Management under uncertainty – the unavoidable risk-taking

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Abstract

Purpose – Accentuating the concept of management under uncertainty in the Uppsala internationalization process model, the purpose of this paper is to develop a model for describing how managers act while keeping uncertainty at an acceptable level.

Design/methodology/approach – The authors perform two empirical studies to underpin the model they construct. First, a survey of 309 chief executive officers and chief financial officers in large, publicly listed international firms in the Nordic region on managerial risk perceptions and, second, a case study of Volvo Car Corporation and its endeavors when developing new car models for the Chinese market on a new platform – a process characterized by unprecedented uncertainty.

Findings – The proposed model describing managers' behavior under uncertainty contains elements such as adjusting/proceeding in small steps, reducing uncertainty via learning, building relationships with important parties in the environment to avoid unforeseen changes and re-dos (i.e. starting all over again) and, perhaps most important, acting despite uncertainty.

Originality/value – The paper highlights a central, though forgotten, concept of the Uppsala internationalization process model, i.e. management under uncertainty, and, thereby, opens a new path for research on how manager behave under the sway of uncertainty.

Keywords Management under uncertainty, Uppsala internationalization process model

Paper type Research paper

Introduction

The typical international firm operates in a constantly changing, complex, partially unknown and unknowable environment, where actions are often undertaken based on incomplete knowledge and information (Penrose, 1966; Johanson and Vahlne, 1977). Its markets are not in equilibrium, and they do not move toward equilibrium (Chiles *et al.*, 2007). In such a setting, managers responsible for the well-being of their firms struggle with goal ambiguity, very high and sometimes irreducible uncertainty and insufficient feedback on their actions, especially those actions with long-term aspirations (March, 1982; Sarasvathy, 2001). Then again, uncertainty is a necessary consequence of change, complexity and ambiguity, all of which offer firms valuable incentives to develop opportunities to prosper – not the least of course in the international context. If managers waited for full certainty, it would be difficult for businesses to earn a profit or ever impact the development of a new business area or opportunity.

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The fact that managerial behavior and decision-making has to be understood and applied under the sway of uncertainty is nothing new in the field of international business and, more specifically, in the research on firms' internationalization processes. Significantly, since its derivation, the Uppsala internationalization process model (Johanson and Vahlne, 1977, 1990, 2009 and henceforth referred to as the U-model) has been used to explain the behavior, wherein firms prefer low commitment entry modes that imply little investment and hence risk-taking as the action to balance uncertainty (Vahlne and Johanson, 2013). However, the U-model has often been misunderstood as a model for management *of* uncertainty (Dunning and Lundan, 2008; Hennart, 2009). We, on the other hand, following the true intention of Johanson and Vahlne's work on firms' internationalization processes – see the U- model as one of managing *under* uncertainty. The distinction between managing uncertainty and managing under uncertainty is more than just semantics. The former implies that the level of uncertainty is the leading guide to future behavior, whereas the latter implies that uncertainty is the potential benefit that follows an action that pays close attention to the level of uncertainty. As will be shown in this paper, managers try to progress in ways that balance uncertainty and hence also risk-taking.

Based on the above discussion, we have two purposes for this paper. First, we argue that there is a need for accentuating the view on uncertainty found in the writings of Johanson and Vahlne, i.e. highlight that their conceptualization is not about the management of uncertainty but rather about management under uncertainty. Second, based on the U-model for firms' internationalization process, which we see has the potential to explain managerial behavior under uncertainty that is not exclusively limited to internationalization, we propose a theoretically grounded model for describing how managers act while keeping uncertainty at an acceptable level, i.e. explaining the process of management under uncertainty, including unavoidable risk-taking as uncertainty that rarely can be fully eliminated.

The first empirical study is a survey of managerial risk perceptions to which 309 chief executive officers (CEOs) and chief financial officers (CFOs) in large, publicly listed international firms in the Nordic region responded. These managers did not respond as if they were merely exposed to risk but rather as if they managed an organization that existed within an uncertain context. What these managers referred to as risk is a consequence of Knightian uncertainty (Knight, 1921) and, consequently, the idea that profit stems from actions intended to reduce uncertainty not from greater exposure to risk. To cope with such uncertainty, the surveyed managers were overconfident. They define risk as negative outcomes and not deviations from an expectation, and they believed that a risk attitude is not stable and that risk itself is manageable. These findings were in line with the research on decision-making (Kahneman and Tversky, 1979; March and Shapira, 1987; Lovallo and Kahneman, 2003) but contrary to neoclassical economics. Although Knightian uncertainty is connected to entrepreneurship in the narrow sense, we agree with Foss and Klein (2012, p. 222), who argued: "In the most general sense, all human behavior is entrepreneurial, as we live in a world of Knightian uncertainty, not the artificial world of neoclassical economic models".

The second empirical study is a case study of the Volvo Car Corporation (VCC). After being acquired by the Chinese company, Zhejiang Geely Automotive Holding, in 2010, one of the VCC's first major projects under the Chinese owner was to develop six new models on a new platform. This new platform was the largest development project in the history of VCC, and it was characterized by unprecedented uncertainty. Hence, by following the entire development process through monthly interviews with one of the directors in charge, we longitudinally could study how a manager acts under uncertainty.

The two empirical studies in this paper inspired the theoretical underpinning of the proposed model for management under uncertainty. Their results also support each other. The survey study provides representative attitudes of management under uncertainty for "the firms as a whole" as these respondents were the most senior representatives of their firms. Their attitudes can be seen as "general" in the sense that they are not tied to a specific project point in time. The longitudinal case study, on the other hand, provides a detailed account of management under uncertainty, i.e. how the prevailing attitude is affecting management during a process where the level of uncertainty, often unexpectedly, increases. In this sense, this case study offers a micro-foundation for the new model. Hence, similar to the original U-model's (Johanson and Vahlne, 1977) implicit discussion and the further developed model's (Johanson and Vahlne, 2009) explicit discussion on whether that model is applicable on an individual level or only on the organizational level, we argue that our proposed generic model on management under uncertainty is relevant for both levels.

The rest of the paper is structured as follows. Despite our inductively inspired research approach, where the two empirical studies guided our search for additional theoretical concepts to strengthen the U-model's original focus on managing under uncertainty, thereby enabling the development of a generic model on management under uncertainty, we have chosen to first present the main theoretical pillars of our suggested model. We chose this more traditional structure to help the reader fully understand the final model, hence increasing its comprehension. The theoretical framework is followed by examination of the survey on top executives' views on risk and uncertainty and the VCC case study. Finally, we use insights gained from the two empirical studies and the theoretical discussions to develop our model for management under uncertainty and offer concluding remarks.

Theoretical background

Relevant to this paper is behavior under uncertainty, a concept of great importance to the field of international business. Uncertainty is integral to this field because of distance in many dimensions and diversity of, for example, cultures (Asmussen *et al.*, 2015; Leszczynska and Pruchnicki, 2015; Johanson and Vahlne, 1977). Prevailing ambiguity and complexity (Weick, 1979), change (Foss and Klein, 2012) and liability of outsidership (Johanson and Vahlne, 2009) add to the uncertainty in a world. Hence, managing under uncertainty is critical in understanding strategic and operational action in multinational enterprises (MNEs). A couple of recent review papers help shedding light on previous research paying attention to uncertainty and its impact on behavior, for example, strategic choice and location (Kim and Aguilera, 2016; Jain *et al.*, 2016). Due to the existence of these insightful papers, the theoretical foundations presented below, merely highlight insights relevant to our study.

Early on it was recognized that one way to manage under uncertainty was to keep it below a certain level by, for example, entering foreign markets close to the home market (Johanson and Vahlne, 1977) and then by learning from experience, gradually proceeding to more distant markets (Arregle *et al.*, 2016). It has further been shown that learning can happen in other ways than by making experiences, for example, through active search and imitation (Forsgren, 2002). Hiring an individual or acquisition of knowledge may be other alternatives although those means in most cases still make use of experiential knowledge but made by others (Pellegrino and McNaughton, 2017). Lately, it has been found that experiential learning can be made more beneficial by monitoring controlling for means, criteria and documentation, paying attention to progress made in the field of organizational learning (Bunz *et al.*, 2017).

In some cases, learning may not be an applicable way to cope with the uncertainty experienced. There may, however, still be alternative ways to proceed. One is to define and implement actions characterized by a high degree of flexibility allowing for change if circumstances turn out not to be favorable (Shengsheng and Cantwell, 2017). Also, weighing the level of uncertainty across all units of the MNE, applying a portfolio approach to uncertainty may allow for a higher degree than preferred for a particular unit (Shengsheng and Cantwell, 2017). Relevant both in the case of business and institutional uncertainty is for the focal firm to engage in co-evolution with parties relevant to progress. This is a way to affect development or at least to be well informed about current and near future contexts (Brouthers *et al.*, 2016; Kostova and Hult, 2016; Cantwell *et al.*, 2010; Johanson and Vahlne, 2009).

A unique approach on how to act under uncertainty, named transformative, is developed by Sarasvathy (2001), launching the concept of effectuation. She studied entrepreneurs' decision-making processes during their creation of new firms. She argued that the prevailing literature commonly describes and understands the processes related to business ventures as causation processes in which a particular preferred effect is taken as given, and the focus is on selecting among the available means that will cause that particular effect. Causation processes are useful when the future is predictable, goals are clear and the environment is independent of our own actions. The entrepreneur's reality is, however, very different. To resolve this discrepancy, Sarasvathy (2001) proposed a shift from causation to effectuation. An effectuation rationality rests in exercising control over what can be done with the available resources rather than optimizing decisions about what ought to be done applying a set of predictions about what will happen next (Sarasvathy, 2001). Decision makers who follow the logic of effectuation focus on affordable loss rather than expected return. This focus makes uncertainty less important because the aim is to control the downside scenarios (Sarasvathy and Dew, 2008). As argued by Forlani and Mullins (2000, p. 310; drawing on the thoughts of March and Shapira, 1987), "for most managers (and most entrepreneurs), risk is a concept having primarily to do with loss, not with probabilities". Furthermore, rather than trying to predict the future, a decision maker tries to negotiate a reality consisting of commitments to particular partners, contingencies and possibilities (Sarasvathy and Dew, 2008).

The Uppsala internationalization process model (U-model)

Not surprisingly, given the purpose of this paper, the U-model (Johanson and Vahlne, 1977, 2009) is one of the cornerstones of our model of management under uncertainty. As mentioned in the introduction, the U-model explains the pace and pattern of a firm's internationalization process by assuming uncertainty and bounded rationality. It explains how a firm gradually increases its commitment to a foreign market by decreasing uncertainty via experiential learning. Hence, the basic explanatory mechanism is the interchange between knowledge development and resource commitment. Below we describe the general characteristics of the U- model that remain throughout the various developments and adaptations to specific issues made over the years. Later the model was developed to incorporate network views on both firm environment and the firm itself (Johanson and Vahlne, 1990; 2009).

The U-model has four interrelated concepts, of which two concern the change aspects mentioned above and two concern the stated aspects of the process. The change aspects consist of the discontinuous changes caused by intermittent decisions and the continuous changes caused by on-going processes. The discontinuous changes are outcomes of relationship or project commitment decisions, whereas the continuous changes occur during the relationships between actors where there is learning, creating and trust-building. Learning is primarily a matter of experience derived from relationship interaction, both

internally and externally. The changes are both explanations to and the possible effects of relationship interaction with existing or potential business partners. The effects can be both increasing and decreasing levels of commitment, as the model is not deterministic. Commitment has to do with flexibility. An investment in a specialized asset implies an increasing level of commitment, as the firm becomes more tied to a specific purpose whether that purpose is a relationship or a project of some kind. Level of commitment is then a product of the size of assets that are tied to a specific purpose and the possibility to be able to switch the use of that asset to another purpose (Johanson and Vahlne, 1977).

The U-model recognizes two stated aspects – original in the 1977 version, market knowledge and commitment. These can be more generally described as abilities, both operational and dynamic, (Teece *et al.*, 1997) and performance variables (Johanson and Vahlne, 2009; Vahlne and Johanson, 2013). Among these dynamic capabilities, the importance of opportunity recognition and exploitation and network development capability are stressed. They are also relevant for the present study. Which performance variables are relevant depend on the focal process under research. Basically it is a matter of commitment, for example, measured as a network position (Vahlne and Johanson, 2013).

Top executives' view of risk and uncertainty

In our first empirical study, we established how top executives perceive uncertainty and risk. To understand these perceptions better, we interpreted the responses to our survey sent to the CEO and CFO of 376 publicly listed non-financial companies in the Scandinavian region. Our intent was to discuss management under uncertainty, but the managers then spoke of risk-taking. As we see it, risk-taking implied to them that they had to take action in an uncertain world. Managers had to put certain resources at risk, and, in so doing, they could lose or win capital. The risk was then manifested in the volume of resources at stake. Our perception was that the concept of uncertainty was not part of these respondents' professional vocabulary, and, therefore, we avoided it.

The top executives surveyed were employed at non-financial firms with sales of more than MUSD 50 and traded on the Copenhagen, Helsinki, Oslo, or Stockholm stock exchanges. In total, 737 top executives from 376 companies were included in the study. The survey contained statements on managerial perceptions of risk and decision-making. To improve the response rate, non-respondents received two reminders. In the end, 42 per cent of the top executives responded to the survey (309 responses). We received responses from both the CEO and the CFO at 61 companies. The respondents represented 248 different firms (66 per cent), and 37 per cent of CEOs and 47 per cent of CFOs responded. Responses were from companies in eight broad industry groups: manufacturing (37.9 per cent), forestry and raw materials (9.7 per cent), trading (10.7 per cent), services (14.9 per cent), building and construction (5.8 per cent), transportation (11.0 per cent), biotechnology (5.2 per cent) and miscellaneous (4.9 per cent). The highest response rate came from Norwegian top executives (76 per cent of the firms), and the lowest came from Danish top executives (58 per cent of the firms). In comparison to similar types of studies in other national contexts, the CEO and CFO response rates were remarkably high (Graham and Harvey, 2001; Bancel and Mittoo, 2004; Brounen *et al.*, 2006).

To understand the managerial definitions of risk, these top executives were asked what aspects of risk they found to be most important. They were given seven alternatives:

(1) the capital put at risk;

(2) the probability that the outcome is worse than expected;

(3) the size of a possible negative outcome;

(4) the probability that the outcome is better than expected;
(5) the size of a possible positive outcome;
(6) the time periods when future cash flows are likely to occur; and
(7) the probability that the investment risked the existence of the firm.

Table I summarizes these results. On an individual basis, the managers deemed all alternatives to be important risk aspects; no one aspect received a score less than 2.93 (on a scale of 1 to 5). However, when we asked the managers to choose the top three most important aspects, we saw there were clear differences between the aspects. In addition to the aspect that the project risked a firm's existence (77.0 per cent), most managers (58.9 per cent) perceived that risk as associated with the capital tied up in a project. This response contrasted with the economic theory that suggests that risk concerns the probabilities of future outcomes and not the capital being put at risk. These results were similar to those obtained from US managers (MacCrimmon and Wehrung, 1986) in the sense that the probabilities of negative outcomes (40.8 per cent) are less important than the capital put at risk (58.9 per cent) and the time periods when the cash flows occur (51.8 per cent). Managers perceive aspects that are related to positive deviations from an expected outcome to be the least important. Importantly, we find that the three most common definitions overall where the same within all eight industry categories (although the order between the second and third definition sometimes differ). There are no significant differences between respondents in the four countries.

This definition of risk as negative deviations from an expected outcome is not novel and is documented in the previous literature (MacCrimmon and Wehrung, 1986; March and Shapira, 1987). Untabulated robustness tests revealed no significant differences within our sample in relation to individual characteristics (including the positions as CEO/CFO) and firm characteristics (including size and proportion of international activity). Response rates were higher from Norway and Sweden, but there was no significant difference in the definition of risk between countries and no difference between firms with one or two respondents. These robustness tests are reported in references. Taken together, these responses confirm our belief that the resources at stake are what truly matter.

Next, we presented the managers with statements concerning decision-making under uncertainty. As stated earlier, our statements addressed *risk*, but, given the responses we received, it was quite obvious that these managers did not discuss risk in a strictly theoretical sense. Table II shows ten statements and the closed-end responses that were given. Responses were made using a five-point Likert scale, in which we combined answers "1" and "2" (disagreement) and "4" and "5" (agreement). To preserve space, we only report the overall results, but robustness tests are provided in references. In general, the results are fairly robust across industry sectors. The right-hand columns of Table II contain the

Table I.
Managerial definitions of risk

Aspects of risk	Score	Important	Top three	(%)	Rank
Capital tied up by an investment	3.86	239	182	58.9	2
Probability of a negative outcome	3.76	216	126	40.8	4
Size of a negative outcome	3.76	216	117	37.9	5
Probability of a positive outcome	2.94	90	25	8.1	6
Size of a positive outcome	2.93	85	17	5.5	7
Time periods when cash flows occur	3.99	253	160	51.8	3
Probability of risking the company's existence	4.33	259	238	77.0	1

Statements concerning decision-making	Agree (%)	Disagree (%)	Ind
S1. Successful managers make rational decisions	68.2	4.9	8/8
S2. Over the next five years, your company is most likely going to have profitability above the industry average	70.7	5.6	8/8
S3. A manager's attitude to risk varies over time	78.9	3.6	8/8
S4. A manager's attitude to risk varies for different decision-making situations	85.7	4.2	8/8 6/8
S5. Generally speaking, exposure to less risk is better than exposure to much risk	36.5	23.5	7/8
S6. A successful company has high profitability when it is exposed to, relatively speaking, less risk	50.2	22.1	5/8
S7. By eliminating risk, the possibilities of earning high returns increase	35.7	38.4	8/8 8/8
S8. Careful planning is an important part of corporate risk management	91.2	2.6	8/8
S9. When operations focus on only a few business areas, the possibility to earn a high return increases	76.4	7.5	8/8
S10. From an investment point of view, it is better to own a small number of well-analyzed shares than many shares about which one has little knowledge	65.2	10.5	8/8

Table II. Managerial perceptions of risk and decision-making

frequency that an agreement with the statement is more (/less) common than a disagreement. Evidently, responses are quite similar from the different industries. The largest deviations (not tabulated) are from biotechnology and miscellaneous. There are no significant differences between respondents in the four countries.

A majority of the top executives (66.7 per cent) perceived successful managers as those making rational decisions (S1), and most executives (68.9 per cent) perceived themselves as successful to the extent that they will outperform their industry competitors in the coming years (S2). Indeed, we found that in one of the industries' managers in all seven firms expected their firms to outperform the industry average in the coming five years. Obviously, a perception that successful managers will make rational decisions is nothing but a perception and that perception does not mean that managers actually do behave rationally according to some benchmark. We argue that this attitude is entrepreneurial in the sense that confidence in one's own ability is a necessary but not sufficient condition for success. The responses correspond well with an abundant literature on managerial overconfidence (March and Shapira, 1987; Kahneman and Lovallo, 1993).

Another finding from the survey responses is that 78.0 per cent of the managers perceived that their attitude to risk varied over time (S3), and, further, 84.5 per cent of the managers claimed that their attitude to risk varied for different decision-making situations (S4). This response contrasts with the traditional economic theory that assumes an individual's risk preferences are stable, but these results were consistent with decision-making research in general (March and Shapira, 1987) and research in economic psychology in particular (Kahneman and Tversky, 1979). As we see it, the managers did not respond according to economic theory but based on their own experiences. If all decisions are unique and the decision-making context is so complex that its effects on decisions are incomprehensible, then managers will perceive risk (i.e. how much can be lost or gained) as being integral within the context.

According to economic theory, competitive markets ensure that returns are based on the exposure to risk. In a world of risk-averse individuals, those who expose themselves to more risk earn higher returns (Knight, 1921). This idea is fundamental to micro-economic

economic theory (Knight, 1921) as well as financial theory (Fama, 1970). According to these theories, individuals are risk-averse, but they will choose an exposure to risk to earn a return. Thus, to choose no risk exposure is not better than choosing an exhaustive risk exposure. Risk is a necessity. We presented the top executives with statements on risk and return, and more than one-third of them (36.2 per cent) preferred less risk (S5). According to economic theory, managers should simply disagree with the statement. Similarly, more than twice as many managers agreed that a successful company obtains high profitability while it is exposed to less risk (S6). When we presented the respondents with a statement concerning the merits of completely eliminating risk (S7), we found that 37.9 per cent believed that this scenario would increase the chances of earning a high return. Such a belief is, according to economic theory, complete nonsense. All these responses support Knight's claim that successful uncertainty management techniques and not optimal risk exposures facilitate profit making. The *risk* that managers discussed was not risk in the economic sense, but Knightian uncertainty, and, given the opportunity, the process of developing an action in a way that keeps both uncertainty and risk at an acceptable level implies that potential loss is an affordable loss (Sarasvathy, 2001).

We also presented the top executives with statements on how to behave in a risky environment. Of these managers, 94.5 per cent claimed that risk is controllable in the sense that careful planning is an important part of corporate risk management (S8). Most of the managers (75.1 per cent) believe that diversification activities are not necessarily good; high returns come from being focused (S9). This disbelief holds not only for a diversification of operating investments; more generally 64.1 per cent of the managers claimed that in-depth knowledge of individual financial investments is better than a mere diversification of investment (S10). These perceptions contradict the central ideas of portfolio diversification (Markowitz, 1952) and asset pricing theory (Sharpe, 1964; Lintner, 1965). Our interpretation of the results is that diversification not only lowers exposure to individual uncertain events but also lowers a firm's ability to create experiences that will decrease the level of uncertainty (Knight, 1921). We interpreted the answers to indicate that an initially high degree of uncertainty is gradually decreased by attempted successful management under uncertainty. What these management measures may be is discussed below.

The study offers insights into managerial perceptions of risk, but we acknowledge two caveats. First, the study was made at the individual manager level and not the firm. This focus brings to the forefront a question of whether risk perceptions are personal traits and if personal traits do affect firm level decision-making. To further understand the issue, we found no significant response differences between CEOs and CFOs and only small differences between CEOs and CFOs from the same firms. We thus cautiously interpret the individuals' responses as responses at the firm level. Second, the study only included top executives from Scandinavian countries. Although these executives often manage global operations and some are non-native Scandinavians, they tended to share a common cultural Scandinavian heritage. Hofstede (2001) pointed out that the Scandinavian cluster has unique attitudes toward uncertainty. To Scandinavians, uncertainty is often perceived not to be a problem but rather a challenging part of daily life. Because the study did not target executives from non-Scandinavian countries, we cannot say to what extent our results would have been representative for managers outside the Scandinavian cluster.

The responses to the study provide further understanding of what the concept of risk-taking means to managers. They spoke of risk as something they want to do and perceived that they could control (March and Shapira, 1987). One way of gaining that control was to limit the capital put at risk. Another way was to concentrate rather than diversify resources and management attention. They did not believe that more risk is necessary to increase the

return, and their attitude toward risk would vary from time to time and from situation to situation. Taken together, these findings suggest that the executives' views of risk-taking were constrained by the uncertain world they live in and the various measures they had to undertake to balance that uncertainty.

The Volvo concept study

The VCC case offers a good setting in which to study how management acts under uncertainty. We followed the entire development process and conducted monthly interviews with one of the directors following the development of concept studies. Claes Annerstedt (CA), Director of Strategy, Concept Body & Trim, was our main source. CA has read and approved our description of what was said. Certain editorial changes, with no content importance, were made accordingly. In total, we conducted eight interviews, each lasting about 90 min, between April 2011 and January 2012. During each of these interviews, we discussed issues that CA perceived to be important to the project at that point in time. To enable the reader to follow the correct order of the challenges as experienced and the solutions chosen by the project group, we report the empirical findings chronologically. Furthermore, Table III summarizes the main events and uncertainties experienced during the project.

In 2010, the Chinese company Zhejiang Geely Automotive Holding, the owner of Geely Auto, acquired the VCC from Ford Corporation. Before 1999, Volvo was a division within AB Volvo with a traditionally strong local presence in Gothenburg, Sweden. One of VCC's first major projects under the new Chinese owner was to develop a number of new models on a new platform. One of these models, the Long Wheel Base (LWB), was a long version of a sedan model aimed for the Chinese market. Because of the expected preferences of anticipated users – middle and senior managers in large Chinese organizations – the new model was going to be one decimeter longer than a normal sedan. This new platform was the largest development project in the history of VCC, and, as such, it was characterized by unprecedented uncertainty.

The intention was to develop a number of different models on a common platform (chassis, engine, traction and suspension to gain economies of scale). The new family of car models to be developed included two station wagons and several sedans, one of which was the LWB. The latter model was to be assembled in the VCC's new assembly plant, currently under construction in Chengdu. The LWB project started in June 2011 and finished on time at the end of December that same year.

The parameters of the car models are outlined in the product plan, a document having the Board of Directors' decision to start the development. Among other details, this document prescribes the vehicle's length and height, its maximum number of passengers, the degree of comfort and its luggage space. The plan also specifies the intended sales price, as well as production and development costs, the latter being drawn up by the property department. Then work started on a concept car, an early, but very concrete delivery of a potential new car model and also a fully functional car. The concept study provided critical input into the decision by group management and the Board of Directors on whether to actually pursue the project (i.e. start the development work in detail and plan the manufacturing). Historically, 70-80 per cent of VCC's concept studies do lead to full-scale production. The goal of the concept project, of course, is to meet the requirements of the product plan. The LWB model faced verification of its prescribed characteristics, such as safety, collision endurance and length of life. Some of that verification can be tested by computer simulation, but, in the end, the car model must undergo physical testing.

August 2010	Zhejiang Geely Automotive Holding, the owner of Geely Auto, acquires the Volvo Car Cooperation (VCC) from Ford Corporation. One of VCC's first major projects under the new Chinese owner is to develop a number of new models on a new platform; among others, the Long Wheel Base (LWB) car – a long version of a sedan model – aimed for the Chinese market
May 2011	Rumors that the Chinese authorities would increase taxes on larger cars arise VCC considers selling the future 'LWB car' also in other countries VCC decides to start the company's manufacturing in China, not with the LWB model as planned, but with an already existing model VCC discusses if a property department is needed in China
June 2011	VCC formally decides to start the first four concept studies, including the LWB model Geely wants to locate development activities in China The first milestone is set after 17 weeks when group management would decide whether to continue the project in its present form VCC choses the production plant for assembly and capacity utilization can be planned
September 2011	VCC development project is headquartered in Gothenburg, only minor sub-projects are located in China
November 2011	New five-year plan in China indicates a drastic future switch toward electric cars Ongoing struggle with balancing properties and cost, for example, acceptance for changing properties or decreasing costs is related to the potential of reaching higher sales volumes or higher prices Uncertainty if critical materials needed for manufacturing will be available to be sourced locally
December 2011	Project group has control of technology and meets model specifications. Only uncertainty is related to property costs Future industrial development of the car would stay within budget and thus offer a sufficient margin for profits, but several important changes had been made over the project's lifespan Car is less Chinese than initially thought Industrial development is located in Gothenburg The percentage of Chinese suppliers is lower and manufacturing in China less cost-efficient than originally planned
January 2012	Prescribed cost level is not met – VCC considers pressuring suppliers or eliminating certain properties. Keeping the time plan is prioritized
February 2012	VCC expectation to become a Chinese brand and recommended as a car to be acquired by Chinese authorities and state-owned companies is not met

Table III.
Main events and experienced uncertainties during the LWB project

Development and production costs are typically projected on the basis of VCC's earlier experiences. Overtime, these costs are expected to decrease because of standardization, scale and learning. Newness in certain of its aspects will add to the expected cost. The intended sales price includes development and production costs as well as the profit margin. For this type of car to be sold in the premium segment, there is a higher markup than average. In projects like this one, there is always a continuous balance of properties and costs; however, VCC's limited knowledge of the market leveraged the uncertainty rooted in this particular balancing act. In addition, development costs associated with the LWB model were projected on the basis of previously similar projects. Experience matters a lot, as it writes on the walls how much a particular project and sub-project, given the specifications, will cost. To obtain project costs that are as low as possible, it is particularly important to have an even workload with as few ups and downs as possible and feasible.

The LWB project was to begin officially in June, but, before that date, new information affected several of the most principal decisions. In May 2011, rumors claimed that the Chinese authorities would change the auto tax criteria, thereby increasing taxes on larger

cars, as a way of reducing increased congestion and traffic jams. If these rumors were true, the company's ability to successfully market and sell a car that was deliberately made longer than others would decrease. Another important rumor was that the VCC might sell the car not only in China but also in other countries, thereby increasing scale. While no decision was made, this information still added to the ongoing analysis of the project. At that moment, the VCC decided to start the company's manufacturing in China, not with the LWB model as planned but with an already existing model. This decision considerably reduced the uncertainty related to the manufacturing start-up.

Another aspect of the uncertainty was the question of whether there was to be a property department in China. The main advantage of having a local department is closeness to the market, given that procurement supposedly would take place in China. The main disadvantage was that the optimization of the LWB model required continuous balancing and re-balancing of characteristics as part of the total package, thus continuously taking those costs into account. Given that these early development activities were located in Gothenburg, it would be problematic to have people from the property department flying back and forth to China.

In June 2011, the VCC formally decided to start the first four concept studies, including the LWB model, which were meant for the Chinese market. The company approved a budget for the project and engaged approximately 100 individuals. The first milestone was set at 17 weeks after the project's initiation. At that time, group management would decide whether to continue the project in its present form. At that point, the VCC had already decided the production plant where the assembly would eventually take place. Thus, the project group could consider and plan for capacity utilization. For each model, the degree of radicalism of newness in the development was expressed on a scale ranging from 1 (applicability of an existing system) to 6 (completely new development) for the hardtop, the underbody and the power train. For the LWB model, these figures were 6-6-4, which indicated the project's exceptionally high level of uncertainty. Consequently, upon completion of the project, the power train, at that moment still in its final stage of development, would be put into the new models, including the LWB model.

The main uncertainty and concern during the entire project was whether the concept model with its properties would meet its cost constraints. This uncertainty varied considerably from component to component; whereas some costs were fairly easy to foresee, others were extremely difficult. Cost predictions are based on experience gained from previous projects and benchmarks for other projects. If the project group eventually realized that it could not maintain the cost limits for a component, it had to determine whether a particular property could be changed into something less costly or whether the budgeted price of the car could be increased. If such issues were not resolved at the milestone, then the project still could be given a conditional "pass" to stick to the time plan. Further, the starting date for manufacturing had to be determined early on. Delays could possibly be handled by starting to produce the tools ahead of time, which of course would imply another certain risk, should the tools developed no longer correspond to the designated needs.

If characteristics do not meet costs at the level ordered, a group of experienced project leaders then makes a decision on how to proceed. According to CA, they base their decision on 70 per cent facts and 30 per cent gut feeling. At that time, the VCC procurement department was scanning China for local suppliers. Due to their decision to start manufacturing by assembling an existing model in the Chengdu factory, it was possible to test local suppliers and, when needed, have them help meet necessary requirements. For the LWB model project group, this decision increased its ability to come up with component

specifications and, thus, reduced the uncertainties associated with local manufacturing. After all, the LWB model was not yet scheduled for production.

As mentioned, at the beginning of the project, Li Shufu wanted to locate all development work in China. In September of 2011, however, whereas the VCC development project was headquartered in Gothenburg, only minor sub-projects had been located in China. While Geely might have wanted to locate all development activities in China, this choice was neither optimal nor realistic. Neither Audi nor BMW had located any of their development activities in China. Similarly, GM and Ford had moved Chinese engineers to the USA not the other way around. In this respect, the VCC had gone further than its nearest competitors but without adding substantial uncertainty to its designated activities.

As mentioned previously, critical changes occurred during the project's lifespan. In particular, the LWB model was no longer viewed as a project aimed only for the Chinese market. Consequently, the project team had to focus on global standards. The global standardization was matched with the local adjustment in terms of the longer space in the back seat. Further, any forthcoming industrial development based on the LWB project model would be located in Gothenburg not in China. In addition, procurement would occur globally as long as the 40 per cent local content requirement was met. In November 2011, however, there had not yet been any news concerning changed auto taxes. However, the new five-year plan in China did indicate a drastic future switch toward electric cars.

At this moment in time, the struggle with balancing properties and cost was ever ongoing. If it were not possible to gain acceptance for changing properties or decreasing costs, top management had to decide whether anticipated higher costs could be met by higher sales volumes or higher prices. Also, there had been some modest surprises, both positive and negative (e.g. a couple of millimeters now had "to be found" to allow enough space for the seats).

At this relatively late stage in the development process, there were no technology-driven changes to the project. However, it was still not clear whether certain critical materials would be available in China. Consequently, it was possible to claim that the development was driven by those materials that were likely to be available in the near future. In the end, the LWB model project group adopted a strategy that matched Audi and BMW but with a presumably unique Volvo approach described as Scandinavian luxury, reserved simplicity and perfect functionality. Following the shared vision of both VCC and Geely, the new car models would be characterized by exquisite materials and "sophisticated beauty".

In December 2011, as the project group approached its final milestone for the LWB model concept, it had control of both the technology and meeting the model specifications. The only remaining uncertainty was related to property costs, now under renegotiation. At this time, however, it seemed as if the future industrial development of the car would stay within budget and thus offer a sufficient margin for profits.

While the LWB model concept was consistent with its specifications, several important changes had been made over the project's lifespan. A number made the car less Chinese than initially thought. Industrial development was located in Gothenburg, especially because salaries for competent English-speaking engineers were no longer considerably lower in China. There were even signs of possibly outsourcing technical development from China to countries like India. In addition, the percentage of Chinese suppliers was lower than initially planned, and the selected Chinese suppliers now charged international prices, which made manufacturing in China less cost-efficient than originally planned.

In December 2011, the VCC expected the public Chinese minority ownership of Zhejiang Geely Automotive Holding to be a great advantage. The authorities could prescribe which brands should be used as official cars. That is why the VCC wanted to place a smaller car on

the market quickly. That is also why the first car to be assembled in Chengdu would be an already existing model.

In January 2012, CA was not entirely satisfied with the final outcome of the LWB study: the prescribed cost level had not been met. One reason was that VCC aimed to enter the luxury segment and compete with German car manufacturers, and, thus, the properties were specified accordingly. However, as the VCC did not yet have a luxury segment image, it had to set lower prices. In addition, as each model had to be profitable, the budgeted cost level was somewhat too low. The alternatives for solving this problem were to pressure suppliers and thus lower costs and eliminate certain properties asked for in the specifications and alter the design. A priority, however, was to stick to the time plan. One way to save time was to increase the virtual verification process in favor of the physical. Potential customers would thereby have to look at computer screens rather than built models. Also, only journalists would be invited to drive the cars (besides the VCC's own test drivers).

The largest surprises occurring during the project time were not related to China but rather to internal decisions. The most important unexpected event was the change in critical personnel within the VCC organization which led to unforeseen consequences to which the project group had to adjust. Also, more properties were added during the life space of the project. Finally, the decision of the manufacturing organization to start in China, but not with the LWB model but an existing model as a way to keep uncertainty at an acceptable level, was an important change.

Below we present the events reported in the media that occurred after our interview study. Also, certain comments recorded during a visit to China to meet with VCC managers are included.

Several new issues occurred after the official end date of the LWB concept model project. The Swedish newspaper *Dagens Industri* reported that the VCC expectation to become a Chinese brand and recommended as a car to be acquired by Chinese authorities and state-owned companies had not been met (DI, 2012-02-29). For this expectation to happen, three conditions had to be met:

(1) a local brand had to be created;

(2) research and development must be located in China; and

(3) cars using alternative fuels must be developed.

The local Swedish newspaper, *Göteborgs-Posten*, reported that the National Development and Reform Commission had not yet awarded permission for VCC to build the two assembly plants already under construction in Chengdu and Daqing. That permission required that VCC and Geely Automotive form a joint venture in which technology was transferred from VCC to Geely (GP, 2012-04-24). This requirement explained why the VCC had previously announced that Geely and the VCC were going to create a jointly owned company with a Chinese brand and that technology would be transferred to this newly established company (Göteborgs-Posten, 2012-03-10). Despite these new uncertainties, however, *Göteborgs-Posten* reported that the VCC aimed to sell 200,000 cars in China within two years and shortly develop 10 new models for the Chinese market (GP, 2012-05-03).

In meetings with various VCC employees in Chengdu and Shanghai, it became obvious that not everyone in the organization had been updated on different aspects of VCC¨s strategy and China¨s official policies. This fact is not surprising, given that changes occur swiftly and Chinese institutional rules are both flexible and still under development. An example of the first point is that the short version of the LWB model, for the global market, would not be produced in China, as producing tools for an export version would be too

expensive, markets such as the European Union protected themselves and exports from China would not be feasible. An example of the second point is the requirement for local production: in principle, it seems that these rules have been scrapped although in practice they may still exist. A VCC official remarked that "We better prepare for being evaluated against such rules if a representative of a local authority so decides".

In the following paragraphs, we use empirical insights of the two studies and the theoretical background to develop and propose a generic model for management under uncertainty.

A model for management under uncertainty

The most severe uncertainties originate from the environment. In the VCC case, the uncertain dimensions involved to the Chinese institutional environment. For example, the VCC made important changes to its strategy in response to perceived changes in the expected preferences of its expected customers. Also, there was substantial uncertainty about potential changes to auto tax system and how to manufacture a new car model locally. The Chinese business environment created numerous additional uncertainties. For example, the availability of certain critical materials was not known. It is important to note as well that internal issues also caused some uncertainty: changes in the corporate strategy and key personnel affected the work of the project group. Above all, despite this group's decades of experience in developing new car models, there was considerable uncertainty about the balance between prescribed production costs and the properties of the LWB model. However, managing the development work in a manner like in previous projects had as its by-product a lower degree of uncertainty. Starting manufacturing in China, not as planned originally with the new LWB model, but instead with an old model with a known demand, lowered that uncertainty. Lack of knowledge of the China and the Chinese market for cars was compensated for by studying the operations of European competitors already active in the country. These examples from the VCC case show that its ambition to exploit an opportunity had not changed; however, the various actions taken to forward the exploitation of those opportunities simultaneously decreased the uncertainty and consequently the risks taken. We believe these are the sort of uncertainties that lay behind the responses received in the survey.

To act under uncertainty makes it important to have a vision or a potential opportunity on the horizon. Furthermore, there ought to be at least some confidence in being able to fulfill the vision despite the uncertainty (Survey Question S1). Managers construct their own context by acting toward this (often) ambiguous vision without focusing on precise prediction (Sarasvathy and Dew, 2008). This uncertainty is highly context specific (S2 and S3). In other words, similar to an entrepreneur launching an entirely new product, a manager in acting will not only enact the firm's environment but also create the latter (Sarasvathy, 2001). In the VCC case, the project manager in merely acting created meaning in the ambiguous and uncertain messages received from the other actors (Weick, 1979).

Our view is that management under uncertainty is not an occasional event but rather that uncertainty is a dimension of all decision-making. This view is illustrated by the two empirical studies presented here. Although the research approaches did differ, both studies clearly illustrate how uncertainties can shape management's views and actions. Because managers deal with uncertainties, they also perceive that they need to take control, and acting to take that control of course is intended to meet the objectives at hand and simultaneously cope with the level of uncertainty they perceive. In the survey, it was evident that risk varies over time; many managers defined it as capital tied up in an investment, and

they did not see more risk as only associated with a higher return. In contrast, according to their responses, their efforts to reduce uncertainty, and hence risk improves profitability.

We see managers in a context of both space and time. In terms of space, we see the business context as having a large, but still limited, number of actors, and many of these are known to the focal manager. The manager has established relationships with some of these actors, and many of these relationships are continuous. The relationships are both those of an external type (e.g. with suppliers) and an internal type (e.g. with other units within the firm). In addition, there are other actors with whom the manager has not dealt with before, and, thus, the manager needs to create those new relationships. According to the network view of the business context (Anderson and Narus, 1990), mutual trust and commitment help managers foresee what can happen and act to reduce uncertainty. The manager is part of both business and social networks, and these networks to some extent overlap. In sum, doing business and developing that business are accomplished via the development of such relationships. The LWB project illustrates this point clearly, and we can see that changes to personnel in critical positions can cause substantial problems. The choice of suppliers in the Chinese market was a difficult one, and, eventually, the VCC decided to stay with those international suppliers with which it had established relationships, a decision that also had a positive impact on the degree of uncertainty for the project.

It is necessary to view managers' decisions as a process over time in which both their decisions and actions depend on information from the past but which are intended to affect the future. Because of this time aspect, the basic element of the model offered here is the continuous organizational processes that are undertaken by the parties.

As shown in the VCC case, managers have to act even when there is a high degree of uncertainty. According to our survey study, it is possible to decrease uncertainty and, hence, risk by planning that involves, in our interpretation, exploiting the results of previous learning and trust building. This insight for us represents proof of our view that learning and trust building pay off.

Our model for management under uncertainty is a variant of the Uppsala internationalization model, which has been applied in several varieties but still retains its basic shape (Johanson and Vahlne, 1977, 2009). The upper left quadrant of Figure 1 depicts the state of the organization and its individuals in terms of knowledge and emotions. It contains several aspects that were discussed earlier, including emotion, a will to act and the need for a vision or an opportunity. However, in particular, this image contains management's knowledge and beliefs about the environment, its networked parties and the

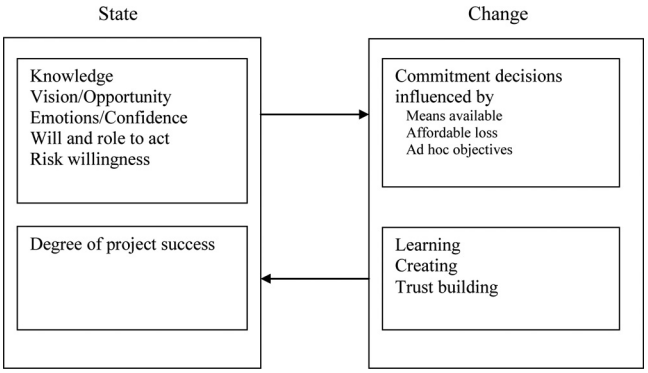

Figure 1.
A model for management under uncertainty

firm itself. In the VCC case, the knowledge of how to produce components and what it requires in terms of time and cost were written on the wall. Knowledge of networked relations is also critical, in particular, what resources do other firms possess, how trustworthy are they and what intentions and perceived opportunities do they also have? The emotional aspect, not independent of actual experience, is the degree of confidence held by the organization and the individuals involved (S1). The extent to which network parties are willing to be exposed to uncertainty matters; if the level is low, it becomes important to learn, stabilize the environment by strengthening relationships with critical partners and progress in small steps only. If uncertainty exposure is more accepted, it may be possible to make larger commitments, for example, by investing more resources in the project.

The lower left quadrant of Figure 1 identifies the performance variable chosen for the research objective at hand, namely, the "degree of project success", whatever the project may be, whether developing a new car model for the Chinese market or entering a new market.

The upper right quadrant symbolizes the decisions being made during that process. Basically, we subscribe to the characteristics of decision-making as outlined in the effectuation process (Sarasvathy, 2001) when the level of uncertainty is high. In the VCC case, this level is illustrated by the entire idea of entering an environment largely unknown to VCC at that time. That is, the means available, the affordable loss and opportunity orientation guided the decisions. The previous experience of developing, producing, marketing and servicing cars was brought to bear on the Chinese market in various ways outlined below to decrease the uncertainty. The commitment aspect implies that the decisions that are made change the level of commitment to a particular party or parties in the network. In the VCC case, VCC and its owner obviously believed that only because VCC was owned by a Chinese company was it "sufficiently Chinese" enough to make the LWB model viable as an official car for managers of large public Chinese organizations. That commitment turned out to be false. The decision made that the LWB model would not pass as an official car had an immediate impact on the overall strategy of Geely Auto and the VCC, a joint venture formed in which VCC technology was used to produce the car as a Chinese brand. The owner of VCC and Geely Auto repeated an old commonly known strategy: some surprises have to be met by substantial strategic changes, labeled here by us as a "re-do".

Commitment is related to flexibility. An investment in a specialized asset implies an increasing level of commitment, as a firm becomes more tied to a specific purpose, whether that purpose is a relationship or a project. The level of commitment then becomes a product of the size of assets tied to a specific purpose and the possibility of switching the use of that asset to another purpose (Johanson and Vahlne, 1977). Hence, any commitment decisions to act imply taking risks. Many managers lower risk when they limit the amount of resources at stake or the uncertainty experienced or to be experienced in the future (S4, S5 and S6). In the VCC case, there were other decisions made (e.g. relying on international suppliers and imports from known network parties to have an acceptable quality of inputs) as long as the local content rules were adhered to, which lowered uncertainty. This lowered level of uncertainty was not free of cost, however, as international suppliers charged the same prices in China as they did elsewhere. Also, the VCC decided to start manufacturing in China, not by assembling the LWB model here, but by manufacturing a model that had already been produced in Sweden.

Unless a focal actor is extremely powerful, uncertainty can never be reduced to zero. Hence, organizations and individual managers must take risks in terms of the meaning we have given this concept in this discussion: an affordable amount is at stake. Commitment decisions are made when promising opportunities can potentially lead to progress. Still, if uncertainty is high, then committing incrementally is the preferred choice.

The lower right quadrant of Figure 1 depicts the essential aspects of the process, namely, learning, most importantly experiential learning and also active search, imitation and cooptation of personnel from competitors. Creating, in the sense of social construction and objectively constructing new products and building trust, provides the input to the upper left quadrant and in turn constructs the basis on which commitment decisions are made. Experimenting is an alternative. We saw the VCC determining whether it made sense to launch station wagons in the Chinese market. When possible, it makes sense to try to limit the potential loss to an affordable loss (S7 and S8). The VCC case offers many examples of this aspect, including, for example, its decision to initiate production with an established car model and the decision to use a well-established power train technology. There were also signs of imitation behavior, as the VCC decided to relate to the Audi and BMW product lines.

Conclusion

Maybe the most important argument garnered from our model is that management under uncertainty implies exploiting an opportunity in ways that decreases the level of uncertainty and thus keep risk-taking low or lower. By offering such a model that precisely explicates what managers do and also how managers behave and act under uncertainty, we not only remind our fellow researchers of the existence of uncertainty but also contribute to a broad spectrum of the research fields within international business, strategy and management. We think the existence of uncertainty in many instances is neglected when performing studies of managerial action, both for international business and business management in general, especially when such research is theoretically based on a neo-classical frame of reference.

Despite the fact that our model is based on both a survey and case study, we of course see this proposed model as a first step. Thus, we call for further research that confronts the model with more insights from reality. Among others, the Scandinavian cluster stands out in the comparative studies of management precisely in terms of their attitude toward uncertainty. Studies using the Hofstede (2001) dimensions of national cultural difference show that in the Scandinavian cluster, uncertainty is a part of life and as such is not seen as a problem but at most a positive challenge that one needs to live with. Hence, we do call for similar studies – either case studies or survey studies – to determine if our proposed model is valid beyond Scandinavia. We further see opportunities for additional research both by applying the model on firms' internationalization processes and continuing to study managers' behaviors and actions and accentuating the uncertainty faced by them. More specifically, we believe that our finding is a positive effort to reduce uncertainty and thus improve profitability, and, as such, it is worthy of further research.

References

Anderson, J.C. and Narus, J.A. (1990), "A model of distributor firm and manufacturer firm working partnerships", *The Journal of Marketing*, pp. 42-58.

Arregle, J.-L., Miller, T.L., Hitt, M.A. and Beamish, P.W. (2016), "How does regional institutional complexity affect MNE internationalization?", *Journal of International Business Studies*, Vol. 47 No. 6, pp. 697-722.

Asmussen, C.G., Nielsen, B.B., Osegowitsch, T. and Sammartino, A. (2015), "The dynamics of regional and global expansion", *Multinational Business Review*, Vol. 23 No. 4, pp. 306-327.

Bancel, F. and Mittoo, U. (2004), "Cross-country determinants of capital structure: a survey of european firms", *Financial Management*, Vol. 33 No. 4, pp. 103-132.

Brouthers, K.D., Geisser, K.D. and Rothlauf, F. (2016), "Explaining the internationalization of ibusiness firms", *Journal of International Business Studies*, Vol. 47 No. 5, pp. 513-534.

Brounen, D., de Jong, A. and Koedijk, K. (2006), "Capital structure policies in Europe: survey evidence", *Journal of Banking & Finance*, Vol. 30 No. 5, pp. 1409-1432.

Bunz, T., Casulli, L., Jones, M.V. and Bausch, A. (2017), "The dynamics of experiential learning: micro-processes and adaption in a professional INV", *International Business Review*, Vol. 26 No. 2, pp. 225-238.

Cantwell, J., Dunning, J.H. and Lundan, S.M. (2010), "An evolutionary approach to understanding international business activity: the co-evolution of MNEs and the institutional environment", *Journal of International Business Studies*, Vol. 41 No. 4, pp. 567-586.

Chiles, T.H., Bluedorn, A.C. and Gupta, V.K. (2007), "Beyond creative destruction and entrepreneurial discovery: a radical Austrian approach to entrepreneurship", *Organizational Studies*, Vol. 28 No. 4, pp. 467-493.

Dunning, J.H. and Lundan, S.M. (2008), *Multinational Enterprises and the Global Economy*, Edward Elgar, Cheltenham.

Fama, E.F. (1970), "Efficient capital markets: a review of theory and empirical work", *Journal of Finance*, Vol. 25 No. 2, pp. 383-417.

Forlani, D. and Mullins, J.W. (2000), "Perceived risks and choices in entrepreneurs' new venture decisions", *Journal of Business Venturing*, Vol. 15 No. 4, pp. 305-322.

Forsgren, M. (2002), "The concept of learning in the Uppsala internationalization process model: a critical view", *International Business Review*, Vol. 11 No. 3, pp. 257-278.

Foss, N.J. and Klein, P.G. (2012), *Organizing Entrepreneurial Judgement – A New Approach to the Firm*, Cambridge University Press, Cambridge.

Graham, J. and Harvey, C. (2001), "The theory and practice of corporate finance: evidence from the field", *Journal of Financial Economics*, Vol. 60 Nos 2/3, pp. 187-243.

Hennart, J.F. (2009), "Down with MNE-centric theories! Market entry and expansion as the bundling of MNE and local assets", *Journal of International Business Studies*, Vol. 40 No. 9, pp. 1432-1452.

Hofstede, G. (2001), *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations across Nations*, Sage, Thousand Oaks.

Jain, N.K., Kothari, T. and Kumar, V. (2016), "Location choice research: proposing new agenda", *Management International Review*, Vol. 56 No. 3, pp. 303-324.

Johanson, J. and Vahlne, J.E. (1977), "The internationalization process of the firm: a model of knowledge development and increasing foreign market commitments", *Journal of International Business Studies*, Vol. 8 No. 1, pp. 23-32.

Johanson, J. and Vahlne, J.E. (1990), "The mechanism of internationalization", *International Marketing Review*, Vol. 7 No. 4, pp. 11-24.

Johanson, J. and Vahlne, J.E. (2009), "The Uppsala internationalization process model revisited – from liability of foreignness to liability of outsidership", *Journal of International Business Studies*, Vol. 40 No. 9, pp. 1411-1431.

Kahneman, D. and Lovallo, D. (1993), "Timid choices and bold forecasts: a cognitive approach on risk taking", *Management Science*, Vol. 39 No. 1, pp. 17-31.

Kahneman, D. and Tversky, A. (1979), "Prospect theory: an analysis of decision under risk", *Econometrica*, Vol. 47 No. 2, pp. 263-292.

Kim, J.U. and Aguilera, R.V. (2016), "Foreign location choice: review and extensions", *International Journal of Management Reviews*, Vol. 18 No. 2, pp. 133-159.

Knight, F. (1921), *Risk, Uncertainty and Profit*, Houghton Mifflin, New York, NY.

Kostova, T. and Hult, G.T.M. (2016), "Meyer and Peng´s 2005 article as a foundation for an expanded and refined international business research agenda: context, organizations, and theories", *Journal of International Business Studies*, Vol. 47 No. 1, pp. 23-32.

Leszczynska, D. and Pruchnicki, E. (2015), "The evolution of knowledge transfer and the location of a multinational corporation: theory and mathematical model", *Multinational Business Review*, Vol. 23 No. 2, pp. 111-129.

Lintner, J. (1965), "The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets", *The Review of Economics and Statistics*, Vol. 47 No. 1, pp. 13-37.

Lovallo, D. and Kahneman, D. (2003), "Delusions of success", *Harvard Business Review* , Vol. 81 No. 7, pp. 56-63.

MacCrimmon, K.R. and Wehrung, D.A. (1986), *Taking Risks: The Management of Uncertainty*, The Free Press, New York, NY.

March, J.G. (1982), "The technology of foolishness", in March, J.G. and Olsen, J.P. (Eds), *Ambiguity and Choice in Organizations*, Universitetsforlaget, Bergen, pp. 253-265.

March, J.G. and Shapira, Z. (1987), "Managerial perspectives on risk and risk taking", *Management Science*, Vol. 33 No. 11, pp. 1404-1418.

Markowitz, H. (1952), "Portfolio selection", *Journal of Finance*, Vol. 7 No. 1, pp. 77-91.

Pellegrino, J.M. and McNaughton, R.B. (2017), "Beyond learning by experience: the use of alternative learning processes by incrementally and rapidly internationalizing SMEs", *International Business Review*, available at: http://dx.doi.org./10.1016/j.ibusrev.2016.12.003

Penrose, E. (1966), *The Theory of the Growth of the Firm*, Basil Blackwell, Oxford.

Sarasvathy, S.D. (2001), "Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingence", *The Academy of Management Review*, Vol. 26 No. 2, pp. 243-263.

Sarasvathy, S.D. and Dew, N. (2008), "Is effectuation Lachmannian? A response to chiles, Bluedorn, and Gupta (2007)", *Organization Studies*, Vol. 29 No. 2, pp. 239-245.

Sharpe, W. (1964), "Capital asset prices: a theory of market equilibrium under conditions of risk", *Journal of Finance*, Vol. 19 No. 3, pp. 425-442.

Shengsheng, H. and Cantwell, J. (2017), "FDI location choice: the role of locational ambidexterity", *Multinational Business Review*, Vol. 25 No. 1.

Teece, D.J., Pisano, G. and Schuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533.

Vahlne, J.E. and Johanson, J. (2013), "The Uppsala model on evolution of the multinational business enterprise – from internalization to coordination of networks", *International Marketing Review*, Vol. 30 No. 3, pp. 189-210.

Weick, K. (1979), *The Social Psychology of Organizing*, McGraw Hill, New York, NY.

Further reading

Schweizer, R., Vahlne, J.E. and Johanson, J. (2010), "Internationalization as an entrepreneurial process", *Journal of International Entrepreneurship*, Vol. 8 No. 4, pp. 343-370.

von Hippel, E.A. (1988), *The Sources of Innovation*, Oxford University Press, New York, NY.

Wiltbank, R., Dew, N., Sarasvathy, S.D. and Read, S. (2006), "What to do next? The case for non-predictive strategies", *Strategic Management Journal*, Vol. 27 No. 10, pp. 981-998.

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