Cross-Border Transfer of Organizational Knowledge: A two country comparison

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Abstract

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Organizational knowledge is considered an essential competency for multinational corporations wanting to efficiently transfer their experience and practices to subsidiaries. Knowledge transfer has traditionally been examined through the transmission of routines, rules, and procedures — but when transferring knowledge from one country to the other, cultural characteristics also need to be taken into consideration. This paper uses a multiple case study to investigate how the transfer of know-how is influenced by three factors: level of individualism, the degree of subsidiary autonomy, and time. The sample consisted of seven Canadian and Greek parent companies and eight subsidiaries, with qualitative data triangulated from twenty-seven interviews, as well as documentation and observation. The findings confirm the majority of the hypothesized constructs, indicating that cultural characteristics influence cross-border knowledge transfer.

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Montreal, August 2003

ITHAKA
by K. P. Kavafis
translated by A. Moskios

WHEN YOU SAIL FOR ITHAKA,
WISH THAT YOUR TRIP BE LONG,
FULL OF ADVENTURES, FULL OF KNOWLEDGE.
THE LAISTRYGONIANS AND THE CYCLOPES,
ANGRY POSEIDON DO NOT FEAR; THINGS
LIKE THESE ON YOUR TRIP YOU'LL NEVER FIND
IF YOUR THOUGHTS ARE PURE, IF ECLECTIC
EMOTIONS FILL YOUR HEART AND YOUR MIND.
THE LAISTRYGONIANS AND THE CYCLOPES,
ANGRY POSEIDON YOU WILL NOT MEET
IF YOU DO NOT CARRY THEM IN YOUR HEART,
IF YOUR MIND IS NOT FILLED WITH THEM.

WISH THAT YOUR TRIP BE LONG.
MANY A SUMMER MORNS ARRIVE
THAT WITH JOY AND PLEASURE YOU ENTER
INTO PORTS THAT YOU'VE NEVER SEEN BEFORE;
TO STOP BY PHOENICIAN TRADING POSTS
AND BUY THINGS OF VARIOUS SORTS:
MOTHER OF PEARL AND CORALS, EBONY AND AMBER,
AND HEDONIC PERFUMES OF ALL SORTS -
AS MANY AS YOU CAN CARRY SENSUAL PERFUMES;
MANY AN EGYPTIAN CITY YOU MUST SEE,
AND FROM THE EXPERTS LEARN AND LEARN.

FOREVER ITHAKA MUST BE IN YOUR MIND.
TO GET THERE IS THE GOAL OF YOUR TRIP.
BUT DO NOT HURRY YOUR JOURNEY AT ALL.
IT IS BETTER IF IT WERE TO TAKE MANY YEARS;
AND YOU AN OLD MAN TO FINALLY ANCHOR THERE,
RICH WITH WHAT YOU GATHERED FROM THIS TRIP,
EXPECTING NO WEALTH THAT ITHAKA WILL GIVE YOU.

ITHAKA ALREADY GAVE YOU THAT GREAT TRIP.
WITHOUT HER, YOU WOULD HAVE NEVER SAILED AT ALL.
BUT SHE HAS NOTHING ELSE TO GIVE YOU FROM NOW ON.

AND IF YOU FIND HER POOR, SHE DIDN'T MISLEAD YOU.
SO WISE THAT YOU ALREADY ARE, SO EXPERIENCED,
YOU NOW COMPREHEND WHAT ITHAKAS REALLY ARE.

To my parents

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Introduction

Multinational corporations are engaged in a large number of knowledge-based activities demanding a high degree of coordination and programming. Activities such as forming a strategy to enter a new market, finding advantageous methods of approaching clients and suppliers, or systemizing the manufacturing process are just a few examples. When a multinational establishes a subsidiary in a foreign country, it is often required that it transmits a part or all of its methods abroad. Errors made during this transfer may prove costly. For example, when the parent company needs to transmit its warehousing system over to the subsidiary, a small change in the process has the potential for cost increase. Alternatively, when the foreign subsidiary needs to transfer the manufacturing method of its new product over to the parent company, a change in the process might lead to producing defective products. For this reason, it is important for the multinational corporation to identify ways to manage its knowledge effectively. It needs to be able to transfer the knowledge that is entailed in its activities without any major unexpected changes that will cause an anomaly in its operation and will increase its cost. Thus, a multinational organization must be able to effectively manage its knowledge by understanding the factors, which influence organizational knowledge flows[1] between the parent company and its foreign subsidiaries.

The concept of organizational knowledge is enjoying increased attention in the management literature. This is happening synchronously with the large number of companies that become internationally active, as part of globalization. Argote, Ingram,

Levine and Moreland (2000) identify two reasons for which globalization makes knowledge management so important. One reason is that globally active organizations have distributed their expertise among different geographical areas, which creates the need to transfer the knowledge between teams, departments and divisions. The other reason is that firms enjoy benefits from the formation of strategic alliances, mergers and acquisitions— naturally, this leads to increased pursuit of such endeavors. Other researchers view organizational knowledge as a capability that creates a competitive advantage for the firm. De Long and Fahey (2000:113) characterize knowledge as a "major source of competitive advantage." Argote and Ingram (2000) argue that achieving an internal transfer of knowledge, while at the same time avoiding external transfer, yields competitive advantages. This is based on the logic that employees of the same company have more similarities with each other than with employees of competitor companies. However, in multinational corporations employees might be characterized by the same organizational culture, but not by the same national culture. This raises questions about how the national culture of the home and host countries may play a role in the internal transfer of knowledge of the multinational.

For example, Bhagat, Kedia, Harveston and Triandis (2002) argue that fundamental aspects of national culture, particularly individualism and collectivism, affect the way people process information and knowledge. People that belong to different national cultures might have a different view of what is right or wrong, due to their beliefs and their morals, which creates a different knowledge basis, although it is initiated by the same data or information. This might influence how the parent company transmits information and how the subsidiary processes this information. In other words, the effect of national culture might

[1] The terms knowledge transfer and knowledge flows are used interchangeably throughout this study. When

lead to the creation of a different knowledge basis for the subsidiary, or it might lead to not accepting this information. In the same manner the parent company's national culture might influence its knowledge basis leading to similar alternative results.

Therefore, the objective of this research is to investigate the influence of national culture on the internal transfer of organizational knowledge in a multinational corporation. The study also investigates how other factors, such as subsidiary autonomy and time, may interact with culture and affect the outcome of knowledge transfer. Building on this broad research question, the next section presents the current state of the literature on organizational knowledge.

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research work is cited, the term used by the authors is the one mentioned.

Chapter 1

Literature Review

1.1. Organizational Knowledge

In the literature there are many definitions that describe the meaning of knowledge. It is common among them all that "knowledge is broader, deeper and richer than data or information" (Bhagat, et al, 2002:205). In a descriptive example, "information is often provided in blueprints", but "not all information may be identified or easily expressed" (Kogut and Zander, 1993:631). Indeed, knowledge is described as "a fluid mix of framed experience, important values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information" (Davenport and Prusak, 1998 found in Bhagat et al, 2002:205). However, there are researchers who have adopted a more operational definition of knowledge. More specifically, knowledge "is a product of human reflection and experience. Dependent on context, knowledge is a resource that is always located in an individual or a collective, or embedded in a routine or process. Embodied in language, stories, concepts, rules, and tools, knowledge results in an increased capacity for decision making and action to achieve some purpose" (De Long and Fahey, 2000:114). In relation to the above definition, which characterizes knowledge as a product, authors have argued that knowledge is "a commodity that is difficult to measure by traditional standards" (Glazer, 1998:176). According to that view, knowledge is "self-generative" and "feeds on itself," running contrary to the characteristics of most other commodities.

The literature identifies three different types of knowledge: human, social, and structured (Bhagat, et al, 2002; De Long and Fahey; 2000). Human knowledge refers to the knowledge and the skills of the individuals and it can be both tacit and explicit (Bhagat et al, 2002). Social knowledge is considered the knowledge that exists in the relationships between individuals or groups and it is mainly tacit (Bhagat et al, 2002). Structured knowledge "is embedded in organizational systems, processes, rules, and routines" (Bhagat et al, 2002:206) and it is mostly explicit and independent of the human knowledge (De Long and Fahey, 2000). Another distinction in the types of knowledge is between procedural and declarative knowledge (Moorman and Miner, 1997). Also, Gold, Malrhotra and Segars (2001) have distinguished between the internal knowledge, which is the knowledge within the firm, and the external knowledge. There are three ways to learn external knowledge: passive, active, and interactive (Lane & Lubatkin, 1998). Passive learning is the result of journals, seminars or consultants, active learning occurs from actions such as benchmarking and interactive is the outcome of a relationship between two firms.

However, the dimensions of knowledge are not consistently identified within the literature. De Long and Fahey (2000) have identified two dimensions of knowledge, whereas Bhagat et al (2002) mention three dimensions. Specifically, De Long and Fahey (2000) have identified the first dimension, which is individual, group and organizational levels of knowledge, and the second dimension, which is explicit versus tacit knowledge. Bhagat et al (2002) mention the first dimension as simple versus complex, the second dimension as independent versus systemic and the third dimension as explicit versus tacit. Besides these types and dimensions of knowledge, Hansen (1999) distinguishes between redundant and non-redundant knowledge.

At this point it is important to emphasize the difference between individual and organizational knowledge. De Long and Fahey (2000) argue that organizational culture determines the relationships between individual and organizational knowledge. Also, Cohen and Levinthal (1990) note the difference between individual and organizational learning by arguing that organizational learning is determined by the information sharing and exchange among the individuals.

According to Schulz (2001), there are three processes of organizational learning, which are encoding, exploration and exploitation. Encoding refers to codifying experiences into routines and behaviors, exploration in general refers to experimentation, and exploitation refers to production and implementation.

For the purposes of this research the focus will be on knowledge that is internal, structured, and organizational (Bhagat et al, 2002; De Long and Fahey, 2000; Gold, Malhotra and Segars, 2001). In other words, the focus of the investigation will be on the knowledge of the multinational (internal), and specifically on knowledge that is embedded in routines, rules and procedures (structured), and is usually explicit knowledge (Bhagat et al, 2002, De Long & Fahey, 2000).

1.2. Knowledge Transfer

Gupta and Govidarajan (1991) have recognized three types of flows that occur in organizations. Those are capital, product and knowledge flows. Regarding knowledge flows, Kogut and Zander (1993:631) have reported, "firms are efficient means by which knowledge is created and transferred". In other words, researchers have accepted and recognized that knowledge is transmitted within organizations. But what is meant by knowledge transfer and

knowledge flows? According to Schulz (2001:662), knowledge flows are "the aggregate volume of know-how and information transmitted per unit of time". Another definition of knowledge transfer refers to it as "the process through which one unit (e.g., individual, group, department, division) is affected by the experience of another" (Argote and Ingram, 2000:151; Argote, Ingram, Levine and Moreland, 2000:3). These definitions, however do not share the view that transfer is achieved "when a contributor shares knowledge that is used by an adopter" (Darr and Kurtzberg, 2000:29). In this case, researchers distinguish between knowledge transfer and knowledge sharing by stating that knowledge transfer should include the use of knowledge by the receiver (Darr and Kurtzberg, 2000). This means that, in the case of multinationals, the parent company might be transmitting knowledge to the subsidiary (or the subsidiary to the parent company), but transfer will not occur if the subsidiary (or the parent company) will not utilize that knowledge. On the other hand, Szulanski (2000:10) defines knowledge transfer as "a process in which an organization recreates and maintains a complex, causally ambiguous set of routines in a new setting". He identifies four stages of transfer: initiation, implementation, ramp-up, and integration. According to Szulanski (2000), the initiation and implementation stages include both experimenting before the receiver puts the knowledge in use and putting the knowledge in use. It is noteworthy that the process is characterized by the word transfer and not by the word *diffusion* due to the fact that "the movement of knowledge within the organization is a distinct experience, not a gradual process of dissemination" (Szulanski, 2000:17).

Regarding multinational corporations, Kostova (1999) has identified three types of knowledge flows: from the parent company to the foreign subsidiary, from the foreign

subsidiary to the parent and from one subsidiary to the other. This study examines knowledge transfer between the parent company and the foreign subsidiary.

1.3. The Literature on Knowledge Transfer

The study of organizational knowledge has taken many forms, varying from that of technology transfer, organizational learning, and knowledge transfer and sharing. Knowledge transfer is believed to occur through different mechanisms: personnel movement, observation, training, communication, technology transfer, reverse engineering, replicating routines, patents, scientific publications, presentations and inter-organizational relationships (Argote et al, 2000). In the past, knowledge transfer was investigated through one of those mechanisms, which is the transfer of technology. There are plenty of findings in the literature on the topic of technology transfer. Contractor and Sagafi-Nejad (1981) have identified entry modes, recipient country government policies, and policies of the supplier firms as the major determinants of technology transfer according to the findings of the literature. Another study investigated the influence of licensing and foreign direct investment on technology transfer and tried to capture the role of the characteristics of the technology, the parent company and the recipient country (Davidson and Mc Fetridge, 1985). The results indicate that the characteristics of the technology and the parent company have a strong effect, whereas the host country does not have such a strong effect. Moreover, other more recent studies have empirically tested knowledge transfer through the transfer of manufacturing technology (Kogut and Zander, 1993). The findings of this study indicate that multinational corporations will prefer to manufacture their new products in wholly owned subsidiaries instead of other choices, when the manufacturing process requires knowledge

that is tacit and less codified. These results are indicative of the effect manufacturing technology might have on a firm's international strategy, since firms might prefer to expand through greenfields rather than sign licensing agreements in the case the knowledge required is complex and not explicit. Indeed, in a study of the pharmaceutical industry Vaitsos (1974) suggested that the cost of entering a foreign market and transferring technology is minimal compared to the returns received from dividends, royalties and other sources of revenue. Also, Tsang (1999) argued that transferring the technologies of an organization occurs through internationalization. In a study conducted with Singapore companies Tsang (1999) found that firms learn without aiming for it, but the learning that occurs is not efficient.

In the new era of research, knowledge is investigated from a broader perspective, compared to that of technology. Of course, it must be noted that when researchers in the past would investigate technology transfer, they did not refer to hardware or software, but to the process that was necessary to manufacture the product. Contemporary technology transfer studies are few, not only because the topic has been exhausted, but also because the focus shifted elsewhere. Researchers now investigate richer concepts involving marketing know-how, management of human and physical resources, suppliers' and buyers' relationships, and many other characteristics that are critical to the strategy of the firm. The study of organizational knowledge has taken a different form from the one it had during the '70s, the 80's and partly the 90's. It is now investigated through the concepts of organizational learning, transfer of know-how and knowledge flows.

A way transfer of knowledge is studied is through the transmission of marketing know-how. Simonin (1999) investigated how ambiguity affects the transfer of knowledge in terms of marketing know-how in international strategic alliances. In particular, the

antecedents of ambiguity were tacitness, asset specificity, prior experience, complexity, partner protectiveness, and cultural and organizational distance. The results indicate that tacitness has the strongest effect on transfer of marketing know-how, while the influence of asset specificity and cultural distance is moderated by the alliance duration and the size of the firm.

Regarding other findings on the factors that affect the transfer of knowledge, collaboration is supported to be a key factor of knowledge transfer (Gold, Malhotra and Segars, 2001). In their study of 300 firms they found that technology, structure and culture, as part of the knowledge infrastructure, and also acquisition, application, conversion and protection, as part of the knowledge process architecture, are important determinants of managing knowledge.

Another factor that was found to influence the transfer of knowledge is partner similarity. In particular, partner similarity contributes to knowledge transfer to the point where it encourages search, but when it does not facilitate search, then it does not contribute to the increase of knowledge transfer (Darr and Kurtzberg, 2000). When referring to partner similarity Darr and Kurtzberg (2000) looked at three forms: strategic, customer and geographic. In another study, Lane & Lubatkin (1998) approached similarity from the perspective of student-teacher commonalities. More specifically, their hypotheses that the relevance of student and teacher firms' knowledge bases increases inter-organizational learning were supported. Apart from that, they found support in the hypotheses that similarity in organizational structures and organizational problems of the student and teacher firms would be positively related to inter-firm learning. However, the similarity in teacher

and student compensation practices did not seem to have strong positive relation with inter-organizational learning.

Regarding the way multinationals enter into a foreign market, Vermeulen and Barkema (2001) investigated the length of life of subsidiaries and compared greenfields with acquisitions. The results indicate that acquisitions contribute to enlarging the knowledge base of the firm, while greenfields decrease the survival rate of both types of subsidiaries. On the contrary, acquisitions increase the survival rate of both greenfields and acquisitions. Also, the study revealed that previous greenfields would lead to an increase in the acquisitions and previous acquisitions would cause more greenfields in the future.

Another study examined the learning effect on the two types of entry modes- start-ups and acquisitions (Barkema and Vermeulen, 1998). The findings showed that when firms expand in a multinationally diverse environment it is most likely that they will start a new venture than make an acquisition. Furthermore, the relationship between the product diversity of the firm and the start-ups is curvilinear and it weakens when multinational diversity increases. These results imply that a firm's strategy to expand is influenced by its product and competitor strategy, which offers great chances to learn.

In addition, a study on organizational subunits investigated how networking relationships between the subunits affected transfer of complex knowledge (Hansen, 1999). The results showed that when relationships between the subunits were weak, the project team would seek for knowledge in order to address project requirements. On the contrary, when strong ties characterized the subunits, the project team would not seek for complex knowledge and thus, the transfer of complex knowledge was prevented.

Concerning the effects of organizational knowledge on company management Chaston, Badger and Sadler-Smith (2001) have found that organizational learning contributes to the enhancement of organizational performance. In their study on entrepreneurial small firms they found that those firms have higher levels of organizational learning compared to non-entrepreneurial small firms (Chaston, Badger, Sadler-Smith, 2001). On the other hand, a study in North-South joint ventures found that the learning that takes place results in the creation of competencies in those joint ventures (Chrysostome and SU, 2002).

In another study, Kakihara and Sorensen (2002) analyzed knowledge through the concepts of object, interpretation, process and relationship. They also conducted a case study in firms that have suffered from threats in their supply chain and they concluded that knowledge is critical in the coordination of human and physical resources.

Another empirical investigation on the absorptive capacity of the firm revealed the effect of prior knowledge on the acquisition of new knowledge (Cohen and Levinthal, 1990). A major focus of their study is the structure of communication between the external and internal environment of the firm. When the firm has established a knowledge basis, the learning of new related knowledge will be a lot easier.

Schulz (1998) found that organizational learning has an effect on the rules of the firm. The findings suggest that the knowledge acquired from past experiences becomes embedded in the firm's rules and routines and that way it influences the firm's behavior.

It is easy to notice that the topic of organizational knowledge has been approached in a plethora of ways in the literature. Researchers have distinguished between the different types and dimensions of knowledge, as well as the different types of knowledge flows.

Additionally, they have studied organizational knowledge transfer through different concepts, such as knowledge flows, knowledge sharing and organizational learning. They investigated different knowledge domains in business and they examined different factors and outcomes of knowledge. The following chapter presents the conceptual foundation of this study, which will lead the way in meeting the research objective. That is to determine the effect of national culture on the transfer of organizational knowledge.

Chapter 2

Conceptual Framework

2.1. Culture and Knowledge

In order to analyze how culture can affect perception and in turn transfer of knowledge it is important to first define the meaning, the types and the dimensions of culture. Among the many definitions in the literature culture is considered "a collective programming of the mind which distinguishes one group or category of people from another" (Hofstede, 1993:89). According to this view, a category or group of people can be a nation, a regional group or even an organization. The objective of this study is to examine the culture of a group or category that forms a nation. Another definition can provide with an idea of what attributes can distinguish one group from another. An idea of what attributes can distinguish one group from another can be provided by the definition of culture as "a complex whole, which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society" (Tylor, 1871 found in Wines and Napier, 1992:833). Thus, the combination of these attributes creates an amalgam that results to the "collective mental programming" which makes groups of people different.

Hofstede (1983) describes *national culture* according to four criteria, commonly known as the dimensions of culture: (1) Individualism versus Collectivism, (2) Power Distance, (3) Uncertainty Avoidance, and (4) Masculinity versus Femininity. *Individualism* is described as the dimension by which the individual's interest is the guiding determinant of action (Triandis & Hui, 1986). *Collectivism* is the opposite of individualism (Hofstede, 1993), the dimension by which the group's interest is the principle that guides action. When

a nation is high on individualism, it will be low on collectivism — and the opposite holds true (Hofstede, 1983). Individualism-Collectivism is a dimension that is often linked to knowledge (Bhagat et al, 2002; Markus & Kitayama, 1991). *Power Distance* describes the degree of inequality between the members of a country, and *Uncertainty Avoidance* refers to the point to which a society tolerates uncertainty (Hofstede, 1983). Hofstede (1993) describes the last dimension, *Masculinity*, as the degree to which individuals have 'tough' values (competition, success, performance) as opposed to the 'tender' values traditionally associated with femininity (quality of life, personal relationships, solidarity).

From the above one can see that culture, according to Hofstede's definition (1993), is the outcome of a process that shapes beliefs, ideas and values. This outcome might differ in each group depending on the social, political, historical, and economic factors that influence that process. For example, differences in education will lead to a different programming of the mind. This view is in agreement with the opinion that culture affects the ways of thinking (Bhagat et al, 2002). More specifically, the human mind is programmed to emphasize certain information, since it is thought as more important than other types of information, which results in the creation of a different knowledge basis. In addition to this, culture is believed to influence human perception. For example, De Long and Fahey (2000) have argued that within an organization, cultures of units and groups perceive knowledge differently. Bond and Forgas (1984) empirically proved a similar approach in their examination of two national cultures, concluding that national culture affects personality perception. This implies that when knowledge is transferred between two different cultures, it will be perceived differently by the receiver, and thus the receiver might either not accept that knowledge or will modify it according to the standards of the group.

Furthermore, analyses on individualism and collectivism support the idea that collectivist groups process and interpret information differently than individualist groups (Bhagat et al, 2002). This is based on the reasoning that people in individualistic cultures aim for the personal use of information and, as a result, they look at the pieces of information that interest them, independent of the context (Markus and Kitayama, 1991). Besides that, people in collectivist cultures tend to emphasize knowledge that contains information about collectives, whereas members of individualistic cultures focus their attention on information about individuals (Bhagat et al, 2002). This means that members of an individualist culture will most likely place more emphasis on information concerning personal characteristics as opposed to members of collectivist cultures. Also, due to the fact that individualists are more rational and focus on personal rather than collective goals, they tend to accept information that is written and codified, whereas collectivists disregard such information (Bhagat, et al, 2002).

From the above, one can surmise that when knowledge is transferred between two cultures with a substantial difference in the levels of individualism, it is most likely that this knowledge will not be accepted in its pure form, unless there are other factors that will influence the knowledge flows. This agrees with the findings of Lane and Lubatkin (1998), which showed that the relevance of student and teacher firms' knowledge bases increases inter-organizational learning. But when the student firm is an individualist and the teacher firm is a collectivist, or reverse, there will be less relevance in their knowledge bases, since according to Hofstede (1983), they have gone through a different programming of the mind. This implies that when knowledge is transferred between an individualist and a collectivist culture, it will be modified according to the local standards. These standards might be

beliefs, ideas, morals, legislation or even market conditions. This leads to the following hypothesis:

Hypothesis 1a: When knowledge is transferred between an individualist parent company and a collectivist subsidiary, knowledge will be transferred with modifications.

Hypothesis 1b: When knowledge is transferred between a collectivist parent company and an individualist subsidiary, knowledge will be transferred with modifications.

2.2. Knowledge Acceptance

Knowledge acceptance can be related to absorptive capacity, since organizational absorptive capacity is the "acquisition or assimilation of information by an organization", but also "the organization's ability to exploit it" (Cohen and Levinthal, 1990:131). However, *knowledge acceptance* does not herein refer to the introduction of information from the external environment of the organization — as defined in some literature (Cohen & Levinthal, 1990) — but rather to the reception of knowledge from an affiliate. Therefore, the term knowledge acceptance will be used to describe the degree to which the company absorbs the knowledge transferred by the affiliate.

This term should also be distinguished from the expression 'success in knowledge transfer', since as we already mentioned, the influence of individualism-collectivism might be such that it will lead to knowledge modification. Kostova (1999) introduces the term 'institutionalization' in order to examine the success of transfer in organizational practices within multinational corporations. According to this approach, the transfer is successful when the practice has become a "status" to the receiver and when there is a meaning attached to it. Thus, the practice not only becomes part of the organizational routine, but it is

also considered valuable by the receiver. After all, practice is considered the routine use of knowledge of the organization (Szulanski, 2000), so in order to be successfully transferred it needs to be embedded in the organization. Kostova (1999) defines two levels for the success of transfer: implementation and internalization. The difference between the two concepts is that although the employees might implement a new rule, they do not necessarily accept it or, as a consequence, internalize it. This approach in combination to the effect of culture on knowledge transfer enriches the existing perspective on the outcome of knowledge transfer. The knowledge receiver might accept the new knowledge as it is, due to other factors (i.e. a new rule is forced by the parent company management), but the new knowledge might not be embedded by the organization. Considering the fact that collectivist and individualist groups pay attention to different types of information, one can understand that the transfer process will have different outcomes for each cultural group. Particularly in the case of written rules, as previously mentioned, collectivists do not emphasize the importance of information that is written like individualists do (Bhagat et al, 2002). So, if the individualist parent company orders the implementation of written rules to the collectivist subsidiary, the collectivist subsidiary will probably implement those rules, but will not consider them important enough to internalize them. This leads to the following hypothesis:

Hypothesis 2a: When knowledge is transferred from an individualist parent company to a collectivist subsidiary, in the form of written rules, the recipient will implement, but not internalize those rules.

Yet, when the knowledge flow has the opposite direction, that is when knowledge is transferred from the individualist subsidiary to the collectivist parent company, the subsidiary cannot force or prescribe the implementation of a new rule due to authority

differences. Thus, the collectivist parent company will not consider the written information as significant and it will not implement it.

Hypothesis 2b: When knowledge is transferred from an individualist subsidiary to a collectivist parent company, in the form of written rules, the recipient will not implement and not internalize those rules.

Accordingly, individualists consider written information as important (Bhagat et al. 2002), which means that they will internalize the written rules transferred from the collectivist parent company. However, due to the fact that they pay attention to information that benefits their own interests (Bhagat et al, 2002); they will most likely implement and internalize the information that is important to them and not the entire set of written information.

Hypothesis 3a: When knowledge is transferred from a collectivist parent company to an individualist subsidiary, in the form of written rules, then the recipient will partly implement and internalize those rules.

Again, in the case of the individualist parent company and the collectivist subsidiary, again the parent company will pay attention only to the information that benefits their interests and not to the entire set of information.

Hypothesis 3b: When knowledge is transferred from a collectivist subsidiary to an individualist parent company, in the form of written rules, then the recipient will partly implement and internalize those rules.

2.3. Subsidiary Autonomy

When a new rule is introduced to the foreign subsidiary by the parent company, the subsidiary has the choice to implement that rule or disregard it. In addition to those choices, according to Kostova (1999), the foreign subsidiary might implement, but not internalize the new rule. This choice might lead to the development of a new knowledge basis depending on the existing knowledge basis of the foreign subsidiary. More specifically, the foreign subsidiary will absorb the new knowledge not as it is, but in a way that reflects the company's philosophy. However, whether the subsidiary will be able to select between accepting, rejecting or implementing while not internalizing depends on the degree of its autonomy.

Theories on the subsidiary's freedom of choice in decision making focus on the subsidiary initiative. According to these theories, subsidiary initiative is "the proactive and deliberate pursuit of a new business opportunity by a subsidiary company, undertaken with a view to expand the subsidiary's scope of responsibility in a manner consistent with the MNC's strategic goals" (Birkinshaw and Fry, 1998). This view supports the existence of two forms of subsidiary initiative, externally focused and internally focused. *Externally focused subsidiary* initiative is seen as pursuing new business opportunities from the external environment of the company, which is the buyers', suppliers', and government network. *Internally focused initiative* refers to identifying opportunities within the span of the corporation, such as envisioning a company product's potential in a new market.

This theory refers to the subsidiary's autonomy in decision-making; however it is developed within the scope of seeking and identifying new business opportunities. Thereby, for the sake of precision, this study will be using the term *subsidiary autonomy*, by which

the company will have the ability to proceed in autonomous decision making regarding not only its internal operations, but also its external affairs.

Gupta & Govindarajan (1991) argued that the need for subsidiary autonomy is higher when the subsidiary has a high rate for knowledge outflow and a low rate for knowledge inflow compared to other outflow-inflow combinations. However, it seems that when the subsidiary has flexibility in its activities, then it most likely will have the ability to create new knowledge and, as a consequence, transmit it to the parent or other subsidiaries. If the subsidiary does not have a degree of autonomy, then it will not have the chance to experiment with new practices that will generate new knowledge.

Furthermore, empirical research on the knowledge flows between the units of an organization has proven that subunit autonomy has a strong and positive effect on knowledge flows between peer subunits (Schulz, 2001). This evidence strengthens the perception that autonomy has a positive effect on knowledge transfer, although it is on the unit level and not on the firm level.

The above provides with theoretical reasoning about how knowledge will be transferred when there is subsidiary autonomy. More specifically, it seems that the subsidiary will not be receiving much knowledge, but it will proceed in knowledge creation, which will be transmitted to the parent. The fact that the subsidiary will not be receiving much knowledge is based on the logic that the levels of individualism between the parent and the subsidiary will be substantially different, that they will operate as an obstacle to knowledge transfer. In addition, the subsidiary will not need to implement certain rules and routines that were forced by the parent, since it will have the ability to apply its own ones. Moreover, because of the subsidiary's autonomy, it will be able to generate its own

knowledge basis, which it will transmit to the parent company. Of course, the difference in the level of individualism will still be an obstacle in the knowledge transmission, but the subsidiary will be creating more knowledge than it will be accepting, and thus the increased possibility of transmitting that knowledge. This leads to the following hypothesis:

Hypothesis 4: When there is an individualist parent company and a collectivist subsidiary, and there is subsidiary autonomy, then the knowledge outflow will be greater than the knowledge inflow in that subsidiary.

2.4. Time

The literature contains no findings concerning the relationship between knowledge transfer and time. The only exception is an investigation of how ambiguity influences the transfer of marketing practices in international strategic alliances, where alliance duration was found to moderate the effect of asset specificity and cultural distance (Simonin, 1999). However, there is no evidence on the magnitude and the direction of the knowledge flows between a parent company and a foreign subsidiary.

Considering the fact that the subsidiary will create more knowledge predominately only after collecting more experience and expertise over time, it is likely that it will not have any major knowledge outflows at the beginning of its operation. When a subsidiary is first founded, it will have more questions or operational problems demanding the knowledge of the parent. Thus, the knowledge flows from the parent to the subsidiary will be stronger at the beginning, leveling off as the subsidiary learns how to operate and no longer needs advice from the parent with the same degree of frequency. The subsidiary is now the

developer of its own knowledge, which is transferred to the parent, since that knowledge can be useful to the establishment of other subsidiaries.

Hypothesis 5: The knowledge transfer from the subsidiary to the parent company is less at the early stages of the subsidiary than later on in the subsidiary's lifespan.

Hypothesis 6: The knowledge transfer from the parent company to the subsidiary is greater at the early stages of the subsidiary than later on in the subsidiary's lifespan.

Having as principal independent variables the level of country individualism, the degree of subsidiary autonomy and the time of subsidiary operation, this study will move forward in the examination of the influencing factors of knowledge transfer in multinationals. The following section narrates the elaborate methodological steps that were followed during the study in order to operationalize the above theoretical suggestions.

Chapter 3

Methodology

3.1. Theoretical Model

The hypotheses presented above consist of the theoretical model, which resulted from reviewing the literature. In order to investigate whether these hypotheses are supported it is essential to develop the appropriate criteria that will measure the variables under investigation. The measurement of the variables was conducted by designing two sets of open-ended questions, based on the hypotheses and the method of operationalization. One set of questions was destined for the parent companies; and the other set was constructed for the subsidiaries. The questions are grouped according to the hypotheses that were investigated. Tables 3.1 and 3.2 present the logic under which the hypotheses were operationalized and linked to the literature, the variables and the questions.

For the level of individualism, Hofstede's Index was used in order to assess the difference between individualism in the countries investigated (Hofstede, 1983). The countries that were investigated in this study were Canada and Greece, since they are very different in their individualism level. Specifically, Canada was found to have an index of 80 and Greece an index of 35 (Hofstede, 1980).

Table 3.1. Hypotheses- Method of Operationalization- Questions to the Parent Company.

Hypotheses / References	Variables	Method of Operationalization	Questions to the Parent Company
Hypothesis 1a: When knowledge is transferred between an individualist parent company and a collectivist subsidiary, knowledge will be transferred with modifications. **Hypothesis 1b:** When knowledge is transferred between a collectivist parent company and an individualist subsidiary, knowledge will be transferred with modifications. (Bhagat et al, 2002) (Bond & Forgas, 1984) (De Long & Fahey, 2000) (Hofstede, 1983) (Lane & Lubatkin, 1998) (Markus & Kitayama, 1991) (Triandis, 1986)	Dependent: Knowledge Transfer Independent: Individualism	1.Adjustments to new rules 2.Changes in procedures of production, policies, and routines. 3.Information	18. If an employee from the subsidiary comes to work for your company in the same position as in the parent company, and assuming that there isn't a language problem, will he or she have problems adapting to the parent company's working procedures? Will he or she need training? 19. If you were to write down the procedures in the functional areas (e.g. the production, HRM, etc.) would they be the same as the written procedures of the subsidiary? 20. When the subsidiary sends you the procedures for producing one of its new products, do you produce that product using the same procedures or do you change them? Can you give examples? 21. Do you adjust the new rules/routines to specific situations. For example, make modifications according to the needs of the company, the Greek or Canadian market or the employees? 22. Have you ever gotten the feeling that the subsidiary does not implement the rules that you require? 23. Have you ever gotten the feeling that the subsidiary implements your new rules in the start and then it tends to forget about them? 24. In confronting your global competitors, does the subsidiary follow your company's guidelines or does it use information you provide it with to form a local strategy?

Hypotheses / References	Variables	Method of Operationalization	Questions to the Parent Company
			25. How does the subsidiary usually react to the new rules? Can you give me an example?
Hypothesis 2b: When knowledge is transferred from an individualist subsidiary to a collectivist parent company, in the form of written rules, the recipient will not implement and not internalize those rules. **Hypothesis 3b:** When knowledge is transferred from a collectivist subsidiary to an individualist parent company, in the form of written rules, then the recipient will partly implement and internalize those rules. (Bhagat et al, 2002) (Cohen & Levinthal, 1990) (Kostova, 1999) (Szulanski, 2000)	Dependent: Knowledge Acceptance Independent: Individualism	1.Organizational information Processing 2.Organizational routines 3.Rule implementation 4.Employee reaction to new rules 5.Management reaction to new rules 6.Authority degree of parent company	22. Have you ever gotten the feeling that the subsidiary does not implement the rules that you require? 23. Have you ever gotten the feeling that the subsidiary implements your new rules in the start and then it tends to forget about them? 28. When the subsidiary sends over information that could be helpful in managing or directing other subsidiaries, do you adjust that information according to the needs of the other subsidiaries? 29. When the subsidiary sends information about sales, HR, production, or strategy, do you use that information in any way? Can you give examples? 26. Does the subsidiary send any letters, faxes or emails that you can use in running the company? Do you use them? 27. Has the subsidiary ever sent a set of new rules in written form, so you can apply them to other subsidiaries? Do you apply them?
Hypothesis 4: When there is an individualist parent company and a collectivist subsidiary, and there is subsidiary autonomy, then the knowledge outflow will be greater than the knowledge inflow in that subsidiary	Dependent: Knowledge Flow Direction Independent: Subsidiary Autonomy, Individualism	1.Subsidiary decision making 2.Direction of knowledge flows	10. In what way is the subsidiary a replica of the parent company? 16.Is the subsidiary autonomous in decision making? 11. In seeking new clients, does the subsidiary use the same strategy as you? 12. Do you send more information to the subsidiary or does the subsidiary

Hypotheses / References	Variables	Method of Operationalization	Questions to the Parent Company
(Birkinshaw & Fry, 1998) (Gupta & Govindarajan, 1991) (Kostova, 1999) (Schulz, 2001)			send you more? 13. Do you contact the subsidiary in order to get informed? 15. Do you require that the subsidiary inform you on a regular basis about the changes in the company? 14. Do you contact the subsidiary often in order to get informed about the subsidiary's progress? 17. Regarding the hiring procedures of the subsidiary, do they follow the same procedures as the parent company? 30. Does the subsidiary make decisions regarding clients, suppliers or employees according to your guidelines?
Hypothesis 6: The knowledge transfer from the parent company to the subsidiary is greater at the early stages of the subsidiary than later on in the subsidiary's lifespan. (Simonin, 1999)	Dependent: Knowledge Flow Direction, Independent: Time	1.Calendar time-years of subsidiary operation 2.Knowledge transfer magnitude	7. When the subsidiary was established, did you often contact the subsidiary in order to ask questions about? a. The subsidiary strategy, b. Operational issues, c. Problems in production or d. Other issues. 8. Now does the subsidiary contact you often for such issues? 9. If there is a serious problem in the subsidiary, will they contact you in order to get consulted? Do they contact you more than they did when the subsidiary started to operate?

Table 3.2. Hypotheses- Method of Operationalization- Questions to the Subsidiary.

Hypotheses / References	Variables	Method of Operationalization	Questions to Subsidiary
Hypothesis 1a: When knowledge is transferred between an individualist parent company and a collectivist subsidiary, knowledge will be transferred with modifications. **Hypothesis 1b:** When knowledge is transferred between a collectivist parent company and an individualist subsidiary, knowledge will be transferred with modifications. (Bhagat et al, 2002) (Bond & Forgas, 1984) (De Long & Fahey, 2000) (Hofstede, 1983) (Lane & Lubatkin, 1998) (Markus & Kitayama, 1991) (Triandis, 1986)	Dependent: Knowledge Transfer Independent: Individualism	1.Adjustments to new rules 2.Changes in procedures of production, policies, and routines. 3.Information	20. If an employee from the parent company comes to work for your company in the same position as in the parent company, and assuming that there isn't a language problem, will he or she have problems adapting to the subsidiary's working procedures? Will he or she need training? 25. Do you adjust the new rules to specific situations. For example, make modifications according to the needs of the company, the Greek /Canadian market or the employees? 26. Do you ever apply new rules, although you believe that they are not correct for your company? 27. Has it ever happened that you were obliged to implement a set of new rules the way the parent imposed them, but because you didn't believe they were right, you overrode those rules? 28. Has it ever happened that you were obliged to implement a set of new rules, but because the employees wouldn't accept them, you overrode those rules? 23. When the parent company sends you the procedures for producing one of its new products, do you produce that product using the same procedures or do you change them? Can you give examples? 29. In confronting your global competitors, do you follow the guidelines of the parent company or

Hypotheses / References	Variables	Method of Operationalization	Questions to Subsidiary
			do you use information the parent company provides you with to form a local strategy? 30. Has the parent company sent an expatriate to show how to administer certain management issues? When the expatriate went back to the parent company did you follow the exact same routine that he or she applied? Did you change anything? 24. If you were to write down the procedures in the functional areas (e.g. the production, HRM, etc.) would they be the same as the written procedures of the parent company?
Hypothesis 2a: When knowledge is transferred from an individualist parent company to a collectivist subsidiary, in the form of written rules, the recipient will implement, but not internalize those rules. **Hypothesis 3a:** When knowledge is transferred from a collectivist parent company to an individualist subsidiary, in the form of written rules, then the recipient will partly implement and internalize those rules. (Bhagat et al, 2002) (Cohen & Levinthal, 1990)	Dependent: Knowledge Acceptance Independent: Individualism	1.Organizational information Processing 2.Organizational routines 3.Rule implementation 4.Employee reaction to new rules 5.Management reaction to new rules 6.Authority degree of parent company	32. Assume that the parent company sends a letter, fax or email saying that you need to change the procedures of production according to their guidelines, what routine do you follow to communicate the change to your employees? 34. Assume that the parent company sends a letter, fax or email with information on your department, however not all the information applies to the improvement of your personal performance. Do you use all the information on your job? Do you implement the rules that only apply to you? Do you implement all the rules in order to be a good example for the rest of the employees? 35. If the new rules are aiming for your subordinates, however you believe they don't suit the culture of the organization, do you still apply those rules? 33. When the parent company sends a letter, fax or email with new written rules, do you distribute

Hypotheses / References	Variables	Method of Operationalization	Questions to Subsidiary
(Kostova, 1999) (Szulanski, 2000)			it over to the employees, do you write a letter to the employees yourself, do you tell them one by one or do you set up a meeting and inform everyone? 37. How do the employees usually react to the new rules? Can you give me an example? 36. Do you always implement the new rules? In which cases do you not implement them? 38. When the parent company sends over a set of new rules, do you ever reply saying that some rules cannot be implemented due to the philosophy of the people, the power of the union or the government laws? 39.Do the employees initially implement the new rules and then they tend to forget about them? Can you give examples? 40. Do you feel that you often have to remind employees about the new rules? 41. Do the employees implement the new rules willingly? Do you have to force the new rules on the employees? 26. Do you ever apply new rules, although you believe that they are not correct for your company? 27. Has it ever happened that you were obliged to implement a set of new rules the way the parent imposed them, but because you didn't believe they were right, you overrode those rules?

Hypotheses / References	Variables	Method of Operationalization	Questions to Subsidiary
Hypothesis 4: When there is an individualist parent company and a collectivist subsidiary, and there is subsidiary autonomy, then the knowledge outflow will be greater than the knowledge inflow in that subsidiary (Birkinshaw & Fry, 1998) (Gupta & Govindarajan, 1991) (Kostova, 1999) (Schulz, 2001)	Dependent: Knowledge Flow Direction Independent: Subsidiary Autonomy, Individualism	1.Subsidiary decision making 2. Direction of knowledge flows	12. Can you tell me a few things about the subsidiary's goals and objectives? How do they relate to the parent company's goals and objectives? 13. In what way is the subsidiary a replica of the parent company? 14.Does the parent company require that you inform them on a regular basis about the changes in the subsidiary operations? 15. Does the parent contact you often to get informed about the subsidiary's progress? 16. How does the parent company react if you don't implement the new rules? 17. Do you make decisions regarding clients, suppliers or employees according to the parent company's guidelines? 18. In seeking new clients, do you use the same strategy as the parent company? 19. Regarding the hiring procedures of the company, do you follow the same procedures as the parent company? 21. Is the subsidiary autonomous in decision-making? 22. Do you send more information to the parent or does the parent send you more?
Hypothesis 5: The knowledge transfer from the subsidiary to the parent company is less at	Dependent: Knowledge Flow Direction Independent:	1.Calendar time-years of subsidiary operation 2. Knowledge transfer magnitude	8. When the subsidiary was established, did you often contact the parent company in order to ask questions about? a. The subsidiary strategy,

Hypotheses / References	Variables	Method of Operationalization	Questions to Subsidiary
the early stages of the subsidiary than later on in the subsidiary's lifespan. **Hypothesis 6:** The knowledge transfer from the parent company to the subsidiary is greater at the early stages of the subsidiary than later on in the subsidiary's lifespan. (Simonin, 1999)	Time		b. Operational issues, c. Problems in production or d. Other issues. 9. Now do you contact the parent company often for such issues? 10. Do you contact the parent company in order to inform them about the subsidiary? Do you inform them more or less than you did when the subsidiary was established? 11. If there is a serious problem in the company, will you contact the parent in order to get consulted? Do you contact them more than you did when the subsidiary started to operate?

3.2. Choice of Methodology

For the examination of the hypotheses, qualitative on site research was considered appropriate and therefore a multiple case study design was chosen (Yin, 1994, Eisenhardt, 1989). However, this study is not intended to generate theory as supported by Eisenhardt (1989), but to test theoretical propositions (Lee, Mitchell, Wise and Fireman, 1996). Other researchers in studies have also used this methodology (Bourgeois and Eisenhardt, 1988), especially studies which involve comparison of managerial practices between two countries, (Lawrence, Vlachoutsicos, Faminsky, Brakov, Puffer, Walton, Naumov and Ozira, 1990). Chrysostome and SU (2002) used multiple case studies to investigate if the learning in joint ventures of Sub-Saharan Africa results in the creation of strategic competencies.

A multiple case study design was chosen over an experiment or survey because the general research question is intended to investigate "how" national culture affects the transfer of organizational knowledge in combination with subsidiary autonomy and the time of subsidiary operation, which implies the investigation of a real-life situation (Yin, 1994). Apart from that, a case study design serves the exploratory purpose of this study, but it does not require manipulation as an experiment would, since the general research question is meant to investigate real life situations (Yin, 1994). A mail-out survey was rejected because the type of questions addressed require the development of trust, which is better facilitated via personal contact; the participant needs to be comfortable enough to provide an answer such as "We don't comply with the rule on daily reporting," which is not likely to occur when the participant fills out a questionnaire. In other words, on site case study research helps minimize social desirability response bias (Whitley, JR., 2001). Also, the type of

information that will answer the developed hypotheses can only be qualitative as opposed to quantitative.

The many advantages of a multiple case design with qualitative on site evidence make it well suited to this study, but it also has drawbacks. Qualitative research contains rich, real and face valid data, which result in more powerful analyses, but it is also bulky and tedious in collection and analysis (Miles, 1979). Although collection might be labor-intensive, however it does not require a very detailed preparation of an instrument (Miles, 1979). The effect of retrospective distortion is very small, but the methods of analysis are not well formulated (Miles, 1979). Furthermore, case study research is offered for theoretical generalization, not statistical generalization, because it represents but a portion of the population (Frenkel, 2001, Yin, 1994). Also, case study design is often accused that it lacks scientific rigor, since the researcher might include a personal bias in the data or might not be well organized (Yin, 1994). Nevertheless, a questionnaire design can also be biased (Yin, 1994). In addition, qualitative data are supported to reduce the researcher's bias and narrowness (Miles, 1979), which can operate in complementing the case study design's disadvantage of bias. Moreover, a research protocol can be created in order to enhance the scientific rigor of the study (Yin, 1994). The research protocol in this study was constructed according to Yin's recommendations (1994) and it is presented later in this chapter.

3.3. Strategy for Collecting the Data

The data collection was completed through a between methods triangulation strategy, which involved semi-structured interviews, documentation and observation (Jick, 1979).

Frenkel (2001) and Morgan (2001) used this strategy in research for qualitative data sets combining interviews, observation, and documentary data.

The interviews were conducted either face-to-face or over the telephone. Twenty-one interviews were conducted face-to-face in Greece; four face-to-face interviews were conducted in Canada, and two over the telephone. (The phone interviews were necessary because of the organizations' locations.) Three of the interviews conducted in Greece were group interviews upon request of the interviewees. Seven of the interviews were not recorded, either because they were conducted over the phone or because the interviewee objected it; the remaining interviews were recorded. The interview questions were designed in English, translated in Greek, then translated back into English by a bilingual graduate student. Both translations of the questions are available in Appendix A.

The documentation consisted of published documents, such as press releases, advertisements and newspaper articles, annual economic and social reports. It also consisted of unpublished documents, such as internal memorandums; articles posted on the company Intranet, manuals, presentation templates and booklets on the rules of corporate governance. This documentation was used to provide answers to the research questions and not all the documentation information was used, since it was not all relevant.

The observation was not systematic, but it was rather complementary to the interviews, since it was used to compare and contrast what the interviewees stated with their actions and the site environment (Morgan, 2001). As a result, not all the evidence was weighted equally, since the interviews were the central source of evidence (Jick, 1979). The purpose of using multiple methods of data collection is to enrich the validity of the results, since between methods triangulation ensures that the instrument used does not cause any

variance (Eisenhardt, 1989, Jick, 1979). In addition to that, between methods triangulation is believed that it can reveal some unique variance, which may have not been revealed with the use of one method (Jick, 1979).

3.4. Sample

In order to select the sample for this study, the theoretical sampling procedure was followed according to Eisenhardt (1989), with a polar type sampling applied to the countries being investigated. As previously mentioned, the two countries were chosen, with the criterion that one has a low level of individualism (Greece) and one has a high level (Canada), as gauged by Hofstede (1980). These countries were also chosen because of the researcher's ability to conduct interviews in both English and Greek.

Regarding the companies participating in the sample, purposive sampling was adopted (Whitley, 2002) because the theory required multinationals with a presence in both Canada and Greece — that is, Canadian multinationals with affiliates in Greece and Greek multinationals with affiliates in Canada. Out of the eleven multinationals identified and solicited, ten multinationals participated in the study: six based in Greece, four in Canada. One of the four Canadian companies was excluded from the sample due to the fact that the information provided was not adequate to answer the research questions, which resulted in having nine companies in the sample. Of those nine multinationals, six included both the parent and subsidiary, two entailed only the Greek parent and one consisted of only the Canadian subsidiary. This resulted in a total of eight subsidiaries and seven parents in the sample. It is interesting to note that all the organizations that participated in the study have a global presence and most of them are considered leaders in their fields, especially in their

country of origin. In general, the industries in which they belong are telecommunications, physical resources, financial services, food services, technology, aviation, home equipment and chemicals.

The selection of interviewees was realized through snowballing (Whitley, 2002), since each organization would initially suggest the most knowledgeable person for that case, and then each interviewee would in turn recommend another colleague. In total twenty-seven people were interviewed in both parents and subsidiaries. The criteria for choosing the interviewees were whether they were in contact with the parent or the subsidiary, depending on the case. Position titles of the interviewees varied from Country Manager, Human Resource Manager, Account Manager, Production Manager, and International Marketing & Sales Department Director to Executive Director, VP & Chief Administration Officer, and Deputy General Manager & VP.

The fact that the population was previously defined was helpful, not only in identifying the companies to be studied, but also in determining the limits for generalization of the results (Eisenhardt, 1989). Furthermore, having a sample of multiple company sites might have been restrictive for the number of countries that were studied, however it "increases the explanatory power of the study as a whole" (Miles and Huberman, 1984).

3.5. Unit of Analysis

As the transfer of knowledge between the parent and the subsidiary is being investigated, it was considered critical to examine the role of the persons who serve as mediators between the parents and the subsidiaries. In other words, the unit of analysis was focused on people who hold boundary-spanning roles within the multinational, and thus they

are receivers and transmitters of information (Aldrich and Herker, 1977). According to Aldrich & Herker (1977), boundary roles perform two functions: information processing and external representation. Employees who serve in liaison roles between the parent and the subsidiary are considered the unit of analysis, since they are the link between the two companies. The focus of this study is the internal transfer of knowledge; therefore external representation is not a subject of examination.

3.6. Strategy for Data Analysis

Analyzing the data of case study research is considered as "the most difficult and least codified part of the process" (Eisenhardt, 1989), not only because the thorough part of the analysis is not included in the published articles as Eisenhardt supports. It is also because the choice of one method automatically implies the acceptance of its disadvantages. Thus, selecting a data analysis strategy requires that the strategy fit the study's characteristics and research objectives. The literature proposes many different strategies for data analysis. Such strategies are the narrative, the quantification, the alternative templates, the visual mapping, the temporal bracketing, the grounded theory and the synthetic (Langley, 1999). However, the general analysis strategy of this study is based on Yin's (1994) recommendation of relying on theoretical propositions. In other words, a data reduction process is conducted according to the relevance of the data to the hypotheses and interview questions. According to Miles (1979:593), "data reduction is a form of preliminary analysis, which refines, iterates and revises frameworks, suggests new leads for further data collection and makes data more available for final assembly into case study and cross case analysis". Furthermore, a strategy for quantifying the data was chosen as opposed to the other proposed strategies.

This strategy was chosen mainly because it is highly systematic, which strengthens the study's reliability (Langley, 1999). On the contrary, using a visual mapping strategy would depend highly on the researcher's objectives and creativity, which implies a higher chance for including biases in the study, and thus leads to a low level of reliability (Langley, 1999). Apart from that, the use of a narrative strategy is usually preferred in studies with chronological sequence and it is recommended in studies with one or two cases (Langley, 1999). The same occurs for the alternate templates choice, since one case is considered sufficient and it is not known for its simplicity and generality (Langley, 1999). Notwithstanding, the quantification process is characterized for its clarity (Langley, 1999), which is important in qualitative data, since they tend to be quite ambiguous. Developing quantifiable schemes is also encouraged when the study involves triangulation in order to simplify complex data sets (Jick, 1979).

Moreover, both a cross case and a within case analyses were chosen for this study (Eisenhardt, 1989). In particular a within case analysis was decided in order to test the consistency of the data between the interviewees, the documentation and the observation in each case. Besides that, for the cross case analysis the pattern matching mode was chosen (Yin, 1994). According to pattern matching, the ideal hypothesized pattern is compared to the empirical pattern. The method of pattern matching is used in many studies published in respectable journals (Chrysostome and SU, 2002, Hyde, 2000, Lee, Mitchell, Wise and Fireman, 1996). Chrysostome and SU (2002) used pattern matching to investigate learning in joint ventures by investigating transfer and internalization of know-how.

3.7. Reliability and Validity

In order to test for the validity and reliability of the study Yin's (1994) recommendations were followed.

Construct Validity. As previously mentioned the data collection process involved the triangulation method, which implies the use of various sources of evidence. Besides that, the data collection process involved maintaining a chain of evidence stating the time, place and source of data, as well as a tracking system in order to find specific information when going back to the data set. Also, the pattern matching correlation is supported to demonstrate the degree of construct validity of the study (Trochim, 2000). In order to ensure that the instruments that were used to measure the variables were correct, a pilot study was conducted. However, prior to that, the interview questions were translated and then back translated. Also, the participating companies were guaranteed anonymity and confidentiality and their names were disguised in the final report; only the committee members aware of the participants' real names.

Internal Validity. According to Yin (1994), internal validity is a concern only for causal or explanatory case studies. However, pattern matching is considered one way for addressing internal validity (Yin, 1994).

External Validity. Defining the case study population is supported to help determine the domains in which a study's findings can be generalized (Eisenhardt, 1989). In this study the population defined is the Canadian and Greek multinationals with Greek and Canadian subsidiaries (respectively). In terms of "sample size" a large number of that population has been covered, however talking about statistical generalization is inappropriate in case study research; the interest of case study research is rather analytical generalization than statistical

generalization (Yin, 1994). The primary concern is to test theoretical propositions and not to generalize the findings to a larger population or a different population (Lee, Mitchell, Wise and Fireman, 1996). In other words, the results of one case must be tested in another case, which requires replicating the findings (Yin, 1994). Testing through replication has been achieved through the use of a multiple case study design, which requires testing the theoretical propositions in each case separately.

Reliability. Should another investigator wish to follow the same procedures in this study, a number of measures were taken, which lead to the systematization and coordination of the work. According to Miles (1979:594), "the bureaucratization of field work", which includes systematizing, regularizing and coordinating observation, recording and analysis, strengthens the reliability of a study, especially in the case of one researcher. In particular, a case study protocol was constructed to demonstrate the criteria, guidelines and procedures for making the decisions in this study (Yin, 1994). The case study protocol is available in table 3.3. The introductory letters that were sent to the companies that were solicited are presented in Appendix B.

A case study database was created, which presents the data after the data reduction with the source, time and place that the data were collected (Yin, 1994). Also, a double coding procedure was followed, which strengthens the study's reliability, since a subjective interpretation of the data is avoided (Miles and Huberman, 1984). The choice of the quantification strategy is another way of assessing reliability, as it is a systematic and objective process (Langley, 1999).

Table 3.3. Cross-Border Transfer of Organizational Knowledge Research Protocol

Overview	▪ The transfer of know-how in MNCs and the effect of collectivism. ▪ Investigate how knowledge is absorbed under different cultural characteristics and identify the direction of knowledge in relation to time. ▪ Create matrix with all the relevant readings. ▪ Conduct literature review to develop hypotheses. ▪ Develop case study questions and operationalization methods. ▪ Need to identify countries with a big difference in their individualism index. ▪ Large geographical distances between organizations. ▪ Need to plan according to the Thesis budget. ▪ Send email with the general purpose and objectives to potential participants (see figure 3.1.). ▪ Determine case study strategy for data analysis.
Field Procedures	▪ Theoretical sampling (Eisenhardt, 1989). ▪ Contacted Greek & Canadian Embassies, Young Hellenic Board of Trade of Metropolitan Montreal, Canadian Chamber of Commerce, Athens Chamber of Commerce and Industry and University Professors by email (See figure 3.2.). ▪ Collected telephone and address information on the required MNCs. ▪ Contacted MNCs via email (see figure 3.1.) or through telephone where email was not available. ▪ Some cases requested to see the questions ahead in order to be prepared for the interviews. A sample of questions was sent to them. ▪ Three sites were visited in Canada and ten in Greece. ▪ Data collection in Greece: Conducted 60-90 minute face-to-face semi-structured interviews with members of MNC management teams. Position titles varied from Country Manager, Human Resource Manager, Account Manager, Production Manager, International Marketing & Sales Department Director to Executive Director, VP & Chief Administration Officer and Deputy General Manager & VP. ▪ Collected published and unpublished documentation & made on-site observations. ▪ Transcription of taped answers and relevant comments on each question. The process resulted in data reduction synchronously. ▪ Triangulation of data by inserting information collected from

	interviews, documents & observation in case study database. ▪ Data Collection in Canada: Conducted 60-90 minute semi-structured interviews with members of MNC management teams either face-to-face or over the phone depending on geographical distance. Short daily trips were sometimes required for the interviews. ▪ Collected published and unpublished documents and did observation where it was applicable. ▪ Transcription of taped answers and relevant comments on each question. ▪ Triangulation of data by inserting information collected from interviews, documents & observation in case study database. ▪ Prepared four case study databases in total. For Canadian parents, Canadian subsidiaries, Greek parents and Greek subsidiaries.
Guide for the Case Study Report	▪ Written for colleagues in the field and focused groups (thesis committee). ▪ Within and cross case analysis. ▪ Linear-analytic structure.

In the table presented below, the tactics that were followed during the study in order to test for reliability and validity are assessed. The construction of the table was based on that of Yin (1994) with some additional tactics that were gathered from the literature.

Table 3.4. Tactics for Reliability and Validity Tests.

Tests	Case Study Tactic
Construct Validity	▪ Used multiple sources of evidence (Yin, 1994) ▪ Established chain of evidence (Yin, 1994) ▪ Did pattern Matching (Trochim, 2000) ▪ Did pilot study, back translation, anonymity & confidentiality
Internal Validity	▪ Did pattern matching (Yin, 1994)
External Validity	▪ Used replication logic in multiple case studies (Yin, 1994)
Reliability	▪ Used case study protocol (Yin, 1994) ▪ Developed case study database (Yin, 1994) ▪ Double coding (Miles & Huberman, 1984)

Chapter 4

Data Analysis

4.1. Pilot Study

Prior to initializing the data collection process, a pilot study was conducted to ensure the questions asked during the interviews correctly measured the variables under investigation. Several faculty members in management first reviewed the interview questions, providing feedback in order to improve the phrasing and the type of questions asked. A Ph.D. student in the management department of Concordia University, who has Greek heritage and education, reviewed the Greek translations of the questions in order to ensure they corresponded to the Greek reality and culture. A Greek businessman, responsible for the international business of a Canadian company, repeated this process.

An interview was next conducted with the CEO of a Canadian Subsidiary in Greece. Although unable to partake in the study due to confidentiality concerns, the CEO offered plenty of insight into the knowledge transfer process of the particular multinational, and the influence of culture on knowledge flows. Specifically, the CEO revealed the parent company's expectation that the subsidiary absorb the corporate rules and follow them in every detail — which could not happen due to the difference in the mentality of the employees. This resulted in the malfunctioning of the subsidiary, since the parent could not accept the fact that knowledge is transferred with modifications. Furthermore, the parent did not accept the fact that although some rules exist in Greece, they are not necessarily implemented — or they are typically implemented, but not internalized. A characteristic example given during the interview was that of car theft. The law in Canada says that

stealing cars is illegal, and so people can leave their cars unlocked, because they will not be stolen. However, the same law exists in many other countries of the world, but if people leave their cars unlocked, they still will be stolen. This example is paradigmatic of the fact that the existence of rules does neither presuppose their implementation nor their internalization. In addition, the Canadian parent expected all the procedures in the subsidiary to be followed according to the conditions of their agreement. This contrasted the fact that the host country was characterized by a high degree of bureaucracy and a low degree of structure in procedures, which could not permit the accurate implementation of the procedures. For example, if the condition required the completion of a project in three months, although the project would be completed, it would not be within the required three-month bracket. Thus, although the subsidiary was implementing the rule of completing the project it was not internalizing the requirement of time accuracy.

Another characteristic that was revealed during the pilot study was the relationship of autonomy with the direction of knowledge flows. Although the particular subsidiary had no autonomy from the parent, it is interesting that there was a high degree of inflow towards the subsidiary. The parent controlled every subsidiary action, and gave the guidelines for every decision and operation. Of course, hypothesis 4 was developed regarding subsidiaries with autonomy in decision-making; however the pilot study verified that when there is no autonomy, there is no knowledge outflow.

In general, the pilot study consisted of a verification of the developed hypotheses and it ensured the quality of the instrument. While strengthening the construct validity of the research, it provided the green light to continue with the data collection.

4.2. Coding

For the quantification of the data a coding scale was developed for each hypothesis. The criteria for the development of the coding scale were primarily each hypothesis, and then the answers to the interview questions. In particular, the questions that correspond to each hypothesis according to the tables 3.1 and 3.2 were used to assess how the hypothesis was answered. A coding scale was developed based on how each question answered the hypothesis. Then each question was coded analogously to that coding scale. Since the questions and the hypotheses in the case of the parent companies differ from those of the subsidiaries, a different coding protocol was constructed for each category of companies. However, the answers for the hypotheses that are common in both the parent and subsidiary cases were coded on the same scale. The coding protocol that was used is available in Appendix C.

For Hypothesis 1a+b a three-point interval measurement was used, with –1, 0 and +1 points. If there was no transfer of knowledge the answer was coded as –1; if the knowledge was transferred with modifications, the answer was coded as 0; and if the knowledge was transferred without modifications, the answer was coded as +1. The ideal answer was rated with 0.

In Hypotheses 2a+b and 3a+b a five-point interval scale was constructed ranging from –2 to +2. When the subsidiary or parent does not send any written rules the answer is coded as –2; when the rules are neither implemented nor internalized the answer is coded as –1. In the case were the rules were partly implemented and internalized the answers were coded as 0. Also, +1 was coded when the rules were implemented, but not internalized and 2

when the rules were both implemented and internalized. The ideal answer for hypothesis 3a is 0; +1 for hypothesis 2a; –1 for hypothesis 2b; and 0 for hypothesis 3b.

For Hypothesis 4 two scales were developed in order to measure subsidiary autonomy and knowledge flow. Both interval measures ranged from –1 to +1. For the measurement of subsidiary autonomy, –1 was considered as not autonomous, 0 as partly autonomous and +1 as totally autonomous. When knowledge inflow was more than knowledge outflow in the subsidiary, the answer was coded as –1; when knowledge inflow equaled to outflow, the answer was coded as 0. The ideal answer was +1, were knowledge outflow was more than knowledge inflow.

In both Hypotheses 5 and 6 a 3-point scale was used. In particular, when more knowledge transfer occurred in the present, rather than in the early stages of the subsidiary, the answer was coded as –1. When the transfer was the same in both periods of time, the answer was coded as 0 and when there was more knowledge transfer in the early stages of the subsidiary, the answer was coded as +1. The ideal answer for hypothesis 5 is –1 and the ideal answer for hypothesis 6 is +1.

A business graduate student coded a sample of the participated companies for a second time. The implementation of double coding contributes to the strengthening of the reliability of the research, since it ensures that the coding process is unbiased (Miles and Huberman, 1984). Additionally, the coding was initiated after the Greek interviews were conducted, but before the Canadian interviews were completed. This strengthens the analysis, because it was not conducted after the end of the data collection (Miles and Huberman, 1984). Indeed, doing the data collection synchronously with the data coding and

analysis provides overlap of the data, thus improving the data collection process (Eisenhardt, 1989).

4.3. Analysis

In order to continue with the analysis of the data and compare the results of the cases, the data were separated into two groups and four subgroups. The first group is that of collectivist parent and individualist subsidiary, which in this study consists of the Greek multinationals, and the second group is that of the individualist parent and collectivist subsidiary, thus the Canadian multinationals. Each of these groups is separated into two subgroups: the parent and the subsidiary. In other words, the total data set consists of a group of Canadian parents (individualist parents), Canadian subsidiaries (collectivist subsidiaries), Greek parents (collectivist parents) and Greek subsidiaries (individualist subsidiaries).

For each of the above subgroups a within case and a cross case analysis were conducted. The within case analysis helped to cope with the large amount of data and to become familiar with the idiosyncrasies of each case (Eisenhardt, 1989). It was also intended to verify that the interviewees who belonged to the same company gave similar responses to the questions that they were asked, providing evidence of the reliability of the research. A summary table of the responses of the interviewees in each question was constructed, which also displayed additional information from observations and documentation. This process reduced the data and helped better understand the special traits of each case. For each interviewee, correlations coefficients were calculated after the coding process. As previously mentioned, this calculation was intended to examine whether the

responses of the interviewees who belonged to the same company were similar. Therefore, not all interviewees were included in the correlation tables, only the ones who belonged to the same company. Indeed, tables 4.1 and 4.2 demonstrate that the responses within the companies were significantly correlated. More specifically, it is visible in table 4.1 that in company G, the answers for interviewees 1 and 2 are significantly correlated. The same occurs for interviewees 1 and 2 in company D.

Table 4.1 Canadian Subsidiary Responses Correlation Table

Correlations

		G1	G2	D1	D2
G1	Pearson Correlation	1.000	.985**	.236	.285
	Sig. (2-tailed)	.	.000	.154	.102
	N	41	41	38	34
G2	Pearson Correlation	.985**	1.000	.229	.273
	Sig. (2-tailed)	.000	.	.161	.113
	N	41	42	39	35
D1	Pearson Correlation	.236	.229	1.000	.960**
	Sig. (2-tailed)	.154	.161	.	.000
	N	38	39	42	38
D2	Pearson Correlation	.285	.273	.960**	1.000
	Sig. (2-tailed)	.102	.113	.000	.
	N	34	35	38	38

**. Correlation is significant at the 0.01 level

In tables 4.2.1 and 4.2.2 the correlation coefficients for the parent companies indicate significant correlation between responses of interviewees belonging to the same parent. The values that could not be calculated in the cases of Sigma1, Sigma2, Sigma3 and Sigma4 are due to the fact that those interviews were complementary to each other depending on the field of specialization of the interviewee, and therefore there are missing data (Table 4.2.2). There are no correlation tables for the groups of the Canadian parents and the Greek subsidiaries because there was not more than one interviewee in those companies, or because group interviews were conducted.

Table 4.2.1. Greek Parent Responses Correlation Table

Correlations

		LAMDA 1	LAMDA 2	LAMDA 3	OMIKRON 1	OMIKRON 2	OMIKRON 3
LAMDA1	Pearson Correlation	1.000	.976**	.927**	-.474*	.112	-.236
	Sig. (2-tailed)	.	.000	.000	.030	.658	.461
	N	32	32	32	21	18	12
LAMDA2	Pearson Correlation	.976**	1.000	.952**	-.474*	.112	-.329
	Sig. (2-tailed)	.000	.	.000	.030	.658	.296
	N	32	32	32	21	18	12
LAMDA3	Pearson Correlation	.927**	.952**	1.000	-.399	.190	-.236
	Sig. (2-tailed)	.000	.000	.	.073	.450	.461
	N	32	32	32	21	18	12
OMIKRON 1	Pearson Correlation	-.474*	-.474*	-.399	1.000	.723**	.545
	Sig. (2-tailed)	.030	.030	.073	.	.003	.162
	N	21	21	21	22	14	8
OMIKRON 2	Pearson Correlation	.112	.112	.190	.723**	1.000	.730
	Sig. (2-tailed)	.658	.658	.450	.003	.	.062
	N	18	18	18	14	19	7
OMIKRON 3	Pearson Correlation	-.236	-.329	-.236	.545	.730	1.000
	Sig. (2-tailed)	.461	.296	.461	.162	.062	.
	N	12	12	12	8	7	12

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4.2.2. Greek Parent Responses Correlation Table

Correlations

		THITA 1	THITA 2+3	SIGMA 1	SIGMA 2	SIGMA 3	SIGMA 4
THITA1	Pearson Correlation	1.000	.695**	.560**	.507	.645	.778**
	Sig. (2-tailed)	.	.000	.002	.053	.117	.005
	N	29	27	28	15	7	11
THITA 2+3	Pearson Correlation	.695**	1.000	.713**	.729**	.742*	.693*
	Sig. (2-tailed)	.000	.	.000	.003	.014	.038
	N	27	33	32	14	10	9
SIGMA1	Pearson Correlation	.560**	.713**	1.000	.876**	.877**	.643*
	Sig. (2-tailed)	.002	.000	.	.000	.001	.045
	N	28	32	34	16	10	10
SIGMA2	Pearson Correlation	.507	.729**	.876**	1.000	.908**	.632
	Sig. (2-tailed)	.053	.003	.000	.	.002	.178
	N	15	14	16	16	8	6
SIGMA3	Pearson Correlation	.645	.742*	.877**	.908**	1.000	.[a]
	Sig. (2-tailed)	.117	.014	.001	.002	.	.
	N	7	10	10	8	10	2
SIGMA4	Pearson Correlation	.778**	.693*	.643*	.632	.[a]	1.000
	Sig. (2-tailed)	.005	.038	.045	.178	.	.
	N	11	9	10	6	2	11

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

4.4. Results

To test whether the hypothesized constructs were supported, the means standard deviations and t tests were computed for each subgroup. Also, the significance of the difference between the means of the two groups (parents and subsidiaries) was examined in order to see whether the difference in individualism presented a difference in knowledge transfer.

In Hypothesis 1 it is proposed that when knowledge is transferred between a parent and a subsidiary with different levels of individualism, then that knowledge will be transferred with modifications — which equals to zero in the coding scale. From the data that were collected the means of each subgroup were significantly close to zero, as the t test shows. Specifically, the mean for the Canadian parent was -0.25, the mean for the Canadian subsidiaries was 0.044, for the Greek parents it was 0.0085 and for the Greek subsidiaries it was 0.148. Thus, Hypothesis 1a+b was supported.

Hypothesis 2a was constructed to examine knowledge transfer from an individualist parent company to a collectivist subsidiary, which could only be tested by the Canadian parent subgroup and the Canadian subsidiary subgroup. The mean for the Canadian parent subgroup was 1, and the ideal was also 1, which leads to accepting Hypothesis 2a. However, the mean of the Canadian subsidiary subgroup was 0.66111 and the t test showed that it was not significantly close to 1, which does not support Hypothesis 2a. In other words, the hypothesis that the collectivist subsidiary will implement, but not internalize the written rules transferred by the individualist parent, was supported by the parent, but not by the subsidiary.

Similarly, Hypothesis 3a supported that the transfer of knowledge from a collectivist parent company to an individualist subsidiary, in the form of written rules, would result in partial implementation and internalization by the parent. Ideally, the mean should equal 0. The mean for the Greek parent subgroup was 0 and the mean for the Greek subsidiary subgroup was 0.6041. The second mean was not significantly close to zero. The Greek parent subgroup therefore supported the hypothesis, but the Greek subsidiary subgroup did not.

A t-test was used to estimate the significance in the difference between the Canadian and Greek groups in Hypotheses 2a and 3a. Interestingly, the mean difference between the Canadian parent and the Greek parent groups is statistically significant, whereas the mean difference between the Canadian subsidiary and the Greek subsidiary groups is not statistically significant.

Hypotheses 2b and 3b were constructed to examine the transfer of knowledge in the opposite direction, which is from the subsidiary to the parent. For Hypothesis 2b, the mean of the Canadian parent subgroup was calculated to be –0.25 (ideal mean=0), and it was statistically significant, supporting the theory. The same occurs for Hypothesis 3b, where the mean from the Greek parent subgroup was calculated to be –0.99653. In addition to computing the t-tests, the significance of the difference of the means was also examined for Hypotheses 2b and 3b; this showed that there is a significant difference between the Canadian parent group and the Greek parent group.

For Hypothesis 5, the data was considered insufficient for making a solid conclusion because there was a lot of information missing. Hence, it was considered wise not to analyze the existing data. For Hypothesis 6 there was plenty of information regarding whether there is increased knowledge transfer from the parent to the subsidiary during the period when the subsidiary is first established. The null hypothesis (mean=1) was accepted at 5% significance level for the means of all four subgroups. Both the subsidiary subgroups gave a mean of 0.8333, whereas the Canadian subgroup gave a mean of 1 and the Greek subgroup gave a mean of 0.86111.

Table4.3. Ideal Types and Summary of Findings.

	Ideal Types		Empirical Findings	
	Individualist Parent/ Collectivist Subsidiary	**Individualist Subsidiary/ Collectivist Parent**	**Individualist Parent/ Collectivist Subsidiary**	**Individualist Subsidiary/ Collectivist Parent**
Parents	HO1a: K transferred with modifications **Ideal Mean=0**	HO1b: K transferred with modifications **Ideal Mean=0**	Mean Not Significantly Different than 0 **HO1a Supported**	Mean Not Significantly Different than 0 **HO1b Supported**
	HO2a: Implement, but not internalize **Ideal Mean= 1**	HO3a: Partly implement & internalize **Ideal Mean= 0**	Mean Not Significantly Different than 1 **HO2a Supported**	Mean Not Significantly Different than 0 **HO3a Supported**
	HO3b: Partly implement & internalize **Ideal Mean=0**	HO2b: Not implement & not internalize **Ideal Mean=-1**	Mean Not Significantly Different than 0 **HO3b Supported**	Mean Not Significantly Different than 0 **HO2b Supported**
	HO6: Less K-transfer when subsidiary established **Ideal Mean=1**	HO6: More K-transfer when subsidiary established **Ideal Mean=1**	Mean Not Significantly Different than 1 **HO6 Supported**	Mean Not Significantly Different than 1 **HO6 Supported**
Subsidiaries	HO1a: K transferred with modifications **Ideal Mean=0**	HO1b: K transferred with modifications **Ideal Mean=0**	Mean Not Significantly Different than 0 **HO1a Supported**	Mean Not Significantly Different than 0 **HO1b Supported**
	HO2a: Implement, but not internalize **Ideal Mean=1**	HO3a: Partly implement & internalize **Ideal Mean=0**	Mean Significantly Different than 1 **HO2a Not supported**	Mean Significantly Different than 0 **HO3a Not supported**
	HO6: More K-transfer when subsidiary established **Ideal Mean=1**	HO6: More K-transfer when subsidiary established **Ideal Mean=1**	Mean Not Significantly Different than 1 **HO6 Supported**	Mean Not Significantly Different than 1 **HO6 Supported**

All the computed outputs of the t tests are available in Appendices D and E. Table 4.3 presents the expected relationships and summarizes the empirical findings for Hypotheses 1, 2, 3 and 6. Hypothesis 4 is analyzed in the following section.

4.5. Hypothesis 4

Hypothesis 4 addresses multinationals with an individualist parent and a collectivist subsidiary, particularly those with subsidiary autonomy. This restricted the investigation to a smaller group of companies. From the three Canadian companies that participated in the study, two of them were significantly autonomous and presented a greater outflow than inflow. The remaining company was not autonomous and presented the same outflow as inflow. This provides supports the hypothesis. The t-tests that show the significance of the results for hypothesis 4 are available in Appendix F.

However, the data collection process also yielded information from the Greek subsidiaries and parents. This provided the ability to confirm information given from one company against that given by the other. The Greek companies were divided in analogous groups according to their levels of autonomy and the direction of their knowledge flows. From the analysis that was conducted, it seems that the Greek companies with subsidiary autonomy have the same inflow as outflow — with the exception of one company, which, although it had the same inflow as outflow, was not found to be autonomous. A visual representation of the results is given in tables 4.4 and 4.5 for the subsidiaries and the parents, respectively.

It is apparent that the data was analyzed separately for each interviewee, since the unit of analysis was boundary spanners. Thus, the tables present the results for each

interviewee separately and not for the whole company. This also provides with the ability to verify that the interviewees who belong to the same company gave similar responses. The only exception is company OMIKRON, where interviewees 1, 2 and 3 gave different views of the subsidiary autonomy and flow. This could be explained by the fact that each interviewee belonged to a different division of the company and only interviewee 1 was in continuous communication with the interviewee from company O (OMIKRON's subsidiary). The initials in the parentheses show whether the company is Canadian (CA) or Greek (GR). A comparison of the two tables indicates that the subsidiaries gave similar information with the parents on this hypothesis. Company Alpha is placed in a separate cell from the other Greek parents, due to the fact that the t-tests did not support that the mean was significantly close to either 0 or –1. Thus the outflow of its subsidiary was neither equal nor greater than its inflow.

Table4.4. Findings of Hypothesis 4 for the Subsidiaries.

	Not Autonomous (mean=-1)	**Partly Autonomous (mean=0)**	**Autonomous (mean=+1)**
Outflow<Inflow (mean=-1)			
Outflow=Inflow (mean=0)	O (GR) G1 (CA) G2 (CA)		B (GR) S (GR) L (GR)
Outflow>Inflow (mean=+1)			D1 (CA) D2 (CA) E (CA)

The availability of the Greek data provided with the opportunity to compare the knowledge flows between the individualist and collectivist parents and subsidiaries in the companies with subsidiary autonomy. As seen in Appendix G, the two tests that were conducted presented conflicting results. It was showed that there is not a significant difference between the means of the Canadian parent with autonomous subsidiary and the Greek parents with autonomous subsidiaries. Yet there is a significant difference between the knowledge flows of the Canadian autonomous subsidiaries with the Greek autonomous subsidiaries. Although this provides support from the subsidiary point of view, it reduces the confidence of the results from the parent point of view, which raises interesting questions for further investigation.

Table 4.5. Findings of Hypothesis 4 for the Parents.

	Not Autonomous (mean=-1)	**Partly Autonomous (mean=0)**	**Autonomous (mean=+1)**
Outflow<Inflow (mean=-1)			
Outflow=Inflow (mean=0)	OMIKRON (GR)	OMIKRON (GR)	ALPHA (GR) LAMDA1 (GR) LAMDA2 (GR) LAMDA3 (GR) THITA1 (GR) THITA2+3 (GR) SIGMA1 (GR) SIGMA3 (GR) SIGMA4 (GR)
Outflow>Inflow (mean=+1)	OMIKRON (GR)		EPSILON (CA)

Chapter 5

Discussion

5.1. Implications of the Results

The results of this research provide with plenty of material for discussion and further analysis, particularly with regard to differing levels of individualism in the two main groups, and the contrasting results of the parents with their subsidiaries. The process of data collection entailed examples from reality, which help better understand the relationships between the constructs.

In Hypothesis 1, it is suggested that knowledge is transferred with modifications in both individualist and collectivist parents and subsidiaries. Of course, it is hard to think of an opposing hypothesis, because knowledge is rarely transferred as it is — even when knowledge is transferred from a teacher to a student, for example, the student will never absorb all of the teacher's knowledge, but will create a personal knowledge basis. However, the question here is whether the student will modify that knowledge based on personal characteristics. In this study personal characteristics would obviously be replaced by cultural characteristics, and thus the question is whether knowledge transfer is influenced by national idiosyncrasies that will lead to modifications. It is important to notice that in this hypothesis all four groups in the sample have a common view: they modify the know-how that they receive from another culture according to market needs, legislation, education and mentalities. This is perfectly reflected by an interviewee who said: "You cannot transfer knowledge identically, without taking into account local idiosyncrasies. By transferring know how as it is, you will end up failing. You have to adapt it, but it can also be transferred

distorted". These results are consistent with Bhagat et al (2002), who contend that collectivist groups process information differently from individualist groups. A common example is the modifications of marketing practices. Characteristically, an interviewee reported "we use the same concepts in advertising, but we change the pictures and the wording. Greeks like seeing faces, but North Americans like landscapes". This example illustrates the belief that people in different cultures pay attention to different kind of information, a view also supported by Markus and Kitayama (1991) about collectivism and individualism. The human resource manager of a collectivist parent company gave a similar example, stating that people differ from country to country and, subsequently the knowledge on human resources cannot be transferred. He illustrated his point by referring to Socrates — "I cannot teach them how to do things, but I can teach them how to think" — implying that for knowledge to be transferred as it is, people need to think on a mutual basis.

The difference in beliefs is further reflected in the perception of rules, whose transfer was examined by Hypotheses 2 and 3. During the interviews, it was noticed that Greek participants did not consider rules as important, whereas Canadian participants held rules as essential for the proper functioning of the organization. Paradigmatically, a Greek interviewee mentioned: "Rules are good, but reality is what counts. In Canada, things are too procedural, too many rules. Rules come after". Considering this in combination to the fact that Greek parents have an authoritarian approach to their subsidiaries explains why written rules are neither implemented nor internalized when transferred from individualist to collectivist. The authoritarian approach was interestingly illustrated in the answer of an interviewee of a Greek parent when asked who sends more information. He responded with laughter: "We are the supervising authority; of course they send us information". Another

Greek interviewee supported Hypothesis 2b. When asked if the parent runs the company using written information sent from the subsidiary, the interviewee said, "The parent is the successful model, the aim is to transfer knowledge to subsidiary." The implication is that there is no knowledge to take from the subsidiary. On the contrary, the example of the Canadian parent showed that the parent does implement and internalize part of the written rules sent by the subsidiary (Hypothesis 3b). Such a result implies that the individualist parent does not have the authoritarian approach of the collectivist parent, although it doesn't implement and internalize everything.

Regarding the written rules transferred from the parent to the subsidiary (hypotheses 2a and 3a), the results suggest that parents were less reluctant to reveal information. Although both individualist and collectivist parents provided with support for the hypothesis that the subsidiaries either partly implement and internalize or implement and don't internalize the written rules, the subsidiaries did not provide significant results. This may be due to the fact that the respondents did not feel comfortable with saying that some rules are not implemented or not internalized. It may also be because in most of the cases the rules are not forced, but they are sent to the subsidiary after discussion and cooperation with the parent. Thus, the subsidiary does not consider that a rule is not being implemented, because it has been made in agreement with the subsidiary.

Also, in relation to the procedures and policies that the parent requires from the subsidiary, it seems that Canadian firms are more structured. This means that Canadian parents have more regulations and procedures, which need to be implemented by the subsidiary. For example, the Canadian firms had a general book with written rules or software for reporting. On the contrary, Greek companies did not seem to be so structured;

since only two companies had a book with the rules of operation. The remaining firms transferred their written rules through electronic mail or documentation. This is indicative of the flexibility that occurs in the subsidiaries of Greek companies, which permits for rules not to be constantly and always implemented.

Subsidiaries of Canadian companies had to provide proof that the rules were in fact implemented through the very detailed and systematic reporting procedures, which did not allow for any violation. This supports the finding that rules are implemented, but not internalized. Although the subsidiary does not consider them as important for the proper functioning of the organization, it still implements the rules out of obligation. An interesting example that illustrates this is that of a case where the collectivist subsidiary needed to first gain parental approval in order to issue a press release at a first step in a series of actions. However, the procedure proved too bureaucratic for the subsidiary, so it took action first, and *then* requested approval. Hence, it typically implemented the rule, although it did not internalize it. Again, this is in accordance with the common belief that "rules come after" as said by a Greek interviewee.

The fact that individualist parents were more structured in their reporting procedures, might explain why subsidiary outflow exceeded inflow in the cases of collectivist subsidiaries with autonomy (Hypothesis 4). Two out of the three collectivist subsidiaries were found to be autonomous in decision-making, while they were also found to have a greater outflow than inflow, although their parents were very demanding in the reporting procedures. At this point it is important to note that the rules and reporting procedures still allow for autonomy in decision making, since they do not influence the subsidiary's actions with clients, suppliers and employees. Nevertheless, the outflow was not greater than the

inflow in these cases due to the fact — as expected — that the difference in the levels of individualism operated as an obstacle in the knowledge reception of the subsidiary. On the contrary, the difference in the levels of individualism operated as a mechanism for an increased knowledge outflow. The logic behind this is that individualist parents requested for frequent reporting in order for each employee to provide with reporting and informing on his or her exceptional work to the higher levels of the hierarchy. This also explains why collectivist parents did not have such strict reporting procedures, since they were only interested in the numeric performance of their subsidiaries. A confirmation of this is the frequent answers to the questions for reporting, where most of the interviewees in collectivist parents replied that most of the reporting is conducted on economic figures. Additionally, this provides with an explanation to the findings of the individualist subsidiaries with autonomy, where their knowledge outflow is the same as their inflow. Greek parents consider their knowledge as more important, since the Greek company is the "successful model", and thus they try to transfer it to their subsidiaries, although they do not interfere in their decision-making. Of course, every skeptical person would ask how this is achieved. From the interviews it was noticed that the person who was responsible for the subsidiary in most of those cases was a Greek expatriate, who had the trust of the parent and the autonomy to make decisions.

In spite of the fact that the knowledge flows have a different direction depending on the combination of individualism and collectivism, there is a common tendency for all four subgroups. The knowledge transfer from the parent company to the subsidiary is greater at the early stages of the subsidiary than later on in the subsidiary's lifespan. This confirms the argument that when a subsidiary is first established, it will have more questions and

problems that will require the parent's knowledge. Thus, no matter the levels of individualism, the reporting procedures or the subsidiary autonomy, the parent always transfers its knowledge to the subsidiary in the start of its operation. Whether that knowledge will be modified or adjusted or whether it will be accepted, implemented or internalized is a matter of culture.

5.2. Limitations

While conducting this study, the appearance of difficulties contributed in identifying a few weaknesses. These weaknesses did not consist of a major problem for the completion of the study, but it is important to recognize their existence for better interpretation of the results and with an eye toward future research.

One of the main limitations was the existence of only one Canadian parent in the sample. Had the sample included more Canadian parents, the results would have been more solid and would have helped to make a more confident comparison among the individualist and collectivist parents. Nevertheless, the fact that the subsidiaries supported the findings of the parents — except for Hypotheses 2a and 3a — assists in verifying the results.

Another limitation of this research is that it does not concentrate in one industry, which might cause ambiguity as to whether one should be generalizing for all organizations in the sample. This is in compliance with findings that show a varying importance of knowledge resources depending on the industry and the organization (King and Zeithalm, 2003). A characteristic example of this is a case of an organization that belonged to the aviation industry, where the rules and procedures are very strict and apply for all countries, since they are formed by an international federation. However, the objectives of this study

were not to determine the knowledge competencies of the multinationals, but to see how they are transferred among corporations. Although this knowledge might differ in each organization due to its environment, it still is transferred within its industry. Yet, this study could not be conducted in another way, since the multinationals that exist in the two countries belong to different industries.

It was noticed during the data collection process that organizations do not uniformly transfer their knowledge to each department. For example, in the sample there were organizations that transferred know how in marketing and strategy, but did not transfer any production know-how. This might have caused different responses not only among interviewees who belonged to the same organization but also among different organizations. Of course, this does not have an effect on the overall results, but it needs to be taken into consideration when looking at the correlation of responses.

Finally, it is important to note that the research design does not allow for generalizing the findings in another population; as supported by Yin (1994) case study research is intended to generalize theory. In general, the complexity of the study raised its level of difficulty, which was the reason for most of the above limitations. With regards to that, it is important to acknowledge that the objectives were achieved; limitations can always operate as an initiative for further research.

5.3. Future Research

When conducting this research the responses of interviewees and the findings of the data seemed to have a multiplicative effect on future research questions. Some of the most important future research suggestions are identified and presented below.

The first question that appeared was whether the results would be the same if the theory was tested in another dyad of countries. For example, the United States and Turkey are a similar combination of high and low levels of individualism (Hofstede, 1980). Thus, replicating the study in another sample would be indicative of whether individualism has the same effect on organizational knowledge transfer.

Another interesting investigation would be to see how knowledge is transferred between the subsidiaries of the multinational. Some of the interviewees of subsidiaries reported that they communicate with other subsidiaries of the multinational in order to ask questions or exchange practices. This occurred in subsidiaries in Canada who contacted with other subsidiaries of the company in the United States and also in subsidiaries in Greece who contacted with other European subsidiaries.

Additionally, another factor that should be investigated for the transfer of organizational knowledge is the size of the organization, and especially the size of the subsidiary. It was interestingly reported by one of the interviewees "in a small office you receive more information from the parent compared to the amount of information that you send". He based his argument of the logic that "in a big office you have the ability to ask people around you", whereas in a small office you have to ask the parent. This could be investigated in combination to the level of autonomy in that subsidiary, since the particular subsidiary was found not to be autonomous and thus it had to ask for guidelines from the

parent. This leads to another interesting question: Do autonomous subsidiaries seek knowledge outside the corporation?

In spite of the many research questions that might have arisen during this study, the most interesting question is derived from the paradox that occurs in the Canadian parents as opposed to the Greek parents. This is the high degree of adherence of the Canadian parents to procedures and regulations. When one considers that Greece has the highest score (112) on Hofstede's uncertainty avoidance index and Canada has a score of only 48, one would expect that the Greek parents would be very structured and procedural (1983). On the contrary, Canadian parents asked for systematic reporting from their parents through organized methods, whereas the Greek parents presented a more flexible approach. Of course, the oxymoron that occurs here was explained in the discussion section as part of the need for individualists to promote their work to the higher positions in the hierarchy and the tendency for Greek parents to send expatriates to run their subsidiaries. However, even if this phenomenon is attributed to individualistic characteristics, it would be interesting to see why Greeks are not so focused on rules, although they have a high degree of uncertainty avoidance. Normally, they would use rules and guidelines to eliminate every possibility of uncertainty instead of considering rules as secondary. Again, the story of a Greek interviewee who was sent to Canada to run the company's subsidiary is paradigmatic of this phenomenon. He reported: "when I came to Canada, all the employees brought me the *book* with the rules. I said forget about the *book* and look at reality".

5.4. Epilogue

The findings of this study are not only useful for the literature or the participating companies, but also for companies that wish to establish subsidiaries in one of the two countries. It is essential to mention that three Canadian multinationals had established subsidiaries in Greece and their investments ended in failure during the past decade. From the information that is available in the press, it seems that those organizations were not able to adapt to a non-procedural environment and transfer their know how in a different way. The findings from this study can also be taken into consideration by Greek multinationals, which face difficulties when they expand in a strictly procedural environment — at least compared to that of their home country.

Moreover, this study contributes to the literature with data from an unusual sample, not only because of the two participating countries, but also due to the unusual comparison of the four groups. The findings reveal the different approaches of individualist and collectivists, but also of parents and subsidiaries. However, it must be noted that the investigation of knowledge transfer is limited to internal, structured and organizational knowledge. This means that the focus of this study was primarily the transfer of rules, routines and procedures within the multinational organization. It is hoped that by providing evidence of the fact that individualism, subsidiary autonomy and time are factors of knowledge transfer, future research will be initiated that will assist in better understanding the special traits in cross-border transfer of organizational knowledge.

In order to summarize the concepts that have been analyzed through this research, it seems that culture is a basic factor of knowledge transfer and of course, subsidiary autonomy seems to have a key role in this transfer. Although, this study explores only one

cultural characteristic, the existence of different results between the two major groups in the sample is indicative of the cultural effect on transfer of know how. In particular, culture seems to have a key role in the process of knowledge transfer, since according to Tylor's definition; culture includes knowledge (1871). In other words, knowledge is a factor that results in the creation of culture, and thus, when knowledge is transferred, culture becomes part of that transfer. Of course, this study specifically focuses on structured knowledge, which is mainly explicit knowledge and it is embedded in rules, routines and procedures (Bhagat et al, 2002, De Long and Fahey, 2000). This means that the rules, routines and procedures used by an organization have resulted from the knowledge of the cultural group the organization belongs to, and thus, when they are transferred to another group of people, part of their culture is also transferred. In other words, knowledge transfer entails culture transfer, which explains why knowledge is transferred with modifications between two groups with a substantial difference in the levels of individualism. Perhaps individualism operates as a barrier to knowledge transfer and therefore knowledge needs to be modified when it is transferred in order for it to be absorbed by the recipient. This brings back the case of the pilot study, where the Canadian parent would not permit any changes in the procedures the subsidiary had to follow, which resulted in a failure of the transfer in the multinational's practices.

Concluding, this study was an attempt to investigate two concepts with a very broad meaning; these are knowledge and culture. Of course, just one dimension was examined from each concept, in order to achieve an in depth investigation. It is believed that the objective to investigate cross-border transfer of organizational knowledge that is structured

and internal to the firm in relation to individualism, subsidiary autonomy and time, is achieved.

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Appendix A

Translation

Ερωτήσεις προς την θυγατρική

1. Όνομα εταιρείας :

2. Όνομα συνεντευξιαζόμενου:

3. Θέση / Τίτλος :

4. Δραστηριότητες της εταιρείας :

5. Χώρα :

6. Πώς εγκαταστήθηκε η θυγατρική;

Χρόνος

7. Χρόνια λειτουργίας θυγατρικής:

8. Όταν εγκαταστήθηκε η θυγατρική, ερχόσασταν συχνά σε επαφή με την μητρική εταιρεία με σκοπό να κάνετε ερωτήσεις σχετικά με:

Α. Την στρατηγική της θυγατρικής εταιρείας,

Β. Θέματα λειτουργίας,

Γ. Προβλήματα στην παραγωγή ή

Δ. Άλλα θέματα

9. Στην παρούσα φάση έρχεστε συχνά σε επαφή με την μητρική εταιρεία σχετικά με τέτοια ζητήματα;

10. Επικοινωνείτε με την μητρική εταιρεία με σκοπό να τούς ενημερώσετε σχετικά με την θυγατρική; Τους ενημερώνετε περισσότερο ή λιγότερο από τότε που άρχισε την λειτουργία της η θυγατρική;

11. Εάν υπάρχει ένα σοβαρό πρόβλημα στην λειτουργία της θυγατρικής, συμβουλεύεστε την μητρική; Επικοινωνείτε μαζί τους περισσότερο τώρα απ'ότι όταν άρχισε την λειτουργία της η θυγατρική;

Αυτονομία Θυγατρικής

12. Μπορείτε να μου πείτε μερικά πράγματα για τους σκοπούς και τους στόχους της θυγατρικής εταιρείας; Πώς συνδέονται με αυτούς της μητρικής εταιρείας;

13. Με ποιό τρόπο αποτελεί η θυγατρική ομοίωμα της μητρικής εταιρείας;

14. Η μητρική εταιρεία απαιτεί συστηματική ενημέρωση από πλευράς σας σχετικά με αλλαγές στην λειτουργία της θυγατρικής;

15. Η μητρική εταιρεία έρχεται συχνά σε επαφή μαζί σας με σκοπό να ενημερωθεί για την πρόοδο της θυγατρικής;

16. Πώς αντιδρά η μητρική εταιρεία όταν δεν εφαρμόζετε τους νέους κανονισμούς;

17. Παίρνετε αποφάσεις σχετικά με πελάτες, προμηθευτές ή υπαλλήλους σύμφωνα με τις οδηγίες της μητρικής εταιρείας;

18. Στην αναζήτηση νέων πελατών, χρησιμοποιείτε την στρατηγική της μητρικής;

19. Σχετικά με τις διαδικασίες προσλήψεων, ακολουθείτε τις ίδιες διαδικασίες όπως αυτές της μητρικής;

20. Εάν έρθει ένας υπάλληλος της μητρικής εταιρείας να εργαστεί στην δική σας εταιρεία στην ίδια θέση με αυτή που έχει στην μητρική, και ας υποθέσουμε ότι δεν υπάρχει θέμα

γλώσσας, θα αντιμετώπιζε προβλήματα προσαρμογής στις εργασιακές διαδικασίες της θυγατρικής; Θα είχε ανάγκη εκπαίδευσης;

21. Έχει αυτονομία η θυγατρική στην λήψη αποφάσεων;

22. Στέλνετε περισσότερες πληροφορίες εσείς στην μητρική ή η μητρική σε εσάς;

Μεταφορά γνώσης με προσαρμογές

23. Όταν η μητρική εταιρεία σας στέλνει τις διαδικασίες παραγωγής ενός νέου προιόντος, χρησιμοποιείτε τις ίδιες διαδικασίες ή τις αλλάζετε; Μπορείτε να αναφέρετε παραδείγματα;

24. Εάν γράφατε τις διαδικασίες που ακολουθείτε στους λειτουργικούς τομείς της επιχείρησης (π.χ. παραγωγή, διαχείρηση ανθρωπίνου δυναμικού, κτλ) θα ήταν οι ίδιες με τις γραπτές διαδικασίες της μητρικής εταιρείας;

25. Προσαρμόζετε τους νέους κανονισμούς σε συγκεκριμένες καταστάσεις; Για παράδειγμα, κάνετε τροποποιήσεις στους κανονισμούς σύμφωνα με τις ανάγκες της εταιρείας, της ελληνικής/καναδικής αγοράς ή των υπαλλήλων;

26. Εφαρμόζετε τους νέους κανονισμούς, παρόλο που πιστεύετε πως δεν είναι σωστοί για την εταιρεία;

27. Έχει τύχει ποτέ να είσαστε υποχρεωμένος να εφαρμόσετε μια σειρά νέων κανονισμών όπως τους επέβαλε η μητρική εταιρεία, αλλά επειδή δεν πιστεύατε ότι είναι σωστοί να μην τους εφαρμόσατε;

28. Έχει τύχει να είστε υποχρεωμένος να εφαρμόσετε μια σειρά νέων κανονισμών, αλλά επειδή δεν τους αποδέχονταν οι υπάλληλοι να μην τους εφαρμόσατε;

29. Στην αντιμετώπιση των ανταγωνιστών σας σε παγκόσμιο επίπεδο, ακολουθείτε τις οδηγίες της μητρικής εταιρείας ή χρησιμοποιείτε πληροφορίες που σας παρέχει η μητρική για να διαμορφώσετε μια τοπική στρατηγική;

30. Έχει στείλει ποτέ η μητρική ένα στέλεχός της για σας να δείξει πως να διοικείτε κάποια θέματα διαχείρησης; Όταν επέστρεψε το στέλεχος στην μητρική, εξακολουθήσατε να εφαρμόζετε τις ίδιες διαδικασίες; Αλλάξατε τίποτα;

Εφαρμογή Κανονισμών

31. Με ποιά μορφή αποστέλλει η μητρική εταιρειά τους κανονισμούς, τις μεθόδους και τις διαδικασίες λειτουργίας; Γραπτώς (φαξ, email), προφορικώς (τηλεφωνικά) ή μέσω ανθρωπίνου δυναμικού (αποστολή υπαλλήλων);

32. Εαν υποθετικά η μητρική εταιρεία αποστείλει ένα γράμμα, φαξ ή email λέγοντας ότι χρειάζεται να αλλάξετε τις διαδικασίες παραγωγής σύμφωνα με τις οδηγίες τους, ποια διαδικασία ακολουθείτε για να επικοινωνήσετε τις αλλαγές στους υπαλλήλους σας;

33. Όταν στέλνει η μητρική εταιρεία ένα γράμμα, φαξ ή email με νέους γραπτούς κανονισμούς, το διανέμετε σ'όλους τους υπαλλήλους, γράφετε ο ίδιος ένα γράμμα στους υπαλλήλους, το ανακοινώνετε στον καθένα προσωπικά ή κανονίζετε για μια συνάντηση όπου τους ενημερώνετε όλους;

34. Εάν υποθετικά η μητρική εταιρεία αποστείλει ένα γράμμα, φαξ ή email με πληροφορίες για το τμήμα σας, ωστόσο δεν συμβάλλουν όλες στην βελτίωση της προσωπικής σας επίδοσης. Τις χρησιμοποιείτε όλες τις πληροφορίες στην δουλειά σας; Εφαρμόζετε μόνο τους κανονισμούς που σχετίζονται με εσάς; Εφαρμόζετε όλους τους κανονισμούς έτσι ώστε να αποτελέσετε παράδειγμα για τους υπόλοιπους υπαλλήλους;

35. Εάν οι νέοι κανονισμοί απευθύνονται στους υφισταμένους σας, παρόλο που πιστεύετε ότι δεν ταιριάζουν στην κουλτούρα της εταιρείας, θα εφαρμόζατε τους νέους κανονισμούς;

36. Τους εφαρμόζετε πάντα τους νέους κανονισμούς; Σε ποιές περιπτώσεις δεν τους εφαρμόζετε;

37. Πώς αντιδρούν συνήθως οι υπάλληλοι στους νέους κανονισμούς; Μπορείτε να μου αναφέρετε ένα παράδειγμα;

38. Όταν η μητρική σας στέλνει μια σειρά νέων κανονισμών, απαντάτε ποτέ λέγοντας ότι μερικοί κανονισμοί δεν μπορούν να εφαρμοστούν λόγο της φιλοσοφίας των ανθρώπων, της ισχύς των σωματείων ή των κυβερνητικών νόμων;

39. Οι υπάλληλοι αρχκά εφαρμόζουν τους κανονισμούς και μετά τείνουν να τους ξεχνούν; Μπορείτε να μου αναφέρετε παραδείγματα;

40. Αισθάνεστε ότι πρέπει να υπενθυμίζετε συχνά στους υπαλλήλους τους νέους κανονισμούς;

41. Τους εφαρμόζουν τους νέους κανονισμούς οι υπάλληλοι; Πρέπει να επιβάλλετε τους νέους κανονισμούς στους υπαλλήλους;

Back translation

Questions to the subsidiary

1. Company Name:
2. Name of Interviewee:
3. Position/Title:
4. Company Activities:
5. Country:
6. How was the subsidiary established?

Time

7. Years of subsidiary operation:

8. When the subsidiary was established did you often come in touch with the parent in order to ask questions regarding:

A. The strategy of the subsidiary,

B. Issues of operation,

C. Problems in production,

D. Other issues (if yes, what where those issues)

9. In the present phase do you come in touch with the parent company often for such issues?

10. Do you communicate with the parent company in order to inform them regarding the subsidiary operations? Do you inform them more or less since the subsidiary started to operate?

11. If there is a serious problem in the subsidiary operation do you consult the parent company? Do you communicate with them more now than since the subsidiary started to operate?

Subsidiary Autonomy

12. Can you tell me a few things about the subsidiary goals and objectives of the subsidiary? How do they relate to those of the parent company?

13. With what way is the subsidiary a replica of the parent company?

14. Does the parent company require systematic informing from the subsidiary regarding the changes in the subsidiary operations?

15. Does the parent company come often in touch with you in order to get informed about the progress of the subsidiary?

16. How does the parent company react when you don't apply the new rules?

17. Do you make decisions regarding clients, suppliers or employees according to the guidelines of the subsidiary?

18. In seeking new clients, do you use the strategy of the parent?

19. Regarding the hiring procedures, do you follow the same ones as the parent?

20. If an employee from the parent company comes to work in your company in the same position as the one he has in the parent and assuming that there is no language problem, would he face problems in adjusting to the working procedures of the subsidiary? Would he have a need for training?

21. Does the subsidiary have autonomy in decision making?

22. Do you send more information to the parent or does the parent send you more?

Knowledge Transfer with Modifications

23. When the parent company sends you the procedures of production of a new product, do you use the same procedures or do you change them? Can you give examples?

24. If you would write the procedures that you follow in the functional areas of the company (production, human resource, etc.), would they be the same as the written procedures of the parent company?

25. Do you adjust the new rules in particular situations? For example do you change the rules according to the needs of the company, the Greek /Canadian market or the employees?

26. Do you apply the new rules even though you believe that they are not right for the company?

27. Has it ever happened that you were obliged to apply a set of new rules the way the parent company imposed them, but because you believed they were not right you did not apply them?

28. Has it ever happened that you were obliged to apply a set of new rules, but because the employees didn't accept them you didn't apply them?

29. In confronting your global competitors, do you follow the guidelines of the parent company or do you use the information the parent gives you to form a local strategy?

30. Has the parent ever sent an employee in order to show you how to administer management issues? When the employee returned to the parent, did you continue to follow the same procedures? Did you change anything?

Rule Application

31. In what way does the parent company send the rules, the methods and the procedures of operation? Written (fax, email), oral (telephone) or human (sending employees)?

32. Assume that the parent company sends a letter, fax or email saying that you need to change the procedures of production according to their guidelines, what procedure do you follow in order to communicate the changes to the employees?

33. When the parent company sends a letter, fax or email with new rules, do you distribute it to all the employees, do you write a letter yourself to the employees, do you announce it to each one individually or do you arrange a meeting where you inform them all?

34. Assume that the parent company sends a letter, fax or email with information on your department, however they do not contribute to the improvement of your personal

performance. Do you use all the information on your job? Do you apply only the rules that are related to you? Do you apply all the rules in order to be a good example for the rest of the employees?

35. If the new rules are for your subordinates even though you believe that they are not suitable to the culture of the company, would you apply the new rules?

36. Do you always apply the new rules? In which cases do you not apply them? In which cases don't you apply them?

37. How do the employees usually react to the new rules? Can you give an example?

38. When the parent sends you a set of new rules, do you ever answer by saying that some rules cannot be applied, because of the philosophy of the people, the power of the unions or the government laws?

39. Do the employees initially apply the rules and then they tend to forget them? Can you give some examples?

40. Do you feel that you have to remind the new rules to the employees often?

41. Do the employees apply the new rules? Do you have to force the new rules to the employees?

Questions to the parent

1. Company Name:

2. Interviewee Name:

3. Position/Title:

4. Company Activities:

5. Country:

Time

6. Years of subsidiary operation:

7. When the subsidiary was established did you often come in touch with the parent in order to ask questions regarding:

A. The strategy of the subsidiary,

B. Issues of operation,

C. Problems of production,

D. Other issues (if yes, what where those issues?)

8. In the present phase does the subsidiary come in touch with you often for such issues?

9. If there is a serious problem in the subsidiary operation, do they come in touch with you in order to get consulted? Do they communicate with you more now than when the subsidiary started to operate?

Subsidiary Autonomy

10. In what way is the subsidiary a replica of the parent company?

11. In seeking for new clients, does the subsidiary use the same strategy as you?

12. Do you send more information to the subsidiary or does the subsidiary send you more?

13. Do you come in touch with the subsidiary in order to get informed?

14. Do you often come in touch with the subsidiary in order to get informed about the subsidiary's progress?

15. Do you require that the subsidiary inform you systematically about the changes in the subsidiary?

16. Does the subsidiary have autonomy in decision making?

17. Regarding the hiring procedures, does the subsidiary follow the same ones as the parent?

18. If an employee from the parent company comes to work in your company in the same position as the one he has in the parent and assuming that there is no language problem, would he face problems in adjusting to the working procedures of the subsidiary? Would he have a need for training?

Knowledge Transfer with Modifications

19. If you would write the procedures that you follow in the functional areas of the company (e.g. production, human resource management, etc.) would they be the same as the written procedures of the subsidiary?

20. When the subsidiary sends you the procedures of production of a new product, do you produce that product using the same procedures or do you change them? Can you give examples?

21. Do you adjust the new rules or the new procedures of production to particular situations? For example, do you make adjustments according to the needs of the company, the Greek/Canadian market or the employees?

22. Have you ever gotten the feeling that the subsidiary does not apply the rules that you require?

23. Have you ever gotten the feeling that the subsidiary initially applies the new rules and then they tend to forget them?

24. In confronting your global competitors, does the subsidiary follow the guidelines of your company or does it use information that you provide it with in order to form a local strategy?

25. How does the subsidiary tend to react to new rules? Can you mention an example?

Rule Application

26. Does the subsidiary send you letters, faxes or emails with information that you can use in managing the company?

27. Has the subsidiary ever send you a set of written procedures in order to apply them in other subsidiaries? Do you apply them?

28. When the subsidiary sends you information that could be useful in managing other subsidiaries, do you adjust that information according to the needs of other subsidiaries?

29. When the subsidiary sends you information regarding sales, human resource management, production or strategy, do you use them in any way? Can you give examples?

30. Does the subsidiary make decisions regarding clients, suppliers or employees according to your guidelines?

Appendix B

Letters to companies and participants

Email Sent to all Potential Participants

Dear Sir/Madam,

My name is Fotini Trapalis and I am conducting a research project in Concordia University of Montreal, Canada with Dr. Rick Molz. The purpose of the project is to investigate the effect of culture on cross-border transfer of organizational knowledge by looking at Canadian multinationals with affiliates in Greece and Greek multinationals with affiliates in Canada. Past research has shown that people who belong to different cultural groups pay attention to different types of knowledge and I would like to see how that affects the knowledge transfer within organizations that are internationally active.

The research objectives will be investigated by conducting interviews with the management teams of Canadian companies with Greek affiliates and Greek companies with Canadian affiliates. Thereby, I would like to request upon your company's participation in this research. The interview will be an hour long and the interviewee will be asked to answer questions regarding your company's communication with the foreign affiliate.

The contribution of Epsilon to this research will be of great value, since it is a Canadian company with a global posture and it will be interesting to see how knowledge is perceived at your organization.

I reassure you that any information provided during the interviews will remain confidential and that the names of the company and the persons interviewed will be kept anonymous.

I really appreciate your help and I am looking forward to hearing from you,

Sincerely,
Fotini Trapalis

Master of Science in Administration Candidate
John Molson School of Business
Concordia University

Email Sent to Embassies, Chambers of Commerce and University Professors

Dear Sir/Madam,

I am a student at the John Molson School of Business of Concordia University in Montreal, currently enrolled in the Master of Science in Administration Program. As part of the program's requirements, I am doing my thesis, which is supervised by Dr. Rick Molz. The purpose of my thesis is to investigate the effect of culture on cross-border transfer of organizational knowledge by looking at Canadian multinationals with subsidiaries in Greece and also Greek multinationals with subsidiaries in Canada. I will be interviewing employees in both home and host countries approximately at the end of January 2003. Thereby, I would like to request for your help in order to identify and contact Canadian and Greek businesses with subsidiaries in Greece and Canada respectively. More specifically, I would like some information on which companies fulfill these requirements and on how I could approach them. Also, I would like to know if there is a contact that you could provide me with in order to conduct this research. There are no specific requirements for the size or the industry type of these companies, however the companies with wholly owned subsidiaries would be preferred.

All interviewees and organizations will have guaranteed confidentiality.

The outcomes of my research will not only be useful to the organizations that I will investigate, but also to the Canadian or Greek organizations that wish to expand in Greece or Canada.

I really appreciate your help and I am looking forward to hearing from you,

Sincerely
Fotini Trapalis

Appendix C

Coding Protocol

Questions to the parent

Hypothesis 1a: When knowledge is transferred between an individualist parent company and a collectivist subsidiary, knowledge will be transferred with modifications.

Hypothesis 1b: When knowledge is transferred between a collectivist parent company and an individualist subsidiary, knowledge will be transferred with modifications.

-1	0	+1
Not absorbed at all	Absorbed with modifications	Absorbed as it is

Questions: 18, 19, 21, 22, 23, 24, 25.

Hypothesis 2a: When knowledge is transferred from an individualist parent company to a collectivist subsidiary, in the form of written rules, the recipient will implement, but not internalize those rules.

Hypothesis 3a: When knowledge is transferred from a collectivist parent company to an individualist subsidiary, in the form of written rules, then the recipient will partly implement and internalize those rules.

-2	-1	0	+1	+2
Parent does not send any info	Not implement & not internalize	Partly implement & internalize	Implement, but not internalize	Implement & internalize

Questions: 22, 23.

Hypothesis 2b: When knowledge is transferred from an individualist subsidiary to a collectivist parent company, in the form of written rules, the recipient will not implement and not internalize those rules.

Hypothesis 3b: When knowledge is transferred from a collectivist subsidiary to an individualist parent company, in the form of written rules, then the recipient will partly implement and internalize those rules.

-2	-1	0	+1	+2
Subsidiary does not send any info	Not implement	Partly implement & internalize	Implement, but not internalize	Implement & internalize

Questions: 26, 27, 28, 29.

Hypothesis 4: When there is an individualist parent company and a collectivist subsidiary, and there is subsidiary autonomy, then the knowledge outflow will be greater than the knowledge inflow in that subsidiary.

-1	0	+1
Outflow<inflow	Outflow = inflow	Outflow>inflow

-1	0	+1
Not autonomous	Partly autonomous	Autonomous

Questions: 10, 11, 12, 13, 14, 15, 16, 17, 30.

Hypothesis 6: The knowledge transfer from the parent company to the subsidiary is greater at the early stages of the subsidiary than later on in the subsidiary's lifespan.

-1	0	+1
More k-transfer in the present	The same	More k-transfer in the past

Questions: 7, 8, 9.

Questions to the subsidiary

Hypothesis 1a: When knowledge is transferred between an individualist parent company and a collectivist subsidiary, knowledge will be transferred with modifications.

Hypothesis 1b: When knowledge is transferred between a collectivist parent company and an individualist subsidiary, knowledge will be transferred with modifications.

-1	0	+1
Not absorbed at all	Absorbed with modifications	Absorbed as it is

Questions: 20, 23, 24, 25, 26, 27, 28, 29, 30.

Hypothesis 2a: When knowledge is transferred from an individualist parent company to a collectivist subsidiary, in the form of written rules, the recipient will implement, but not internalize those rules.

Hypothesis 3a: When knowledge is transferred from a collectivist parent company to an individualist subsidiary, in the form of written rules, then the recipient will partly implement and internalize those rules.

-2	-1	0	+1	+2
Parent does not send any info	Not implement & not internalize	Partly Implement & internalize	Implement, but not internalize	Implement & internalize

Questions: 26, 27, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41.

Hypothesis 4: When there is an individualist parent company and a collectivist subsidiary, and there is subsidiary autonomy, then the knowledge outflow will be greater than the knowledge inflow in that subsidiary.

-1	0	+1
Outflow<inflow	Outflow = inflow	Outflow>inflow

-1	0	+1
Not autonomous	Partly autonomous	Autonomous

Questions: 12, 13, 14, 15, 16, 17, 18, 19, 21, 22.

Hypothesis 5: The knowledge transfer from the subsidiary to the parent company is less at the early stages of the subsidiary than later on in the subsidiary's lifespan.

-1	0	+1
More k-transfer in the present	The same	More k-transfer in the past

Question: 10.

Hypothesis 6: The knowledge transfer from the parent company to the subsidiary is greater at the early stages of the subsidiary than later on in the subsidiary's lifespan.

-1	0	+1
More k-transfer in the present	The same	More k-transfer in the past

Questions: 8, 9, 11.

Appendix D
T Tests

Hypothesis 1a+b T-Test
Means of Greek Subsidiaries, Canadian Subsidiaries, Greek Parents and Canadian Parents

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
GRSUBS	9	.1481	.4265	.1422
CASUBS	9	4.444E-02	.5175	.1725
GRPARENT	8	.4287	.2636	9.320E-02
CAPARENT	8	-.2500	.7071	.2500

Hypothesis 2a T-Test
Means of Canadian Subsidiaries and Canadian Parents

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
CASUBS	12	.6611	.5152	.1487
CAPARENT	2	1.0000	.0000[a]	.0000

a. t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 1					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
CASUBS	-2.279	11	.044	-.3389	-.6662	-1.16E-02

Hypothesis 2b T-Test
Means of Greek Parent

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
GRPARENT	4	-.9965	.1736	8.681E-02

One-Sample Test

	Test Value = -1					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
GRPARENT	.040	3	.971	3.472E-03	-.2728	.2797

Hypothesis 3a T-Test
Means of Greek Subsidiaries

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
GRSUBS	12	.6042	.5102	.1473

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
GRSUBS	4.102	11	.002	.6042	.2800	.9283

Hypothesis 3b T-Test
Means of Canadian Parent

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
CAPARENT	4	-.2500	.5000	.2500

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
CAPARENT	-1.000	3	.391	-.2500	-1.0456	.5456

Hypothesis 6 T-Test

Means of Greek & Canadian Subsidiaries and Greek & Canadian Parents

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
GRSUBS	3	.8333	.2887	.1667
CASUBS	3	.8333	.1443	8.333E-02
GRPARENT	3	.8611	.1273	7.349E-02
CAPARENT	3	1.0000	.0000[a]	.0000

a. t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
GRSUBS	-1.000	2	.423	-.1667	-.8838	.5504
CASUBS	-2.000	2	.184	-.1667	-.5252	.1919
GRPARENT	-1.890	2	.199	-.1389	-.4551	.1773

Appendix E
T Tests for difference between groups

Ho2a+3a Greek Parent/Canadian Parent	*Variable*	*Variable*
Mean	0	1
Variance	0	0
Observations	2	2
Hypothesized Mean Difference	0	
Df	0	
t Stat	65535	
P(T<=t) one-tail	#NUM!	
t Critical one-tail	#NUM!	
P(T<=t) two-tail	#NUM!	
t Critical two-tail	#NUM!	

Ho2b+3b Greek Parent/Canadian Parent	*Variable 1*	*Variable 2*
Mean	-0.99653	-0.25
Variance	0.030141	0.25
Observations	4	4
Hypothesized Mean Difference	0	
Df	4	
t Stat	-2.8209	
P(T<=t) one-tail	0.023892	
t Critical one-tail	2.131846	
P(T<=t) two-tail	0.047784	
t Critical two-tail	2.776451	

Ho2a+3a Greek Sub/Canadian Sub	*Variable 1*	*Variable 2*
Mean	0.604166667	0.661111111
Variance	0.260258838	0.265420875
Observations	12	12
Hypothesized Mean Difference	0	
Df	22	
t Stat	-0.27207045	
P(T<=t) one-tail	0.394052453	
t Critical one-tail	1.717144187	
P(T<=t) two-tail	0.788104907	
t Critical two-tail	2.073875294	

Appendix F
T Tests for Hypothesis 4

T-Test Autonomy=1

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
S	10	.7000	.4830	.1528
B	10	.8000	.6325	.2000
L	6	1.0000	.0000[a]	.0000
O	10	-.8000	.4216	.1333
G1	10	-.6000	.6992	.2211
G2	10	-.6000	.6992	.2211
D1	9	.7778	.6667	.2222
D2	9	.7778	.6667	.2222
E	8	1.0000	.0000[a]	.0000
ALPHA	8	.8750	.3536	.1250
LAMDA1	9	.6667	.7071	.2357
LAMDA2	9	.7778	.6667	.2222
LAMDA3	9	.6667	.7071	.2357
THITA1	7	1.0000	.0000[a]	.0000
THITA23	8	1.0000	.0000[a]	.0000
SIGMA1	9	.6667	.5000	.1667
SIGMA2	4	.7500	.5000	.2500
SIGMA3	3	.6667	.5774	.3333
SIGMA4	2	1.0000	.0000[a]	.0000
OMIKRON1	7	-1.0000	.0000[a]	.0000
OMIKRON2	4	-1.0000	.0000[a]	.0000
OMIKRON3	4	-.7500	.5000	.2500
BETA	9	.8889	.3333	.1111
EPSILON	9	.7778	.6667	.2222

a. t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
S	-1.964	9	.081	-.3000	-.6456	4.555E-02
B	-1.000	9	.343	-.2000	-.6524	.2524
O	-13.500	9	.000	-1.8000	-2.1016	-1.4984
G1	-7.236	9	.000	-1.6000	-2.1002	-1.0998
G2	-7.236	9	.000	-1.6000	-2.1002	-1.0998
D1	-1.000	8	.347	-.2222	-.7347	.2902
D2	-1.000	8	.347	-.2222	-.7347	.2902
ALPHA	-1.000	7	.351	-.1250	-.4206	.1706
LAMDA1	-1.414	8	.195	-.3333	-.8769	.2102
LAMDA2	-1.000	8	.347	-.2222	-.7347	.2902
LAMDA3	-1.414	8	.195	-.3333	-.8769	.2102
SIGMA1	-2.000	8	.081	-.3333	-.7177	5.100E-02
SIGMA2	-1.000	3	.391	-.2500	-1.0456	.5456
SIGMA3	-1.000	2	.423	-.3333	-1.7676	1.1009
OMIKRON3	-7.000	3	.006	-1.7500	-2.5456	-.9544
BETA	-1.000	8	.347	-.1111	-.3673	.1451
EPSILON	-1.000	8	.347	-.2222	-.7347	.2902

T-Test Autonomy=0

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
G1	10	-.6000	.6992	.2211
G2	10	-.6000	.6992	.2211
O	10	-.8000	.4216	.1333
OMIKRON1	7	-1.0000	.0000[a]	.0000
OMIKRON2	4	-1.0000	.0000[a]	.0000
OMIKRON3	4	-.7500	.5000	.2500

a. t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
G1	-2.714	9	.024	-.6000	-1.1002	.982E-02
G2	-2.714	9	.024	-.6000	-1.1002	.982E-02
O	-6.000	9	.000	-.8000	-1.1016	-.4984
OMIKRON	-3.000	3	.058	-.7500	-1.5456	.561E-02

T-Test Autonomy=-1

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
G1	10	-.6000	.6992	.2211
G2	10	-.6000	.6992	.2211
O	10	-.8000	.4216	.1333
OMIKRON1	7	-1.0000	.0000[a]	.0000
OMIKRON2	4	-1.0000	.0000[a]	.0000

a. t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = -1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
G1	1.809	9	.104	.4000	-.1002	.9002
G2	1.809	9	.104	.4000	-.1002	.9002
O	1.500	9	.168	.2000	-.1016	.5016

T-Test Flow=1

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
S	10	-.1000	.9944	.3145
B	10	-.6000	.8433	.2667
L	5	.0000	.0000[a]	.0000
O	8	.1250	.9910	.3504
G1	9	-.2222	.9718	.3239
G2	10	-.3000	.9487	.3000
D1	9	.5556	.7265	.2422
D2	9	.5556	.7265	.2422
E	8	.3750	.9161	.3239
ALPHA	9	-.4444	.5270	.1757
LAMDA1	9	-.2222	.9718	.3239
LAMDA2	9	-.2222	.9718	.3239
LAMDA3	9	-.2222	.9718	.3239
THITA1	5	.0000	.7071	.3162
THITA23	8	-.7500	.7071	.2500
SIGMA1	9	-.1111	.9280	.3093
SIGMA2	4	-.7500	.5000	.2500
SIGMA3	3	-.6667	.5774	.3333
SIGMA4	2	.0000	.0000[a]	.0000
OMIKRON1	7	-.1429	.8997	.3401
OMIKRON2	4	-.2500	.9574	.4787
OMIKRON3	4	-.5000	.5774	.2887
BETA	9	-.1111	.9280	.3093
EPSILON	8	.5000	.9258	.3273

a. t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
S	-3.498	9	.007	-1.1000	-1.8114	-.3886
B	-6.000	9	.000	-1.6000	-2.2032	-.9968
O	-2.497	7	.041	-.8750	-1.7035	4.648E-02
G1	-3.773	8	.005	-1.2222	-1.9692	-.4752
G2	-4.333	9	.002	-1.3000	-1.9786	-.6214
D1	-1.835	8	.104	-.4444	-1.0029	.1140
D2	-1.835	8	.104	-.4444	-1.0029	.1140
E	-1.930	7	.095	-.6250	-1.3909	.1409
ALPHA	-8.222	8	.000	-1.4444	-1.8496	-1.0393
LAMDA1	-3.773	8	.005	-1.2222	-1.9692	-.4752
LAMDA2	-3.773	8	.005	-1.2222	-1.9692	-.4752
LAMDA3	-3.773	8	.005	-1.2222	-1.9692	-.4752
THITA1	-3.162	4	.034	-1.0000	-1.8780	-.1220
THITA23	-7.000	7	.000	-1.7500	-2.3412	-1.1588
SIGMA1	-3.592	8	.007	-1.1111	-1.8244	-.3978
SIGMA2	-7.000	3	.006	-1.7500	-2.5456	-.9544
SIGMA3	-5.000	2	.038	-1.6667	-3.1009	-.2324
OMIKRON1	-3.361	6	.015	-1.1429	-1.9750	-.3107
OMIKRON2	-2.611	3	.080	-1.2500	-2.7735	.2735
OMIKRON3	-5.196	3	.014	-1.5000	-2.4187	-.5813
BETA	-3.592	8	.007	-1.1111	-1.8244	-.3978
EPSILON	-1.528	7	.170	-.5000	-1.2740	.2740

T-Test F=0

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
S	10	-.1000	.9944	.3145
B	10	-.6000	.8433	.2667
L	5	.0000	.0000[a]	.0000
O	8	.1250	.9910	.3504
G1	9	-.2222	.9718	.3239
G2	10	-.3000	.9487	.3000
ALPHA	9	-.4444	.5270	.1757
LAMDA1	9	-.2222	.9718	.3239
LAMDA2	9	-.2222	.9718	.3239
LAMDA3	9	-.2222	.9718	.3239
THITA1	5	.0000	.7071	.3162
THITA23	8	-.7500	.7071	.2500
SIGMA1	9	-.1111	.9280	.3093
SIGMA2	4	-.7500	.5000	.2500
SIGMA3	3	-.6667	.5774	.3333
SIGMA4	2	.0000	.0000[a]	.0000
OMIKRON3	4	-.5000	.5774	.2887
BETA	9	-.1111	.9280	.3093
OMIKRON1	7	-.1429	.8997	.3401

a. t cannot be computed because the standard deviation is 0.

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
S	-.318	9	.758	-.1000	-.8114	.6114
B	-2.250	9	.051	-.6000	-1.2032	3.242E-03
O	.357	7	.732	.1250	-.7035	.9535
G1	-.686	8	.512	-.2222	-.9692	.5248
G2	-1.000	9	.343	-.3000	-.9786	.3786
ALPHA	-2.530	8	.035	-.4444	-.8496	3.932E-02
LAMDA1	-.686	8	.512	-.2222	-.9692	.5248
LAMDA2	-.686	8	.512	-.2222	-.9692	.5248
LAMDA3	-.686	8	.512	-.2222	-.9692	.5248
THITA1	.000	4	1.000	.0000	-.8780	.8780
THITA23	-3.000	7	.020	-.7500	-1.3412	-.1588
SIGMA1	-.359	8	.729	-.1111	-.8244	.6022
SIGMA2	-3.000	3	.058	-.7500	-1.5456	4.561E-02
SIGMA3	-2.000	2	.184	-.6667	-2.1009	.7676
OMIKRON3	-1.732	3	.182	-.5000	-1.4187	.4187
BETA	-.359	8	.729	-.1111	-.8244	.6022
OMIKRON1	-.420	6	.689	-.1429	-.9750	.6893

T-Test Flow=-1

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
ALPHA	9	-.4444	.5270	.1757
THITA23	8	-.7500	.7071	.2500

One-Sample Test

	Test Value = -1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
ALPHA	3.162	8	.013	.5556	.1504	.9607
THITA23	1.000	7	.351	.2500	-.3412	.8412

Appendix G
Differences in K-Flows between Canadian & Greek Parents and Canadian & Greek subsidiaries with subsidiary autonomy

t-Test: Two-Sample Assuming Unequal Variances

	Means of Greek Parents	*Means of Canadian Parents*
Mean	-0.262169312	0.5
Variance	0.355048816	0.857142857
Observations	9	8
Hypothesized Mean Difference	0	
df	12	
t Stat	-1.99065156	
P(T<=t) one-tail	0.034894803	
t Critical one-tail	1.782286745	
P(T<=t) two-tail	0.069789606	
t Critical two-tail	2.178812792	

t-Test: Two-Sample Assuming Unequal Variances

	Means of Greek Subs	*Means of Canadian Subs*
Mean	-0.26666667	0.518518519
Variance	0.365432099	0.308641975
Observations	10	9
Hypothesized Mean Difference	0	
df	17	
t Stat	-2.9501408	
P(T<=t) one-tail	0.004478365	
t Critical one-tail	1.739606432	
P(T<=t) two-tail	0.008956731	
t Critical two-tail	2.109818524	