



Corporate strategic responses to foreign entry: insights from prospect theory

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Abstract

Purpose – The purpose of this paper is to address how firms adapt their product and geographic diversification as a response to foreign rivals penetrating their domestic market by adopting a behavioral perspective to understand firm-level strategic responses to foreign entry.

Design/methodology/approach – The study proposes that strategic responses to foreign entry selected by domestic incumbents have both a framing component and a related, strategic choice component, with the latter including changes in product and geographic market diversification (though other more business strategy-related responses are also possible, e.g. in product pricing and marketing). This study tests a set of hypotheses building on panel data of large US firms.

Findings – The study finds, in accordance with our predictions, that domestic incumbents reduce their product and geographic diversification when facing an increase in import penetration. However, when increased market penetration by foreign firms takes the form of FDI rather than imports, the corporate response appears to be an increase in product and geographic diversification, again in line with our predictions.

Originality/value – The study develops a new conceptual framework that is grounded in prospect theory, but builds on recent insights from mainstream international strategic management studies (Bowen and Wiersema, 2005; Wiersema and Bowen, 2008).

Keywords Prospect theory, International diversification, Product diversification, Foreign competition, Strategic response

Paper type Research paper

Introduction

Increased market penetration by foreign rivals, whether in the context of regionalization or globalization, triggers corporate strategic responses from the domestic firms affected

The authors are overwhelmingly sad that Alan passed away and they would like to thank him posthumously for his great support of their work and his excellent editorial guidance while revising this paper.



(Rugman, 2005). Several factors have contributed to this new competitive landscape of increased domestic market penetration by foreign rivals (Wiersema and Bowen, 2008). These factors include reduced trade and investment barriers (Bertschek, 1995), lower transport and communication costs (Hummels, 2007), the continued international integration of capital markets (Sachs and Warner, 1995) and the growth of regional trade and investment agreements (Rugman, 2005).

Increased foreign multinational enterprise (MNE) market penetration can occur through a myriad of entry modes (Dunning and Lundan, 2008), but in our study, we focus on two core entry vehicles, namely, *imports* and *foreign direct investment* (FDI), i.e. the sale of products manufactured elsewhere and sales resulting from local manufacturing, respectively (Caves, 1985). Large quantities of literature exist on entry mode choice from the perspective of the foreign MNE entering a host country (see Buckley and Casson, 1976; Hennart, 1982; Rugman, 1981 for the classic references on this subject matter and Mudambi and Mudambi, 2002 for the analysis of entry from a diversification strategy perspective). However, there is a paucity of research discussing the corporate strategic responses by domestic incumbents in terms of diversification, to the particular entry mode choices made by foreign MNEs, though some scholarly work in the international strategic management literature has touched on this subject matter (Rugman, 1990).

US trade data demonstrate that between 1987 and 2003, average per annum import growth was 7.3 per cent in the USA and the FDI stock grew even more rapidly, namely, with 9.1 per cent. During the same period, however, average US-GDP growth was only 5.6 per cent. In other words, increased foreign MNE market penetration through imports and FDI outpaced GDP growth, thereby putting more competitive pressure on domestic US firms. Here, we should note that FDI may have other purposes than market seeking, and that not all market-seeking FDI necessarily constitutes a competitive threat to all domestic incumbents. In fact, if FDI takes the form of an acquisition or joint venture, a particular domestic incumbent's competitive position might even be strengthened directly because of the infusion of the foreign rival's firm-specific advantages (FSAs). However, the point is that in most cases, at least some local firms in the domestic industry will be negatively affected and can be expected to engage in a corporate strategic response that is different from maintaining the status quo. Here, the status quo typically means expected further increases in foreign market penetration and a reduction of the domestic incumbents' market share (Dunning, 2001). Given this bleak, status quo expectation, the key research theme the present paper addresses is the incumbents' *framing* of the foreign challenge and the related corporate *strategic choice* in terms of changes in product and/or geographic diversification.

In regards to the *strategic choice* issue, Bowen and Wiersema's (2005) landmark study was the first to show that increased foreign market penetration could trigger reduced *product diversification* and a more narrow strategic focus of American companies. However, in a related study, Wiersema and Bowen (2008) found foreign market penetration to have the opposite effect on incumbents' *geographic market diversification*. One limitation of Wiersema and Bowen's analyses was that these included imports only, rather than imports and FDI, as the dual sources of corporate *strategic choice* in the face of increased market penetration by foreign MNEs.

Blind and Jungmittag (2004) have argued that ideally, both imports and FDI should be included as parameters affecting corporate *strategic choices* by domestic incumbents. Imports and FDI can act as substitutes or complements from the viewpoint of the MNE

entering the domestic market (Rugman, 1990), but may prompt different *strategic choices* from domestic incumbents.

Hutzschenreuter and Gröne (2009a) were the first to explore the effects of both imports and FDI on domestic firms' diversification levels. Drawing on the awareness – motivation – capability framework, Chen *et al.* (2007) studied the evolution of the non-core business segment sales ratio (as a proxy for product scope) and the foreign sales ratio (as a proxy for geographic scope) of domestic incumbents. The particular entry mode selected by foreign MNEs appeared to affect these two ratios for domestic firms in very different ways. *First*, when facing increased market penetration through *imports*, domestic firms focused even more than before on their home market and core industry at the expense of foreign markets and non-core industries. *Second*, when facing MNE entry through *FDI* in their home market, they shifted their focus toward foreign markets and non-core industries. In other words, corporate *strategic choices* were actually diametrically opposed as a function of the entry mode selected by foreign MNEs.

The present paper revisits and extends Hutzschenreuter and Gröne's (2009a) work, which did not provide a fundamental, core behavioral theory explanation for the different *strategic choices* by incumbents associated with each entry mode, and used only simple ratios to assess the relative importance of non-core businesses *vis-à-vis* core businesses and foreign markets *vis-à-vis* the domestic market.

Our proposed contribution to the extant literature is twofold. *First*, on the conceptual level, we adopt a behavioral perspective to make a general prediction of the *framing* of the competitive challenge at hand, and argue that this framing will fundamentally affect the related corporate *strategic choice* of diversification levels. This behavioral perspective is based on elements from prospect theory (Kahneman and Tversky, 1979), but we apply it at the organizational level. The reason for using prospect theory is its empirically proven strength as a conceptual tool to address the impact of cognitive framing on decision-making choice, allowing us to assess its potential contribution to the strategy field. *Second*, we investigate the predicted corporate *strategic choices* by measuring, empirically, changes in both geographic and product diversification levels and using credible proxies to do so[1]. We investigate how non-core sales are distributed across various non-core businesses and how foreign sales are dispersed across various countries. Table I contrasts the three prior, main studies on this subject matter (Bowen and Wiersema, 2005; Hutzschenreuter and Gröne, 2009a; Wiersema and Bowen, 2008) as well as the present paper.

The remainder of this study is organized as follows. In the next section, we provide the conceptual background for the subsequent empirical analysis, whereby we focus on elements from prospect theory. In the third section, we develop our new conceptual framework and hypotheses. We describe our sample, variables and methodology, and present our results in the fourth section. Finally, we conclude with discussing the implications and limitations of our study, and we provide suggestions for future research.

Theoretical background

Prospect theory, framing and strategic choice

Kahneman and Tversky (1979) proposed prospect theory as an alternative to expected utility theory in decision-making. They demonstrated that when confronted with events

	Bowen and Wiersema (2005)	Wiersema and Bowen (2008)	Hutzschenreuter and Gröne (2009a)	Present paper
Phenomenon studied	How does the level of foreign competition (FC) in a firm's core business influence both the level and nature of this firm's product diversification strategy?	How do industry globalization, level of FC in a firm's domestic market and extent of a firm's product diversification, influence international diversification strategy?	How do changes in FC originating from imports and foreign direct investment influence changes in the firm's product and geographic scope?	How do changes in FC originating from imports and foreign direct investment influence changes in a firm's product and geographic diversification?
Conceptual reasoning based on [...]	Transaction cost economics (TCE)	Competition theory TCE and resource-based view (RBV)	Awareness – motivation – capability framework	Prospect theory
Dependent variable	Corporate diversification strategy	Firm international diversification	Change in product scope Change in geographic scope	Change in product diversification Change in geographic diversification
Operationalisation	<i>Level of diversification</i> Total entropy; Herfindahl index; Number of SIC business segments <i>Resource-based relatedness</i> Resource-based relatedness index	<i>Degree of int. diversification</i> Foreign sales ratio <i>Scope of international diversification</i> Entropy measure of a firm's sales shares in different geographic areas	<i>Product scope change</i> Change in share of non-core business segment sales relative to total sales <i>Geographic scope change</i> Change in foreign sales relative to total sales	<i>Change in product diversification</i> Aggregate factor scores of: Product segment count; Herfindahl index; Entropy measure <i>Change in geographic diversification</i> Aggregate factor scores of: Geographic segment count, Herfindahl index, Entropy measure
Independent variable	FC	FC	FC from rivals based abroad Locally established FC	Import-based FC FDI-based FC
Operationalisation	Ratio of imports to total domestic purchases in the 4-digit SIC level core industry of the firm	Ratio of imports to total domestic consumption in the four-digit SIC core industry of the firm	<i>FC from rivals based abroad</i> <i>FC from rivals based abroad</i> Ratio of imports to industry-level GDP <i>Locally established FC</i> Ratio of an industry's inward FDI data to industry-level GDP	<i>Import-based FC</i> <i>Import-based FC</i> Ratio of imports to industry-level GDP <i>FDI-based FC</i> Ratio of an industry's inward FDI data to industry-level GDP

Table I.
Studies addressing corporate strategic responses to foreign entry

entailing choice sets, an individual's actual behavioral response does not necessarily follow rational calculation of expected utility based on the objective risk – return characteristics associated with the various possible choices (Kahneman and Tversky, 2000). Kahneman and Tversky's main oeuvre focuses more on choice sets presented to individuals than on the underlying events triggering these choice sets. Their conclusions largely resulted from laboratory experiments, whereby participants were typically asked to select a preferred alternative (with particular risk and return characteristics) from a choice set.

Initially, prospect theory was developed to explain individual choices based on preassigned losses or gains and fixed probabilities associated with alternatives (Kahneman and Tversky, 1979, 2000). As the outcome probability for real organizational choices cannot unequivocally be determined (March and Shapira, 1987) and extraneous factors are likely to be present in organizations (Bromiley *et al.*, 2001), the question arises whether the main tenets of prospect theory can be applied to organizational settings?

Ever since Bowman (1980) uncovered the risk – return paradox in strategic management (with poorly performing firms in terms of returns, also having more risk), researchers have increasingly begun to apply prospect theory to organizational decision-making and have shown that prospect theory can, indeed, be applied at the organizational level (Barberis, 2013; Nickel and Rodriguez, 2002).

The rationale for adopting prospect theory as a conceptual lens in the present paper is as follows. Prospect theory is concerned, *inter alia*, with the framing *vis-à-vis* a reference point of a set of alternative courses of action (prospects) among which a choice must be made. This framing acts as a mental filter, thereby affecting the relative preferences for alternative courses of action (e.g. a *strategic choice* to invest or not to invest). A *first* important insight from prospect theory is the observation that such framing of alternative courses of action often occurs *vis-à-vis* the status quo as the point of reference (Barberis, 2013). The status quo does not need to reflect solely a situation at a given point in time, but may also include a trajectory such as an expected income stream or market share trend in case of unchanged behavior. A *second* insight is that, with the status quo as the reference point, choices perceived to be associated with *sure gains* (as a result of a particular framing) are typically favored irrespective of expected values. *Sure gains*, even if low, are systematically preferred over probabilistic outcomes where losses are a possibility (even if an unlikely one), thus reflecting *risk-aversion* (i.e. “losses loom larger than gains”).

One exception to this general observation occurs when the framing of the decision-making problem is one whereby *sure losses* are expected to occur with at least some alternative courses of action considered. Here, the alternatives with perceived *sure losses* as an expected outcome, even if such losses were low, are typically rejected and riskier prospects are preferred if these offer the possibility, though not the certainty, of gain. In this case, *risk-seeking* will prevail. Perceptions of certainty about a future outcome thus affect the choices made: *sure gains* are systematically preferred and *sure losses* are systematically avoided (Kahneman and Tversky, 1979; Shimizu, 2007)[2].

In a managerial context, the concept of certainty is different from that prevailing in the context of a laboratory experiment. Here, managers have a propensity to think that they can at least partly control their firm's future when faced with a strategically challenging event such as a threat emanating from the environment (March and

Shapira, 1987). More specifically, if the expected outcome of a particular firm-level response to the strategically challenging event is perceived as a *sure gain* (as compared to alternative responses whereby losses are a possibility), then this *risk-averse* response will be selected. In contrast, if the perceived outcome of a particular response could be the avoidance of *sure losses*, even if the probability of such a successful outcome were low (as compared to the alternative responses whereby losses are a certainty), then *risk-seeking* will prevail.

Here, a few additional points should be made. *First*, in line with the above analysis, we assume that assessing a set of alternative, corporate *strategic choices* typically occurs *vis-à-vis* the status quo as a reference point. In our particular case, we will refer to the status quo situation as unchanged behavior, especially in terms of diversification levels of incumbents after an increase in foreign market penetration. Importantly, in this case, the reference situation is one associated with past losses, in the sense that increased foreign market penetration (and thus, a lower domestic market share of at least some local incumbents) could not be avoided. The most likely managerial prediction about the future is, therefore, that unchanged behavior would continue to lead to additional losses, in terms of reduced market share.

Second, we assume that managers tend to consider only a limited number of corporate *strategic choice* alternatives and related expected outcomes that are different from behavior associated with the status quo. They typically do not evaluate entire distributions of corporate *strategic choices* (and the outcomes thereof), and are often more comfortable with verbal characterizations of expected outcomes than with precise numerical ones.

Third, increased market penetration by foreign MNEs is a challenging, external event to which domestic incumbents can respond through a variety of possible *strategic choices* (Buckley *et al.*, 2007; Driffield and Love, 2007). If domestic incumbents perceive the outcomes of *their strategic choices* to *depend upon the specific market entry mode they have to address*, i.e. having to compete with imports vs locally manufactured products from FDI, then prospect theory may be useful in explaining why the corporate *strategic choices* may differ, especially in terms of these choices' risk-averting vs risk-seeking "*properties*". In addition, once a risk-averting vs risk-seeking strategic choice has been made, the question arises how this will play out in practice, i.e. how incumbents will adapt their portfolio of products manufactured and geographic markets served.

Given the situation of increased foreign entry, a reduction in product and geographic diversification levels and a refocusing on core businesses and markets typically reflects *risk-averse* behavior, i.e. the pursuit of *sure gains* through a (perceived) more robust defense of competitive position in the industries and markets where the firm has traditionally been strongest. The firm exists from businesses and markets that are not core, but which absorbed resources that could therefore not be used to defend the core. As noted in the previous section, *framing* is critical here, meaning in the present case that *risk-averting strategic choices* will prevail when these are associated with (perceived) *sure gains vis-à-vis* the reference point and with alternative strategic choices that have some likelihood of losses. Here, managers would rather engage in a conservative response to the event, such as refocusing on core products and core markets, even if this implies foregoing potentially higher gains, associated with risky actions because of the danger of losing further market share (George *et al.*, 2006).

In contrast, *risk-seeking* will prevail when the framing of the firm's situation as one of increased competition from foreign companies in the home market is one whereby some alternatives are viewed as associated with *sure losses*, and the focus becomes one of avoiding responses associated with such *sure losses*. Here, managers may underestimate the likelihood of additional losses associated with risky prospects, while overestimating the likelihood of potential gains that could get the firm out of the loss position (Chattopadhyay *et al.*, 2001; George *et al.*, 2006). In other words, when facing perceived *sure losses* associated with both the status quo and various strategic responses, managers will make a strategic choice that could lead the firm to find itself in a more desirable position of gains, even though the probability of such success may be low.

Changes in corporate diversification as strategic choices

In the previous section, we described prospect theory's view that *risk-averting* vs *risk-seeking* choices largely depend on the framing of the alternatives considered and the assessment of their outcomes *vis-à-vis* a reference point. Essentially, when managers build the firm's corporate strategy, this process can be interpreted as deciding upon the firm's product and geographic portfolio. This portfolio of economic activities can then be associated with parameters such as market shares and income streams for each activity (Lubatkin and Chatterjee, 1994).

A large literature in strategic and international management suggests that a focus on core products and core geographic markets may, subject to qualification such as effective innovation in the core, actually represent a reliable path to sustained profitability and growth (i.e. *sure gains*, irrespective of variations therein over time). For example, Porter (1987) credibly criticized the tendency of American firms to pursue product diversification, whereas Ghemawat (2001) and Ghemawat and Ghadar (2000) demonstrated the dangers of excessive geographic diversification. The need to focus on narrow regional diversification rather than broad global diversification, even for the world's largest MNEs was convincingly argued by Rugman (2005). The main point is that increases in diversification levels impose strong requirements on corporate level managers in terms of their ability to curb bounded rationality and opportunism challenges in diversified operations. For example, in the context of geographic diversification, differences in institutional, cultural and regulatory practices impose substantial information-processing demands on MNE corporate level managers. Likewise, geographic and time zone distance decrease MNE corporate level managers' ability to effectively monitor foreign operations and prevent unreliable behavior (Lee and Kwok, 1988; Reeb *et al.*, 1998). Accordingly, higher diversification will only lead to more stable returns over time in cases whereby corporate management is actually capable of leading and monitoring effectively the dispersed operations and additionally if, as argued by Reeb *et al.* (1998), the effect of uncorrelated income streams is higher than the increase in exposure to pervasive adverse factors originating from foreign exchange risk, political risk, agency problem and asymmetric information.

Here, focusing on core products and markets can reduce the uncertainty associated with managing diversified operations. Less exposure to pervasive adverse factors means that market share and profitability prospects associated with the core products and markets can be predicted with much more certainty than those of peripheral ones. This argument is also echoed by anecdotal evidence suggesting that "firms in practice

use a higher discount rate for evaluating international projects” (Reeb *et al.*, 1998, p. 264), reflecting corporate managers’ *risk aversion* and perception of non-core activities being laden with more uncertainty than core activities. In other words, corporate level managers are likely to perceive focusing on core prospects as less risky as compared to engaging in geographic and product diversification. The choice of a *risk-averting* strategy, when faced with increased market penetration by foreign rivals, means in practical terms that domestic incumbents will reduce their product and geographic diversification, as an expression of seeking *sure gains*.

In contrast, if some strategy alternatives open to the firm are perceived as associated with *sure losses*, then corporate-level managers are more likely to select an increase in diversification that might lead to high gains, even if the probability thereof may be low. What are the likely gains of diversification? Conventional financial portfolio theory posits that given non-perfectly correlated profit streams, a firm may decrease the volatility of its total profit stream by increasing the diversification of its product and/or geographic portfolio (Markowitz, 1952). Here, a reduction in profit volatility is equivalent to a reduction in corporate financial risk (Mansi and Reeb, 2002; Rugman, 1976). For example, in the context of international diversification, past research in the fields of international business, strategy and finance has shown that increased diversification can lower the financial risk for the firm (Agmon and Lessard, 1977; Hughes *et al.*, 1975; Kim *et al.*, 1989; Rugman, 1976, 1977). Following Kim *et al.* (1993) it could be argued that geographic diversification provides the firm with three unique options that reduce corporate financial risk.

First, geographic diversification may provide multiple national markets for the MNE where it may encounter the same competitors. This multimarket contact enables the firm to retaliate against aggressive moves made by these competitors (Kim *et al.*, 1993), and even to reduce industry attractiveness (Chen, 1996). As a result, it may be preferable for the foreign entrants to avoid aggressive moves (such as price wars) against incumbent rivals that are active in multiple markets (Edwards, 1955; Witteloostuijn and Wegberg, 1992). Hence, geographic diversification is likely to reduce the firm’s risk of facing aggressive moves at home from competitors, which may affect the firm’s market share and profit streams, and lead to avoiding *sure losses*.

Second, geographic diversification provides the firm with the ability to organize its activities as a network (Allen and Pantzalis, 1996; Kogut, 1985a, 1985b, 1989). Being located in different geographic markets, a firm with a high geographic diversification can flexibly react to country-specific environmental shocks and fluctuations originating from changes in interest rates, exchange rates, wage rates and commodity and raw material prices, by shifting factors of production and distribution across national borders, thereby again avoiding *sure losses* in case of an unattractive domestic market situation (Bodnar *et al.*, 1999; Pantzalis *et al.*, 2001; Tang and Tikoo, 1999; Thomas and Eden, 2004).

Third, geographic diversification allows the firm to capitalize on its ability to arbitrage institutional restrictions, capture information externalities and save costs through joint production in manufacturing and marketing (Kogut, 1983, 1985a, 1985b, 1989). Fluctuations in profit streams are further reduced due to the fact that the geographically dispersed firm is able to smooth the peaks and troughs of supply and demand fluctuations of any one national market (Kim *et al.*, 1993).

A similar reasoning has conventionally been applied in the context of product diversification. Various scholars have argued that an increase in a firm's product diversification reduces the firm's dependence upon a single product, thereby reducing the firm's exposure to business cycles. Hence, conceptualizing the firm as a combination of multiple income streams, with each stream being associated with a specific variance, and given that the individual income streams are imperfectly correlated, the variance of the combined income stream will decline with an increase in product diversification (Amihud and Lev, 1981; Bercovitz and Mitchell, 2007; Chang and Thomas, 1989; Mansi and Reeb, 2002).

Moreover, Bercovitz and Mitchell (2007) suggested that firms with a high product diversification possess a more diverse set of organizational routines (Nelson and Winter, 1982) than focused firms. Consequently, they reasoned that routine variety "provides survival advantages by supporting broader search and increasing routine recombination opportunities" (Bercovitz and Mitchell, 2007, p. 65). In other words, firms with high product diversification may be more capable of identifying a richer set of potential "solutions" when facing an external challenge: in the context of possible losses associated with all courses of action at hand, corporate level managers may interpret increasing diversification as the alternative that would allow avoiding *sure losses* even though diversification gains may be difficult to achieve in practice. Indeed, as noted above, the effective implementation of diversification is fraught with difficulties often ignored when strategic choices are made, whether in the context of geographic market diversification or product diversification, but at least the perception is that *sure losses* can be avoided. Figure 1 graphically depicts our theoretical framework.

Development of hypotheses

In the past decades, fundamental macroeconomic changes such as falling trade barriers, technological progress and declining transportation and communication costs have led to increasingly open international markets (Ghosal, 2002; Wiersema and Bowen, 2008). This ongoing process of internationalization (Levitt, 1983) has enabled more cross-border mobility of production, technology, knowledge and capital (Buckley and

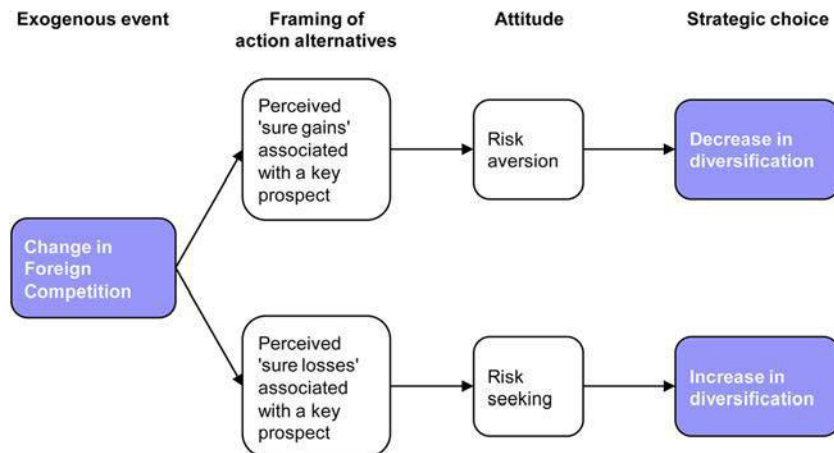


Figure 1.
Theoretical framework

Ghuri, 2004), giving rise to a significant increase in foreign market penetration (Bertschek, 1995; Bowen and Wiersema, 2005; Ghosal, 2002; Wiersema and Bowen, 2008).

Foreign market penetration, defined as foreign firms engaging in cross-border activities and taking away market share of domestic incumbents in their home market, has been shown to lead to falling industry profit margins, rationalization of production, shrinkage of domestic firms and pressure for greater intra-plant efficiency (Buckley *et al.*, 2007; Caves, 1985; Chung, 2001b; Domowitz *et al.*, 1986; Driffield and Love, 2007; Ghosal, 2002; Katic and Petersen, 1994; Tybout, 2003). These observed effects suggest the imperative for domestic firms to respond to new and often unfamiliar competitors (Wiersema and Moliterno, 2006). Consequently, as Wiersema and Bowen (2008) have argued, foreign market penetration, like other phenomena that change a firm's business and competitive environment, can be expected to induce change in corporate strategic choices.

Research by Rugman (2005), Rugman and Verbeke (2004, 2007, 2008) and Yip *et al.* (2006) has shown that despite some tendencies towards globalization, the domestic market is by far the single most important market within the firm's geographic portfolio[3]. Hence, increased foreign penetration of the domestic market will have a substantial negative effect on a number of domestic incumbents. This implies "losses" associated with the status quo.

In general terms, two "pure" modes of foreign market penetration can be distinguished (Buckley and Ghauri, 2004; Caves, 1985; Wiersema and Bowen, 2008). *First*, a foreign firm can transfer its FSAs by exporting products to a specific market. *Second*, this same firm can undertake FDI, meaning that its FSAs are transferred to a foreign subsidiary, which will then proceed to engage in local production. A firm is likely to engage in exports when there are production cost and transaction cost advantages to do so, e.g. because of economies of scale (Helpman *et al.*, 2004), the absence of trade barriers (government-imposed market imperfections) and the presence of difficulties to transfer knowledge directly (e.g. ill-functioning intellectual property rights protection). Choosing to serve the foreign market through exports, the firm faces comparably low upfront sunk costs, which may be limited to search costs related to product compliance, distribution networks or advertising. In contrast, the additional variable costs resulting, *inter alia*, from transportation may be comparatively high (Girma *et al.*, 2005). Because exports involve only limited upfront sunk costs, the exporting firm is able to easily abandon its cross-border investments, and to redeploy its resource base without incurring substantial losses. However, the foreign firm may also face a disadvantage as compared to domestic firms in the form of a liability of foreignness (Hymer, 1976; Zaheer, 1995). Such liability may lead to higher costs if the firm cannot conduct its business activities in the market as effectively as a domestic firm (Lu and Beamish, 2004). Due to the geographic distance to the targeted market and the peculiarities of export, these additional costs are likely to be reduced over time, but only slowly (Zaheer, 1995). In other words, the foreign MNE is really an outsider, and to the extent its increased market penetration is perceived as constituting a threat, this will, in many cases, be considered a manageable and contestable threat for domestic incumbents.

In contrast to exports, an MNE is likely to establish foreign production facilities in case the production cost advantages of proximity to the local market outweigh the

advantages from economies of scale (Brainard, 1997), and the transaction costs comparison also favors foreign production (Rugman, 1981). In doing so, the firm faces higher upfront costs resulting from building new production facilities or acquiring a firm, while at the same time eliminating the additional variable costs of exporting (Girma *et al.*, 2005). The foreign MNE also faces transaction costs associated with internalization, but is able to eliminate the transaction costs linked to exports and to the status of “outsider”, i.e. a foreign firm perceived to contribute little to domestic value added and employment in the host economy. In contrast, as an “insider”, and assuming inward FDI is not restricted, the MNE is much less likely to be discriminated against by government agencies or local business stakeholders. FDI that is significant in size and meant to create a permanent foothold in the host market, is typically associated with substantial upfront sunk costs, which lock the firm into the continued use of these assets (Brouthers and Hennart, 2007; Wegberg and Witteloostuijn, 1992). Various researchers have theorized (Helpman *et al.*, 2004) and have found empirical support (Girma *et al.*, 2005) that only the most productive firms within an economy engage in FDI.

Accordingly, foreign MNEs engaging in FDI have been found to be more productive than domestic ones (Aitken and Harrison, 1999; Girma *et al.*, 2002). Girma *et al.* (2002), for example, found in the UK context that foreign firms were between 8 and 15 per cent more productive than domestic firms, and that these advantages were reflected in employee wages, which were about 4-5 per cent higher. Consequently, as Buckley *et al.* (2007) have argued, foreign MNEs may attract the best employees from domestic firms, leaving those companies with less productive employees earning lower wages. Finally, possessing production facilities within the target market gives the foreign MNE two advantages as compared to the use of exports. *First*, FDI enables the foreign firm to learn and to adapt to unfamiliar business practices, thereby more rapidly overcoming the liability of foreignness (Lu and Beamish, 2004; Zaheer, 1995). *Second*, FDI not only enables the firm to engage in downstream competition but also provides access to country-specific resources at the upstream end, thereby potentially giving rise to upstream competition with incumbents (Driffield and Love, 2007; Rugman and Verbeke, 2004).

Both modes of foreign market penetration are likely to have negative impacts on the market share and profitability of at least some domestic firms (Caves, 1985; Ghosal, 2002; Tybout, 2003). However, considering the peculiarities of import-based vs FDI-based foreign market penetration, it is likely that domestic firms will perceive differences in terms of the strategic significance of the two entry modes, and will frame the related competitive challenge in an idiosyncratic fashion.

In the case of imports, the relative lack of upfront sunk costs incurred by the foreign entrants (Brouthers and Hennart, 2007; Luo, 2004), the difficulties experienced by these “outsider” firms in their downstream activities (Rugman and Verbeke, 2004) and their limited capacity to learn and adapt to unfamiliar business practices (Lu and Beamish, 2004) exemplify their comparatively lower commitment to the market as compared to FDI (Johanson and Vahlne, 2003). Consequently, domestic incumbents being much more familiar with the local business environment and having privileged access to localized resources are more likely to perceive an aggressive response to foreign market penetration as one that would be associated with *sure gains* as compared to the status quo situation.

As noted earlier, a firm can be conceptualized as a portfolio of activities in different product and/or geographic markets, with each activity contributing to the overall return of the portfolio (Lubatkin and Chatterjee, 1994). In the case of imports, the framing of foreign entry as being a low-commitment strategy pursued by the foreign MNEs involved, sets the stage for viewing at least one strategic choice alternative as associated with *sure gains*, namely the strategic choice involving a refocusing on core products and core markets that build upon the firm's essential FSAs. Following prospect theory, *risk-averse* behavior will prevail: domestic incumbents will overestimate the dangers of both maintaining extant diversification levels and increasing diversification, and view this as taking resources away from what is perceived as the best line of defense. Here, it is important to emphasize that, in contrast to conventional lab experiments testing prospect theory, the "outcome" of any particular strategy is not simply given exogenously and *ex ante*, but results directly from a firm-level choice and related resource allocation decisions.

In contrast, in the case of FDI, significant upfront sunk costs prevent a hit-and-run entry (Baumol, 1982). FDI opens up the possibility to extend the scope of involvement in the host country, both upstream and downstream, and to overcome the liability of foreignness over an anticipated longer period (as compared to imports). FDI is the expression of a high and long-term commitment to the local market by the foreign entrant. In addition, considering the typical productivity advantages of foreign firms engaged in FDI (Girma *et al.*, 2002) and the threat that they may attract key employees from domestic incumbents, this entry mode is likely to be associated with a very different framing by domestic incumbents as compared with the situation of increased imports discussed above. Here, the combination of past market share losses by domestic incumbents and the high-commitment strategy of the foreign entrants is likely to create a frame, whereby all courses of action will be associated with at least some likelihood of losses. In this case, *risk-seeking* behavior may materialize, whereby domestic incumbents will exhibit a preference for any strategic choice alternatives that would allow avoiding *sure losses*. Increased diversification represents such an alternative. Here, the firm is likely to add "activities" to its product and/or geographic portfolio to reap benefits of portfolio diversification, in the sense that further losses in core product and geographic areas can be compensated (at least so is the perception) by inroads in new product segments and geographic markets (Lubatkin and Chatterjee, 1994; Markowitz, 1952).

Building on the previous section, we propose the following hypotheses:

- H1. Increased import penetration in the home market evokes risk-averting behavior (i.e. seeking "sure gains") from domestic incumbents that will refocus on core businesses and markets, thereby reducing their product and geographic diversification.
- H2. Increased foreign direct investments in the home market evoke risk-seeking behavior (i.e. avoiding "sure losses") from domestic incumbents that will extend their product and geographic diversification.

We have argued above that foreign competition (FC) based on imports vs FDI will affect the *framing* of the competitive challenge at hand by domestic incumbents, and thereby the perceived "optimal" product and geographic diversification levels to be pursued by these firms. However, the degree of change in product and geographic diversification is

unlikely to be identical across all incumbents. Rather, any incumbent's initial product and geographic diversification levels are likely to affect the extent of adaptation (Hashai and Delios, 2012). In particular, there are at least two reasons for why an incumbent's initial product and geographic diversification levels are likely to be moderate in the extent of their adaptation.

First, in general terms, it could be argued that the extent of adaptation is likely to be contingent on the relative importance of the affected domestic and product markets for the incumbent. For example, if the affected domestic and product markets are of little importance to an incumbent firm, any threat posed by imports or FDI, in terms of strategic significance for the firm when framing the challenge, is less likely to trigger substantial changes in geographic diversification levels. In other words, the perceived required changes in diversification levels to fight the foreign entry threat become smaller for domestic firms that already are highly diversified (see *H3* below).

Second, and more specifically, the initial product and geographic diversification levels determine the *discretion* the firm can exercise when adapting itself to new circumstances (Astley and van de Ven, 1983; Hrebiniak and Joyce, 1985). For example, a domestic incumbent with low initial diversification levels and facing FDI-based foreign market penetration has considerable discretion to increase further his product and geographic diversification (*H3a*). Conversely, a domestic incumbent with a low initial diversification level has only limited discretion to reduce further his diversification level, even when facing import-based foreign market penetration (*H3b*).

Hence, we propose the following hypotheses:

- H3*. A domestic incumbent's initial diversification level moderates the relationship between a change in foreign market penetration (increase in imports or FDI by foreign rivals) and the resulting change in product and geographic diversification.
- H3a*. A domestic incumbent's higher initial diversification level will lead to a smaller reduction of this diversification level in response to rising import-based market penetration.
- H3b*. A domestic incumbent's higher initial diversification level will lead to a smaller increase of this diversification level in response to rising FDI-based market penetration.

Methodology

Data and sample

To test our hypotheses, we obtained access to a proprietary database that has also been used in Hutzschenreuter and Gröne's (2009a) paper, i.e. a panel of large US firms for the 16-year period between 1987 and 2003, with detailed data on the firms' product and geographic diversification levels. Financial data were taken from COMPUSTAT and, where necessary, supplemented with data from THOMSON. The sample was selected from the S&P 500. To be included in the sample, segment-level financial data had to be available for both business and geography for at least two years during the period of analysis. Overall, this yielded a set of 407 US firms, with 5,972 firm-year observations.

Imports and FDI data were based on United Nations (UN) sources. In particular, data on imports were obtained from the COMTRADE database. Imports were captured as aggregated trade flows from all exporting countries into the USA, broken down by

three-digit SITC (revision 2) trade category. The UNCTAD FDI database served as the basis for the FDI data needed. The investments were captured as aggregated inward FDI stock from all originating countries into the USA, broken down by International Standard Industrial Classification (ISIC) (revision 2) industries.

Finally, to calculate foreign market penetration ratios and to control for industry effects, industry data were compiled. We collected sectoral information from the “Groningen Growth and Development Centre (GGDC) 60 industry database” on industry size, growth and productivity and sectoral concentration data from the US Census Bureau. Using the classification correspondence tables provided by the UN Statistics Division and EUROSTAT, we assigned imports, FDI and other industry-level data to the business segments of the firms included in our sample.

Dependent variable

The objective of the present study is to explore whether and how firms adapt their geographic and product diversification, when confronted with FC. In particular, building on insights from prospect theory, we hypothesize that when faced with increased foreign market penetration through imports, domestic incumbents are likely to reduce their product and geographic diversification. In contrast, when facing increasing penetration from FDI in their home market, domestic incumbents are likely to increase their product and geographic diversification.

To test the hypotheses above, we used a set of diversification measures that are firmly established in the extant diversification literature. Our product diversification measures included a product segment count, as well as the calculation of a Herfindahl index and an entropy measure, with business segment sales used as weights^[4] (Bowen and Wiersema, 2005; Palepu, 1985). We adopted a conceptually equivalent approach to measure geographic diversification, using a geographic segment count and calculating a Herfindahl index, as well as an entropy measure. We used geographic segment-level sales figures taken from COMPUSTAT as weights (Bowen, 2007; Goerzen and Beamish, 2003).

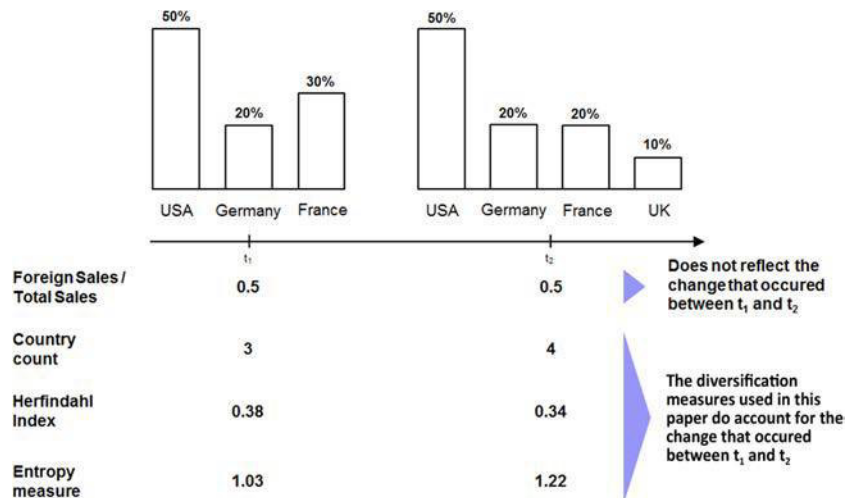
The use of the more complex diversification measures was necessary to be consistent with our conceptual analysis. For example, the conventional internationalization measure, F/T, measures the ratio of foreign to total sales. This ratio provides an indication of the weight of a firm’s domestic market size relative to all geographic markets where it is active, but testing our hypotheses required a construct that effectively measures the actual breadth, i.e. diversification across foreign countries of the firms’ international activities (Hitt *et al.*, 1997; Sullivan, 1994; Wiersema and Bowen, 2008).

The following example illustrates the importance of this distinction. At a given time, t_1 , firm A may be active in the USA (domestic market), Germany and France, with sales shares of 50, 20 and 30 per cent, respectively. In the next period, t_2 , firm A may still be active in the USA, Germany, and France, but the firm may now also be active in the United Kingdom. If the sales shares of the four countries in t_2 were 50, 20, 20 and 10 per cent, respectively, the use of the foreign sales ratio would yield an identical result for both periods, i.e. it would be wrongly assumed that no change occurred in the firm’s geographic portfolio, as the foreign sales ratio would be 0.5 in both t_1 and t_2 . However, when using a proper diversification measure, the above changes in the firm’s geographic portfolio between t_1 and t_2 become identifiable. For example, when calculating the

Herfindahl index, the firm's geographic diversification score decreases from 0.38 in t_1 to 0.34 in t_2 , even though the weight of the domestic market and/or core industry remained unchanged (Figure 2).

COMPUSTAT's reporting of geographic segments varies across firms and over time. While some firms report on a country-by-country basis, other ones report on a region-by-region basis, and still others mix these two reporting levels. Moreover, S&P adjusted COMPUSTAT's geographic segment template in 1997, removing the cap of four with regard to the number of maximum segments that could be reported. Due to these inconsistencies across firms and over time, we harmonized the raw data by aggregating figures into a "consistent segment"-taxonomy. In particular, we allocated the reported segments to one of the following regional segments: Domestic, Europe, America, Asia/Pacific and Africa/Middle East. Using regions rather than countries constitutes a simplification. However, regions do matter in international business (Rugman, 2005), and this approach is also in line with the perspective that managers view locations in terms of regional, "psychic zones" (Sullivan, 1994), rather than in purely national terms (Calori *et al.*, 2000; Sethi *et al.*, 2003). Moreover, a similar approach has been adopted in mainstream prior studies (Hitt *et al.*, 1997; Wiersema and Bowen, 2008).

In accordance with our *conceptual approach*, we calculated *changes* in each of the diversification dimensions (product and geographic), rather than merely measuring diversification levels. As a result, we were able to capture the inter-temporal dynamics described above (Chung, 2001a; Doukas and Lang, 2003). To test our hypotheses, we related the change in foreign penetration of the domestic market during one period ($\Delta \text{Import}_{t-1 \rightarrow t0}$ and $\Delta \text{FDI}_{t-2 \rightarrow t0}$) to changes in (product and geographic) diversification during a subsequent period ($\Delta \text{Product diversification}_{t0 \rightarrow t2}$ and $\Delta \text{Geographic diversification}_{t0 \rightarrow t2}$). The time lag between the occurrence of a change in market penetration by foreign rivals and a change in (product and geographic) diversification



Note: % indicates the share on total sales, US being domestic market

Figure 2.
Illustrating the importance of choosing an appropriate diversification measure

by domestic incumbents reflects the time needed for strategy adaptation. Changes in product diversification reflect investments in – or divestments of – product lines, whereas changes in geographic diversification refer to entering – or withdrawing from – particular regions: implementing either of these two types of strategic moves can be expected to take at least one to two years[5]. Reliability analyses revealed sufficiently high commonality between the individual product and geographic diversification measures (Cronbach's $\alpha > 0.7$ in all cases). Therefore, we aggregated individual indicators into product and geographic diversification factor scores.

Independent variable

We calculated import and FDI penetration changes at the industry-level based on UN import data and UN inward FDI stock data, respectively. To calculate the penetration ratios for every industry, we used industry-level GDP value-added data from the GGDC's 60-industry database as denominator. We used the change in the business segment sales-weighted average import or FDI across the business segments of a given domestic firm to represent the influence of foreign market penetration on the entire business portfolio of the domestic firm.

We measured import-based foreign market penetration changes via import penetration changes between t_{-1} and t_0 . Hence, in line with previous studies (Bowen and Wiersema, 2005; Hutzschenreuter and Gröne, 2009a, 2009b), we acknowledged that import-based foreign market penetration is fairly transparent and that short-term responses are possible. In contrast, foreign market penetration based on FDI does not necessarily imply direct competitive effects. Rather, the foreign firm must first set up local operations and/or integrate acquired assets, before deploying its FSAs in the host market and, at that stage representing a serious threat to domestic firms. Hence, to account for the implementation period, we calculated changes in FDI-based foreign market penetration as changes in FDI stock between t_{-2} and t_0 . In doing so, we followed previous studies, which have used two-year lags when the immediacy of causal relations was conceptually uncertain (Baker and Cullen, 1993; Hutzschenreuter and Gröne, 2009a, 2009b; Swenson, 2007)[6].

Control variables

We included control variables at the firm and industry levels and the level of the broader national environment. Firm-level controls included change in firm size (i.e. change in sales between t_{-2} and t_0), change in firm performance (i.e. change in ROA between t_{-2} and t_0), ex-ante diversification levels (i.e. factor scores for product and geographic diversification at t_0 , using the same underlying measures as for the dependent variable) and simultaneous changes in diversification for the other diversification dimension (using the same measure as for the dependent variable). Industry-level controls included change in industry concentration (i.e. change in concentration ratios between t_{-2} and t_0), change in industry productivity (i.e. change in value added per employee between t_{-2} and t_0), change in domestic industry size (i.e. change in industry value-added between t_{-2} and t_0) and ex-ante import and FDI penetration levels at t_0 to indicate the degree of extant industry internationalization. National-level controls included change in GDP (i.e. change in GDP between t_{-2} and t_0), GDP at t_0 , significant regulatory and political change in the USA, as reflected by the 1994 North American Free Trade Agreement

(Burfisher *et al.*, 2001), base rate at t_0 and consumer price index at t_0 . The descriptive statistics for all variables are shown in Table II.

Estimation approach

At the outset, we performed a Hausman specification test, a Breusch – Pagan test and a Wooldridge test to control for fixed firm effects, heteroskedasticity and serial correlation, respectively. The Hausmann specification test revealed fixed firm effects for the unbalanced country panels ($p < 0.001$, Greene, 2008). The Breusch – Pagan test confirmed the presence of heteroskedasticity ($p < 0.001$, Breusch and Pagan, 1979). Finally, the Wooldridge test showed the existence of serial correlation within our data (Wooldridge, 2002). Moreover, we had to address possible time effects (Greve and Goldeng, 2004). Hence, we used an estimation procedure for estimates that remain unbiased under the following conditions: the presence of fixed-firm effects, heteroskedasticity, serial correlation and time effects. Because we simultaneously included a diversification change control measure, we additionally had to protect our analysis against endogeneity bias (Hashai and Delios, 2012).

To take possible time effects into account, we recalculated all variables as differences from the respective period means (Greve and Goldeng, 2004). In doing so, we obtained the same results as including time dummies, but did not lose as many degrees of freedom. To estimate the models, we used the xtivreg2-procedure in Stata 9.2, using the “fe”, “robust”, and “bw(auto)” options (Schaffer, 2007). The “fe” option applies a two-staged least squares (2SLS)-fixed effects estimator with instrumental variables (IV) for panel models. “Robust” corrects standard errors for heteroskedasticity bias using the Huber – White sandwich estimator. The “bw(auto)” option applies the Newey – West estimator to correct for autocorrelation bias. We instrumented the endogenous diversification-change variable with one- and two-year lagged observations of the respective measures. The validity of instruments and appropriate model identification were confirmed through Kleibergen – Paap and Hansen J statistics (Baum *et al.*, 2003, 2007; Wooldridge, 2002). To corroborate our results, we also used a two-Step GMM and LIML estimators to perform our analysis. The results turned out to be consistent across all estimation methods used. The results shown are those of the IV 2SLS estimation procedure.

Results

Tables III and IV show the results of our analysis. *H1* suggested that, when faced with increased imports, a refocusing on core products and markets by domestic incumbents would reflect a strategy of *sure gains*, capable of countering effectively a contestable foreign threat. In accordance with *H1*, domestic firms do, indeed, reduce their product and geographic portfolio diversification, when confronted with increasing market penetration from foreign imports. As Models 2, 3, 5 and 6 show, changes in import-based foreign market penetration have negative and significant effects on product diversification (-0.0389 and -0.0525 ; significant at the 5 and 1 per cent levels, respectively) and on geographic diversification (-0.0331 and -0.0310 ; significant at the 1 per cent level). Consequently, *H1* is supported.

H2 predicted that domestic firms are likely to consider an increase in foreign penetration through FDI as a serious threat, with both the status quo strategy and a strategy of reducing diversification levels, leading to *sure losses*, in terms of expected,

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Change in industry import penetration ($t_{-1} - t_0$)	0.12	0.44																	
2 Change in industry FDI penetration ($t_{-2} - t_0$)	0.76	0.05	-0.00																
3 Change in product diversification ($t_0 - t_2$)	0.00	1.09	-0.14*	0.04*															
4 Product diversification (t_0)	-0.06	0.97	0.04*	0.04*	0.25*														
5 Change in geographic diversification ($t_0 - t_2$)	0.00	0.98	-0.07	0.00	-0.09*	0.00													
6 Geographic diversification (t_0)	-0.12	0.92	0.05*	-0.03*	-0.02	0.19*	0.28*												
7 Change in Firm Size ($t_{-2} - t_0$)	0.56	4.59	-0.13*	0.01	0.08*	-0.04*	0.03*	-0.06*											
8 Change in industry size ($t_{-2} - t_0$)	0.14	0.16	0.11*	0.16*	0.14*	-0.05*	0.03*	-0.05*	0.10*										
9 Industry import penetration (t_0)	0.08	0.24	0.03*	0.03*	0.04*	-0.02	0.06*	0.15*	0.02	-0.12*									
10 Industry FDI penetration (t_0)	0.04	0.12	0.00	0.03*	0.00	0.00	-0.01	0.03*	0.02	-0.06*	0.65*								
11 Change in GDP ($t_{-2} - t_0$)	3.03	1.31	0.34*	0.13*	-0.25*	-0.00	-0.11*	-0.01	-0.03*	0.10*	-0.01	-0.01							
12 GDP (t_0)	7,576,233	1,797,26	0.23*	0.02	-0.26*	0.00	-0.13*	0.00	-0.05*	0.10*	0.01	0.01	-0.04*						
13 NAFTA (t_0)	0.61	0.49	0.33*	-0.16*	-0.31*	0.00	-0.15*	-0.00	-0.05*	-0.06*	0.00	0.00	0.24*	0.24*					
14 Change in firm performance ($t_{-2} - t_0$)	0.06	39.37	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.03*	0.01	0.00	0.00	0.00				
15 Change in industry productivity ($t_{-2} - t_0$)	0.02	1.66	0.00	0.00	0.00	0.00	0.01	-0.01	0.00	0.03*	0.05*	0.02	0.00	0.00	0.00	0.00			
16 Change in industry concentration ($t_{-2} - t_0$)	0.03	0.10	-0.02	0.00	-0.02	0.02	0.01	0.00	0.00	0.00	-0.02	-0.02	0.01	-0.02	0.00	0.00	0.06*		
17 Base rate (t_0)	4.53	1.73	0.21*	0.22*	0.01	-0.01	0.08*	-0.01	-0.01	-0.22*	-0.02	-0.02	0.47*	-0.57*	-0.27*	0.00	0.00	0.01	
18 Consumer price index (t_0)	9381	12.24	-0.13*	0.28*	0.04*	0.00	-0.14*	0.01	-0.04*	0.11*	0.02	0.03	-0.06*	0.97*	0.83*	0.00	0.00	-0.01	-0.61*

Note: * $p < 0.05$ (two-tailed)

	Change in product diversification ($t_0 - t_2$) of US firms					
	Model 1		Model 2		Model 3	
	Coefficient	Standard errors	Coefficient	Standard errors	Coefficient	Standard errors
<i>Firm-level controls</i>						
Change in firm size ($t_{-2} - t_0$)	0.0075	0.0026**	0.0077	0.0026**	0.0086	0.0024***
Change in firm performance ($t_{-2} - t_0$)	0.0004	0.0001**	0.0004	0.0001**	0.0004	0.0001**
Change in geographic diversification ($t_0 - t_2$)	0.0856	0.0283**	0.0881	0.0284**	0.0815	0.0282**
Geographic diversification (t_0)	-0.1152	0.0457*	-0.1159	0.0457*	-0.1163	0.0451
Product diversification (t_0)	0.7803	0.0502***	0.7800	0.0502***	0.7848	0.0534***
<i>Industry-level controls</i>						
Change in industry concentration ($t_{-2} - t_0$)	0.0625	0.1256	0.0609	0.1255	0.0575	0.1226
Change in industry productivity ($t_{-2} - t_0$)	0.0004	0.0022	0.0007	0.0021	0.0010	0.0020
Change in industry size ($t_{-2} - t_0$)	0.8358	0.1007***	0.7931	0.1035***	0.7614	0.1022***
Industry import penetration (t_0)	0.3177	0.1934†	0.3064	0.1935	-0.0432	0.0096**
Industry FDI penetration (t_0)	-0.3429	0.2046†	-0.3570	0.2049†	0.0001	0.0000***
<i>National-level controls</i>						
Change in GDP ($t_{-2} - t_0$)	-0.0404	0.0096***	-0.0430	0.0097***	0.2258	0.0562***
GDP (t_0)	0.0001	0.0000***	0.0001	0.0000**	0.2828	0.1973
NAFTA (t_0)	0.2547	0.0553***	0.2341	0.0560***	-0.3178	0.2059
Base rate (t_0)	0.0310	0.0118**	0.0245	0.0121*	0.0223	0.0121†
Consumer price index (t_0)	-0.0258	0.0081**	-0.0241	0.0081**	-0.0254	0.0081**
<i>Independent variables</i>						
Change in industry import penetration ($t_{-1} - t_0$)			-0.0389	0.0163*	-0.0525	0.0189**
Change in industry FDI penetration ($t_{-2} - t_0$)			0.0553	0.0241*	0.0572	0.0259*
Change in industry import penetration ($t_{-1} - t_0$) × product diversification (t_0)					0.0510	0.0184**
Change in industry FDI penetration ($t_{-1} - t_0$) × product diversification (t_0)					-0.0435	0.0120***
<i>N</i>	5,972		5,972		5,972	
Centered R^2	0.2749		0.2761		0.2857	
<i>F</i>	22.81***		20.93***		23.45***	
Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; † $p < 0.1$						

Table III. Instrumental variables (IV) 2SLS regression, change in product diversification

shrinking market share domestically. As a result, domestic incumbents will increase their product and geographic portfolio diversification to avoid such *sure losses*. As can be seen in Models 2 and 3 for product diversification and Models 5 and 6 for geographic diversification, changes in foreign market penetration based on foreign direct investments have statistically significant positive effects (0.0553 and 0.0572; significant at the 5 per cent level for product diversification, 0.0558 and 0.0551; significant at the 0.1 per cent level for geographic diversification). Hence, $H2$ is supported.

	Change in geographic diversification ($t_0 - t_2$) of US FIRMS					
	Model 4		Model 5		Model 6	
	Coefficient	Standard errors	Coefficient	Standard errors	Coefficient	Standard errors
<i>Firm-level controls</i>						
Change in firm size ($t_{-2} - t_0$)	0.0095	0.0066724	0.0101	0.0067	0.0102	0.0069
Change in firm performance ($t_{-2} - t_0$)	-0.0001	0.0002	-0.0001	0.0002	-0.0001	0.0002
Geographic diversification (t_0)	0.8223	0.0638***	0.8307	0.0635***	0.8829	0.0700***
Change in product diversification ($t_0 - t_2$)	0.0146	0.0215	0.0064	0.0212	0.0033	0.0212
Product diversification (t_0)	-0.0584	0.0253*	-0.0539	0.0250*	-0.0568	0.0250*
<i>Industry-level controls</i>						
Change in industry concentration ($t_{-2} - t_0$)	-0.0017	0.0932	-0.0185	0.0916	0.0009	0.0927
Change in industry productivity ($t_{-2} - t_0$)	0.0044	0.0059	0.0045	0.0058	0.0044	0.0058
Change in industry size ($t_{-2} - t_0$)	0.0293	0.1441	0.0456	0.1480	0.0721	0.1487
Industry import penetration (t_0)	0.3975	0.1618*	0.3595	0.1640*	0.3425	0.1663*
Industry FDI penetration (t_0)	0.2780	0.2800	0.3405	0.2837	0.3686	0.2884
<i>National-level controls</i>						
Change in GDP ($t_{-2} - t_0$)	-0.0048	0.0119	0.0240	0.0133†	0.0247	0.0134†
GDP (t_0)	0.0001	0.0001	0.0000	0.0001	0.0000	0.0001
NAFTA (t_0)	-0.0791	0.0688	-0.1687	0.0693*	-0.1618	0.0694*
Base rate (t_0)	0.0187	0.0140	-0.0059	0.0150	-0.0055	0.0150
Consumer price index (t_0)	-0.0142	0.0092	-0.0059	0.0090	-0.0074	0.0090
<i>Independent variables</i>						
Change in industry import penetration ($t_{-1} - t_0$)			-0.0331	0.0110**	-0.0310	0.0112**
Change in industry FDI penetration ($t_{-2} - t_0$)			0.0558	0.0139***	0.0551	0.0139***
Change in industry import penetration ($t_{-1} - t_0$) × geographic diversification (t_0)					0.0406	0.0133**
Change in industry FDI penetration ($t_{-1} - t_0$) × geographic diversification (t_0)					-0.1924	0.0914*
<i>N</i>	5,972		5,972		5,972	
Centered R^2	0.1572		0.1624		0.1658	
<i>F</i>	20.38		19.96		18.91	

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; † $p < 0.1$

Table IV.
Instrumental variables
(IV) 2SLS regression,
change in geographic
diversification

According to *H3*, the ex-ante diversification level moderates the relationship between change in foreign market penetration and product and geographic diversification change. Consistent with what we proposed, Models 3 and 6 show a positive moderating effect of the firm's ex-ante diversification level in the context of import-based foreign market penetration, with coefficients of 0.0510 for product diversification and 0.0406 for geographic diversification, being statistically significant at the 1 per cent level. Conversely, in the context of FDI-based foreign market penetration, the coefficients are negative with -0.0435 for product diversification and -0.1924 for geographic

diversification, being statistically significant at the 0.1 and 5 per cent level, respectively. In summary, all of our hypotheses received were supported empirically.

Discussion

In this paper, we have developed a new conceptual framework to explain why:

- import-based and FDI-based foreign market penetration can cause changes in product and geographic diversification by domestic incumbents; and
- imports and FDI can lead to diametrically opposed strategic choices in terms of changes in diversification levels.

Our analysis has contributed to an important emerging research stream, which explores how international environmental factors shape corporate strategy (Wiersema and Bowen, 2008).

Based on panel data of US firms, spanning the period 1983-2003 and encompassing 5,972 firm-year observations, we have shown that an increase in foreign market penetration leads to an adaptation of the domestic firms' product and geographic portfolio diversification levels. Our results corroborate the findings of previous studies (Bowen and Wiersema, 2005; Hutzschenreuter and Gröne, 2009a; Wiersema and Bowen, 2008), which demonstrated that changing business conditions, as reflected in increased foreign market penetration, would influence corporate strategy.

More importantly, however, when considering imports and FDI simultaneously, we demonstrated that different modes of foreign market penetration prompt different strategic choices from domestic incumbents (Blind and Jungmittag, 2004). The above results support our basic proposition that, when faced with imports vs FDI, a domestic incumbent perceives very differently the potential for gains and for losses associated with alternative, corporate strategic responses. In line with prospect theory (Kahneman and Tversky, 1979, 2000), when faced with potential losses in the case of imports, domestic firms exhibit *risk-averse* behavior. *Risk-averse* behavior means decreasing their product and geographic diversification to capture *sure gains*, associated with the strategic choice to refocus resources toward core products and markets.

In contrast, FDI is viewed as creating *sure losses* if extant diversification levels are kept constant or were reduced further. FDI signals that the foreign entrants have made a long-term commitment to gain market share in the local market, and are unlikely to change course as a result of domestic incumbents redeploying resources toward their core business and markets. To avoid strategic choices associated with *sure losses* in the home market, domestic incumbents engage in *risk-seeking* behavior, i.e. strategic choices entailing further product and geographic diversification.

Our results further indicate that the domestic firm's, ex-ante diversification level moderates the relationship between changes in foreign market penetration and adaptation of product and regional diversification. Spreading the firm's activities across various products and markets reduces the domestic firm's dependency on specific product and regional markets (Lubatkin and Chatterjee, 1994). As a result, the threat potential of, for example, FDI-based foreign market penetration decreases and adaptation of diversification will be less pronounced.

Building on Kahneman and Tversky's (1979) prospect theory, we have adopted a behavioral perspective to explain firm-level strategic choices. Our perspective, thus,

complements prior research grounded in transaction cost economics (TCE) (Rugman, 1990) and the resource-based view (Bowen and Wiersema, 2005; Wiersema and Bowen, 2008) to explain a domestic firm's reaction to an increase in foreign market penetration. Our results are also in line with conventional behavioral theory (Cyert and March, 1963). According to behavioral theory (Cyert and March, 1963), organizations initiate problem searches when they fail to reach their performance goal. Having experienced losses with the extant levels of product and geographic diversification, domestic incumbents engage on a search away from the status quo. When faced with imports, only a reduction in diversification levels and a refocusing on core products and markets is perceived as leading to *sure gains*, and, thus, to market share prospects similar to the levels prevailing before the increase in foreign market penetration. Domestic incumbents will select this solution that is very proximate to current strategy, and will shift resources from peripheral parts of their product and regional portfolio toward their core businesses and core markets.

However, Cyert and March (1963) also found that under conditions of considerable search pressure, in this case, *sure losses* in the domestic market and core product lines due to an increase in FDI-based foreign market penetration, firms will search for more distant alternatives. Thus, firms facing sure domestic market and core product line losses are likely to increase their activities in peripheral parts of their product and regional portfolio and/or add new product lines and geographic markets to their portfolio, thereby increasing their diversification.

Limitations and future research

Our findings, their interpretation and subsequent discussion must be considered in the context of the study's limitations. These limitations result mainly from the empirical research model used. *First*, we considered only two modes of foreign market penetration in this study, i.e. imports and FDI. Here, we demonstrated that each form of market penetration evoked different corporate strategic choices made by domestic incumbents. However, given the measurement of foreign market penetration through an aggregate measure, we were unable to identify its origins. The home country of foreign rivals may be important when domestic firms interpret the strategic significance of increased market penetration. For example, increased foreign market penetration from developed economy MNEs as opposed to emerging economy MNEs may be important in the domestic firm's assessment of the loss potential. Here, US firms might be more likely to interpret increased foreign market penetration by developed country MNEs as triggering *sure losses* than in the case of foreign market penetration by emerging economy MNEs, given the perceived differences in FSAs held by two sets of companies (e.g. in terms of strength of brand names and product quality). Therefore, future research should try to segment the sources of foreign market penetration and uncover whether domestic firms react differently to foreign market penetration originating from developed vs emerging economies. A related important question in an era of regionalization is obviously whether increased foreign market penetration arises primarily from intra- vs inter-regional rivals (Rugman, 2005).

Second, consistent with our conceptual framework, the empirical results indicate that the preferred strategic choice to increased foreign rivalry depends upon the entry mode faced by domestic incumbents. These results, arising from the quantitative analysis of large panel data sets for US firms, should be complemented with primary case-based

information from the firms themselves to confirm that our explanation of changes in diversification levels as a strategic choice resulting from foreign market penetration truly approximates managerial decision-making in the affected firms. Future research should, therefore, use case-based study designs, including, especially, interviews with top management team members, to gain a more fine-grained understanding of the managerial processes involved in changes in diversification triggered by increases in foreign market penetration.

Third, though we considered product and regional geographic diversification, our study did not assess effects on vertical (de-) integration. It is likely that increases in foreign market penetration may lead domestic firms not only to adapt their product and regional diversification levels (horizontal boundaries) but also their vertical boundaries. In this context, future research may want to explore changes in, e.g. outsourcing and off-shoring levels as possible corporate strategic responses to increased foreign market penetration. For example, domestic incumbents may decide, when faced with a stronger presence from foreign MNEs through FDI that outsourcing of specific value chain activities and a focus on key segments in the vertical chain may contribute to avoiding *sure losses*, and that this type of corporate strategic response is preferable to adapting product and/or geographic diversification.

Fourth, while our results support a prospect theory-based explanation for changes in diversification levels, our empirical study design precluded us from exploring whether decisions to adapt diversification levels were solely driven by considerations related to gains and losses in market share (and profitability) or whether other strategy-related parameters affected changes in diversification levels (e.g. changes in labor regulations or labor compensation systems). Again, using case-based study designs, future research may unveil these types of influences on diversification levels.

Conclusion

In this paper, we have used prospect theory (Kahneman and Tversky, 1979) to develop a new conceptual framework that explains strategic choices made by domestic firms facing increased market penetration by foreign rivals. We have shown that a domestic firm's *framing* of possible strategic choices as responses to increased foreign market penetration is critical. Import-based market penetration is interpreted as a triggering event (or set of events) that affects domestic firms' choices of diversification levels. Here, among the various options available, a strategic response of reduced diversification is typically perceived as leading to *sure gains vis-à-vis* the status quo. In other words, the *risk-averse* refocusing on core product lines and geographic markets will almost certainly (at least that is the perception) lead the firm to regain momentum in terms of safeguarding domestic market share and growth.

In contrast, FDI-based foreign market penetration triggers a similar choice set of diversification levels that can be selected by domestic incumbents. However, in this case, the presence of inward FDI signals that the foreign rivals have a long-term commitment to grow in the domestic market at the expense of local incumbents, thus evoking a context of *sure losses* for these incumbents. Here, *risk-seeking* behavior in the form of choices favoring higher product and regional diversification are perceived as allowing firms to avoid *sure losses*, in spite of the uncertain outcomes involved with higher diversification levels.

To the best of our knowledge, our study is the first to adopt a behavioral perspective to explore the relationship between market penetration by foreign firms and the domestic incumbents' adaptation of their diversification levels. In a context of high uncertainty and high bounded rationality about the future state of the industry, reverting to simple heuristics still appears relevant. In this case, simple heuristics includes assessing which specific strategy domestic incumbents should deploy as a response to each particular entry mode selected by foreign rivals. We hope to have opened a promising new avenue for future strategy research, whereby the impact of heuristics should be assessed not just in a context of immediate ("fast") decision-making but also in the context of long-term strategic decisions supposedly determining the firm's market position and survival prospects.

Notes

1. An explanation as to why foreign sales to total sales is an inappropriate measure in the context at hand can be found in the methodology section. [Figure 2](#) includes an example illustrating this point.
2. Prospect theory has mainly addressed individual decision-making behavior, but several extensions, such as [Whyte \(1993\)](#) and [Whyte and Levi \(1994\)](#) suggest that the theory may also have predictive validity at the group level. In addition, the relevance to managerial decision-making has been studied extensively ([March and Shapira, 1987](#); [Kahneman and Lovallo, 1993](#)).
3. [Rugman and Verbeke \(2007\)](#), for example, have shown that the average home country sales of the 27 UK multinational companies, which are included in the world's top 500 companies, was 52 per cent in 2003.
4. Alternatively, we could have used an asset-weighted measure. Given the high correlation between both measures (> 0.9), the results would have been largely consistent with the sales-weighted measures reported here.
5. In addition, we tested one-year and five-year periods. The results were consistent with those reported here for the two-year period.
6. In addition, we performed several robustness checks, varying lags from 1 to 3 years and also employing a weighted average composite approach. While coefficients and significance levels varied slightly, the overall results remained consistent.

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