and we theorize about the important invigorating role of a firm's innovative orientation in this process (Auh and Menguc, 2005; Talke et al., 2011). The role of market turbulence in spurring sustainable behaviors through enhanced network embeddedness likely depends on the propensity of the firm to infuse relevant, novel knowledge in its network relationships (Hurley and Hult, 1998; Maltz et al., 2006), and particularly its ability to convince network partners about the appropriateness of sustainable behaviors when there is limited institutional support for them (Hoffman and Henn, 2008; Hoffman et al., 2002). Thus we postulate that a firm's innovative orientation is a critical internal capability that triggers the exploitation of external market opportunities for sustainability; to the best of our knowledge, this nuance has not been addressed explicitly in prior business ethics literature on sustainable behavior. Our investigation of the interplay of external capabilities (network embeddedness) and

internal capabilities (innovative orientation) to predict sustainable behaviors also extends previous studies that consider the effect of this interplay on alternative outcomes, such as strategic renewal (Capron and Mitchell, 2009), innovation performance (Caloghirou, Kastelli, and Tsakanikas, 2004), or sales growth (Uhlener et al., 2013).

The empirical context of this study is the Ontario restaurant industry, addressing the specific question of how market turbulence influences the adoption of local wines by Ontario restaurants. As elaborated on in the Methodology section, these restaurants operate in an institutional environment that exhibits strong adversity against local wines. In particular, compared with their more popular foreign counterparts, local wines tend to receive limited market and normative support because of their negative, unsophisticated reputation (Voronov, De Clercq, and Hinings, 2013). The strategic choice by Ontario restaurants to adopt local wines thus reflects a decision that goes against prevailing practices to sell imported wines.

Theoretical background

The term “triple bottom line” emphasizes economic profitability, social responsibility, and environmental concerns as the three most important components of a firm’s strategic decision-making process (Hult, 2011; Johnson, 2009). We focus on the environmental component, echoing its critical importance for effective strategic management (Baker and Sinkula, 2005; Menon and Menon, 1997). Previous research has indicated several benefits that firms may enjoy when they engage in sustainable behaviors, such as greater employee commitment (Maignan and Ferrell, 2001), customer satisfaction (Luo and Bhattacharya, 2006), market share (Menguc and Ozanne, 2005), organizational performance (Fraj-Andrés et al., 2009), and reputation advantages (Rodriguez et al., 2002). Despite these benefits, sustainable behavior does not emerge easily, particularly when firms face institutional adversity (De Clercq

and Voronov, 2011; Hoffman et al., 1999). For example, they may struggle to convince customers to purchase environmentally friendly local products, because customers perceive globally sourced products as more legitimate or of higher quality (Ritzer, 2007). A common presumption also asserts that concerns for environmental preservation undermine the financial bottom line, because of the associated costs (Colby, 1991; Palmer et al., 1995), and this issue gets exacerbated when regulatory frameworks do not actively promote environmentally friendly behaviors (Albareda et al., 2007). Some firms also believe that the government, rather than private enterprises, is responsible for bearing the costs of preserving the natural environment (Porter and Kramer, 2011).

In the face of such institutional adversity, the firm's immediate competitive environment, somewhat paradoxically, might provide opportunities to adopt sustainable behaviors (Cohen and Winn, 2007; Dean and McMullen, 2007). We focus on the turbulence or dynamism that characterizes the immediate competitive market (Grewal et al., 2013; Stock et al., 2013; Voss and Brettel, 2013). Market turbulence is an environmental feature that can function as a direct antecedent of a firm's strategic decision making (Calantone and Schatzel, 2000; Child, 1997; Cui et al., 2005; Lapierre et al., 2008), though little research describes its link to sustainable behavior or its role in contexts in which firms receive limited institutional support for sustainability (Du and Vieira, 2012; Hoffman et al., 1999). Significant to our theorizing is the notion that firms that operate in the same institutional context confront *varying* levels of market turbulence, due to changes that characterize their specific market segments or the domains in which they compete (Chakravarthy, 1997). This variation may result from unpredictable customer demands, shifting barriers across industry segments, or changes in other competitive conditions in the focal market domains (Day and Wensley, 1988; Slater and Narver, 1994).

To theorize about the influence of market turbulence on the propensity for sustainable behavior, we draw from research on strategic choice, which emphasizes a direct connection between the nature of the firm's immediate competitive market and its strategic profile (Child, 1997; Cui et al., 2005). The strategic choice perspective focuses specifically on the propensity of firms to respond proactively to external environmental conditions, whether these conditions entail threats or opportunities (Child, 1997; Zheng et al., 2014). In the context of this study, we conceive of a firm's engagement in sustainable behaviors as a direct response to the opportunities provided by turbulent market conditions, even in the presence of institutional adversity toward sustainability. That is, we postulate that firms differ in their propensity to engage in sustainable behaviors, according to their proactive responses to the turbulence that marks their immediate competitive market (Child, 1997; Luo, 2011).

Moreover, we acknowledge the critical roles of a firm's capabilities, both external and internal to the firm, in converting turbulent market opportunities into sustainable behavior (Chabowski and Mena, 2011). We conceptualize these capabilities as present in a firm's network embeddedness (external capability) and innovative orientation (internal capability). First, according to the strategic choice perspective, the link between external market conditions and the strategic response to these conditions is driven by firms' engagement in "bridging" activities, as might be manifested in the relationships they build with other market players (Child, 1997). In the context of our study, we argue that strong network relationships provide critical channels through which turbulent market conditions inform sustainability, particularly in terms of the embeddedness or *informal* character of these relationships (Husted, 1994; Lee and Qualls, 2010).

Second, the strategic choice perspective suggests that though the perceived benefit of and propensity to engage in sustainable behavior depends directly on competitive market factors, it is

the firm's internal capabilities that invigorate its ability to leverage these market factors in the preferred strategic direction (Child, 1997; Fang et al., 2010; Zheng et al., 2014). Similarly, we argue that the application of market opportunities to the pursuit of sustainability through strong network building may be invigorated by a firm's propensity to develop and adopt novel products or practices (Hurley and Hult, 1998). Sustainable behavior often requires novel ways of thinking and the development of new products or production processes (Mariadoss et al., 2011; Uhlaner et al., 2012)—an issue that is particularly salient when such behavior receives limited institutional support (De Clercq and Voronov, 2011). Therefore, we consider a firm's innovative orientation and investigate how it might affect the exploitation of market opportunities for sustainability-oriented activities. Previous research has conceptualized a firm's innovative orientation as pertaining to the propensity of its key decision makers to seek novelty and adopt new ideas or approaches (Auh and Menguc, 2005; Bartl et al., 2012; Lam et al., 2013; Talke et al., 2011). We expand this concept to consider a firm's propensity to embrace new products in a particular product category—in our empirical context, the exploration of new wines—consistent with the notion of domain-specific innovativeness (Eastlick and Lotz, 1999).

Our conceptual framework and its constitutive hypotheses are in Figure 1. The connections among market turbulence, network embeddedness, and sustainable behavior constitute the central axis: Turbulent market conditions likely prompt sustainable behavior because of the strength of a firm's network relationships (Balaji, 2014; Lee and Qualls 2010). In addition, the moderating role of innovative orientation reflects the knowledge creation advantages that an innovative firm possesses (Hurley and Hult, 1998; Maltz et al., 2006), particularly with regard to its ability to leverage turbulent market conditions and network partner relationships for sustainable behaviors in institutional contexts that provide limited support for

these behaviors (Hoffman et al., 1999). Thus, an innovative orientation should invigorate the role of network embeddedness, in terms of turning turbulent market conditions into enhanced sustainable behaviors.

Insert Figure 1 about here

Hypotheses

Market turbulence and sustainable behavior

Market turbulence refers to the extent to which a firm's competitive market conditions are unpredictable and change over time (Jaworski and Kohli, 1993; Slater and Narver, 1994). We argue that when firms that face institutional adversity toward sustainability also operate in highly turbulent competitive markets, their propensity to engage in sustainable behaviors increases. Frequent changes in technology, customer demand, or competitor responses create market gaps (Dean and McMullen, 2007), which generate opportunities for alert firms to respond strategically (Child, 1997; Kirzner, 1997; Shane and Venkataraman, 2000). In most markets, information is not evenly distributed across economic players—including information about demand (e.g., customer preferences) and supply (e.g., production technologies)—and this issue is particularly salient in markets that undergo frequent and unpredictable changes (Cui et al., 2005). Because turbulent market conditions are characterized by chaos and paradoxes, the opportunity to include sustainability proactively in a firm's strategic decision making looms large (Child, 1997; Cohen and Winn, 2007).

Further, previous research indicates that in highly turbulent market conditions, there is a premium associated with generating alternative strategic approaches (Dean and McMullen, 2007; Freeman, 1984), such as sustainable behavior. This argument is based on the notion of requisite

variety (Lynn, 2005), which indicates that increasing environmental uncertainty requires strategic choices to help a firm respond to that uncertainty by differentiating itself from the pack (Child, 1997). In the context of this study, a firm's adoption of sustainable activities represents an adequate "alternative" strategic response that not only exploits the turmoil that comes with rapid external changes but also can help the firm achieve a unique competitive positioning in institutional contexts marked by adversity toward sustainability (Achrol and Stern, 1988; Connelly et al., 2011). In contrast, when market turbulence is low, firms find limited opportunities for sustainable practices in the presence of institutional adversity, because the stability and predictability of their market conditions mean they experience the adversity more prominently. Overall, the positive relationship between market turbulence and sustainable behavior captures the firm's proactive strategic response to the presence of dynamic competitive market conditions, a response that counters the institutional adversity the firm faces with respect to sustainability, so it may help the firm carve out a unique strategic position in its competitive market (Child, 1997; Venkatraman and Prescott, 1990).

Hypothesis 1: *In the presence of institutional adversity with respect to sustainability, there is a positive relationship between the turbulence of firms' market conditions and their sustainable behavior.*

Mediating role of network embeddedness

In the face of institutional adversity toward sustainability, the relationship between market turbulence and sustainable behavior also should be mediated by the firm's strong relationships with network partners. First, we hypothesize a positive relationship between a firm's network embeddedness and sustainable behavior in the context of institutional adversity. Recommendations about how to adopt a sustainable position may vary considerably, and this position typically will influence a wide range of organizational processes (Connelly et al., 2011).

In turn, we argue that strong relationships with network partners can be instrumental for the strategic choice to engage in sustainable behavior (Child, 1997), because they help identify ways to implement sustainable practices and increase support for them, despite the resistance that these practices might encounter in the broader institutional environment (Bansal and Hunter, 2003; Zafeiropoulou and Koufopoulos, 2013). Previous research underlines the importance of network partnerships as means to overcome prejudices that may exist against the adoption of green strategies, including partnerships situated upstream or downstream in the supply chain (Bowersox et al., 2000; Vachon and Klassen, 2006). For example, strong external relationships can help the firm counter negative customer reactions to products that enhance environmental preservation but are more expensive (De Clercq et al., 2014; Markley and Davis, 2007). Similarly, supply chain literature suggests that a firm's sustainable strategic position benefits greatly from its development of strong network relationships, because these relationships provide legitimacy for the adoption of sustainable behaviors, particularly when the behaviors are perceived as incompatible with profitability goals (Shrivastava, 1995).

Hypothesis 2: *In the presence of institutional adversity with respect to sustainability, there is a positive relationship between firms' network embeddedness and their sustainable behavior.*

Second, turbulent market conditions should increase a firm's propensity to develop close relationships with network partners that enable it to exploit the opportunities in these conditions (Brown and Utterback, 1985; Hult et al., 2007). According to the strategic choice perspective, when competitive conditions are unstable and difficult to predict, a firm is more likely to build strong relationships with network partners so that it can share and receive the most up-to-date information about the complexity and future changes of its markets (Cui et al., 2005; Lee, 2010). This issue may be particularly salient when the firm and its network partners operate in a broader

institutional context that does not encourage environmental preservation (Cronin et al., 2011; De Clercq and Voronov, 2011). Considering the anticipated learning advantages that might result from network building when the firm seeks to exploit market opportunities (Baker and Sinkula, 1999), the propensity to develop strong informal network relationships in response to turbulent market conditions should be higher when institutional adversity exists. Similarly, rapid market changes necessitate mutual coordination mechanisms across market players, which can be accomplished best through the development of strongly embedded partnerships (Joshi and Campbell, 2003). If market turbulence instead is low, enhanced network building activities may be suboptimal or even unnecessary, because the firm does not experience the same need to exchange knowledge with external network partners to exploit competitive market conditions (Cui et al., 2005). Therefore, the development of strong partnerships may be deterred, because the perceived costs of developing strong network relationships outweigh the perceived benefits (Huber, 1991). This issue is particularly prevalent when the institutional context surrounding a firm and its network partners does not support collaborative environmental preservation efforts.

Hypothesis 3: *In the presence of institutional adversity with respect to sustainability, there is a positive relationship between the turbulence of firms' market conditions and their network embeddedness.*

Combining these preceding arguments, we hypothesize that network embeddedness plays a mediating role, such that the effect of market turbulence on sustainable behavior operates *through* network embeddedness. An important means by which market turbulence enhances the strategic choice for sustainable behavior is by establishing strongly embedded relationships. Such relationships help a firm develop in-depth knowledge about external market opportunities for sustainable behaviors (Connelly et al., 2011; Dyer and Singh, 1998) and overcome institutional resistance to the behaviors (Hoffman et al., 1999), thereby adding to its ability to

engage and leverage network partner knowledge (Lane and Lubatkin, 1998). The mediating role of network embeddedness thus implies that the development of strong network relationships presents a key mechanism that underpins the conversion of competitive market opportunities into enhanced sustainability pursuits.

Hypothesis 4: *In the presence of institutional adversity with respect to sustainability, network embeddedness mediates the relationship between the turbulence of firms' market conditions and their sustainable behavior.*

Moderating role of innovative orientation

We investigate how these aforementioned relationships may vary, depending on the level of the firm's innovative orientation. Specifically, we theorize that an innovative orientation invigorates the relationship between network embeddedness and sustainable behavior (Hypothesis 2), the relationship between market turbulence and network embeddedness (Hypothesis 3), and the mediating effect of network embeddedness between market turbulence and sustainable behavior (Hypothesis 4).

First, we hypothesize a positive interaction effect between a firm's network embeddedness and its innovative orientation, such that the incremental importance of network embeddedness for sustainable behavior, in the presence of institutional adversity toward sustainability, increases when a firm's innovative orientation is stronger. According to the strategic choice perspective, a firm's internal capabilities influence its ability to leverage external relationships in certain strategic directions (Child, 1997; Fang et al., 2010). In particular, an innovative orientation enhances the quality of learning in exchange relationships (Lumpkin and Dess, 1996), including the ability to create successful combinations of internal and external knowledge that counter institutional resistance to sustainable behaviors (Grewal and Dharwadkar, 2002; Hoffman et al., 2002; Uhlaner et al. 2012). Because an innovative orientation

increases the range of critical issues discussed between the focal firm and its exchange partners (Maltz et al., 2006), it can help overcome the influence of institutional adversity toward environmentally friendly practices on network partners (Levinthal and March, 1993). Innovation-oriented firms experience fewer restrictions on their decision making (Knight and Cavusgil, 2004), which increases the range of possible ways to obtain support for sustainable practices from network partners and leverage network relationships into sustainable practices (Bansal and Hunter, 2003). An orientation geared toward novelty and experimentation thus should provide a useful platform for a firm to steer and channel its network partner relationships toward a strategic choice that entails sustainable behaviors (Markley and Davis, 2007). An innovation orientation implies that a firm has more degrees of freedom in terms of how it updates and influences network partner perceptions about sustainable practices, so the effectiveness of strong network relationships for generating such practices should be higher in such circumstances.

Hypothesis 5: *In the presence of institutional adversity with respect to sustainability, the positive relationship between firms' network embeddedness and their sustainable behavior is moderated by their innovative orientation, such that the relationship is invigorated at higher levels of innovative orientation.*

Second, the positive relationship between market turbulence and network embeddedness should be augmented to the extent that a firm exhibits a stronger innovative orientation. Previous research suggests that the propensity to develop new knowledge increases a firm's ability to align external market opportunities with effective partnership building (Cohen and Winn, 2007; Dyer and Singh, 1998; Lumpkin and Dess, 1996). Similarly, an internal capability, such as an innovative orientation, can be instrumental in leveraging turbulent market conditions into the development of strong network relationships (Child, 1997). When a firm emphasizes continuous knowledge renewal, it becomes better equipped to recognize and exploit the value of relevant

market opportunities to build strong relationships, from which it and its network partners both can benefit (Joshi and Campbell, 2003). This ability may be particularly important when the institutional context is unfavorable toward environmental preservation (Hoffman and Henn, 2008; Hoffman et al., 2002). Such market opportunities tend to be multifaceted, which makes them less obvious and more difficult to exploit if a firm lacks the capacity to develop and apply new knowledge (Dean and McMullen, 2007). Thus, the knowledge generation and application potential inherent to an innovative orientation (Cohen and Levinthal, 1990; Lumpkin and Dess, 1996) should enable a firm to compare various external market opportunities efficiently (informed by turbulent market conditions) and assess how to use them to build external network relationships that mitigate institutional adversity (Cohen and Winn, 2007; Du et al., 2011). Conversely, a firm that is less prone to developing and applying new knowledge likely perceives fewer pathways for leveraging market opportunities for the development of such relationships in this context (Maltz et al., 2006). To the extent that firms facing turbulent market conditions exhibit an innovative orientation, they should be more likely to develop strongly embedded network relationships.

Hypothesis 6: *In the presence of institutional adversity with respect to sustainability, the positive relationship between the turbulence of firms' market conditions and their network embeddedness is moderated by their innovative orientation, such that the relationship is invigorated at higher levels of innovative orientation.*

These arguments also suggest a moderated mediating effect of innovative orientation, which represents a critical boundary condition for the indirect effect of market turbulence in encouraging sustainable behavior through network embeddedness in the presence of institutional adversity toward sustainability (Preacher et al., 2007). Thus, we expect that the effect of market turbulence, in terms of encouraging the strategic choice to engage in sustainable behavior through network embeddedness, is stronger when a firm exhibits a stronger innovative

orientation. The extent to which external networks trigger market opportunities to spark enhanced sustainability depends on the firm's ability to infuse and exploit new knowledge in these networks (Maltz et al., 2006; Uhlaner et al., 2012). This ability is more likely to emerge if a firm is willing to leave its comfort zone, as informed by its innovative orientation.

Hypothesis 7: *In the presence of institutional adversity with respect to sustainability, the indirect effect of the turbulence of firms' market conditions on their sustainable behavior through network embeddedness is moderated by their innovative orientation, such that this indirect effect is stronger at higher levels of innovative orientation.*

Method

Data collection

This study uses the Ontario restaurant industry as its research setting and focuses particularly on the environmental impact of restaurants' wine sourcing, including the adoption of local wines in their portfolios. This setting was chosen for two reasons. First, the unpredictability of the external environment is a feature that is highly salient in the strategic decision making of North American restaurants (Harrington, 2001; McCarthy et al., 2010). This industry is highly fragmented and includes different market segments, with varying levels of turbulence, depending on emerging trends and the inflow of new entrants (Kim et al., 2009). Fads in the restaurant industry tend to come and go, and consumers are fickle (Canadian Restaurant and Foodservice Association, 2013; Harrington, 2001; National Restaurant Association, 2013). In the aftermath of the global financial crisis—the period during which we conducted our data collection—restaurants faced significant market turbulence related to the reduced disposable income of their target consumers and those consumers' lowered propensity to engage in discretionary spending.

Second, the Ontario wine industry provides a prime example of a context characterized by institutional adversity with respect to support for local wines, even if these wines have a lower environmental footprint than their imported counterparts (Aspler, 2006). Although

restaurants are important for Ontario wineries as a sales channel, they typically do not receive much institutional support from clients or other stakeholders when adopting sustainable practices in their wine sourcing (Voronov et al., 2013). Many restaurateurs struggle to convince consumers that buying Ontario wine is an effective way to decrease the environmental footprint of their wine purchase. As in other parts of North America, Ontario consumers drink wines from all over the world (Aspler, 2006) and expect restaurants to carry wine from a great variety of established foreign wine regions, even if the import and distribution of foreign wines is less attractive from a sustainability standpoint. Even restaurants that specialize in locally focused, farm-to-table cuisine typically carry foreign wines, and wine is understood by most restaurateurs as an essentially born-global product. This taken-for-granted assumption steers their strategic attention away from promoting more sustainable, local wines (Voronov et al., 2013). Accordingly, examining what drives restaurants' sustainable behavior with respect to wine-related decisions represents an empirical context that reflects the presence of institutional adversity toward such decisions. The adoption of local wine requires discretionary efforts that run contrary to what are perceived as "normal" business practices (Aspler, 2006; De Clercq et al., 2014). These efforts therefore are proactive strategic responses that go against the prevailing practice to endorse imported wines.

We drew from a database maintained by the Alcohol and Gaming Commission of Ontario to survey the owners of 1,000 randomly selected Ontario-based restaurants. We first undertook a pilot study with five restaurateurs, to pretest the survey and ensure that the questions were clear and understandable. We gauged their feedback to determine if any statements seemed ambiguous, vague, or unfamiliar. The resulting feedback was incorporated in the final survey instrument, to enhance its readability and relevance (Podsakoff et al., 2003). To minimize

concerns about social desirability, acquiescence, or consistency biases, the respondents were guaranteed complete confidentiality, were repeatedly assured during the survey that there were no right or wrong answers, and were asked to answer the questions as honestly as possible (Podsakoff et al., 2003; Spector, 2006).

We relied on the total design method suggested by Dillman (1978) for the data collection. In the first step, we sent out a mailing packet that included a cover letter, the actual survey, and a postage-paid return envelope. The cover letter was addressed to the restaurant owners but also noted explicitly that, if necessary, the survey could be completed by another person who was in charge of the restaurant's wine selection. Two weeks after the initial mailing, we conducted "thank you" calls to those who had responded and reminder calls to those who had not completed the survey. Finally, we sent replacement questionnaires to non-respondents four weeks after the initial mailing. Of the 1,000 initially selected restaurants, some were not appropriate for inclusion in the final sample, because they did not offer wine products, were not in business anymore, or had moved and their new addresses could not be identified. We thus ended up with 972 potential respondents and received 270 completed surveys, for a 28% response rate. We did not find significant differences between early and late respondents in terms of any of the study variables (Armstrong and Overton, 1977). To test the construct validity of the measures, we administered a brief follow-up survey six months after the initial round, which included a proxy item for the focal constructs in the original survey (Yli-Renko et al., 2001).² We received 99 responses to this follow-up survey; all validation items correlated positively with the original measures.

² The proxy items for the four focal constructs were: "I try to source goods and ingredients that leave a small environmental footprint" (sustainable behavior), "Our customers regularly ask for new products and services" (market turbulence), "I maintain personal, close contacts with external partners, such as wineries, LCBO, wine writers, and wine tasting events" (network embeddedness), and "In general, I am among the first in my circle of friends to purchase a new wine" (innovative orientation).

Construct measures

The items that measured the sustainable behavior, market turbulence, and innovative orientation constructs used Likert scales ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). For the network embeddedness construct, respondents indicated the extent to which they maintained personal, close contacts with various network partners, using Likert scales that ranged from 1 (“to a very low extent”) to 7 (“to a very high extent”). The Appendix lists the measurement items for the focal constructs. Because the study sample of restaurants generally constitutes small and medium-sized enterprises, we could target key decision makers responsible for the strategic choices pertaining to sustainability (Lahdesmaki and Suutari, 2012).³

Sustainable behavior. On the basis of previous discussions of what constitutes environmentally friendly business behaviors (Leonidou et al., 2013; Sharma et al., 2010; Wang and Bansal 2012), we developed a five-item scale that assessed restaurateurs’ concerns about sustainability in their wine-related decision making. Not all of the questions referred specifically to wine issues, but the questions were preceded by a statement that asked the respondents to answer the questions in the context of the environmental impact of their wine-related decisions. Items included, “I would be willing to sacrifice some profits to ensure a clean environment” and “When selecting wines for my wine list, I choose those produced in an environmentally sustainable manner.” Representatives from five restaurants who completed a pilot survey indicated that the five items provided an adequate and comprehensive assessment of restaurants’ sustainable behavior in the context of their wine-related decisions, in support of the face validity

³ In restaurants, these decisions are often made by restaurant owners, but in some cases they may be delegated to chefs or sommeliers. The targeted respondents were restaurant owners, but we explicitly stated in the invitation letter that someone else could complete the survey, if the owner was not in charge of the restaurant’s wine selection. In the small business context of this study, it is reasonable to assume that the respondents were knowledgeable about their firm’s strategic decisions with respect to sustainability and wine and that their external network relationships and innovation propensities significantly influenced their firm’s decision making (Frazier and Huddleston, 2009; Lahdesmaki and Suutari, 2012).

of our measure. Furthermore, the five items showed high convergence among participating firms (Cronbach's alpha = .85), and the single-item measure in the follow-up survey correlated positively with the composite measure ($r = .45, p < .001$).

Market turbulence. We used five items, drawn from previous research on environmental dynamism (Baker and Sinkula, 2005; Calantone et al., 2003; Lee, 2010; Song et al., 2008), to assess the turbulence of the restaurants' external market conditions. These items included statements about whether "changes take place continuously in the firms' competitive market" or "customers regularly ask for new products and services" (Cronbach's alpha = .80). The single-item measure in the follow-up survey correlated positively with the composite measure ($r = .24, p < .01$).

Network embeddedness. This construct was assessed by the degree to which the respondents maintained close personal relationships with network partners (Stam and Elfring, 2008) that tend to be knowledgeable of the opportunities and challenges associated with adopting sustainable behaviors in the context of wine, such as local wineries and slow food initiatives (Aspler, 2006; Voronov et al., 2013). A total of eight items captured this construct (Cronbach's alpha = .81). The single-item measure in the follow-up survey correlated positively with the composite measure ($r = .48, p < .001$).

Innovative orientation. This construct was measured with six items, based on research into decision makers' innovativeness (Bartl et al., 2012; Goldsmith et al., 1998; Pallister and Foxall 1998), as applied to the context of wine. Consistent with the notion of domain-specific innovativeness (Eastlick and Lotz, 1999), we measured the innovative orientation construct in relation to the particular product category of wine, as perceived by the respondents. The innovation orientation measure essentially captures the open-mindedness of the firm's key

decision makers when it comes to new product adoption, and our reliance on it aligns with previous research that emphasizes the significant contribution that business owners or senior managers make to organizational choices about sustainability in relatively small organizations (Lahdesmaki and Suutari, 2012). Sample items included, “In general, I am among the first in my circle of friends to purchase a new wine” and “I would consider buying a new wine, even if I hadn’t heard of it yet” (Cronbach’s alpha = .88). The single-item measure in the follow-up survey correlated positively with the original measure ($r = .29, p < .001$).

Control variables. We controlled for the restaurants’ *age* (number of years) and physical *size* (in square footage). To account for the specific market segment or domain in which the restaurants operated, we also controlled for the *average price per meal* they charged, the presence of a *tasting menu* (which offers small portions of several dishes as a single meal—a practice that tends to be adopted by high-end restaurants only), and whether the restaurant was part of a *chain*.

Assessment of scale properties and common method bias

To assess the reliability and validity of the four focal constructs, we undertook confirmatory factor analyses of the corresponding measurement model. The measurement model fit the data well: $\chi^2_{(232)} = 335.87$, relative χ^2 index = 1.448; confirmatory fit index = .963, Tucker-Lewis index = .956, and root mean squared error of approximation = .041. The composite reliabilities exceeded the cut-off value of .70 for each of the four focal constructs (Lattin et al., 2003). The convergent validity of the scales was affirmed by the significant factor loadings of each measurement item (Gerbing and Anderson, 1988) and the magnitude of the average variance extracted (AVE) estimates, which were greater than the suggested cut-off value of .50 (Bagozzi and Yi 1988). The constructs also indicated discriminant validity: None of the

confidence intervals for the correlations between constructs included 1.0 ($p < .05$) (Anderson and Gerbing, 1988), and the AVE estimates of the constructs were greater than the squared correlations of the corresponding pairs of constructs (Fornell and Larcker, 1981).

To assess common method bias, we followed the approach suggested by Gabrielsson and colleagues (2012). First, we undertook Harman's one-factor test (Podsakoff and Organ, 1986), which required an exploratory factor analysis of the measurement items of the focal constructs. This analysis retained five factors, and the first factor explained only 25% of the total variance, so common method bias should not be a concern. Second, we used the marker technique discussed by Lindell and Whitney (2001), which compares the zero-order correlations among the study's variables (reported in Table 1) with their partial correlation equivalents, after controlling for a marker variable that has no theoretical relationship with the study variables. For the marker variable, we chose whether the restaurant had a valet parking system. The zero-order and partial correlation matrices were very similar; none of the correlations differed significantly. Thus, both statistical tests corroborated our confidence that common method bias was not a significant concern in this study (Gabrielsson et al., 2012).

Analysis

We used regression analysis to test the hypotheses. For the main effects (Hypotheses 1–3), we regressed network embeddedness and sustainable behavior on the independent and control variables. Because the mediating effect of network embeddedness (Hypothesis 4) is a key component of our theoretical framework, we tested for its presence with three complementary approaches: Baron and Kenny's (1986) three-step procedure; the Sobel test, which determines the significance of the indirect effect of market turbulence on sustainable behavior through network embeddedness (MacKinnon et al., 1995; Sobel, 1982); and the bootstrapping method

suggested by Preacher and Hayes (2004). Compared with the Sobel test, this bootstrapping test generates confidence intervals rather than point estimates for indirect effects, thereby avoiding potential statistical power problems that might be caused by asymmetric and other non-normal sampling distributions of the indirect effects (MacKinnon et al., 2004).

To test the individual moderating hypotheses (Hypotheses 5–6), we used moderated regression analysis. For the moderated mediation effects (Hypothesis 7), we relied on the holistic approach suggested by Preacher et al. (2007), which provides a direct comparison of the strength of the indirect effects at selected levels of the moderator variable. Similar to the aforementioned bootstrapping procedure that tests for mediation, this procedure generated confidence intervals rather than point estimates for the conditional, indirect effects (MacKinnon et al., 2004). For both the moderated regression and bootstrapping, we adopted the well-established approach to mean center the interacting variables when testing the moderating effects (Aiken and West, 1991).

Results

In Table 1 we provide the descriptions of the study variables and their correlations; in Table 2 we list the regression results. Models 1–3 predict network embeddedness, whereas Models 4–7 predict sustainable behavior. Models 1 and 4 include the control variables only; Models 2, 5, and 6 add the direct effects; Models 3 and 7 add the moderating effects of innovative orientation. For each model, the variance inflation factor values were less than 2.0, much lower than the conservative cut-off value of 5.0 (Studenmund, 1992), so multicollinearity likely was not a problem in this study.

Insert Tables 1 and 2 about here

With Hypothesis 1, we predicted that firms that face higher market turbulence engage in more sustainable behavior. We found support for this hypothesis in Model 5 ($\beta = .245, p < .01$). We also confirmed Hypothesis 2 in Model 6, with a positive relationship between network embeddedness and sustainable behavior ($\beta = .320, p < .001$). In support of Hypothesis 3, in Model 2 network embeddedness was higher among firms that faced more market turbulence ($\beta = .205, p < .05$).

The presence of mediation by network embeddedness was confirmed using Baron and Kenny's (1986) procedure, based on (1) the direct relationship between market turbulence and network embeddedness ($\beta = .205, p < .05$, Model 2, reported previously), (2) the direct relationship between market turbulence and sustainable behavior when the role of network embeddedness was not accounted for ($\beta = .245, p < .01$; Model 5, reported previously), and (3) the insignificant direct effect of market turbulence on sustainable behavior when the effect of network embeddedness was included ($\beta = .164, ns$, Model 6). The two additional tests also provided evidence of mediation. The Sobel test revealed that the indirect effect of market turbulence on sustainable behavior through network embeddedness—according to the relationships between the independent variable and the mediator (Model 2), and between the mediator and the dependent variable (Model 6)—was significant ($t = 2.098, p < .05$). The bootstrapping procedure suggested by Preacher and Hayes (2004) also indicated that the indirect effect of market turbulence—using 5,000 random samples and replacement from the full sample (Shrout and Bolger, 2002)—was significant ($p < .05$) and that the bias-corrected confidence interval (CI) for this indirect effect did not include zero [.026, .161], which supports the presence of mediation.

We also found support for Hypotheses 5 and 6: The network embeddedness–sustainable behavior and market turbulence–network embeddedness relationships were moderated by innovative orientation, such that the relationships were stronger at higher levels of innovative orientation ($\beta = .107, p < .05$, Model 7; $\beta = .177, p < .05$, Model 3; respectively). We illustrate these two moderating effects in Figures 2A–B, which show steeper positive curves at high levels of innovative orientation.

Insert Figures 2A-2B about here

We followed Preacher et al. (2007) to test for the moderated mediation effect suggested by Hypothesis 7. We computed bias-corrected CIs at two selected levels of the moderator, using the same specification of 5,000 random samples and replacement from the full sample (Shrout and Bolger, 2002). The bootstrap 95% CI of the conditional effect of market turbulence at one standard deviation above the mean of innovative orientation did not contain 0 [.048, .305], and the conditional, indirect effect of market turbulence on sustainable behavior was significant ($p < .01$). The replication of this procedure at one standard deviation below the mean of innovative orientation yielded a CI that included 0 [-.028, .066], so the conditional indirect effect of market turbulence was not significant at this lower level of innovative orientation, in support of Hypothesis 7.

Discussion

Theoretical implications

Previous business ethics research acknowledges that firms' strategic efforts in attending to environmental preservation reflect an important aspect of their sustainability pursuits (Fraj-Andrés et al., 2009; Uhlaner et al., 2012). Furthermore, research on sustainability reveals that in

many industries, firms face strong institutional adversity with respect to the adoption of sustainable practices, as fueled by perceived incompatibilities between sustainability and profitability goals or limited support that customers and other stakeholders provide to alternative products or practices (De Clercq and Voronov, 2011; Palmer et al., 1995; Walley and Whitehead, 1994). In these circumstances, firms may encounter the challenge of not only limited customer demand but also questions about their sincerity in seeking to establish a more sustainable profile (Du and Vieira, 2012; Jermier et al., 2006). Yet business ethics research grants limited attention to explaining why some firms defy such institutional adversity and include environmental considerations in their decision making. This oversight is somewhat surprising, because previous research also has shown that unfavorable institutional conditions can provide the impetus for firms to distinguish themselves from the pack, with dedicated efforts to embrace sustainable practices (Zheng et al., 2014).

We postulated that in the presence of such institutional adversity, the nature of the firm's immediate competitive market can offer key opportunities to adopt sustainable practices. Consistent with the strategic choice perspective (Child, 1997), we explained firm-level differences in relation to sustainability pursuits as direct strategic responses to the presence of *turbulent* market conditions, arguing that the likelihood for sustainable behavior increases when competitive conditions are marked by high levels of change or turmoil. Prior research on sustainability has indicated that market conditions can provide firms with opportunities for alternative strategic approaches, such as an emphasis on sustainable practices (Cronin et al., 2011; Jennings and Zandbergen, 1995), but limited empirical research details the link between the turbulence that firms experience in their immediate environment and their engagement in sustainability (Cohen and Winn, 2007), let alone the case in which there is limited institutional

support for sustainable practices. An equally important and underexplored issue is *how* and *when* a firm that faces institutional adversity can turn the opportunities created by turbulent market conditions into a sustainable position (Cohen and Winn, 2007; De Clercq and Voronov, 2011). To this end, we investigated the role that a firm's capabilities, both external and internal, play in the connection between market turbulence and sustainable behavior.

The results show that it is through the development of strongly embedded network relationships that competitive market conditions can be leveraged into sustainable behaviors in the presence of institutional adversity. Turbulent market conditions might prompt sustainability-focused behaviors, because the information asymmetries and associated market gaps that these conditions generate can counter institutional adversity with respect to sustainability (Dean and McMullen, 2007; Kirzner, 1997). However, a critical mechanism that underpins this connection is the development of strongly embedded relationships with network partners. These relationships provide access to critical knowledge about how competitive market opportunities can be exploited for sustainable behaviors (Lee and Qualls, 2010). In particular, in the presence of institutional adversity toward sustainability, the development of strongly embedded relationships (Larson, 1992; Uzzi and Lancaster, 2003) functions as a critical channel through which a firm can engage external support and insights with respect to sustainable practices, in response to the opportunities afforded by turbulent market conditions.

This study also shows that in the presence of limited institutional support for sustainability, the benefits of network embeddedness for exploiting turbulent market conditions to achieve sustainable behavior are not automatic. They require a motivation to develop and exploit *new* knowledge. When a firm exhibits a strong innovative orientation, its knowledge creation abilities are enhanced (Lumpkin and Dess, 1996), such that the potency of creative

combinations of its own knowledge with complementary partner knowledge can be used to exploit market gaps for sustainability. For example, a firm that is continuously on the lookout for novel approaches may be better positioned to acquire and assimilate relevant knowledge about how profitability and sustainability concerns can be matched effectively (De Clercq and Voronov, 2011; Zahra and George, 2002) to overcome institutional adversity in terms of the presumed incompatibility of these concerns (Palmer et al., 1995). This attentiveness in turn invigorates the usefulness of external network relationships for the exploitation of market opportunities for sustainability. Thus, when a firm faces institutional resistance with respect to sustainable behaviors, its innovative orientation constitutes an important boundary condition for when and how turbulent market conditions can translate into such behaviors, through strongly embedded relationships.

In short, a firm's adoption of environmentally friendly practices in the context of institutional adversity toward sustainability can be a direct strategic response to the opportunities afforded by the turbulence that marks its immediate competitive markets (Cohen and Winn, 2007). Understanding the connection between market turbulence and sustainable behavior in the presence of such institutional adversity is highly relevant to business ethics research on sustainability, because it addresses the important issue of how a firm that operates in unfavorable institutional environments paradoxically can respond to the competitive landscape of its immediate markets by adopting sustainable practices. Drawing from the strategic choice perspective (Child, 1997), we revealed that in the presence of limited institutional support for sustainability, some firms gain the ability to convert competitive market conditions into a proactive choice for sustainability precisely because of the strength of the relationships that they build with external network partners (Podolny, 2001; Zafeiropoulou and Koufopoulos, 2013).

Acknowledging that the development and exploitation of strong network relationships requires a firm to invest internal resources into relationship building (Gedajlovic et al., 2013), we also showed the hitherto unexplored, enabling role of a firm's innovative orientation (Maltz et al., 2006) in leveraging opportunities afforded by turbulent market conditions into sustainable behaviors.

Limitations and future research

This study has some limitations, whose consideration offers opportunities for further research. First, our research setting focused on a specific aspect of institutional adversity with respect to sustainability, namely, the case in which the strategic choice to adopt locally sourced products suffers from significant consumer skepticism and needs to overcome assumptions about the low quality of the products (Voronov et al., 2013). Yet the possible sources of institutional adversity are varied and also might reflect a lack of regulatory support for sustainable practices (Albareda et al., 2007) or the related belief that the public sector is responsible for absorbing costs associated with environmental preservation efforts (Porter and Kramer, 2011). Future research might test our proposed framework in a wider set of research settings to investigate whether the potency with which competitive market conditions enhance sustainable behavior depends on the specific sources of adversity that mark the broader institutional environments in which a firm operates. For example, the challenge of an unfavorable tax regime may be more difficult to overcome than the presence of negative customer perceptions, because the former provides specific financial disincentives for the adoption of sustainable practices. Our focus on institutional adversity also was driven by the argument that the roles of the study's focal variables (market turbulence, network embeddedness, and innovative orientation) are particularly

potent for *overcoming* such institutional adversity, but further studies could test the model in contexts that vary in their levels of institutional adversity.

Second, some caution is needed with respect to the causal inferences, particularly in terms of the relationship between network embeddedness and sustainable behavior. Firms that engage in sustainable behavior may become more knowledgeable about who their relevant network partners are and how they can contribute to the successful implementation of their sustainability efforts (Cronin et al., 2011), such that they grow more motivated to develop close personal relationships with these key network partners. Although we grounded our hypotheses in extant theory, a longitudinal design, spanning a period long enough to model the causality links among market turbulence, network embeddedness, and sustainable behavior explicitly, as well as the boundary conditions that might influence these links, would be useful.

Third, in each firm, we relied on a single informant's perceptions—either the restaurant owner or another key decision maker in charge of the firm's sustainability decisions—to measure our focal variables. In this small business context, the final responsibility for the important strategic decision about which wines to include in the wine list arguably lies in the hands of very few people, but additional research could check for any *differences* among a firm's key decision makers in their considerations of sustainability issues, as well as how such diversity might affect the firm's ability to convert the opportunities afforded by turbulent market conditions into sustainable behavior.

Fourth, another set of limitations pertains to our choice of focal variables, which may have narrowed the scope of the proposed framework. For example, in addition to examining the role of market turbulence as a direct antecedent of sustainable behavior, we might investigate the effect of another key aspect of the immediate competitive environment, namely, its competitive

intensity (Cui et al., 2005). Such an assessment could determine if high levels of rivalry prompt firms to adopt sustainability practices specifically to carve out a competitive strategic position. Further, our network embeddedness variable reflects the firm's development of informal relationships with external network partners and thus the presence of strong ties (Elfring and Hulsink, 2003; Uzzi and Lancaster, 2003). Future research could investigate how competitive market conditions, in an institutional adversity context, might influence a firm's sustainability behaviors through the development of *weak* ties too. For example, the uncertainty created by turbulent market conditions might create opportunities for a firm to "broker" the participation of previously disconnected network partners in its sustainability efforts (Burt, 1992; Elfring and Hulsink, 2003). Additional research also could investigate how strategic orientations, other than an innovative orientation (e.g., learning orientation; Hult et al., 2002), and internal organizational systems (e.g., reward systems for sustainable initiatives; Collins and Clark, 2003) influence the potency by which network embeddedness channels market turbulence into sustainable behaviors. Researchers could use configuration approaches to examine the moderating roles of constellations of multiple organizational factors in the links between external market conditions and sustainable behavior (Dess et al., 1997).

Fifth, this study focused on explaining firms' adoption of sustainable behaviors rather than their performance outcomes. This approach is in line with the strategic choice perspective, which considers firms' strategic decision making as a direct response to certain environmental conditions. But it would also be useful to investigate the performance consequences of this response (Venkatraman and Prescott, 1990). Research could extend our conceptual framework by investigating whether and how firms' adoption of sustainable practices, as a response to turbulent market conditions, influences their subsequent market performance, as well as how

their innovation orientation (or other contingencies) informs this process. In particular, it would be interesting to examine whether and how various contingency factors influence not only the extent to which market turbulence leads to sustainability but also the strength or nature of the relationship between sustainable behavior and firm performance.

Practical implications

The study has important implications for policy makers and organizations that operate in institutional environments that do not support sustainable behaviors. To reap the benefits of turbulent market conditions for pursuing sustainable behavior, organizations must consider the advantages of building close relationships with external network partners and be open to novel approaches. The development of external network capabilities through strongly embedded relationships is a critical channel by which turbulent market conditions can promote sustainable practices, but this process is not without challenges, especially when institutional support is limited. Firms should be aware that resistance to sustainability may come from different sources, including limited customer knowledge about the value of sustainable products, shared perceptions among key industry players about the supremacy of globally sourced products, or perceived incompatibility between environmental preservation and financial objectives (De Clercq and Voronov, 2011; Hoffman et al., 1999).

Firms are more likely to overcome these challenges when they can identify and exploit market opportunities for sustainability by engaging in strong external network partnerships *and* exhibiting a propensity to consider novel products or approaches in their decision making. The development of strong external network relationships provides firms with access to critical knowledge about how products that are not favored by prevailing institutional norms (e.g., local wines in this study context) can be positioned effectively in the market, even if such products do

not enjoy the same reputation as more easily accepted counterparts. Policy makers and professional associations should promote networking events to stimulate extensive knowledge exchanges among firms and their key stakeholders, thereby increasing firms' ability to leverage the opportunities afforded by turbulent market conditions. Through these networking activities, firms can gain critical insights into how they can achieve their collective goal of overcoming institutional barriers to the adoption of sustainable behaviors. These insights also should help firms learn about the opportunities and challenges associated with undertaking sustainable behaviors in institutionally adverse environments, which ultimately can enhance their ability to carve out strong competitive positions with their behaviors.

Moreover, our examination of the contingency effects of firms' innovative orientation suggests that firms with sustainable aspirations should match their investments in external network activities with an aptitude and interest in creating new knowledge. Firms that seek to leverage market opportunities for sustainability through strong network development will benefit more from their network partners if they exhibit a continuous propensity to explore innovative approaches. To enhance their innovative orientation, firms should promote integration across the different knowledge bases that reside within their ranks, including technical and marketing knowledge (Lovelace, Shapiro, and Weingart, 2001). Such cross-functional knowledge integration might be fraught with challenges, because different organizational units have distinct cultures and attitudes about the desirability of leveraging their respective knowledge bases for innovative outcomes (De Luca and Atuahene-Gima, 2007). To overcome such challenges, firms can create adequate internal structural arrangements, such as decentralization (Leenders, van Engelen, and Kratzer, 2007) or joint reward structures (Song, Montoya-Weiss, and Schmidt, 1997), or else promote relational contexts that emphasize informal interactions and trust building

(De Clercq, Dimov, and Thongpapanl, 2015; Tsai and Ghoshal, 1998). To the extent that a firm can promote an innovative orientation through such measures, its ability to exploit turbulent market conditions in sustainable behavior may increase significantly.

Following these insights, we hope this study provides a platform for further investigations into how firms that operate in institutional environments that manifest skepticism toward sustainability can effectively leverage competitive market opportunities to undertake environmentally friendly behaviors. Fundamentally, whereas the pursuit of sustainability and competitiveness are often seen as being in conflict, our study lends support to the argument that nimble firms can use sustainable behavior to enhance their competitiveness in turbulent market environments.

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Figure 1: Conceptual model

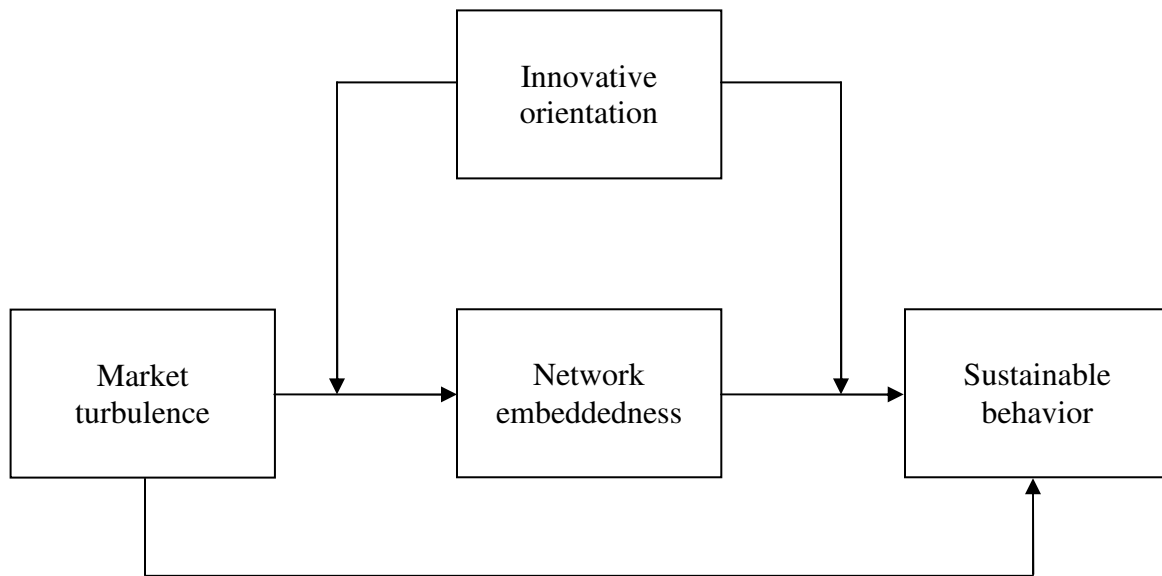
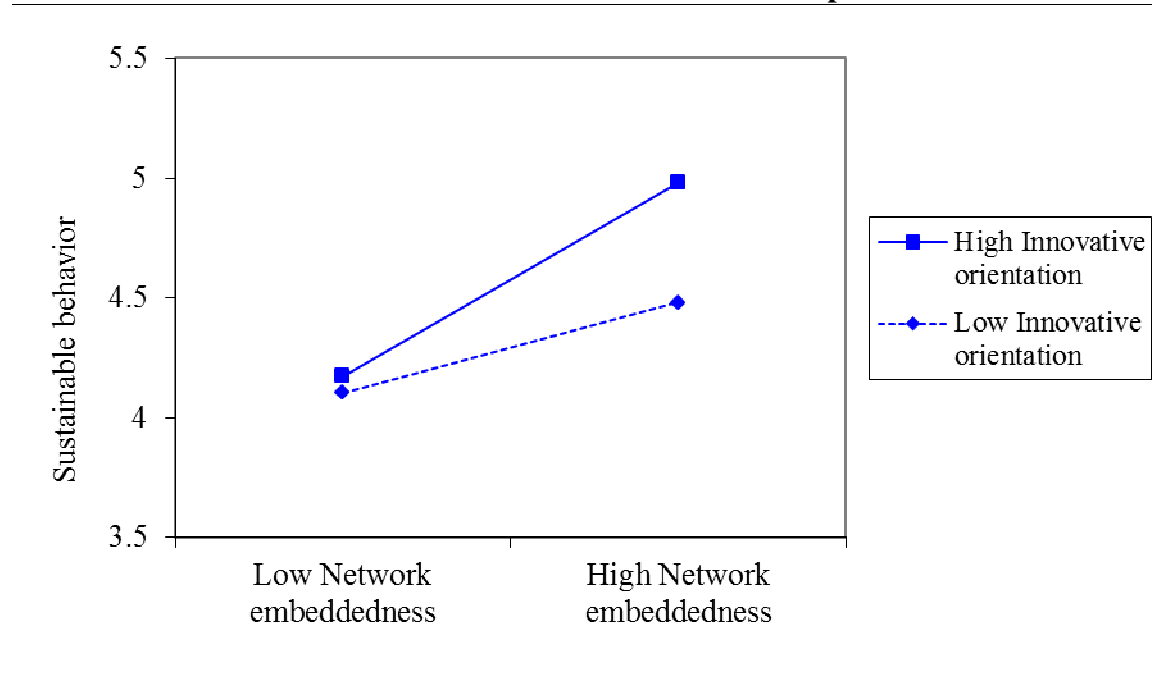


Figure 2: Moderating effect of innovative orientation

A. Network embeddedness–sustainable behavior relationship



B. Market turbulence–network embeddedness relationship

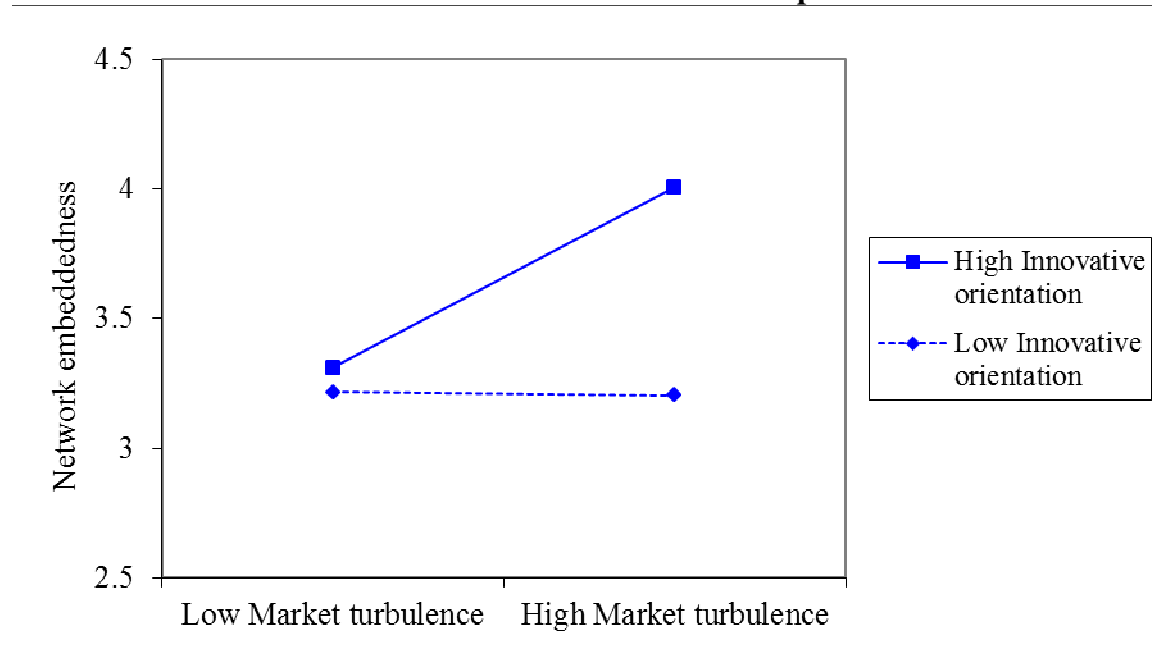


Table 1: Descriptive statistics and correlations (N = 270)

	1	2	3	4	5	6	7	8	9
1. Sustainable behavior									
2. Market turbulence	.106								
3. Network embeddedness	.384**	.154*							
4. Innovative orientation	.229**	.164**	.359**						
5. Firm age	-.197**	-.023	.000	-.151*					
6. Firm size (sq ft)	-.144*	.102	.172*	-.076	.080				
7. Average price per meal	.113	.024	.400**	.245**	.004	.041			
8. Tasting menu	-.147*	-.033	-.271**	-.204**	.086	-.019	-.521**		
9. Part of restaurant chain	.028	-.057	-.005	.031	.043	-.154*	.043	.001	
Mean	4.89	5.42	3.23	4.89	20.06	3,094.02	44.62	1.79	1.94
Standard deviation	1.13	0.90	1.19	1.36	22.87	3,150.94	26.18	0.41	0.23

** $p < .01$. * $p < .05$.

Table 2: Regression analysis results (N = 270)

	Network Embeddedness			Sustainable Behavior			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Firm age	-.033	.033	.030	-.239**	-.183**	-.197**	-.177**
Firm size (sq ft)	.222**	.225**	.190*	-.203*	-.198*	-.267***	-.271***
Average price per meal	.017***	.016***	.015***	.004	.002	-.003	-.002
Tasting menu	-.209	-.063	-.080	-.220	-.117	-.098	-.056
Part of restaurant chain	-.123	-.122	-.093	.081	.104	.146	.138
Market turbulence		.205*	.171		.245**	.164	.147
Innovative orientation		.208***	.224***		.144*	.076*	.140*
Market turbulence × Innovative orientation			.177*				
Network embeddedness						.320***	.296***
Network embeddedness × Innovative orientation							.107**
R ²	.212	.274	.293	.103	.164	.248	.273
ΔR ²		.062***	.019*		.061***	.084***	.025**

Notes: Unstandardized estimates.

** $p < .01$. * $p < .05$ (two-tailed tests).

Appendix: Measurement items

Sustainable behavior

Please indicate to what extent you agree with the following statements pertaining to the environmental impact of your restaurant's wine-related decisions:

- Running my business in an environmentally sustainable manner is important to me.
- I try to source goods and ingredients that leave a small environmental footprint.
- When selecting wines for my wine list, I choose those produced in an environmentally sustainable manner.
- Choosing local wines for my wine list is one way I try to run an environmentally sustainable business.
- I would be willing to sacrifice some profits to ensure a clean environment.

Market turbulence

Please indicate to what extent you agree with the following statements:

- Changes in our industry are intense.
- Our customers regularly ask for new products and services.
- In our competitive market, changes take place continuously.
- In a year, nothing has changed in our competitive market. (reverse coded)
- In our industry, product differentiation is a key competitive weapon.

Network embeddedness

Please indicate the extent to which you maintain personal, close contact with the following parties:

- Wineries
- LCBO (Liquor Control Board of Ontario)
- Wine Council of Ontario
- Wine Writers
- Slow Food initiatives
- Wine tasting events
- Ontario Restaurant, Hotel and Motel Association.
- Provincial or federal government

Innovative orientation

Please indicate to what extent you agree with the following statements:

- In general, I am among the first in my circle of friends to purchase a new wine.
- If I heard that a new wine was available through a local store, I would be interested enough to buy it.
- Compared with my friends, I do lots of shopping for new wine.
- I would consider buying a new wine, even if I hadn't heard of it yet.
- In general, I am among the first in my circle of friends to know about the latest wine trends.
- I know more about new wines than other people do.