

Commitment Decisions and Duration of Internationalization in French SMEs

1 Introduction

The Internationalization process model (IP Model), also known as the Uppsala Model, is probably the model that, in its field, has generated the largest amount of research, debate, producing an equally important number of conflicting results and controversy over the last 30 years. The model is based on “*an interplay between the development of knowledge about foreign markets and operations on one hand and an increasing commitment of resources to foreign markets on the other*” (Johanson and Vahlne, 1990 p. 11). The development of knowledge about foreign operations (hereafter “knowledge”) and the increasing commitment of resources to the same (hereafter “commitment”) are concepts that are assumed to evolve in time (Sharma and Blomstermo, 2003). Because the model is incremental, it is assumed that as time passes, more knowledge is developed, allowing increases in commitment. Most of the empirical verifications of the IP Model have been conducted on the knowledge aspect, only one on the commitment aspect, probably based on the premises, that, *ceteris paribus*, knowledge and commitment would have a linear and positive relation through the time vector. However, it appears that knowledge is not related in a linear fashion to time (Eriksson, Johanson, Majkgård, and Sharma, 2001). Consequently, results associated to knowledge cannot be extended to commitment. Johanson and Vahlne (2006) attract attention on the fact that commitment has not received much interest in the past 30 years. Conducting research on the commitment concept of the IP Model has become even more important since the focus of the model has been shifted from uncertainty reduction to opportunity development, where commitment plays a decisive role.

Our starting point resides in the fact that Johanson and Vahlne (2006) have placed the IP Model’s commitment concept at the *fulcrum*.

In this paper we propose an exploratory quantitative research in the above perspective, where relationship commitment (positioned as an outcome of international operations and operationalized in the form of duration of internationalization) is explained by maximum tolerable market risk, market commitment and market uncertainty, all three elements of commitment decisions (Johanson and Vahlne, 1977 p. 29-31; Sharma and Blomstermo, 2003 p. 63; Johanson and Vahlne, 2006 p. 173-175).

2 Theory and hypothesis

Admittedly, we assume that the reader is familiar with the first versions of the IP Model (Johanson and Vahlne, 1977; 1990), the later developments towards network relationships (Johanson and Mattsson, 1987; Holm and Johanson, 1995; Blankenburg Holm, Eriksson, and Johanson, 1999; Johanson and Vahlne, 2003; Mattsson and Johanson, 2006), and the latest version of the IP Model which modifies certain aspects of the original ones, while reasserting the fundamental concepts of knowledge and commitment (Johanson and Vahlne, 2006).

In this latest version of the IP Model, the authors underscore, that the model *“is not the establishment chain”* (Johanson and Vahlne, 2006 p. 166), that the *“country market”* concept *“is no longer seen as a valid unit of analysis”* (ibid). No mention is made to psychic distance, a concept literature continues to associate the IP Model to (for fairly recent examples, see: Dow, 2000; Clark and Pugh, 2001; Arenius, 2005; Brewer, 2007), the issue having been explained as being a consequence and not a cause of the internationalization of the firm (Johanson and Vahlne, 1990 p. 13). Finally, the focus of the model is shifted from uncertainty reduction to opportunity development, without other further changes to the foundations of the model (Johanson and Vahlne, 2006 p. 175)

Johanson and Vahlne put particular emphasis on the *“interplay between knowledge development and increasing foreign market commitments”* (Johanson and Vahlne, 2006 p. 166). Commitment is,

reportedly, at the origins of the IP Model. *“Market Commitment”* is one of the two *“State”* aspects of the model (Johanson and Vahlne, 1977 p. 27), and *“Commitment decisions”* is the second item of the *“Change”* aspects of the same model (ibid: 29-31).

Most of the conceptual aspects of the IP Model have undergone substantial empirical verification during the past thirty years. Nonetheless:

“With the exception of Hadjikhani (1997) studies of commitment as explanation of internationalization are absent (Johanson and Vahlne, 2006 p. 167).”

Furthermore, commitment has been most frequently used as a dependent variable (ibid). It is our aim to contribute in this area by testing relationship commitment in the form of duration of internationalization as being explained by commitment decisions, namely, tolerable risk, market commitment and market uncertainty (Johanson and Vahlne, 1977 p. 29-31).

Following Johanson and Vahlne’s comments on the literature based on the IP Model in their latest article about the same model, internationalization in a broad sense has generally been used as the dependent variable and independent variables have mostly been related to knowledge and experience (Johanson and Vahlne, 2006 p. 167). As far as we are aware, with the unique exception of Hadjikhani (1997), studies analyzing commitment as an explanation to internationalization have yet to be published.

An explanation may proceed from the implied direct positive relationship between knowledge and commitment in the IP Model, where if the knowledge aspect of the IP Model can be proven, then by extension, the commitment side should follow along the same lines, assuming the relationship is linear. Both knowledge and commitment are expected to share the same relationship to time:

“The internationalization process model by Johanson and Vahlne (1977), stresses the history or path dependence in the internationalization process of firms. They state that the present state of internationalization and the resource commitment abroad are important factors in

explaining the course of subsequent internationalization (Sharma and Blomstermo, 2003 p. 60)."

However, when testing the effect of time on experience, it has been found that the relationship is not linear (Eriksson, *et al.*, 2001), although the results do "*demonstrate that time in the form of the duration of foreign operations is relevant in explaining the development of experiential knowledge in the internationalization process*" (Eriksson, *et al.*, 2001 p. 36).

Hence, knowledge and commitment cannot be linked in a linear fashion through time. It is therefore important to test commitment decisions as an explanation of duration of internationalization.

Commitment decisions are composed of two related elements:

- Maximum tolerable market risk (R^*), results from a function comprising the relationship between the firm's resource position and the firm's risk approach;
- Existing market risk situation (R), being the result of the relationship between the existing market commitment (C) and the existing market uncertainty (U).

In formulating our hypothesis, we include the above elements in the expression "commitment decisions". Our main hypothesis is therefore:

- H1: Commitment decisions explain duration of internationalization

Our research model is therefore:

>> INSERT FIGURE 1 HERE <<

3 Methodology

Our data is quantitative. Considering we would like to test three independent variables together with two control variables, we test our hypothesis via a multiple linear regression. As a consequence of heteroskedastic residuals, we adopt robust multiple regression, where standard errors are

corrected, and use the robust hc3 (Davidson and MacKinnon, 1993 p. 554-556) multiple linear regression provided in STATA.

We set the level of significance for F and t statistics at 5%.

3.1 Data

Our data comes from an electronic questionnaire administered during December 2006 and January 2007 to a 6000-address data base containing managerial SMEs registered in France. Managerial SMEs are non-patrimonial and at least one of the stockowners is a firm (See: Myers, 1984; Charreaux, 1991; Lopez Gracia and Aybar Arias, 2000; Aybar Arias, Casino Martínez, and Lopez Gracia, 2003; Frank and Goyal, 2003).

The questionnaire was initially used for research on agency-related costs explaining the choice of institutionally-induced incremental internationalization in managerial SMEs (Tapia Moore, 2008).

The questionnaire was directed to the person in charge of internationalization, and contains pertinent items for the present article:

- the overall focus places internationalization as the dependent variable;
- elements (items) of commitment decisions are measured in one comprehensive group of questions, including some geographical detail allowing for circumstantiated evidence;
- time is the underlying constant for the selected items;
- information on respondents and respondent's careers was collected, as well as for their firms and their firms' international history.

We obtained 316 responses, of which 214 were valid, from which we were compelled to exclude 49 noise-generating cases (all stockowner respondents), for a final sample of 165 non-stockowner respondents representing as many different SMEs located in a fairly even manner throughout France. This sample represents 1.1% of an estimated 14375 Managerial SMEs; and 0.13% of an equally estimated 125000 Internationalized SMEs (estimated from a population of 95000 importing SMEs,

and 93000 exporting SMEs in France on 2005 (Loiseau, 2001; OECD, 2004; Wennekers, Thurik, van Stel, and Noorderhaven, 2005; INSEE, 2006)) (in: Tapia Moore, 2008 p. 162-172). The questionnaire provides scalar data, mostly Likert scales.

The questionnaire and its wording were validated in a multiple-iteration, multiple experts, and single “candid” method. Seven trial versions were generated. The trial versions were administered to the experts under assisted conditions in order to collect verbal and non-verbal reactions. The final trial version was tested under controlled-sample conditions where n=30. Interviews targeting outliers followed, before drafting the definitive version.

3.2 Variables

Originally, our dependent and independent variables were geographically oriented. Following the changes in the IP Model, we have aggregated the questionnaire’s 14 geographical zones into two: National and international. The specific method of aggregation is summation. It does not vary according to the type of scale used for each specific item. Responses were not geographically weighed in order to maintain pertinence and coherence with the latest IP Model settings.

The data for dependent and independent variables come from one multiple-item question where respondents were requested to provide 7 distinct information items on the firm’s international activity measured for 14 geographical zones. Of these 7 items, 4 were retained for the present paper’s needs. These 7 items are (as stated in, and in the order of, the questionnaire):

Strategic importance of the zone (Independent variable: Tolerable risk)

Years of activity in the zone (Dependent variable: Duration of internationalization)

Zone percentage of total sales

Zone percentage of total supplies

Zone percentage of total subcontracting

Present stage in zone (Independent variable: Market commitment)

Zone risk evaluation (Independent variable: Market uncertainty)

Our variables are explained hereunder.

3.2.1 Dependent variable: Duration of internationalization

Duration of internationalization is in the form of a regular interval scale representing number of years of international activity. The variable used is the sum of the international zones. We use this measure in order to account sufficiently for opportunity development in time, considering duration (in the form of longevity) is held as a measure of international performance (Hadjikhani, 1997 p. 22; Sharma and Blomstermo, 2003 p. 63).

3.2.2 Independent Variables: Commitment decisions

We refer directly to the commitment decisions section of the change aspects exposed in the initial IP Model (Johanson and Vahlne, 1977 p. 29-31). The items in the questionnaire stem directly from the commitment system of relationships exposed in page 30 of the original model. These items are:

- Maximum tolerable market risk (R^*) hereafter referred to as “tolerable risk”
- existing market risk situation (R) comprised of:
 - existing market commitment (C) and
 - existing market uncertainty (U).

As with the dependent variable, independent variable values per international geographical zones were reduced to one by summation.

3.2.2.1 Tolerable Risk (R^*)

Tolerable risk is defined as a function of the firm’s resource position as well as the firm’s risk approach (Johanson and Vahlne, 1977 p. 30). We operationalize this concept in the form of “strategic importance” of the operations the firm is currently engaged in for each geographical zone (single countries were excluded in order to avoid a halo-effect bias). The semantics of “strategic importance” was considered by the group of experts that validated the wording of the questionnaire, as being “*information allowing management to commit resources according to a perception of feasibility and risks related to attaining desired objectives.*” The experts are a group of 15

international managers in current practice. We consider the semantics sufficiently close to the central concept of tolerable risk. It also seems reasonably comprehensive, as far as the economic and uncertainty effects of the IP Model are concerned (Johanson and Vahlne, 1977 p. 29). This variable can also, because of its quantifiable and objective nature, be understood as being part of Hadjikhani's "*tangible commitments*" (1997 p. 20-21).

3.2.2.2 *Market Commitment (C ∈ R)*

This variable is defined in the IP Model as scale-variation decisions. These decisions increase or reduce risk consequently to increasing or reducing involvement in existing operations. Market commitment is expected to increase as the process of internationalization develops (Johanson and Vahlne, 1977 p. 30). This variable is operationalized through a commented 6-point ordinal scale ranging from 0 to 5 in each geographical zone where:

- 0 = No internationalization in the zone
- 1 = International sourcing or sub-contracting
- 2 = Indirect exports (export or import agents, franchise, etc.)
- 3 = Direct exports (export department, direct catalog or internet sales, etc.)
- 4 = International investment (minority shareholder in a foreign firm)
- 5 = International implantation (majority shareholder in a local firm)

This item's settings are not intended to reflect the establishment chain. Instead, the settings are inspired by the combined different firm and industry characteristics, as well as the patterns in the internationalization process, presented in Vahlne and Nordström (1993).

Market commitment is the first of two variables which constitute the "existing market risk situation" (R) also referred to as "perceived risk." Because of its relationship with market uncertainty (hereafter), as well as the subjective or "fuzzy" nature of both involvement and uncertainty, we take both variables as being part of Hadjikhani's "*intangible commitments*" (1997 p. 20-21).

3.2.2.3 Market Uncertainty ($U \in R$)

Market uncertainty is the second of two variables constituting the “existing market risk situation” (R). This variable is defined as a consequence of the interaction between market knowledge and market commitment. It is seen as a dependent variable in the internationalization decision process which would tend to reduce in magnitude as the internationalization process takes place (Johanson and Vahlne, 1977 p. 29-30).

We operationalize this variable through a 6-point ordinal scale with values ranging from 0 to 5, where 0 is the smallest value. The item is worded “*zone risk evaluation*.” In the questionnaire, this item is also the last one in the row of items per zone. It was purposefully positioned there in order to endorse the consequential role market uncertainty plays in the IP Model.

3.2.3 Control variables

We use “market experience” (L.S. Welch and Wiedersheim-Paul, 1980; Vahlne and Nordstrom, 1993; Reuber and Fischer, 1997; Carpenter, Sanders, and Gregersen, 2000; C.L. Welch and Welch, 2004; Johanson and Vahlne, 2006) and “firm size” (Reuber and Fischer, 1997; Lu and Beamish, 2001; Ibeh, Johnson, Dimitratos, and Slow, 2004; Westhead, Wright, and Ucbasaran, 2004; Fernandez and Nieto, 2005; Rasheed, 2005; Wolff and Pett, 2006) as our two control variables.

Although strongly suggested by the above literature, we exclude “firm age” because of the obvious semantic tautology with the issue at hand, as well as the statistical aspects, where this variable alone accounts for coefficient of determination (R^2) of the multiple regression statistics superior to 50%, and is highly and significantly correlated to the other independent variables.

3.2.3.1 Market experience

“*There is a direct relation between market knowledge and market commitment*” (Johanson and Vahlne, 1977 p. 28). Experience is linked to knowledge. The IP Model considers knowledge “*to be vested in the decision-making system*” and not to deal with the individual decision-maker explicitly (Johanson and Vahlne, 1977 p. 26). Nonetheless, “*much of the experience of businessmen is*

frequently so closely associated with a particular set of circumstances that a large part of a man's most valuable services may be available only under these circumstances" (Edith Penrose in Johanson and Vahlne, 1977 p. 28). Hence, we operationalize this variable as the respondent's total experience with the firm, in number of years.

3.2.3.2 Firm size

We expect "firm size" to be non-explicative of performance, measured here in terms of duration (Dröge, Claycomb, and Germain, 2003). We therefore use this control variable in a silent form, where we expect the *t*-statistic to be very small and have very little significance. If, however, the *t*-statistic were to come within the set acceptable significance boundaries, it would be indicating a non-falsifiable situation (Popper, 2002 p. 97-103). Firm size is operationalized in the form of total number of employees.

3.2.4 Moderator variable: Respondent in charge at time of first entry

We introduce a moderator variable, as a consequence of extant literature's fairly constant indication that the behavior of international managers varies according to their implication and longevity in the firm's international operations. What leads us, in particular, to introduce a moderator variable are the following three citations:

"Longevity is affected by learning and experience in foreign operations" (Sharma and Blomstermo, 2003 p. 63)

"Market-specific knowledge is knowledge about characteristics of the specific national market –its business climate, cultural patterns, structure of the market system, and, most importantly, characteristics of the individual customer firms and their personnel-" (Johanson and Vahlne, 1977 p. 28)

"Relationships may start as the result of ad hoc events, e.g. unplanned meetings. Or they can start as a result of systematic search for a partner, for example a supplier. A successful first

deal, performed as an arm's length transaction, may lead to more business between the two companies and this can be the start of a process whereby the two companies find themselves in a relationship. The relationship is continued and deepened as long as both partners benefit from it" (Johanson and Vahlne, 2006 p. 169)

A moderator variable should allow us to observe the phenomena proper to those respondents who were responsible of initiating the internationalization drive and are still in position, as well as to those other respondents who became responsible of the firm's internationalization at a later time, and well after internationalization operations had begun. We refer to the first subsample as "Pioneers" (P); the second subsample is called "Managers" (M); where sample (S) = $P \cup M$ ($n = 165$).

The subsamples are obtained as follows:

- P = years in office \geq average duration of internationalization in years ($n = 30$);
- M = years in office $<$ average duration of internationalization in years ($n = 135$).

3.3 Test of hypothesis

We would have liked to test our hypothesis through one multiple linear regression. Nonetheless, our independent variables are strongly and significantly correlated. We place theoretical consistency over statistical validity. We hold for given the direct relationship between "maximum tolerable market risk (R^*)" and market commitment (C), market uncertainty (U), components of "existing market risk situation (R)" as explained in the model. We check the statistical relationship of these 3 variables through factor analysis (PCF) and obtain one factor where R^* has an Eigenvalue of 2.172 and the Eigenvalues for the other 2 variables are under 0.120, indicating that the components of R may not allow for sufficient discriminating weight when associated with R^* . We pursue with principal component analysis (PCA) on both correlation and covariance tables. We assume that if the Varimax rotated component matrix for both correlation and covariance PCA tests have identical component distribution and similar loadings, the data does not provide sufficient discrimination amongst concepts, therefore leading to the conclusion that the hypothesis cannot be tested with the

present dataset. The correlation and covariance PCA matrixes (hereunder) are different, which allow us to pursue.

>> INSERT TABLE 1 HERE <<

In order to continue, we are forced to break down our hypothesis from a multivariate regression form to a univariate regression one. Consequently:

- H1: Commitment decisions explain duration of internationalization:
 - H1.1 Maximum tolerable market risk explains duration of internationalization;
 - H1.2 Market commitment explains duration of internationalization;
 - H1.3 Market uncertainty explains duration of internationalization.

Our control variables are slightly, yet significantly, correlated ($r=0.177$, $\text{Sig.}=0.023$). Considering firm size is a silent control variable, we maintain both control variables, yet disassociate them in our regressions. Hence, we calculate 3 regressions per hypothesis (two of which include different control variables). Furthermore, we run our regressions on the full sample, as well as on the resulting two subsamples.

As mentioned previously, we set our conditions of validity at the 5% significance range for both F and t statistics. Also, we test for a normal distribution of residuals and find a non-normal (heteroskedastic) distribution of residuals in several regressions. Consequently, we opt for a robust multivariate regression model for all regressions, where the standard error is corrected according to the procedure suggested in Davidson and MacKinnon (1993 p. 554-556) and implemented in the `hc3` robust regression model of STATA 10, producing conservative confidence intervals and smaller t -statistics with bigger significance ratios.

4 Results

As explained above, our initial intention to test the 3 commitment independent variables cannot be implemented due to multiple correlations. This correlation is an separate result in itself, since we are

able to provide the empirical evidence that the elements of commitment decisions are related, as expected in the IP Model, and that the relationship does not appear to be causal as inferred by the data in Table 1 above.

Furthermore, knowing that multicollinearity does not cause any special problems with inferences associated to the overall regression model (Kazmier and Pohl, 1987 p. 408-409), we calculate the F -statistic of H1 using Stata's robust hc3 regression model and find:

- Pioneers: $F=0.45$ (0.717 Sig.) [+ control $F=3.45$ (0.017 Sig.)]
- Managers: $F=6.79$ (0.000 Sig.) [+ control $F=6.40$ (0.000 Sig.)]
- Both: $F=7.08$ (0.000 Sig.) [+ control $F=6.56$ (0.000 Sig.)].

This is, *per se*, an interesting result, since it shows that, overall, duration of internationalization can be explained by “maximum tolerable market risk (R^*),” “market commitment (C),” and “market uncertainty (U).” It is also showing that the Pioneers are a distinct-acting subsample. This subsample is composed of respondents involved in the initial phases of the firm's internationalization. They still are active in conducting the said internationalization.

4.1 Pioneers

This subgroup of 30 cases is resolutely Heteroskedastic. When testing H1.1, H1.2 and H1.3, all hypotheses are rejected. Quite interestingly, the active control variable (market knowledge) is the only independent variable to yield acceptable-range t -statistics, has sufficient influence to generate an acceptable F -statistic where the test variable is rejected (H1.2). Furthermore, the R^2 statistic of all models in this subsample are superior to 45% when in other subsamples models the values of the same statistic range from 2.3% to 33% with a mean at 17%. These results invite us to handle the interpretation with care. Nonetheless, the Pioneer results are in sharp contrast with the Managers subsample.

4.2 Managers

The Managers subsample of 135 cases has residuals which are normally distributed, excepting 2 of the 3 instances of H1.2. The Managers subsample is composed of respondents who were not at all related to the initial stages of the internationalization of the firm they work for (at the time of the questionnaire). All hypotheses are validated. It seems reasonable to state that for this sub-sample, commitment decisions explain duration of internationalization.

Concerning H1.1 (maximum tolerable market risk explains duration of internationalization), both F and t statistics' significance is 0.000. The β of 0.419 suggests that when the general function which regulates the relationship between the firm's resource position and its approach to risk (R^*) –which we operationalize in terms of the sum of the strategic importance of all geographical zones– varies, this change will provoke a variation of duration of internationalization (relationship commitment) of a magnitude of $2/5^{\text{th}}$ of the change of R^* and in the same direction of said change: The better the firm's resource position and approach to risk, the more the firm will commit to the ongoing relationship, and inversely.

The F and t statistics obtained after introducing our control variables allow us to generalize these results. The control variable's β is positive and equally as important as R^* . Considering the control variable is a "knowledge" variable, this tends to indicate that both these commitment and knowledge variables have a positive relation in explaining duration of internationalization (relationship commitment), and the subsequent opportunity development as explained in the latest version of the IP Model.

Regarding H1.2 (market commitment explains duration of internationalization), both F and t statistics' significance is 0.007. The β of 0.222 suggests that when market commitment varies (C), this leads duration of internationalization (relationship commitment) to change within a magnitude of $1/5^{\text{th}}$ of the change of C , and in the same direction: The more market commitment, the more duration of internationalization, and inversely.

The F and t statistics obtained after introducing our control variables allow us to generalize these results.

Finally, for H1.3 (market uncertainty explains duration of internationalization), F and t statistics' significance is 0.000. The β is of 0.398 suggesting that when market uncertainty (U) varies, duration of internationalization (relationship commitment) varies in the same direction and with a magnitude of $2/5^{\text{th}}$ of the change of U . Explaining this β is not as straight forward as the preceding ones: The more market uncertainty, the more duration of internationalization (relationship commitment). The inverse is perhaps even more problematic: Less market uncertainty = less duration of internationalization (relationship commitment).

Alone, this variable seems to only have explicative power in the positive formulation, if we are to accept that when in market uncertainty firms would reinforce their relationships in order to "weather the storm". In a negative formulation, it requires other variables to explain the situation. This is probably due to the fact that market uncertainty (U) is a consequence of decisions associated to scale of operations, in turn associated to a "risk frontier" (R^*), market commitment (C), and experience. The IP Model suggests a market uncertainty - experience tradeoff (Johanson and Vahlne, 1977 p. 30). Hence: less uncertainty, more experience, less duration of internationalization (relationship commitment).

Surprisingly, this result for the Managers subsample may be depicting the situation of the Pioneers subsample, where most hypothesis are rejected, and the only variable having sufficient explicative power is the experience-related control variable. This underscores the fact that the model should be considered as a whole and should not be broken down when interpreting results.

The size and statistical characteristics of the Managers subsample, in comparison to those of the Pioneers sub-sample, tend to overwhelm the presence of the later when both sub-samples are analyzed together. We report the complete sample hereafter.

4.3 Complete sample

We include these results here, for completeness.

The full sample comprises 165 cases. With the notable exception of the silent control variable model for H1.2 ($F=2.35$ (0.098 Sig. and $R^2=0.026$)), all other hypothesis-test models provide hypothesis-validating F and t statistics usually in the $\leq 0.1\%$ range. The residuals of the sample are normally distributed. We do not comment the β statistics for the sample, having done so for each subsample following the moderator variable.

The complete set of results for all sample sets are provided in the annex.

5 Discussion

In this article, we contribute to the IP Model by testing its prediction that maximum tolerable market risk (R^*) and existing market risk situation (R), explain relationship commitment in the form of duration. Following Popper's principle of falsifiability, we are not able to reject neither the main hypothesis (H1), nor the sub-hypotheses. In this sense, our hypotheses are validated. Our sample has 165 cases drawn from our IP Model-related questionnaire initially used to measure the IP Model under agency settings. The respondents are all salary-earning, non-stockholder, international managers in French SMEs. Following the IP Model literature related to experience and knowledge, we introduce a moderator variable which allows us to obtain a Pioneers and a Managers subsample. The results for these subsamples are quite contrasted.

The Pioneers subsample results allow us to reject the hypotheses. We can, also, reasonably say that, for the Pioneers, and following the IP Model, the relationship commitment they experience is directly related to the experiential knowledge they may have of their business partners. However, since these results are seemingly rejecting the IP Model commitment variables, yet validating one of the same model's knowledge variables (control variable), we would tend to say that the Pioneers value the interpersonal, arms-length, relationships and give less importance to colder, objective, risk-

compensating operations. This seems to be pointing in the general direction of Johanson and Vahlne's 2006 change of focus for the IP Model, from uncertainty reduction to opportunity development (Johanson and Vahlne, 2006 p. 175).

The limits to our work are several. First, because of multiple correlations among the independent variables, we are not able to obtain a better picture of how these interact and contribute to the observed phenomena.

Second, although the control variables allow us to generalize our results, these can only be interpreted for managerial SMEs, and assuming that French SMEs' characteristics are similar to those in other EU and developed countries, one may be able to extend these results only to managerial SMEs in these countries.

Third, using non-*ad-hoc* questionnaires in non-researched areas -which is the case here - may be treacherous, even for the most experienced researchers. On the other hand, implementing an *ad-hoc* psychometric procedure, when the only previous research methodology is a historical multiple-case, does have some quite positive tradeoffs, provided the appropriate epistemology is strictly respected. Nonetheless, given the secondary data character of our data source, the present research should be strictly considered as exploratory.

The perspectives for further research include building a data set from which one will be able to test the commitment decision concepts investigating the different facets of maximum tolerable market risk (R^*) and existing market risk situation (R) under the new opportunity development focus of the IP Model, accepting that the theoretical relationship between knowledge and commitment must be explored, because the relationship of knowledge to time, the two concept's common variable, is non-linear. Furthermore, the underlying function of R^* must be explored and explained.

The managerial implications stemming from this exploratory research are that commitment decisions alone can explain duration of internationalization in circumstances where the individual deciding to

commit resources would fall in the Managers profile. When the deciding individuals would fall in the Pioneers profile, commitment decisions alone cannot explain relationship commitment; possibly knowledge-related variables would be able to do so.

Assuming commitment decision would be an indicator for Managers and Pioneers in SMEs, third parties and government agencies would be able to offer custom services, information, and financial products which could help make international duration a more comfortable exercise for these firms.

In conclusion, we have found that under exploratory, secondary data settings, commitment decisions alone (not knowledge and commitment together) tend to explain duration of internationalization in SMEs where international managers took office well after international operations were initiated. In SMEs where international officers initiated or took office during the launching of international activities, commitment decisions alone do not explain relationship commitment. Explanation of duration of internationalization for this second sort of SMEs seems to reside solely on the knowledge concept of the IP Model. Nonetheless, the consequential relationship of commitment decisions resulting in uncertainty variation and trade-off between uncertainty and experience, as explained in the IP Model tend to suggest a dual commitment and knowledge-based explanation for these last SMEs.

Under these settings, the close-knit and non-causal relationship of the variables composing commitment decisions can be confirmed.

Finally, it would seem that knowledge and commitment explicative powers could be considered separately in the IP Model. This would give strong indications in the direction of Johanson and Vahlne's claim that the IP Model is not deterministic.

6 Bibliography

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7 Tables & Figures

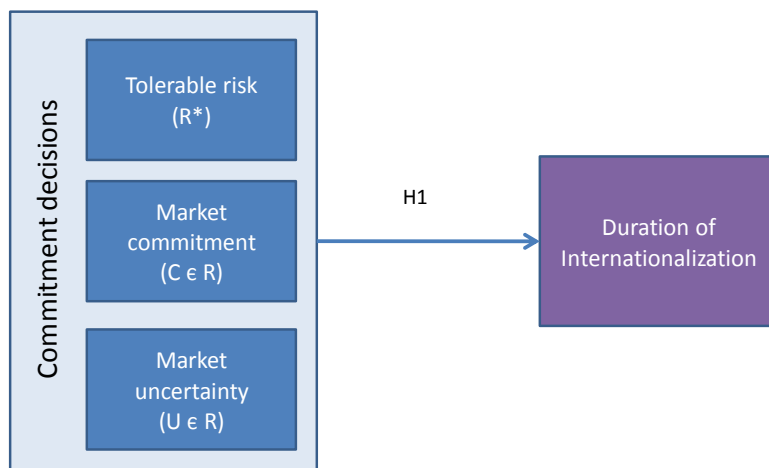


Figure 1: Research model

n=165	Correlation matrix				Covariance matrix			
Variables	R*	C	U	Unexp.	R*	C	U	Unexp.
R*	0.000	1.000	-0.000		-0.000	1.000	0.000	
	0.558	0.581	0.593	0	0.635	0.603	0.484	0
C	1.000	-0.000	-0.000		0.000	-0.000	1.000	
	0.812	-0.528	-0.248	0	-0.140	-0.526	0.839	0
U	0.000	0.000	1.000		1.000	0.000	-0.000	
	0.170	0.612	-0.766	0	-0.760	0.600	0.249	0

Table 1: Correlation and covariance PCA matrices

8 Annex

8.1 Regressions and correlations tables

Regression results: Pioneers and Managers subsamples																			
	Dependent Variable	Duration of internationalization																	
	Sample Sample size	Pioneers n=30									Managers n=135								
H1.1	<i>Independent and control variables</i>	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β
	Tolerable Risk	1,110	0,278	0,284	1,210	0,237	0,237	1,050	0,303	0,274	4,300	0,000	0,419	4,700	0,000	0,413	4,270	0,000	0,433
	Market Knowledge				2,64	0,013	0,614							3,410	0,001	0,396			
	Firm Size							1,28	0,210	0,193							1,100	0,271	0,103
	<i>Model statistics</i>	Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.	
	F	1,220	0,278		5,610	0,009		1,690	0,203		18,520	0,000		13,320	0,000		9,380	0,000	
	R²	0,081			0,456			0,118			0,176			0,333			0,186		
Breusch/Pagan X²	0,470	0,494		5,780	0,016		0,080	0,782		27,840	0,000		31,020	0,000		28,340	0,000		
Mean VIF				1,010			1,000						1,000			1,020			
H1.2	<i>Independent and control variables</i>	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β
	Market Commitment	1,140	0,263	0,308	1,770	0,089	0,382	0,980	0,336	0,283	2,740	0,007	0,222	3,250	0,001	0,270	2,880	0,005	0,234
	Market Knowledge				3,110	0,004	0,675							3,260	0,001	0,433			
	Firm Size							1,08	0,290	0,164							0,870	0,385	0,083
	<i>Model statistics</i>	Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.	
	F	1,310	0,2628		6,730	0,004		1,500	0,2416		7,500	0,007		9,310	0,000		4,230	0,016	
	R²	0,095			0,544			0,121			0,049			0,235			0,056		
Breusch/Pagan X²	0,080	0,7815		5,150	0,023		0,080	0,7802		1,610	0,205		32,810	0,000		3,620	0,057		
Mean VIF				1,010			1,020						1,010			1,020			
H1.3	<i>Independent and control variables</i>	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β
	Market Uncertainty	1,470	0,152	0,414	1,800	0,083	0,400	1,530	0,137	0,423	3,570	0,000	0,398	4,130	0,000	0,404	3,610	0,000	0,414
	Market Knowledge				3,140	0,004	0,634							3,710	0,000	0,409			
	Firm Size							1,59	0,124	0,225							1,130	0,259	0,108
	<i>Model statistics</i>	Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.		Stat.	Sig.	
	F	2,170	0,152		8,680	0,001		2,330	0,116		12,750	0,000		11,190	0,000		6,580	0,002	
	R²	0,171			0,560			0,222			0,158			0,326			0,170		
Breusch/Pagan X²	0,820	0,364		1,690	0,193		0,120	0,724		34,110	0,000		22,940	0,000		36,540	0,000		
Mean VIF				1,000			1,000						1,000			1,020			

Regression results: Complete sample										
	Dependent Variable	Duration of internationalization								
	Sample Sample size	Complete n=165								
H1.1	<i>Independent and control variables</i>	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β
	Tolerable Risk	4,340	0,000	0,368	4,630	0,000	0,360	4,290	0,000	0,375
	Market Knowledge				3,450	0,001	0,364			
	Firm Size							0,920	0,360	0,078
	<i>Model statistics</i>	Stat.	Sig.		Stat.	Sig.		Stat.	Sig.	
	F	18,840	0,000		12,980	0,000		9,420	0,000	
	R²	0,136			0,268			0,142		
H1.2	Breusch/Pagan X²	28,340	0,000		30,380	0,000		29,390	0,000	
	Mean VIF				1,000			1,010		
	<i>Independent and control variables</i>	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β
	Market Commitment	2,070	0,040	0,150	2,560	0,011	0,192	2,120	0,035	0,155
	Market Knowledge				3,290	0,001	0,393			
	Firm Size							0,066	0,513	0,056
	<i>Model statistics</i>	Stat.	Sig.		Stat.	Sig.		Stat.	Sig.	
H1.3	F	4,290	0,039		7,970	0,000		2,350	0,098	
	R²	0,023			0,175			0,026		
	Breusch/Pagan X²	1,890	0,017		27,780	0,000		3,850	0,049	
	Mean VIF				1,010			1,010		
	<i>Independent and control variables</i>	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β	<i>t</i>	Sig.	β
	Market Uncertainty	3,280	0,001	0,327	3,670	0,000	0,331	3,310	0,001	0,338
	Market Knowledge				3,680	0,000	0,376			
H1.3	Firm Size							0,990	0,326	0,085
	<i>Model statistics</i>	Stat.	Sig.		Stat.	Sig.		Stat.	Sig.	
	F	10,790	0,001		9,520	0,000		5,500	0,005	
	R²	0,107			0,248			0,114		
	Breusch/Pagan X²	33,250	0,000		23,330	0,000		35,600	0,000	
	Mean VIF				1,000			1,020		

Table 2: regression results

Pairwise correlations for regression variables: Full sample		Duration	Tolerable risk	Mkt. Commitment	Mkt. Uncertainty	Market Experience	Firm Size
Duration	Correlation	1					
	Sig.						
	n	165					
Tolerable risk	Correlation	0,385	1				
	Sig.	0,000					
	n	165	165				
Mkt. Commitment	Correlation	0,120	0,689	1			
	Sig.	0,125	0,000				
	n	165	165	165			
Mkt. Uncertainty	Correlation	0,312	0,823	0,740	1		
	Sig.	0,000	0,000	0,000			
	n	165	165	165	165		
Mkt. Experience	Correlation	0,372	0,022	-0,107	-0,011	1	
	Sig.	0,000	0,780	0,170	0,888		
	n	165	165	165	165	165	
Firm size	Correlation	0,043	-0,093	-0,084	-0,125	0,177	1
	Sig.	0,585	0,235	0,284	0,111	0,023	
	n	165	165	165	165	165	165

Table 3: Pairwise correlations (full sample)

Pairwise correlations for regression variables: Pioneers subsample		Duration	Tolerable risk	Mkt. Commitment	Mkt. Uncertainty	Market Experience	Firm Size
Duration	Correlation	1					
	Sig.						
	n	30					
Tolerable risk	Correlation	0,284	1				
	Sig.	0,128					
	n	30	30				
Mkt. Commitment	Correlation	0,308	0,646	1			
	Sig.	0,098	0,000				
	n	30	30	30			
Mkt. Uncertainty	Correlation	0,414	0,806	0,743	1		
	Sig.	0,026	0,000	0,000			
	n	30	30	30	30		
Mkt. Experience	Correlation	0,632	0,077	-0,110	0,022	1	
	Sig.	0,000	0,686	0,561	0,910		
	n	30	30	30	30	30	
Firm size	Correlation	0,207	0,052	0,150	-0,042	0,337	1
	Sig.	0,272	0,785	0,428	0,827	0,069	
	n	30	30	30	30	30	30

Table 4: Pairwise correlations (Pioneers subsample)

Pairwise correlations for regression variables: Managers subsample		Duration	Tolerable risk	Mkt. Commitment	Mkt. Uncertainty	Market Experience	Firm Size
Duration	Correlation	1					
	Sig.						
	n	135					
Tolerable risk	Correlation	0,420	1				
	Sig.	0,000					
	n	135	135				
Mkt. Commitment	Correlation	0,222	0,707	1			
	Sig.	0,001	0,000				
	n	135	135	135			
Mkt. Uncertainty	Correlation	0,398	0,831	0,740	1		
	Sig.	0,000	0,000	0,000			
	n	135	135	135	135		
Mkt. Experience	Correlation	0,403	0,107	-0,112	-0,015	1	
	Sig.	0,000	0,845	0,196	0,867		
	n	135	135	135	135	135	
Firm size	Correlation	0,047	-0,129	-0,150	-0,146	0,166	1
	Sig.	0,584	0,136	0,083	0,090	0,055	
	n	135	135	135	135	135	135

Table 5: Pairwise correlations (Managers subsample)

8.2 List of figures and tables

Figure 2: Research model

Table 6: Correlation and covariance PCA matrices

Table 7: regression results

Table 8: Pairwise correlations (full sample)

Table 9: Pairwise correlations (Pioneers subsample)

Table 10: Pairwise correlations (Managers subsample)