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Gradually internationalizing 'born global' firms: an oxymoron?

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Abstract

Recent studies view the phenomenon of 'born global' firms as a contradiction to the stages theory. This paper shows that the internationalization process of 'born global' firms may be characterized by gradual increased commitment to foreign markets, albeit not necessarily according to the predictions of the classic stages theory.

We present and test a conceptual framework that allows analysis of the internationalization process of Israel based, knowledge-intensive 'born global' firms (KI-BGs) that have matured.

Results show that the KI-BGs in the sample pursue the following internationalization sequence over time: (1) exports are employed initially in order to serve customers in psychically close foreign markets; (2) subsequently, greenfield marketing subsidiaries are established in these markets; (3) finally, firms engage in mergers and acquisitions, create subsidiaries that incorporate several value-adding activities and penetrate psychically distant foreign markets.

Keywords: Born global; Small and medium sized enterprises; Knowledge-intensive firms; Internationalization process; Stages theory; International new ventures

1. Introduction

Traditionally, multinational enterprises (MNEs) were perceived as large, well-established firms (Caves, 1971, 1996; Chandler, 1986, 1990) that operate

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internationally because of their size and experience. The reduction in international transportation and communication costs and the shortening of products' life cycles are among the reasons for the emergence of smaller firms that are able to operate internationally. These firms are often referred to in literature as 'born global' firms or as 'international new ventures' (McKinsey & Co., 1993; Oviatt & McDougall, 1994; Rennie, 1993).

Although 'born global' firms are smaller than traditional MNEs, they incorporate similar characteristics in so far that they target international markets and disperse value-adding activities internationally (Oviatt & McDougall, 1994; Rugman & Wright, 1999). 'Born global' firms appear to have a number of unique features: they are relatively young and entrepreneurial in terms of ownership and management structure, they aim to cater to international markets from inception (McKinsey & Co., 1993), and their revenues are generated mostly in foreign markets rather than in their home market (Korot & Tovstiga, 1999). Moreover, they are frequently characterized as knowledge-intensive organizations that sell mainly innovative, self-developed technology-based products (Almor, 2000; Bell, 1995; Bloodgood, Sapienza, & Almeida, 1996; Dana, Eternad, & Wright, 1999; Oviatt & McDougall, 1994, 1997; Rennie, 1993; Rugman & Wright, 1999).

While the phenomenon of 'born global' firms is becoming increasingly common (Rugman & Wright, 1999), a comprehensive theory explaining its existence is still lacking (Oviatt & McDougall, 1999). Some scholars focus on international mobility of know-how and on entrepreneurial vision and capabilities (Liesch & Knight, 1999; Oviatt & McDougall, 1994), others highlight the importance of informal networks as a catalyst for internationalization (Coviello & Munro, 1997; McNaughton & Bell, 1999), while still others suggest combining various schools of thought (Coviello & McAuley, 1999; Nilsen & Liesch, 2000; Oviatt & McDougall, 1997; Yli-Renko, Autio, & Tomtit, 2002).

This paper does not aim to introduce an additional theoretical explanation to the phenomenon of 'born globals'; rather it aims to analyze their internationalization process. More specifically, the paper focuses on the internationalization process of knowledge-intensive 'born global' firms (denoted as KI-BGs) that have matured, i.e. 'born global' firms that have a track record of business activity over a number of years.

Most recent studies claim that the classic stages theory (e.g. Johanson & Wiedersheim-Paul, 1975; Johanson & Vahlne, 1977; Luostarinen, 1979) is inadequate to capture the internationalization process of 'born global' firms (e.g. Coviello & McAuley, 1999; McDougall, Shane, & Oviatt, 1994; Nilsen & Liesch, 2000; Oviatt & McDougall, 1994, 1997). However, we pose that KI-BGs do internationalize in stages, albeit not necessarily according to the predictions of the classic stages theory.

We propose to analyze the internationalization process of KI-BGs along three dimensions. The first dimension comprises the complexity of foreign market-servicing modes. The second dimension addresses the internationalization of major value-adding activities, and the third dimension examines the nature of the markets targeted by these firms.

We start out by presenting a conceptual framework that explains the internationalization process of KI-BGs. Next, a set of hypotheses, derived from the conceptual framework, is tested empirically. Finally, we present our findings and conclusions.

2. Conceptual framework

Literature that refers to the internationalization process of large MNEs usually views this progression as an ongoing evolutionary process whereby the firm increases its international involvement as a function of heightened knowledge and market commitment (Aharoni, 1966; Johanson & Vahlne, 1977, 1990; Johanson & Wiedersheim-Paul, 1975; Luostarinen, 1979; Luostarinen & Welch, 1990). Often referred to as the Uppsala model, it is argued that firms start to internationalize by arm's length transactions in 'psychically' close markets. Managers are expected to increase foreign market commitment and market knowledge over time, which is expected to lead to further commitments in even more psychically distant markets.

Essentially the Uppsala model is a 'stages' theory that proposes that firms go through sequential internationalization stages, commencing with sales to the home market and irregular exports. This is followed by regular export via agents and subsequently by the establishment of sales subsidiaries. At a later stage, firms invest equity in offshore production sites. This view is supported by scholars such as Reid (1981), Czinkota (1982), Cavusgil (1984) and Luostarinen and Welch (1990), who claim that managers, who have little or no experience in international markets, will initially expand their businesses into psychically close markets. Once successful, firms will pursue active expansion into more challenging and unknown markets and become increasingly committed to international growth. Thus, according to the stages theory, foreign market commitment is composed of two factors: the 'depth' of foreign market activity, i.e. the amount of resources committed to a specific market, and the 'breadth' of foreign market activity, i.e. the number and nature of targeted markets (Stray, Bridgewater, & Murray, 2001).

Many recent studies argue explicitly that the phenomenon of 'born global' firms *contradicts* the Uppsala gradual process of internationalization (Bell, 1995; Coviello & Munro, 1995; Gankema, Snuit, & Van Dijken, 1997; Jones, 1999, 2001; Knight & Cavusgil, 1996; McDougall et al., 1994; Oviatt & McDougall, 1994, 1997). Cavusgil (1994) goes further and claims that "gradual internationalization is dead". Essentially, the above studies argue that 'born global' firms internationalize rapidly and intensively, almost from their inception. Shorter product life cycles and the emergence of global demand are argued to be among the forces that cause 'born global' firms to adopt an international perspective regardless of age and size (Ohmae, 1990; Oviatt & McDougall, 1997). The need to reach markets of sufficient size and exploit first mover advantages is yet another motivation for firms to internationalize rapidly (McNaughton, 2000), and ascribe secondary importance to their home market (as opposed to the stages theory perspective).

In theory, the pattern of gradually increased international commitment should have been adopted by 'born global' firms, due to their limited financial resources and their managerial inexperience in international activity. Thus, a risk-averse firm would be expected *not* to commit resources to international markets (Buckley, 1989; Kaufmann, 1995) until it reaches a degree of maturity and experience in its home market. However, empirical data presented in different studies show that the home market is frequently negligible for 'born global' firms, and that many of them sell their first product in foreign markets (Almor, 2000; Bloodgood et al., 1996; Coviello & Munro, 1995; McNaughton, 2000; Oviatt & McDougall, 1994, 1997; Rasmussen & Madsen, 2002; Rennie, 1993).

Explanations for the rapid internationalization of 'born global' firms are numerous and include: global niche strategies (Almor, 2000; Bonacorsi, 1992; Fujita, 1995; Gomes-Casseres, 1997; Keeble, Lawson, Lawton Smith, Moore & Wilkinson, 1998; Rasmussen & Madsen, 2002; Rennie, 1993; Storey, 1994), the ability to raise capital externally (Bonacorsi, 1992; Hansen, Gillespie, & Genturck, 1994), entrepreneurial vision and capabilities (Knight, 2000; Oviatt & McDougall, 1994), and reliance on international networks and strategic alliances as a substitute for the firm's own assets (Bell, 1995; Coviello & Munro, 1995, 1997; Gomes-Casseres, 1997).

However, as noted by Coviello and McAuley (1999) and Stray et al. (2001), most studies relating to the internationalization process of 'born global' firms are cross-sectional, and refer to entry mode rather than to the question of whether a sequential pattern of internationalization exists (with a few exceptions, e.g. Coviello & Munro, 1997; Jones, 1999). This sort of analysis leads researchers to argue that 'born global' firms do not start out in their home markets and therefore do not comply with the classic stages theory. This line of research cannot really capture the dynamic features of the internationalization of 'born global' firms and their international maturation process remains obscure.

While research clearly shows evidence that 'born global' firms enter foreign markets at a very early stage in their organizational lives (Almor, 2000; Bell, 1995; Coviello & Munro, 1995, 1997; Gankema et al., 1997; Jones, 1999; McDougall et al., 1994; Oviatt & McDougall, 1994, 1997), we argue that when the internationalization process of 'born global' firms is studied not only before but also *after* entry into the first foreign market, it may be characterized by gradual increased commitment to foreign markets. Hence, a longitudinal analysis of the internationalization process of KI-BGs that have matured may enable us to capture the dynamic characteristics of the internationalization process of 'born global' firms.

Essentially, we pose that the salient differences between the internationalization process of KI-BGs and that of larger MNEs lies in the importance of their home market and in the relative pace of their internationalization. This view is depicted in Fig. 1. According to the stages theory, the foreign market commitment of MNEs in their early days is very low. This foreign market commitment increases only over time. On the other hand, foreign market commitment of KI-BGs commences at their inception (or close to the start of their organizational lives) and is much more rapid. Therefore, it can be described as a concave curve.

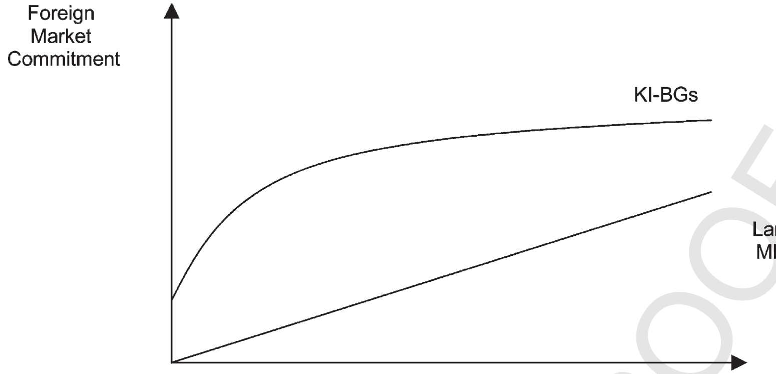

Fig. 1. Foreign market commitment of KI-BGs and large MNEs.

A dynamic conceptual framework based on the three dimensions of the internationalization process of KI-BGs is presented in Table 1. This framework analyses the internationalization process in terms of changes occurring over time in (1) the complexity of the foreign market-servicing mode employed; (2) the internationalization of different value-adding activities; and (3) the nature of the major markets targeted.

2.1. Complexity of foreign market-servicing mode

In reality, KI-BGs internationalize in a variety of ways, however, we believe that some typical internationalization patterns of these firms may be identified. Usually young, knowledge-intensive firms start out by developing products, which they subsequently market. In contrast to the classic stages theory, these firms often do not perceive their home market as a major target market in this period (Bell, 1995; Coviello & Munro, 1995, 1997; Gankema et al., 1997; Jones, 1999; McDougall et al., 1994; Oviatt & McDougall, 1994, 1997) and are expected to have sporadic sales in various foreign markets (Almor, 2000).

Exporting allows for low-cost and low-risk entrance into foreign markets and is typically the initial phase of internationalization for small and medium sized firms

Table 1
Internationalization stages of knowledge-intensive ‘born global’ firms

	Stage 1	Stage 2	Stage 3
Complexity of foreign market-servicing mode	Exports via agents/ distributors	Establishment of green-field subsidiaries	Mergers and acquisitions
Internationalized value-adding activities	None	Marketing	Production and R&D
Major markets targeted	Enter psychically close foreign markets	Enlarge market share in psychically close foreign markets	Enter psychically distant foreign markets (and continue sales to psychically close markets)

(Lu & Beamish, 2001). Therefore, we expect that the foreign market entry mode of KI-BGs will be based on exports via agents or distributors (Rasmussen & Madsen, 2002; Zacharakis, 1997). This enables smaller firms to serve foreign markets without substantial initial foreign investments and on an ad hoc basis.

However, once a client base is established in foreign markets and more international experience is gained, we expect that foreign market commitment will increase. Thus, in due course, KI-BGs are expected to pursue more complex foreign market-servicing modes that allow for superior response to local clients (e.g. in terms of after-sales services) as well as increased control over international activities, by establishing foreign subsidiaries. We propose that the second stage in the foreign market-servicing mode of KI-BGs will be to engage in the establishment of greenfield, wholly owned subsidiaries in their foreign markets. While establishing greenfield subsidiaries requires a fair amount of managerial expertise, the establishment of such subsidiaries is expected to be simpler compared to mergers and acquisitions (M&As) of indigenous firms in host markets. International M&As are often considered as more complex than greenfield, since they require substantial managerial knowledge and experience in the process of unifying and building trust between two firms with different organizational and cultural characteristics (Buckley & Casson, 1998; Buono & Bowditch, 1989; Haspeslagh & Jemison, 1991; Weber & Menipaz, 2003). This in turn leads to a situation where merely half of all M&As meet initial financial expectations, with failure rates in the 50–60% range (Cartwright & Cooper, 1993). Thus, we expect that KI-BGs will employ M&As only at a later stage, after their international experience increases and once sales in given foreign markets become sufficiently large.

Thus, KI-BGs are expected to gradually adopt more complex foreign market-servicing modes. We anticipate that this increase of complexity will depend upon time and sales volume (which proxies experience in a given market). Hence, we hypothesize that:

H1(a). *KI-BGs prefer to use exports as an entry mode into foreign markets. Subsequently, they establish wholly owned subsidiaries in those markets. M&As will be employed at a later stage.*

H1(b). *KI-BGs employ more complex foreign market-servicing modes in their major markets than in less important markets.*

2.2. Internationalization of value-adding activities

Following Buckley and Casson (1976), Hirsch (1976), Jones (1999), and others, we relate to the internationalization of three major value-adding activities: (1) R&D—creation of knowledge and consumable technology, (2) production—transforming inputs into outputs, (3) marketing—which includes promotion, sales, distribution and after-sales services.

Initially, KI-BGs are expected to locate all value-adding activities at home where the perceived risk of operation is low. In addition, the limited financial and managerial resources of such firms (Buckley, 1989; Kaufmann, 1995) motivate them to locate their value-adding activities at home, during their initial internationalization stage in order to avoid the investments and fixed costs associated with foreign operation.

In the second stage, the sales volume of KI-BGs is expected to grow. In this stage, they are expected to internationalize their marketing activities to host markets. Since the knowledge-intensity of products is associated with the amount of firm-specific services these products require (Almor & Hirsch, 1995; Hirsch, 1989), KI-BGs are expected to locate their marketing activities and particularly firm-specific after-sales services (which may be regarded as a post-sale marketing activity) in proximity to host markets.

Firm-specific services refer to services that are based on firms' proprietary know-how (Almor & Hirsch, 1995; Hirsch, 1989). It is difficult to supply firm-specific services by external suppliers (that may, however, provide other services, e.g. transportation, and finance), as they require high expertise and are strongly related to the R&D function, which is the major core competency of small knowledge-intensive firms (Amin & Thrift, 1994; Oviatt & McDougall, 1994). Location of marketing activities in host markets allows KI-BGs to improve their competitive position in comparison to indigenous competitors, as it allows them to: shorten the response rate for customer demands, improve their control over international marketing operations, derive greater benefit from customer led innovations and save on travelling costs of the marketing personnel. Internationalization of marketing activities is therefore vital in order to sustain the competitive advantage of KI-BGs over time. This view is consistent with Rennie (1993) who claims that 'born global' firms need to be close to their customers, since "this is the best way to create value".

Only in the third stage, production and R&D are expected to be internationalized. In this stage, the managers of KI-BGs are expected to gain enough experience in international activity to commit to further foreign investments. Moreover, in this stage firms', sales are expected to expand compared to their initial sales volume and the need to allow for local adaptations of products is expected to grow (Harzing, 2000). Savings on distance costs (i.e. transportation costs, communication cost, costs of tariff and non-tariff barriers) may also encourage internationalization of R&D and production. The internationalization of value-adding activities is therefore expected to conform to the pattern of internationalization identified by Johanson and Vahlne (1977) and thus, we hypothesize that:

H2. *Initially, KI-BGs locate all value-adding activities at home. Next, they transfer marketing activities to host markets and finally they internationalize production and R&D.*

2.3. Major markets targeted

As opposed to the stages theory, the home market is not expected to be of major importance for KI-BGs. Increasing cultural homogeneity, first mover advantages, the need to reach markets of sufficient size and the past foreign market experience of entrepreneurs are the major reasons for this frequently observed phenomenon (Bell, 1995; Coviello & Munro, 1995; Jones, 1999; McNaughton, 2000; Oviatt & McDougall, 1994, 1997). However, as KI-BGs market newly developed technology based products, we expect that they will first target markets that are perceived as less risky for their operations. This enables the firms to somewhat reduce the risk that already exists in marketing a new product, previously unknown in the market. Hence, in the first stage, KI-BGs are expected to selectively target psychically close markets.

In the second stage, KI-BGs are expected to gradually increase sales to these markets. This view is consistent with Penrose's (1956) ''gambler's earning'' hypothesis, since well-known markets are preferred over unknown ones. Only, in the third stage, when the managers of a KI-BG gain more experience in marketing their products, they are expected to penetrate markets that are perceived as psychically distant. In turn, KI-BGs are expected to have higher sales volumes in psychically close markets. Thus, we hypothesize that:

H3(a). *KI-BGs penetrate psychically close markets before they penetrate psychically distant markets.*

H3(b). *The percentage of KI-BGs' sales to psychically close markets is larger than to psychically distant markets.*

Finally, we argue that the gradual pattern of increased international commitment along the above-mentioned dimensions is interrelated. We expect KI-BGs to exploit more complex foreign market-servicing modes (i.e. operate subsidiaries rather than export) in psychically close markets (Barkema, Bell & Pennings, 1996; Kogut & Singh, 1988) and to transfer more value-adding activities to these markets. Hence, we hypothesize that:

H4. *KI-BGs employ subsidiaries more often in psychically close markets than in psychically distant markets. Moreover, subsidiaries in psychically close markets incorporate more value-adding activities than those in psychically distant markets.*

3. Data

Our sample consists of industrial, publicly traded, Israeli, KI-BGs. By focusing on firms that are traded publicly, we were able to examine the historical development of firms with a proven track record of business activity. A firm that is traded publicly has been in existence for several years and has, most likely, gone through some of the stages described in our theoretical framework. Data availability considerations led us to focus on Israeli, KI-BGs traded on NASDAQ (New York) and on various stock exchanges located in the European Union, during the year 2000.

First, we identified the research sample, which was defined according to the following criteria.

3.1. Knowledge-intensity

Various measurements exist to classify knowledge-intensive industries and firms (e.g. Almor & Hirsch, 1995; Jones, 1999). Almor and Hirsch (1995) employed three measures of knowledge-intensity: (1) ratio of R&D investments to sales (2) percentage of skilled employees and (3) total employment cost on a per firm basis. Results showed that firms scored either low or high on all three measures. In addition, industry data published by Israel's Central Bureau of Statistics, show that manufacturing industry can be sub-divided into low-tech and high-tech, whereas the cut-off point between the two is 5% investment in R&D out of total sales. We therefore selected a ratio of R&D investment to sales of at least 5% (in 1999) as the threshold of classifying knowledge-intensive 'born global' firms.

3.2. Size

There is no accepted size threshold for KI-BGs. Thus, in order to define such a size threshold, we initially examined the accepted definitions of small and medium sized enterprises (SMEs). We chose to use 'number of employees' as a measure of size. Buckley (1997), as well as Fujita (1995), and Storey (1994), use the term SMEs for enterprises that employ less than 500 people. However, SME definitions are based on firms operating in *local* markets, while in this study, we focus on firms that are small to medium sized compared to MNEs. Therefore, we limited ourselves to firms that enrol less than 1% of the average number of employees in the world's 100 largest MNEs (UNCTAD, 2001). Thus, the largest firm in our sample employs about 1000 employees.

3.3. 'Born global' firms

As noted by Rasmussen and Madsen (2002), "there is absolutely no clear definition—neither theoretically nor empirically—of a born global or similar concepts". Knight and Cavusgil (1996) as well as Madsen, Rasmussen and Servais (2000) define 'born global' firms as firms that (1) sell their first product in foreign markets within three years of their inception and (2) derive at least 25% of their turnover outside their home market. This definition is often used in 'born global' firms literature. However, our observations show that this threshold may be inadequate for firms that do have an international orientation from a very early phase of their organizational lives, but lack on one of the two criteria. For instance, some firms reach the point where virtually all their turnover is derived from foreign markets when they are still fairly young, although they started to internationalize later than three years after their incorporation. We therefore designed two alternative criteria to be met in order to be classified as a 'born global' firm: (1) the first international sale took place within three years after incorporation and the firm's foreign sales account for at least 25% of its turnover; or (2) the first international sale took place no longer than nine years after incorporation and the firm's foreign sales account for at least 75% of its turnover.

Initially, 140 Israeli industrial firms that are traded outside Israel were identified. Firms that, during the year 1999, invested less than 5% in R&D, employed over a thousand employees or did not satisfy the 'born global' criteria were excluded from this list. Senior management of the remaining 75 firms was approached to take part in a face-to-face interview. Interviews were held with CEOs or VPs of the companies. In-depth interviews took between 60 and 120 min and were conducted as focused interviews. They were based on semi-structured questionnaires that were used to elicit the views of the interviewee without being tainted by the interviewer's preconceptions as much as possible. The response rate was 71% (53 firms).

The firms in the sample can be classified into four industries: (1) software (40%), (2) information and communication technologies—ICT (21%), (3) electronics (25%) and (4) 'other', which include pharmaceutics, biotechnology and medical technologies (14%). Self-categorization by the firms was the basis for identifying these industries and for classifying each firm by industry.

Basic comparisons between the 53 participating firms and the 22 non-participating firms did not show evidence of any response bias in terms of firm sales, number of employees, age, industrial classification and percentage of international sales.

Descriptive statistics presented in Table 2 show that the firms in our sample are young and small (both in terms of sales and number of employees). These firms have a very strong international orientation: most of their revenues are generated from multiple international markets rather than from the Israeli market and the median time span from firms' incorporation to the first international sale is short. Moreover, it is noteworthy that 73% of the firms sold their first product outside Israel. The firms in the sample may be characterized as knowledge-intensive both in terms of the ratio of R&D investments to sales and the percentage of innovative, self-developed products they sell.

Since we focus on firms with a proven track record of business activity, the firms in our sample are somewhat larger and older than the firms that are usually included in 'born global' firms studies (e.g. Coviello & Munro, 1997; Keeble et al., 1998; McNaughton, 2000; Stray et al., 2001). However, Gomes-Casseres (1997) and Knight (2001) relate to firms of a similar size to ours.

Table 2
Descriptive statistics of the firms (for the year 1999)

Variable	Median	Range
Year of establishment	1990	1950–1996
Sales (million US$)	25	0–338
No. of employees	163	15–1020
Percentage of sales in Israel	2	0–60
No. of foreign markets	30	1–86
Time span between incorporation and first international sale	2	0–9
Ratio of investments in R&D to sales (%)	16	5–246
Percentage of sales innovative, self-developed products	50	0–100

In order to test hypotheses 3 and 4, we needed to define the psychic distance between Israel and various countries. As noted by Stray et al. (2001), few studies have quantified and measured psychic distance. Usually, cultural distance serves as a proxy for psychic distance (e.g. Kogut & Singh, 1988). In the absence of a quantitative measure of either psychic or cultural distance for Israel, we base ourselves on empirical studies that cluster Israel together with Anglo and German countries (Hofstede, 1980; Ronen & Kraut, 1977; Ronen & Shenkar, 1985). We therefore view the United States (US) and the European Union (EU) as psychically closer to Israel than South East Asia (SEA) and the Rest of the World (ROW). This view is consistent with the intensive commercial relations of Israel with the US and the EU, which are assumed to decrease perceived psychic distance.

4. Findings

Hypothesis H1(a) relates to the complexity of foreign market-servicing modes. It is hypothesized that KI-BGs prefer to use exports as an entry mode. Subsequently, they are expected to establish wholly owned subsidiaries, while they are expected to engage in M&As at a later stage.

Firms were asked to report their entry and current foreign market-servicing modes in each major market. Table 3 shows that the firms in the sample employ exports as their entry mode into foreign markets significantly more frequently than other entry modes. Over time, however, the majority of the firms employ subsidiaries as their current foreign market-servicing mode while fewer continue to export to these markets. As indicated in Table 3, the difference between the entry and current foreign market-servicing modes is significant in all three markets. The market in SEA is the only one where exports are preferred over subsidiaries as a current foreign market-servicing mode. We address this finding again when testing

Table 3
Complexity of foreign market-servicing mode in different foreign markets (cross tabulation)

Relationships	Entry mode (% of firms)	Current foreign market-servicing mode (% of firms)	Chi-square	df	p
Type of entry/current foreign market-servicing mode employed in the US	Exports—43.2, subsidiaries—34.2	Exports—4.2, subsidiaries—89.1	2.8	1	≤ 0.097
Type of entry/current foreign market-servicing mode employed in the EU	Exports—58.1, subsidiaries—21.7	Exports—23.3, subsidiaries—72.1	9.4	1	≤ 0.002
Type of entry/current foreign market-servicing mode employed in SEA	Exports—81.6, subsidiaries—10.1	Exports—46.2, subsidiaries—35.9	3.8	1	≤ 0.052
Use of greenfield/acquired subsidiaries in the first and fifth subsidiaries			4.8	1	≤ 0.035

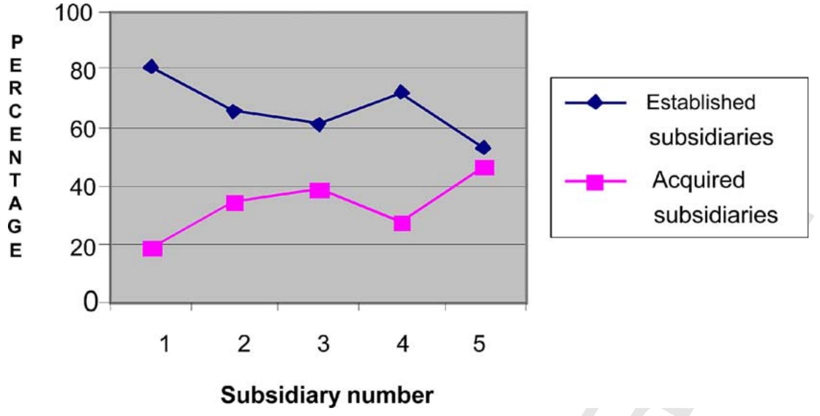

Fig. 2. Percentage of foreign subsidiaries that are established or acquired.

Hypothesis H1(b). These findings support the first part of the hypothesis; where KI-BGs are shown to prefer exports as an entry mode and prefer to use foreign subsidiaries subsequently.

In order to test the second part of the hypothesis, we examined the change in type of subsidiary over time. Data presented in Fig. 2 show a clear decrease in the percentage of greenfield subsidiaries and an increase in the percentage of acquired subsidiaries (out of the overall number of subsidiaries). A significant difference is found between the types of first and fifth subsidiary (Table 3), thus supporting the hypothesis that greenfield subsidiaries are followed by M&As. However, it should be noted that this change does not necessarily take place in the same country. The results indicate that international experience allows firms to use more complex market-servicing modes, also when that experience does not originate in the same country.

It is noteworthy that the time spans between the implementation of the various foreign market-servicing modes are short. On average, M&As are used five years after entry to foreign markets and the fifth subsidiary is established three years after the first one.

Hypothesis H1(b) proposes that KI-BGs employ more complex foreign market-servicing modes in significant (i.e. larger) markets than in less important markets. Univariate analysis of variance shows that a significant difference exists between the current foreign market-servicing modes in small and large markets ($F = 12.03$, $df = 2$, $p \leq 0.000$), thereby supporting this hypothesis. As indicated in Table 3, in the US, the sample's most significant market (in terms of share of total sales), the firms use exports as a foreign market-servicing mode much less frequently than in the sample's least significant market (SEA). We conclude that in important markets wholly owned subsidiaries are the preferred foreign market-servicing mode.

Hypothesis H2 poses that KI-BGs initially locate all value-adding activities at home. Marketing is the first activity to be transferred to foreign markets while pro-

Table 4
Foreign subsidiaries characteristics (average per firm values)

Hypothesis/relationship	Average	T	df	p
Difference between date of incorporation and date of first foreign subsidiary establishment	$\text{Year}_{\text{incorp}} = 1988$, $\text{Year}_{\text{first-sub}} = 1995$	−7.07	48	≤0.000
Major function of foreign subsidiaries (R&D vs. marketing)	R&D-sub = 0.32, M-sub = 2.00	−6.13	37	≤0.000
Major function of foreign subsidiaries (production vs. marketing)	P-sub = 0.39, M-sub = 2.00	−5.47	37	≤0.000

$\text{Year}_{\text{incorp}}$, year of incorporation; $\text{Year}_{\text{first-sub}}$, year where first subsidiary was established; R&D-sub, no. of subsidiaries that primarily engage in R&D; M-sub, no. of subsidiaries that primarily engage in marketing; P-sub, no. of subsidiaries that primarily engage in production.

duction and R&D are the last ones. Paired-samples t-testing, presented in Table 4, shows that the first foreign subsidiary is established significantly after each firm being incorporated, thus implying that initially all value-adding activities are located at home. On average, the first subsidiary is established seven years after incorporation.

Paired-samples t-tests reveal that subsidiaries primarily engaged in marketing are more frequently internationalized than subsidiaries primarily engaged in R&D or production (Table 4). However, comparison of the major functions of the first five foreign subsidiaries, as a measure of internationalization of value-adding activities, does not reveal any clear sequence over time. Thus, this hypothesis is only partially supported.

Hypothesis H3(a) proposes that psychically close markets are penetrated before psychically distant markets. Paired-samples t-tests show that the firms entered the US and the EU, which are assumed to be psychically close to Israel, earlier than SEA. As reported in Table 5, the difference in the time of entry is significant, whereas there is no significant difference between time of entry to the US and the EU. Thus, Hypothesis H3(a) is supported.

Hypothesis H3(b) suggests that the percentage of sales to psychically close markets is larger than to psychically distant markets. Paired-samples t-tests show that the firms in the sample have a significantly higher sales volume in psychically close markets, i.e. the US and the EU. As reported in Table 5, the percentage of sales to the US and the EU is significantly higher than to SEA and ROW. No significant difference is found between the percentage of sales to the US and the EU, thus Hypothesis H3(b) is supported. Nevertheless, one should note that this result might stem from differences in the size of these markets rather than psychic proximity. In particular, in regard to the US market that is considered a leading market for high tech products.

Finally, Hypothesis H4 proposes that in psychically close markets, more frequent use will be made of subsidiaries than in psychically distant markets. It is further hypothesized that subsidiaries in psychically close markets will incorporate more value-adding activities than those in psychically distant markets. The hypoth-

Table 5
Time of entry and sales distribution in major foreign markets (average per firm values)

Hypothesis/relationship		Average	*T*	df	*p*
H3(a)	Entry to the US before SEA	Yentry-US = 1993 Yentry-SEA = 1995	−3.19	36	≤ 0.003
H3(a)	Entry to the EU before SEA	Yentry-EU = 1993 Yentry-SEA = 1995	−2.21	36	≤ 0.033
H3(a)	Entry to the US before the EU	Yentry-US = 1993 Yentry-EU = 1993	−1.23	43	≤ 0.225
H3(b)	Percentage of sales in the US higher than in SEA	Sales-US = 39 Sales-SEA = 13	5.32	49	≤ 0.000
H3(b)	Percentage of sales in the US higher than in ROW	Sales-SEA = 31 Sales-ROW = 7	8.11	48	≤ 0.000
H3(b)	Percentage of sales in the EU higher than in SEA	Sales-US = 39 Sales-SEA = 13	4.74	49	≤ 0.000
H3(b)	Percentage of sales in the EU higher than in ROW	Sales-EU = 31 Sales-ROW = 7	7.42	48	≤ 0.000
H3(b)	Percentage of sales in the US higher than in the EU	Sales-US = 39 Sales-EU = 31	1.50	49	≤ 0.140

Yentry, year of entry to a given market; Sales, percentage of sales in a given market.

esis was examined by means of non-parametric tests and results show that the firms in the sample have significantly more subsidiaries in psychically close markets than in psychically distant ones (binomial NPar test 0.80–0.20, $p \le 0.000$). Moreover, subsidiaries located in psychically close markets employ *at least* two value-adding activities significantly more frequently than subsidiaries in psychically distant markets (binomial NPar test 0.87–0.13, $p \le 0.000$). Hypothesis 4 is therefore supported.

5. Discussion and conclusions

Theories need to have spatial and temporal boundary assumptions and constraints (Andersen, 1993). Spatial boundaries may be defined as conditions restricting the use of the theory to specific units of analysis (e.g. small vs. large firms) and temporal boundaries may be defined as the time frame concerned. Thus, one of the flaws of the stages theory is the fact it is loosely bounded in both space and time and therefore is too general to enable research precision (Andersen, 1993). This is probably the main reason for the long lasting debate among researchers regarding the applicability of the stages theory.

Bearing in mind that our model focused on a *specific type* of ‘born global’ firms (i.e. knowledge-intensive firms that have a track record of business activity) and that our sample consists only of Israel based firms, our proposed conceptual framework and findings should be viewed in this light. Our findings contradict the stages model, which assumes that firms start in their home market, as they show that the home market is negligible for Israeli, KI-BGs (most of the firms in our sample sold their first product outside Israel, and mainly serve international customers despite their young age and relatively small size). The framework and findings further show a more rapid pace of internationalization than usually reported in the classic stages theory literature (e.g. Johanson & Wiedersheim-Paul, 1975) and reveal that, contrary to Johanson & Vahlne's (1990) claim, small, rather than large, firms make large internationalization steps in a short time frame.

On the other hand, our findings also indicate that Israeli KI-BGs do exhibit a gradual increased commitment to international markets *after* their first market entry. We have shown that the complexity of the foreign market-servicing mode of Israeli KI-BGs increases as a function of time and decreases as a function of psychic distance. Marketing was shown to be foremost-internationalized value-adding activity, whereas R&D and production are usually located in the home country. The establishment of marketing subsidiaries by KI-BGs seems to be essential in order to achieve and sustain competitive advantage in foreign markets while the internationalization production and R&D seems less crucial. In addition, we found that Israeli KI-BGs entered psychically close markets before psychically distant ones and had a larger share of sales in psychically close markets.

Thus, our main conclusion regarding the international development of KI-BGs is that they are *not* a unique phenomenon as argued previously in articles on 'international new ventures' and 'born global' firms. Our findings show that these firms exhibit an internationalization process that is similar, albeit not identical, to that of larger MNEs.

Our findings further confirm the pattern of increasing the 'depth' of international commitment expressed by KI-BGs, that was identified by Stray et al. (2001), and by Coviello & Munro (1997), who argued that KI-BGs are expected to exhibit compressed internationalization stages in a relatively short time span. However, our findings clearly contradict those of Bell (1995), who argued that small, knowledge-intensive software firms do not necessarily start their internationalization by entering 'closer' markets and who found that between 30% and 50% of all firms in his sample did not follow the stages model. The same contradiction applies to Knight, Bell and McNaughton (2003) who claim that New Zealand based 'born global' firms belonging to the seafood sector do not necessarily target psychically close markets. Our findings also differ from those of Jones (1999, 2001), who claimed that internationalization paths of small, knowledge-intensive firms originating in the UK are unique to individual firms and may encompass any or all value-adding activities. In addition, our findings also do not concur with those of Lamb and Liesch (2002) who claim that the internationalization process of small firms from the Australian food industry (which are not necessarily knowledge-intensive and 'born global') may be characterized with both expansion and contraction of foreign market commitment, whereas we have noted a gradual increased commitment as time passes and experience is gained.

Overall, it is clear that more research is required in order to establish external validity to our proposed conceptual framework and to verify that this framework can be empirically validated for 'born global' firms originating in countries other than Israel. Since the Israeli origin of the firms we have studied may have a critical impact on their internationalization patterns, additional empirical validation should apply to 'born global' firms originating in several countries that are different in their home market size, culture, geographical location and economic development level. Moreover, our framework should be validated for non-knowledge-intensive 'born global' firms. These firms require less frequent interactions with their customers and usually market more standardized and well-known products in foreign markets. This implies that the pressures to internationalize marketing activities are lower, the risk of marketing fairly unknown products is lower but on the other hand competition may be fiercer. Thus, the internationalization process of non-knowledge-intensive 'born global' firms may differ from that of knowledge-intensive ones.

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