

**CONTEXTUAL SUPPLY CHAIN CONSTRAINTS
IN EMERGING MARKETS
– exploring the implications for foreign firms**

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Available at: <http://www.emeraldinsight.com>

ARTICLE 2

Lorentz, Harri (2008) Production locations for the internationalising food industry: case study from Russia, *British Food Journal*, Vol. 110, No. 3, 310-334.

Available at: <http://www.emeraldinsight.com>

ARTICLE 3

Lorentz, Harri – Wong, Chee Y. – Hilmola, Olli-Pekka (2007) Emerging distribution systems in Central and Eastern Europe: Implications from two case studies. *International Journal of Physical Distribution & Logistics Management*, Vol. 37, No. 8, 670-697.

Available at: <http://www.emeraldinsight.com>

ARTICLE 4

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1 INTRODUCTION

This thesis is about establishing and managing supply chains in emerging markets. The research topic is addressed in an exploratory manner (Eisenhardt 1989), and draws on empirical evidence mainly gathered from foreign food manufacturing companies operating in the emerging market of Russia. The bulk of the research work comes in the form of published journal articles (referred to as thesis articles). However, the task of this thesis is to elaborate on the overall research process, provide a theoretical framework, and most importantly, bring together the pieces of evidence, that have emerged from the articles, by presenting them in the form of final conclusions. The thesis can be considered to have a theoretical contribution of its own, as the broader picture it gives of the issues involved provides grounds for argumentation that cannot, perhaps, be fully explored through single articles alone.

The following introductory part proceeds as follows. The background and the motivation for the research are presented. Next, the research questions are stated and the a priori model of the thesis is established. Further, the research domain is elaborated on through descriptions of the internationalisation of the Finnish food industry and the developing food supply chains in the CIS. Finally, the structure, and its underlying logic, is elaborated on.

1.1 Background and motivation for the research

The origins of the thesis' topic lay in the author's tactical level involvement in food product exports to Russia and the Baltic States. The challenges of the employer (a Finnish food manufacturer) in the Russian market resulted in research topics that were addressed in the author's bachelor's and master's theses, namely distributor evaluation and selection in Russia, as well as an analysis of the Russian retail industry. The idea of exploring the interplay of environmental change processes', with firms' supply chain planning and management processes, originated from these small-scale research efforts, and resulted in the emerging pre-understanding of the current dissertation topic (Gummesson 2000; Ghauri & Grønhaug 2001). In other words, the significance of understanding the management of supply chains in specific market contexts was recognised.

Similar musings were perceived in academic and practitioner literature (e.g. Narasimhan & Mahapatra 2004; Kerr & Colborn 2006), which provided the encouragement to continue with further efforts in this sphere. For example, relatively few companies have attempted to take full advantage of the consumer potential in e.g. the emerging markets of Brazil, Russia, India and China, i.e. BRIC (McKinsey Quarterly 2004). A few anecdotal examples from top supply chain performing companies (AMR Research 2008), illustrate the mind-set that is required to take full advantage of the emerging markets.

One of the innovators in this sphere is Nokia, where product development and distribution (both important supply chain management processes) have supported the company's desired first-mover role in emerging markets. Emerging market oriented product features (dustproof keypads, attached flashlight) and distribution solutions (a variety and high density of points-of-sale, the utilisation of bicycles, rickshaws, minivans in distribution and sales) have helped Nokia to generate sales of some 3.7 billion USD in India, in 2006 (Ewing 2007a).

The consumer goods giant Proctor and Gamble (P&G) is also ahead of its competitors in more comprehensively serving the vast market in China. With retail sales also growing rapidly in the countryside, P&G has been encouraged to expand its already massive distribution network to cover rural areas where retail outlets are still small family owned stores (Roberts 2007). Achieving this kind of coverage requires an extensive and costly distribution network, which makes careful and innovative operations planning vital.

Another interesting example is Dell, who struggled to execute its make-to-order direct-sales supply chain strategy in Russia, as rapid and reliable home delivery services and e-commerce diffusion among consumers were lacking. Consequently the company has opened brick-and-mortar stores in Moscow and other Central and Eastern European (CEE) cities in order to boost poor sales performance and market share in rapidly growing markets (Ewing, 2007b).

The above mentioned practical anecdotes point out some of the challenges in managing supply chains in emerging markets: distribution may be challenging, market specific customisation may be required in terms of logistics and implementing crucial supply chain strategy may be next to impossible. Essentially, the supply chain may very well become a stumbling block for an internationalising firm in emerging markets.

Turning to scientific literature on the subject, it seems that supply chain management and control is quite relevant in dynamic emerging market contexts: *The ability to engineer the performance of the supply chain is a crucial requirement in the context of the increasing rate of change in markets combined with operating conditions which are broadly adverse to reducing, or*

even containing, cost (Braithwaite and Christopher 1991, 61). The rate of change (turbulence) and the challenging operating conditions in emerging markets (see e.g. Hadjikhani & Johanson 1999), certainly increase the challenges for supply chain management, and require local attendance in order to be able to provide detail in operations support and customer service level maintenance.

This research may be theoretically positioned in the intersection of two broad streams of literatures, namely supply chain management and international business, as the problem of managing logistics and supply chains in foreign countries and new markets is addressed. In a way, the research relates to the big question in international business research (Peng 2004, 106): *What determines the international success and failure of firms?* Relevantly for this research, Chopra and Meindl (2001, 17) state: *Supply chain decisions play a significant role in the success or failure of a firm.* Greater integration of these theoretical bodies is needed as the amount of international operations, and supply chains to be managed is increasing (Hult 2004).

Along this line of thought, Meyer and Gelbuda (2006) have hinted at the relevance and importance of considering the interaction of environmental change process in foreign markets with internationalising firms' supply chain processes, such as sourcing, distribution, and network design. Furthermore, the issue of adapting a firm's SCM-specific resources from mature markets to transitional emerging markets (see e.g. Meyer & Peng 2005) is considered relevant from the point of view of this research, which is supported by the research of Cuervo-Cazurra et al. (2007) on the causes of difficulties in internationalisation.

This thesis makes an attempt to contribute to the further integration of supply chain management and international business literatures, and to add to the theoretical level understanding of managing supply chains in emerging markets, where a research gap is perceived to exist. It is argued here that empirical research in this field should contribute to the understanding of the relationship between constrained and changing contexts and managing supply chains. To the best of the author's knowledge such research has been somewhat limited so far, although some research around the specific area does exist.

One of the examples of relevant research includes the literature review by Luo et al. (2001) on the subject of cross-cultural logistics. Having reviewed 30 articles that explicitly or implicitly employ a comparative set-up between Western developed countries (WDC) and non WDCs in the area of logistics, the authors proposed that logistics is culture, economic system, and infrastructure related. They also concluded that abstract research is largely missing in this field, and that empirical research lacks analytical rigour.

More recently Lalwani et al. (2007, 3) have made research efforts in the area of *contextualising supply chains or manufacturing operations in uncertain or unfamiliar environments*. Their work however concentrates on the managerial manufacturing-process-outsourcing decision and the development of the outsourcer to outsourcee relationship in the Europe-Asia context.

Extremely relevant work has been conducted by the World Bank, under the topic of trade and transport facilitation (TTF), in various developing countries of the world. The aim of the practically oriented TTF audits, and consequent recommendations, is *to provide an enabling environment that offers global market connectivity and links locally based logistics services to global networks* (Arvis et al. 2007a, 62). The TTF literature has identified many performance gaps in developing countries (often landlocked) and emerging markets, mainly in terms of transport infrastructure, transit policies and other institutions, as well as the logistics industry. These deficiencies usually result in relatively higher logistics costs and longer transportation times, in comparison to industrially developed high-income countries (Arvis et al. 2007a; Ojala et al. 2005).

This thesis aims to contribute to the extant literature by setting its preference towards making a theoretical contribution rather than the providing of an empirical description. The thesis examines the topic from the perspective of foreign firms, which manage supply chains and make efforts to implement relevant strategies in emerging markets. A case study of, mainly, foreign food companies operating in the context of Russia is presented. In this industry, the establishment of in-house manufacturing, sourcing and distribution are current problems. Therefore a broad supply chain perspective on the issue is taken that goes beyond the transportation issue prominent in the TTF literature.

1.2 Research questions and the a priori model

Previous elaborations on the background of the research lead to the statement of the main research question of the study:

- What is the essence and implications of supply chain management in emerging markets for internationalising foreign firms?

The main research question reflects the exploratory nature of the thesis by setting the relatively broad goal of understanding supply chain management in emerging markets, yet it still provides a sufficient level of focus. In order to

further refine the perspective and shape the initial design of the research effort, an *a priori model* is suggested (Figure 1).

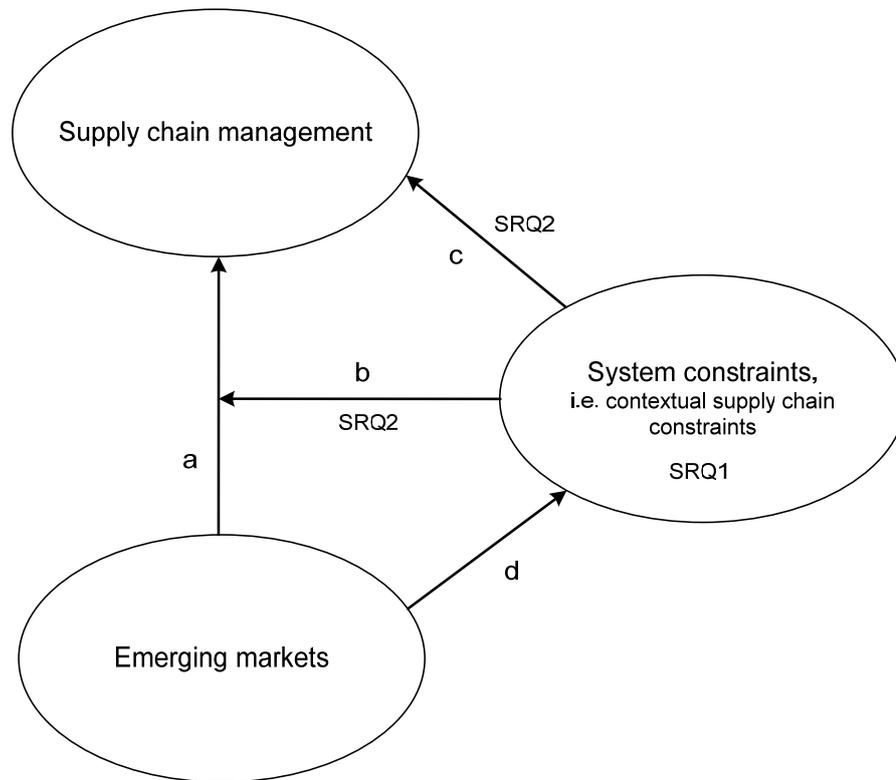


Figure 1 The a priori model of the thesis

The a priori model singles out three theoretical constructs or variables, namely supply chain management, emerging markets, and system constraints. Instead of leaving the relationships of these constructs totally open for exploration, three basic set-ups, with paths, are suggested. The paths specify system constraints as either a moderating¹ variable (paths a and b), a mediating² variable (paths c and d), or potentially both³.

¹ A *moderator* variable is one that interacts with an independent variable (usually an environmental factor) to influence an outcome. Typical moderator functions include: the relation between the environment in which behaviour is stronger or weaker at one level of the moderator than at the another level. Importantly, the environment only has an effect in the presence of the moderator, i.e. a trigger effect (Evans & Lepore 1997, 257). It is desirable that the moderator variable be uncorrelated with both the independent and dependent variables to provide a clearly interpretable interaction term (Baron & Kenny 1986).

² A *mediator* variable represents an intervening construct describing the pathway from the environment to a human response. There are two simple types of mediator functions: the mediator fully explains the relation, the mediator partially explains the relation (Evans & Lepore 1997, 262). For example, the following conditions are required of a mediating variable: (1) variations in levels of the independent variable that significantly account for variations in the presumed mediator, (2) variations in the mediator that significantly account for variations in the dependent variable (Baron & Kenny 1986).

This means that the research interest is on the effect of the emerging market's type of context⁴ (an independent variable) and on the management of supply chains (a dependent variable), while, according to the acquired pre-understanding, system constraints may be expected to influence the effect that the emerging market context has on supply chain management (moderation), and/or serve as the primary source of this influence (mediation). The system constraints, which are here termed contextual supply chain constraints, and therefore have an emphasis on outside-of-the-firm factors, embody a broad array of problem areas, deficiencies, and development gaps that may harm supply chain management, strategy and implementation.

Due to the exploratory nature of the thesis, the emergence of both moderating and mediating roles of system constraints from data are allowed. While it is generally advised that researchers *avoid thinking about specific relationships between variables ... as much as possible, especially at the outset of the process*, the a priori model gives some level of guidance on which theoretical constructs and relationships to look at and helps in shaping the initial design of the research (Eisenhardt 1989, 536).

Based on the previous considerations of the main research question and the a priori model, two sub research questions (SRQ) are specified that further focus the research and aid in the analysis of results:

- SRQ1: What is the nature of contextual supply chain constraints?
- SRQ2: How do contextual supply chain constraints affect internationalising foreign firms?

As is indicated in Figure 1, the SRQs focus on the definition and description of the mediating and moderating variable and its possible effects on the supply chain management activities of internationalising firms. It is expected that answers to the SRQ1 will provide a deeper understanding of the variety of challenges that foreign firms encounter in emerging markets. Potentially, a classification framework for contextual supply chain constraints will result from the research. Similar types of results may be reached through the answers given to SRQ2.

It should be noted that this particular research excludes the consideration of the effects of modern supply chain management, created by foreign firms, on an emerging market, such as its business networks (feedback). This kind of

³ Indicatively, mediated moderation, moderated mediation, and a shift from moderator to mediator (and vice versa) are also possible (Evans & Lepore 1997, 267-269).

⁴ As will be elaborated on later, emerging markets present demand and supply related opportunities, as well as challenges for firms, meaning that they may be taken into account in the management of a firm's supply chains and networks.

focus would deal with the spill-over effects of foreign direct investment (see for example Haskel et al. 2007), and is out of the scope of this research.

1.3 Research context

The thesis explores the essence and implications of managing supply chains in emerging markets. The empirical evidence is predominantly drawn from the foreign, mainly Finnish, food industry companies that have attempted to set up operations through both export and foreign direct investment (FDI) in the emerging market of Russia. To put things into perspective, a brief overview is provided of the internationalisation efforts of the Finnish food industry on the eastern rim of the Baltic Sea. In the same vein, the development of food supply chains within the CIS, focusing on Russia, is described.

1.3.1 Finnish food industry on the eastern rim of the Baltic Sea

At present, the food industry is the fourth largest branch of the Finnish economy, with a total gross value of production reaching 9.6 billion EUR in 2007, and employing some 35 000 people (TEM 2008). In 2007, the value of total food and agricultural product exports was 1.35 billion EUR, with a year-on-year increase of 17 per cent. According to FFDIF (2007), the Finnish food industry is collectively a major actor in the Baltic Sea Region, and especially on the eastern rim of the Baltic Sea (Baltic States, Poland and Russia). Currently, Russia is the largest export market for Finnish food companies and received 21.7 per cent of Finland's food exports in 2008, while Sweden imported 15.1 per cent (TEM 2008). In particular, dairy products have been a successful export product group to Russia, and much is expected of the functional food category (Ruutikainen & Tapaninen 2007). The effects of the current world economic crisis on the Finnish food exports, especially in terms of Russia, remain to be seen.

Taking a historical perspective, by the mid 1990s, due to European economic integration, the Finnish food industry had restructured for the sake of competitiveness, and exports to Russia had increased significantly (Volk et al. 2000). Internationalisation, with a focus firmly on the Baltic States and Russia but also Sweden, was added to the management agenda in many companies (Laaksonen 1998). In terms of internationalisation strategies, the management placed great importance on establishing local manufacturing, an effective understanding and utilisation of the developing distribution channels, as well as the ability to launch high-end functional products.

In terms of foreign trade from 1996 to 2005, the value of food exports to Russia was significantly higher in comparison to, for example, Estonia and Poland (Kinnunen 2006). However the period of the Russian financial crisis in August 1998 and its aftermath in 1999 was significant as Finnish exports to Russia more than halved, and have never recovered to the pre-1998 level. This was partly due to the increasing establishment local food production in Russia. During the crisis, the Russian rouble was devalued, making Russian customers unable to purchase foreign goods. Many foreign firms ceased operations as orders diminished and receivables could not be recovered. This gave valuable time to the Russian domestic processing industry to develop and take a larger market share.

Laaksonen (1998) reported management intentions with regard to the establishment of food manufacturing in the Baltic States and Russia. His assessment of the likely developments have been proved correct: The greenfield establishment or acquisition of international production bases has been significant among the Finnish food industry incumbents. Currently, the industry incumbents have production subsidiaries in for example Estonia, Lithuania, Poland, and most significantly in Russia (FFDIF 2007). The acquisition strategy has been especially successful, as consumers in, for example, the Baltic States prefer food brands with traditional characteristics (Kallio et al. 2002).

Internationalisation in the Baltic States through the establishment of food manufacturing, may, to some extent, be seen as a defensive strategy by the Finnish food industry, as due to lower production costs, these markets may threaten the Finnish market through exports, and multinational enterprises may use the Baltic States as a bridgehead to the wider Nordic market (Kallio et al. 2002). The key advantage of successful Finnish food manufacturers in the Baltic States has been the ability to encourage co-operation and to create trust in retailer relationships, which has been achieved in part by the seemingly familiar operational environment. Quality and price competitiveness are seen as other advantages, additionally much emphasis has been given to improving supply chain collaboration and the goal of ensuring quality through improved purchasing and distribution processes.

By 2005, five Finnish food companies had finalised FDI projects in Russia, and had a total accumulated stock of some 186 million EUR. The food industry incumbents' strategies for international expansion, in which Russia usually has a major role, may be concluded to have started in earnest, as such major companies as Atria (meat processing), Raisio (grains and fats), Valio (dairy) and Fazer (bakery and confectionary) have begun to reap the benefits of having a local presence (KTM 2005). The share of local production is expected to increase in the future (Virolainen 2006), and likely further

production capacity investment is projected to come from the dairy branch (Ruutikainen & Tapaninen 2007).

Most of the Finnish food manufacturing capacity is located in St. Petersburg, although the presence in Moscow is also strong. Acquisitions have been the dominant investment mode, as it provides access to already established local brands (Virolainen 2005). For example Atria owns the PIT Produkt group of companies, while Fazer owns the Zvyozdny and Khlebny Dom companies, all are established actors with well-known brands in their respective branches of the Russian food industry.

Recent studies have targeted Russia-specific issues for the Finnish food industry. For example Kaipio and Leppänen (2005) investigated the barriers to the internationalisation of Finnish food manufacturers in Russia, as well as possible strategies for gaining market share. Poor infrastructure, lack of qualified labour, and low risk-tolerance among the mostly smaller Finnish food manufacturers, were identified as major obstacles. Investment in local production and brands was seen as the best way to gain a market share, although focusing activities on a specific geographical region or segment and bringing new products to market was also seen as being extremely important. Furthermore, an inability to source locally was considered a major obstacle to the establishment of manufacturing. A local presence was seen as a way to reduce production costs and shorten distribution channels (Kaipio & Leppänen 2005).

The results of the study by Virolainen (2006) largely confirm the previous findings: mature markets, a lack of raw materials, infrastructure problems, and especially the unpredictability of Russian customs procedures, as well as time consuming bureaucracy have all represented obstacles for Finnish firms in the Russian market. However, lower production costs and prospective profits are some of the perceived benefits. Interestingly, firms with little experience of the Russian market were more negative in terms of their market prospects in Russia.

Kinnunen (2006) addressed the question of whether the Finnish food industry is moving production capacity from Finland to Russia in a large scale manner, and therefore planning to serve the Finnish market from the Russian low cost environment. Based on this research, the fears of such a large scale phenomenon are unfounded, although in some product groups it could be more likely because packaged goods, such as confectionary and drinks can take the stress of transport across the border. Ruutikainen and Tapaninen (2007) agree with Kinnunen's (2006) results regarding production capacity. According to Kinnunen (2006), concerns about issues, such as market specificity in production capacity, poor production quality, consumer prejudice and non-existent production cost-advantage, hinder the establishment of production

facilities in Russia. In addition, further increases in the competitiveness of the food industry in Finland have raised the bar for cross-border capacity moves.

Despite the recent negative developments in the world economy, its significant size and remaining growth potential make the Russian consumer market an interesting internationalisation and expansion target for Finnish companies in the long-term. Currently, some 18 per cent of Russia's total imports are food products, but the Finnish companies' share is a mere 1.5 per cent of that total (Ruutikainen & Tapaninen 2007).

Looking broadly at the internationalisation of the Finnish food industry, it may be said that the Finnish food industry has traversed a difficult path from low competitiveness and a highly regulatory environment (Hämäläinen 2003) and become a major economic force on the eastern rim of the Baltic Sea, with core competencies in areas such as R&D and functional products, as well as supply chain management. In general, well-timed policies, joint programmes and good management have facilitated the industry's ability to overcome the challenges of European economic integration and low competitiveness. The small domestic market has forced the industry to internationalise, and the correct geographical direction for these processes has been identified and to some degree also exploited. However, the speed and success of internationalisation among the industry incumbents varies, especially in the Russian market.

1.3.2 Development of food supply chains in the CIS

The process of economic transition in the CIS countries is ongoing, but at a variety of speeds and varying levels of determination. A decline in output performance and country-wise variation in the FDI characterised the first ten years of the transition period. In general, services overtook the predominant position of industry and agriculture, and left these sectors at 40 to 45 per cent of the pre-transition level (World Bank 2002). The social structure was also affected as poverty and inequality, in terms of living standards, increased sharply.

The above mentioned developments had a profound effect on the food supply chains that had previously been organised according to command economy principles. During the transition, major supply chain disruptions occurred in all the phases of the chain, from agriculture to the retail function (PEI 2006). For example, in Russia, the volume of agricultural production decreased by half during the early 1990s. Since then production levels have hardly grown, which makes Russia one of the largest food importers in the world (Virolainen 2005).

Due to the nature of agricultural food products (i.e. their perishability), and the importance of an efficient food supply to the national economy, the coordination and smooth functioning of the agricultural food supply chain is vital (Beer 2001). Thus, the interest of some of the international institutions (IFC, EBRD, FAO) as well as the national government (e.g. the Russian national priority programme) in the development of the Russian agribusiness sector can easily be understood.

A greater understanding of the inherited agribusiness supply chain problems can be gained by reviewing some of the existing research on the subject. For example, Gochberg (1988) has especially focused on Soviet packaged foods distribution and transportation. The major entities and the planning processes and some of the major conclusions are summarised as follows: The Soviet distribution and logistics system was lacking in appropriate technology in comparison to the US system, much of the production system was localised or regionalised, long-haul transportation and finished goods warehousing was generally avoided, productivity was low with significant levels of labour intensity, and there existed little comprehension of integrated logistics concepts.

Rodnikov (1994) analysed the centrally planned economy from a logistical perspective. He found that centralised control over economic decisions created discordance between macro-economic planning and micro-economic management that led to major distortions in the economy. Some of the distortions include; the hypertrophy of the producer goods and armament industries, excess raw material and work-in-process inventories, and the preference of policy goals over accounting profits and efficiency. A core lesson from the Soviet command economy experience is the rise of severe distortions due to the attempt to centrally plan the logistical functions.

Taylor (1994) analysed the structure of Russian food supply systems and identified major inherited problems in these systems from the Soviet era. The Soviet food supply chains were characterised by three major traits: (1) massive scale, (2) centralised control, and (3) lack of competition. The specialisation of Soviet States in the production of various agricultural products caused disruption in the production and supply of food as the Soviet Union disintegrated into independent states. The states attempted to trade but lacked the hard currency to do so. Drastic price increases in some basic food products caused plummeting demand and consequently discontinued production.

Swinnen (2006) has presented survey evidence from a number of Eastern European countries on how economic transition and globalisation have affected dairy sector supply chains in the region. FDI into processing and

retail industries has contributed to the development of higher quality standards that in turn have led to contracting and increased vertical coordination⁵. The supply chain champions that lead the development are processing firms in countries with a close proximity to the EU, while countries located further from the EU are characterised by retail industry driven developments. The positive influence of the VC has been detected in both small farms and large ones.

The comprehensive report by Swinnen (2005) on the dynamics of vertical coordination in agri-food chains in the transition countries provides interesting conclusions on the functioning of the food supply chains in the CIS. Vertical coordination is an important and growing phenomenon in the European transition countries. This is true to an even larger degree for the transition countries than it is for other western economies. A lack of public institutions that would ensure the enforcement of property rights and contracts has hampered the effective functioning of the supply chains and contracting for quality raw materials. Buyers provide inputs and assistance to farms in order to increase the incentives to adhere to the letter of the supply contracts. Farm assistance may include, for example, investment assistance, trade credit, bank loan guarantees and management advisory services. The search for a quality raw material supply is the key engine for vertical coordination initiatives. While the processing industry incumbents are often forced to draw supplies from a fragmented supply base characterised by small farms, larger and more modern farms are preferred, as transaction costs are lower in these relationships. Vertical coordination and supply chain partnerships are naturally easier and more efficient to maintain with a small number of key suppliers. From the policy point of view, food supply chain development should be seen as part of the wider rural development strategy.

Gorton and White (2006) elaborate on the relationship restructuring between farmers and buyers (processors and retailers) in the CEE and CIS markets. Factors such as the appearance of food retail chains, the imposition of private standards, and FDI have contributed to the internationalisation of the food and agribusiness markets. Nevertheless, the policy making task of assisting farmers to gain access to these restructured supply chains remains.

The Russian agricultural industry as a whole is on the verge of a long required, and in some cases delayed (Tekoniemi 2007), modernisation, induced by three main forces: (1) the emergence of vertically integrated agricultural conglomerates financed by the private sector, and (2) a massive extension of state financing (loan interest subsidies and loans) to agriculture

⁵ Vertical coordination can take various forms (institutional arrangements) between the two extremes along a continuum between spot market based transactions and full ownership integration.

related projects, and (3) the emergence of a modern food retail sector that is expanding rapidly from mostly metropolitan areas to small towns and rural communities (PEI 2006). Additionally, foreign investments have improved the level of quality in the Russian food industry (Virolainen 2005).

The forces that drive modernisation, shape the transition path of the agricultural industry from mostly fragmented business players possessing a decaying infrastructure, to modern large-scale industrial facilities operated by the so called agroholding companies. However, this development path has taken place in only a few select companies, and in 2006, over half of the agricultural output was still produced on household plots (Tekoniemi 2007). Due to raw material shortages, the processing industries are even forced to utilise ownership related methods (i.e. vertical integration) in the process of securing a functioning production chain (Tekoniemi 2007).

The distribution of consumer and food products has been a challenge in Russia since the transition from the command system to a market economy (Rodnikov 1994). The fragmented retail sector and the inefficient distribution function, forced multinational consumer good companies to establish vast sales regimes of, for example, 2000 to 3000 representatives and direct control over distribution and logistics. Accordingly, a national sales function could easily take 25 to 30 per cent of a company's turnover with its significant initial investment outlays. With the modern retail sector emerging, an efficient and brand supporting channel of distribution is now attainable for businesses other than the largest MNEs.

The main driving force behind the development of agri-food supply chains is the emerging middleclass in Russia. With rising incomes, they are increasingly brand and quality conscious, and demand products with more value added content. In general terms, the consumption of, for example, many meat products is still below potential standards. The recent rise in the price of oil and the relatively high level of federal budget expenditure in the form of the national priority programme related projects and social transfers has positively affected the Russian consumer (PEI 2006).

In summary, it can be stated that food supply chains in the CIS and Russia have undergone a major change since Soviet times. The centrally planned system experienced a major breakdown in the initial phases of the transition, due to a lack of finance and the emergence of new national borders, and has only recently begun to demonstrate signs of revitalisation as a result of private investments, modern large scale production and government funding. However, there exists a dichotomy between profitable mass agricultural production and the near bankrupt and incapable section of the agricultural supply base, which causes problems and inefficiencies for some regional food supply chains. The sheer size of Russia requires both efficient mass production

farms as well as local small-scale supply, in order to achieve large volumes with low unit costs and a greater level of food self-sufficiency for Russia (Tekoniemi 2007). Crucially, the facilitating logistics infrastructure requires state investments in order to support positive developments in the agri-food sector.

In addition to these upstream challenges, the downstream, i.e. the distribution side plays a crucial role in the food supply chain. Despite the existing complicated structures and a lack of transparency for effective operations, this part of the supply chain is developing rapidly in some areas and sectors, as will be described in this thesis.

1.4 Structure of the thesis

The research is exploratory in nature, and therefore draws on the process of building theory from case study research presented by Eisenhardt (1989). While the methodology is elaborated on more thoroughly in the next chapter, the aim here is to expound on the logic and approach of the research, and consequently facilitate the understanding of the manner and structure of its presentation.

The starting point for the research has been the author's involvement in food industry export processes. The gained insights have been sharpened and complemented with incursions into theory prior to the formulation of the current research problem. The process of planning, focusing, executing and presenting this particular research has also been highly iterative. Thus it is similar to the description given by Eisenhardt (1989): *The central idea is that researchers constantly compare theory and data – iterating toward a theory which closely fits the data.* The current, perhaps not entirely pure, inductive research process was supported at the "getting started" step by research questions and an a priori model. In general, the research process attempts to follow closely the principles and steps recommended by Eisenhardt (1989), as has been indicated in Table 1.

Table 1 Eisenhardt's (1989) process of building theory from case study research and the relevant thesis components

<i>Eisenhardt (1989)</i>		<i>Thesis</i>
<i>Step</i>	<i>Activity (relevant)</i>	<i>Chapters / sub chapters with description</i>
Getting started	Definition of research question Possibly a priori constructs	1.2 Research question and a priori model
Selecting cases	Theoretical, not random, sampling	2.1.2 Application of the case study approach
Crafting instruments and protocols	Multiple data collection methods Qualitative and quantitative data combined	2.1.1 Methodological positioning
Analysing data	Cross-case pattern search	4.1 Review of main empirical findings
Shaping hypotheses	Iterative tabulation of evidence for each construct	4.2 Answers to the research questions, see also Table 6 and Attachment 3 (data displays)
Enfolding literature	Comparisons with conflicting and similar literature	4.3 Enfolding literature
Reaching closure	Theoretical saturation when possible	2.2 Research process

After the introductory chapter, where the idea behind the a priori model is elaborated on, the thesis proceeds to discuss methodology, with an attempt to describe the qualitative case study research approach, and further illustrate the inductive nature of the research process. Thesis article methodologies are also described in order to establish a basis for the quality evaluation.

Following the methodology, a chapter on the theoretical framework is provided, the structure of which is firmly based on the a priori model, presented in Figure 1. Finally, the fourth chapter concludes the thesis, by first presenting the main empirical findings, which draw on the thesis articles plus three supporting articles that bring additional and valuable insights to the research endeavour at hand.

Second, an attempt is made to address each of the research questions in turn. Importantly, in order to support the exploratory findings, enfolding literature is presented, which is an essential feature of theory building research (Eisenhardt 1989). Support for the findings is sought from the literature on supply chain management, international business, and economics in general. Finally, limitations and suggestions for further research are elaborated on. The thesis articles are included as attachments at the very end of the thesis.

2 METHODOLOGY

In the following, the research is positioned and described from the methodological point of view. The aim of the chapter is to deepen the understanding of the research process and contribute, therefore, to the validity and reliability related evaluation of the thesis.

2.1 Research approach

2.1.1 Methodological positioning of the articles

In terms of the overall methodological approach, the framework developed by Arbnor and Bjerke (1997) is utilised in the positioning of the thesis articles. The three methodological approaches in the framework are the analytical approach, the systems approach and the actors approach (Table 2). The analytical approach endorses the view that *there is an objective reality, in which patterns and causal relations can be investigated and disclosed through research* (Gammelgaard 2004, 480). Its relation to the positivistic tradition is strong, thus quantitative and explanatory hypothesis testing research set-ups are utilised.

The systems approach, on the other hand, is based on systems theory with a holistic view. According to this, the decomposition of reality is meaningless if it does not take into consideration mutual dependencies (Gammelgaard 2004). Parts, links, goals and feedback mechanisms are seen as important units of analysis and are usually targeted for analysis by means of case studies with both qualitative and quantitative data and analysis.

Table 2 The Arbnor and Bjerke (1997) framework

	<i>Analytical approach</i>	<i>Systems approach</i>	<i>Actors approach</i>
Theory type	Determining cause-effect relations; explanations, predictions; universal, time and value free laws	Models; recommendations, normative aspects; knowledge about concrete systems	Interpretations, understanding; contextual knowledge
Preferred method	Quantitative (qualitative research only for validation)	Case studies (qualitative and quantitative)	Qualitative
Unit of analysis	Concepts and their relations	Systems: links, feedback mechanisms and boundaries	People – and their interaction
Data analysis	Description, hypothesis testing	Mapping, modelling	Interpretation
Position of the researcher	Outside	Preferably outside	Inside – as part of the process

Finally, the actors approach underlines the idea that *reality is not objective, but the result of various social constructions* (Gammelgaard 2004, 481). This approach recognises that the researcher is part of the same research target from which interpretations of social reality are being produced. Qualitative research methods are prevalent in this approach.

According to Gammelgaard (2004), the presented methodological framework is particularly relevant in the classification of logistics research, which this thesis partly belongs to. The analytical approach and the systems approach are well represented in literature (the analytical even more so), while the actors approach has been less frequently utilised, so far.

All the thesis articles may be positioned in the systems approach category. They are essentially qualitative case studies in nature, combining quantitative and qualitative data to a varying degree. For example, Article 2 utilised the quantitative modelling method of the analytic hierarchy process (AHP), with interview data providing the starting point for the process and an element in the formation of conclusions. Article 4 on the other hand combined key informant interviews, questionnaire data (from the key informants), and company documents in the forming of a comprehensive view of the processes of interest of the three companies analysed in the multiple case study. Effectively, the thesis, through its constituent articles, employs a combination of methods and data, in the framework of qualitative research, in reaching its conclusions.

A further argument for the systems approach methodological positioning of the articles comes from the following observation. Context plays a crucial role in all the articles as there is an emphasis on understanding the interaction of the environment through supply chain management processes in the case companies. Therefore, system component relationships are an area of interest.

Furthermore, the articles include modelling and a description of decision making and logistics structures, which belong in the systems approach.

2.1.2 Application of the case study approach

The case study approach to research dominates the thesis, as it is used in all of the three empirically oriented articles. A case study should essentially be considered as an approach to research or as a research strategy, instead of a particular kind of method: case studies research may combine multiple data sources (both quantitative and qualitative data), involve in-depth and longitudinal data collection, investigate phenomena in their real-life context, and may explore a bounded system (Creswell 1998; Yin 2003; Eriksson & Kovalainen 2008).

The research approach (deductive, inductive or abductive) in case study research is an interesting topic to consider (for a broad treatment of research approaches in logistics research, see Kovács & Spens 2005). A purely deductive research process would be firmly based on a theoretical framework from prior literature, which would then proceed to develop hypotheses, or rather propositions (Yin 2003) After that it would test them with a case study based inquiry, ultimately discussing the results in the light of the literature (corroboration and/or abandonment of a priori propositions), while aiming for analytic generalisation (Yin 2003). An example of such a research set-up in case study research is provided by Stassen and Waller (2002).

The purely inductive approach on the other hand is initiated by real-life observations that are developed into a testable theory. This approach has many commonalities with the grounded theory approach of Glaser and Strauss (1967). Eisenhardt (1989) has written about the process of building theories from case studies, which is described as inducting theory. This process is seen as highly iterative and tightly linked with data. The usefulness of case study research in exploratory research is underlined and as a result testable theory, hypotheses and propositions, and/or new theoretical constructs may be presented (Eriksson & Kovalainen 2008; Eisenhardt 1989). Examples of inductive case study research include the work of Flint and Mentzer (2000).

The abductive reasoning approach is commonly used in case study research, due to the simultaneous activities of data collection and theory development (Kovács & Spens 2005). This approach starts with real life observations that are then engaged in a creative and iterative process between theory and empirical observations. Its aims are to understand new phenomena and to suggest hypotheses and propositions through testing. Importantly, the abductive approach also includes theory application that is in line with action

research principles (Whitehead & McNiff 2006). It therefore seems that abductive research takes Eisenhardt's (1989) inductive process further as it progresses to the point of the testing and the application of new theory.

While the conventions in terms of the structures in academic writing often support the perception that research processes are linear, e.g. purely deductive, in some cases at least, the actual research processes are in reality characterised by iteration between theory and data. As was argued in the introduction of this thesis, the research presented here demonstrates the properties of an inductive case study approach, with the aim of understanding the nature of a phenomenon, namely supply chain management in emerging markets.

There are several classifications for case study research: Yin (2003) distinguishes between a single case study and a multiple case study, while Stoecker (1991) underlines the differences between intensive and extensive case study research. The two classifications, while under different names, could be interpreted as having the same characteristics. A single or intensive case study investigates a unique or a representative case that has a deep, broad, detailed and contextualised description. A multiple or extensive case study on the other hand aims at the elaboration and testing of some theoretical constructs or propositions in a set of cases (Eriksson & Kovalainen 2008). or through, for example, replication logic (Yin 2003). Theoretical constructs can be generated as a result of a multiple or extensive case study.

The thesis articles (3 and 4) are mostly based on multiple or extensive case studies, with the number of cases (unit of analysis is a company) ranging from two to three. Direct attempts at generalisation are, however, avoided as the focus is on exploratory research, i.e. presenting testable propositions and further research opportunities (Article 3), and developing a conceptual model with theoretical constructs (Article 4). In a way, Article 4 utilises analytic generalisation (Yin 2003) because the research is based on a well-grounded theory and a set of propositions. Generally, however, the understanding and the theorising of the underlying phenomena (SCM in emerging markets) is being sought.

Article 2 on the other hand is more of a single case study (while perhaps not fully intensive) on an industry level. For this article, a panel of food industry senior managers' views are combined through the AHP (Saaty 1980) in order to understand the location and internationalisation decision making process in one industry through a context specific application.

The case study research approach has one very favourable property, namely the ability to combine qualitative and quantitative data (Eriksson & Kovalainen 2008). Three ways of combining the different data types can be distinguished. These are triangulation, facilitation, and complementarity. Triangulation is essentially cross-checking between data sets. In facilitation,

one data set makes the generation of the other data possible, whereas complementarity, implies a rich description as data-sets are used side by side. In terms of Article 3, complementarity is the proper description because verbally described and graphically depicted supply chain structures and development are combined with sales time-series data. Article 4 is more oriented towards triangulation, but complementarity is also included as the key informants first answered a questionnaire that had numerical output, and then later discussed the same topics in-depth with the author.

As contextualisation is important in case study research, sections on the research environment are provided in all the articles. Additionally, Article 1 contributes, on the aggregate thesis level, to the understanding of the research context.

In multiple case studies, the selection of cases becomes a relevant issue to consider. Yin (2003) suggests the use of replication logic in multiple case studies, meaning that each case should be selected for either the corroboration or the refutation of a priori propositions. Lincoln and Guba (1985) argue that cases should not be selected randomly, but subjectively or theoretically. Similarly, for theory building research, Eisenhardt (1989) proposes the use of theoretical selection logic to fill conceptual categories.

Along this line of thought, attention now turns to a theoretical framework that may be argued to encompass the entire body of supply chain management literature. The argument is that, if the empirical research of this thesis covers all or most of the defined theoretical categories of SCM research, it may have sufficient weight to provide a credible answer to the main research question.

Giannakis and Croom (2004) have introduced the 3S model, which directs scholars to three areas in current SCM research. They areas are; the *synthesis* of the business network, inter-actor *synergy* in networks, and the *synchronisation* of operational processes. These areas may additionally be observed from the dyadic, chain and network perspectives.

The synthesis area focuses on structural aspects of the supply chain, and relies on such theoretical streams as industrial organisation, institutional economics, and network theory in general (for a comprehensive literature review on network theories and their applicability to SCM research, see Schramm 2007). The key problems in this sphere are, for example, the strategic position of the firm, vertical integration, supply base configuration, the choice of distribution channels, and so forth.

Synergy on the other hand focuses on the nature and influence of interaction among supply chain actors, and draws on the theories of inter-organisational relationships and strategic management. Some examples of key problems for research in this area are supplier selection and management, customer relationship management, as well as inter-organisational behaviour.

Furthermore, synchronisation is concerned with the operational control of supply chain processes, and finds its theoretical basis in operations management and research, logistics, as well as system dynamics. Key issues in related research agendas would be scheduling, coordination, information management and material flow analysis. All the aforementioned research areas of the 3S model have been addressed in the SCM literature by taking the dyadic, chain, or network point of view (Giannakis & Croom 2004).

In the following, all the thesis articles are briefly described. Additionally, their possible connections to any of the 3S categories are demonstrated, with the exception of Article 1, which is not empirically based. A reference is made to Table 3, which lists SCM issues, topics and keywords pertaining to the 3S model.

Article 1 aims at providing a contemporary analysis of Russia's developing retail sector. Of special interest is the internationalisation of this market through cross-border mergers and acquisitions. This is done by identifying major trends in this sector and providing projections concerning forthcoming acquisition activity. The article's main contribution to the thesis is to serve as a description of the context, i.e. the supply chain environment, and highlight the rapid changes, especially in terms of retailing, that are taking place in this particular market, and some of their implications for foreign companies.

Article 2 aims to identify the location decision criteria and their relative weights in the context of food manufacturing internationalisation in emerging markets, and clarify how supply chain and network related factors are reflected in the location decision criteria. Knowledge of these factors is considered crucial in understanding the entry and location decisions of foreign food manufacturers in emerging markets where high levels of uncertainty and operating conditions that are adverse to cost-control seem to be prevalent. Thus, the article mainly addresses the synchronisation and synthesis issues in dyadic and network levels respectively (Table 3).

The purpose of Article 3 is to shed light on the evolution of distribution channel structures and its consequent implications for SCM in the context of the emerging markets of CEE and in one case, Russia. The article draws on a comprehensive literature review of the subject, focusing especially on evolution in distribution and supply chains. The article addresses synchronisation issues by elaborating on sales dynamics in different generic distribution channels, supply chain structures, the management of related processes in a company, and synergy issues as the choice of distribution channels in an evolving system is considered (Table 3).

Table 3 The 3S model and the thesis articles

<i>SCM issues and keywords*</i>	<i>Dyadic</i>	<i>Chain</i>	<i>Network</i>
<i>Synthesis</i>	Make or Buy Supplier Selection Relational Embeddedness Transaction Costs Partnerships/Alliances	Outsourcing Transaction Costs	Outsourcing Transaction Costs Ownership (Vertical Integration) vs. Pure Market Positioning in the Supply Chain (Article 4) Structural Embeddedness (Article 2)
<i>Synergy</i>	Supplier Management (Evaluation/Development) (Article 4) Power/Trust/Commitment Relationship Dynamics (between actors over time) (Article 4) Relationship Marketing Interaction Model Knowledge Transfer Communication Processes Capabilities Management Organizational Learning Collaborative Design (Guest Engineer)	Suppliers Management (Evaluation/Development) Power/Trust/Commitment Tiered Supply Management Model Relationship Dynamics (across actors in a supply chain) (Article 3) Social Networks Resource Dependence Benchmarking Knowledge Flow Value Chain Communication Processes Capabilities Management Organizational Learning Collaborative Design	Partnership Sourcing Trust/Power/Commitment Lean Supply Supply Base Integration Social Networks Interaction Model Chaos Research Consortia Knowledge Flow Value System Analysis Communication Processes Capabilities Management Organizational Learning Collaborative Design
<i>Synchronisation</i>	Management of the Flow of Goods Processes/Activities Management (Article 3) Production Planning/ Capacity Management/ Distribution Procurement/Purchasing Management Management of Financial Assets Flow Inventory Management Transportation Facilities Location (Article 2) Guest Engineering Management of Information Flow E-Commerce EDI/Internet	Logistics Management Management of Flow of Goods Processes/Activities Management Distribution Channels (Article 3) Value Chain Approach Integration of Processes/Activities (Article 4) Transformation Model Management of Financial Assets Flow Structure of the Supply Chain (Article 3) Reverse Logistics Resonance Integration of Information Flows	Processes/Activities Management Value System Network Sourcing Integration of Companies Network Structure Design Logistics Network Design Lean Supply Chaos Games Theory Management of Information Flow E-Commerce EDI/Internet

*Specific issues addressed in the thesis articles are marked in bold.

Article 4 aims to shed light on the management of supply chains and networks of foreign companies in order to capture value creation opportunities in emerging markets. The paper presents an interdisciplinary conceptual model of demand supply network opportunity development processes that describe and explain the behaviour of supply chain dependent companies that are currently seeking strong competitive network positions. The research especially concentrates on two focal elements of the model: (1) the constraints for of successful demand supply network operations implementation, and (2) the establishment and management of demand supply network positions that allow for superior performance and customer service. The article addresses

synthesis issues as positioning in the network is considered. Additionally, synergy issues are included as the article considers supplier development and relationship development between actors. Furthermore, the included synchronisation issues contain the integration of activities and processes in the chain (Table 3).

In summary it may be stated that through the thesis articles, all the categories of the 3S model (Giannakis & Croom 2004) have been addressed on, at least, some level. In other words, SCM in emerging markets has been investigated from three perspectives: physical structure, interaction and relations, as well as coordination and the control of processes. As a result, a cautious conclusion may be drawn that supports the existence of a sufficiently broad empirical foundation that allows theory building research through the theoretical sampling of the cases presented in the thesis articles. Notably, additional insight is provided by reference to a set of supporting articles, as will be elaborated on later.

2.2 Research process

An attempt is made here to describe the non-linear research process that resulted in the thesis as an aggregate output. Additionally, the research processes behind each article are elaborated on, as is the role of the author in creating the output. The latter is relevant due to the participation of multiple authors in three out of the four thesis articles.

The first two years of the research project (2004-2006) were mainly spent in reviewing the vast literature on supply chain management and relevant international business literature streams, as well as simultaneously conducting essentially exploratory pilot research (as well as some applied research, see PEI 2006) with companies that operated or planned to operate supply chains in Russia. This was done in order to generate ideas and a higher-level understanding of the issues involved. This period, characterised strongly by iteration between theory and empirical data, resulted in a number of working and conference papers, some of which form the basic set-up of the later presented journal articles, which were mostly written during the second half of 2006, as well as the first half of 2007. Article 1 is the product of joint research during the summer of 2005, and is essentially the embodiment of the pre-understanding creation efforts. Two of the papers (Articles 2 and 3) led to the formation of the research aims addressed in the Article 4, which serves as the nexus for the earlier work.

Therefore a drifting path, iterating between theory and empirical evidence (i.e. data collection) as a hermeneutic spiral, was traversed in order to reach

the goal of contributing scientifically to the literature of both international business and supply chain management (Figure 2). The perceptibly non-linear or even unorganised research process can therefore be argued to follow the lines of an inductive theory building case study approach as described by Eisenhardt (1989). The stylised depiction of the research process, based on the author's perceptions, indicates the theory and empirical data focus of the researcher at that time. They include, the pilot case study (see Article 3), the contract research project for the Finnish Ministry of Forestry and Agriculture (MFA; see Article 2), and the multiple case study (see Article 4) and, importantly, a contribution and advancement to the development of theoretical understanding within the field. Many times, the author was forced to return to the literature after experiences in the field and reflect on theory and determine new paths for advancement.

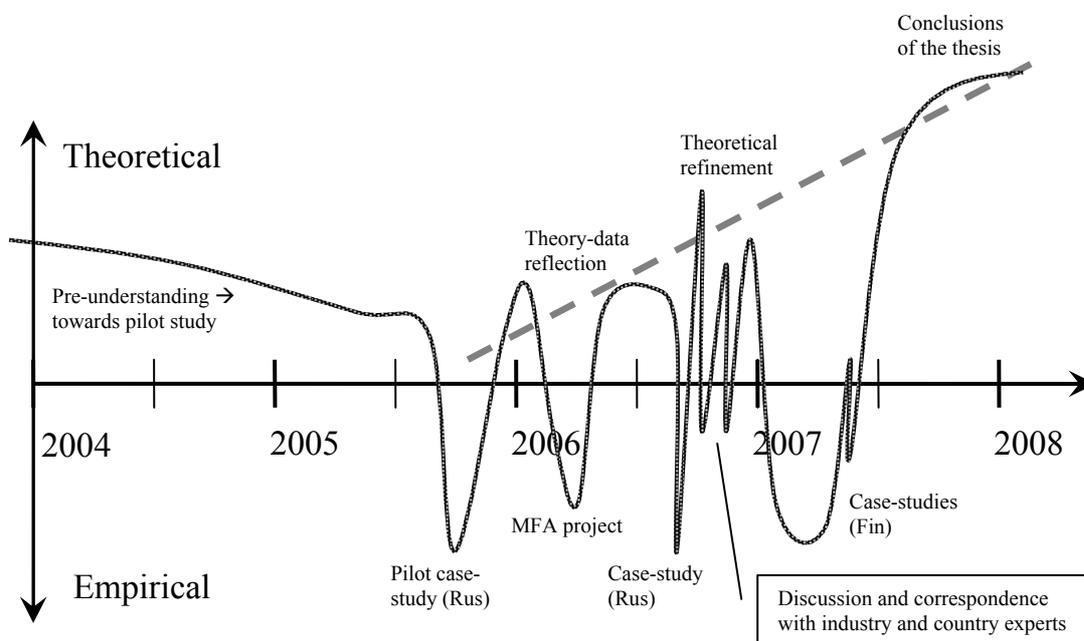


Figure 2 Stylised depiction of the inductive research process over time

The author's thinking processes, especially in the last article were greatly influenced by the industrial network theory in general (e.g. Ford 1990; Axelsson & Easton 1992) and specifically by Håkansson and Ford (2002) as well as by Ghauri and Holstius (1996), who elaborate on network positions as the outcome of strategising and internationalisation (during theoretical refinement, see Figure 2). Additionally, a brief excursion into the theory of constraints related literature (e.g. Goldratt 1997), in the writing phase of the last article, contributed to the author's vision on network related constraints in

the emerging market context, which companies strive to exploit and/or elevate (Schragenheim & Dettmer 2001).

Article 1 builds primarily on secondary data. In addition to the analysis of macro-economic indicators, the paper also provides three case-based analyses of leading firms in the Russian market.

The article is a joint effort by the author, Dr. Lotta Häkkinen (TSE) and Professor Hilmola. The sections about the research environment and the analysis of the Russian retail sector are entirely the author's own, while the introduction and conclusions are the result of the authors' joint efforts. The literature review on mergers and acquisitions in the retail sector was conducted by Dr. Häkkinen. Professor Hilmola provided valuable insight for the development of the article as a whole.

In Article 2, the AHP methodology was chosen due to its capacity to handle complex decision problems that are characteristic of modern business decision making (Saaty 1980; 1994). The method has been proposed in academic literature as a solution approach to large, dynamic, and complex real world multi-criteria decision-making problems (Yang & Lee 1997). The area of application in this project was the evaluation of facility locations as investment target supply chains, with a broad consideration of the factors that are specific to the internationally expanding Finnish food industry.

In creating the hierarchically structured decision model, the AHP methodology requires the following solution process (Yang & Lee 1997): (1) needs identification and justification, (2) the identification of pertinent decision factors, (3) the development of priority weights, (4) the collection of data and the ranking of each potential factor, (5) an analysis of comparative results, and (6) the identification of preferred alternatives. This process was carefully followed in the research process.

As a first step in formulating the model, the project team reviewed the relevant academic literature. The review served the purpose of creating an outline for the expert interviews (8 in total) conducted in January 2006 with several prominent industrialists in the Finnish food industry (higher management representatives from 6 companies) and two researchers that are considered experts in the field. Based on the interviews a hierarchical model was constructed. The development of priority weights was conducted by means of a web-based questionnaire platform that targeted the expert panel of 9 prominent industrialists in the Finnish food industry. With this amount of respondents (of which 4 individually consistent sets were used in building the model), the presented AHP application must be regarded as an industry case study in strategic investment opportunity assessment.

Using the AHP methodology, the composite priority weights were calculated. The hierarchical model was tested for consistency, and all the

consistency ratio (CR) values fell below the recommended cut-off threshold of 0.10, giving an indication of an adequately reliable result. The application process followed with its detailed description of the criteria for operationalisation.

Article 2 is solely the author's work. It benefited from being a research project financed by Finland's Ministry of Forestry and Agriculture. The members of the project team included, Dr. Lev Gelman (Economic Consulting Ltd. Moscow) and Mr. Teemu Järvinen (Allego Oy), who provided practical insights into the food industry facility location issues. Ms. Linda Johansson (TSE) assisted in the data collection phase, and Professor Hilmola helped at the model development phase by providing valuable advice on methodology.

Article 3 employed a multiple case study (two cases) from different consumer goods industries and geographical markets in the CEE (holistic multiple-case study). In terms of data collection methods, the cases are based on a number of on-site and in-depth interviews with both case companies' representatives (4 in the confectionary manufacturer's case, 5 in the toy manufacturer's case), as well as with two Russian consumer goods distribution experts in the first case (the companies and positions of the interviewees were disclosed in the article). Data collection took place from December 2005 to March 2006 for Case Study I, while data for the Case Study II was collected from January 2005 to May 2005.

To ensure that the data and information reported in the cases was accurate (including the distribution structures); the case report drafts were reviewed by the key informants. In addition to the use of interviews, actual case company sales data was also analysed in order to compare the utilised distribution channels (modern and direct vs. traditional and indirect) and to explore the benefits to the companies from the view point of SCM.

Article 3 is the result of a joint effort by the author and Dr. Chee Yew Wong (Hull University Business School, UK) and Professor Hilmola. Dr. Wong provided the second case study entirely, while he and Professor Hilmola contributed to the article as a whole by providing comments and acting as discussants during the formation of the conclusions. Mr. Tapio Riihinen facilitated access to empirical data and served as a valuable key source in creating the description of the industry's developments in general. The remainder of the work is the contribution of the author.

The empirical part of Article 4 presents a multiple case study (three cases) on the Russian manufacturing subsidiaries of Finnish food companies. Drawing on a literature-based conceptual model, a priori propositions were developed in order to facilitate the data collection and eventual analysis of the results. The unit of analysis in the study is the manufacturing and sales subsidiary in Russia that has a range of network relationships for the

achievement of raw-material procurement and/or finished goods distribution. In the interpretation of data, cross-case analysis was used. True to the case study research approach, the triangulation of several sources was used in developing the case study's database.

The actual data collection for this research took place during the first half of 2007 and in two phases. Firstly, a web-based questionnaire data collection device was distributed to the key Finnish informants in the case companies (Case A: country director Russia; Case B: subsidiary CEO; Case C: country director Russia and Ukraine) with the aim of extracting parallel and comparable basic data on SC uncertainty, network structure, collaboration and performance. Sources from relevant literature were used in questionnaire development in order to improve comparability with previous studies of a similar orientation. Additionally, a wide selection of official company documents (annual reports, press releases, internal bulletins) and trade magazine articles were analysed.

In the second phase, in-depth interviews with the key informants were conducted as preliminary insight had already been gained, based on the web-based questionnaire and the content analysis of documents. After the transcription and analysis of interviews and data, the resulting drafts of the case study reports were subjected to review by the key informants. Prior to the usage of both the questionnaire and the case study protocol, they were tested for validity with an industry expert, and modified accordingly.

The idea for Article 4 originated from the author's earlier research, and was substantially refined into an executable project after discussions with Professor Pervez N. Ghauri (King's College London, UK). In the writing and data collection phases, as well as in the journal revision phases, the comments of Professor Ghauri facilitated the achievement of the eventual content and contribution of the article.

In summarising the chapter on methodology, it can be said that the thesis is an exploratory multiple case study involving the theoretical sampling of cases and the utilisation of a variety of data and methods. The research process has been highly iterative, and imitates the steps for theory building research presented by Eisenhardt (1989). The author has been the driving force in the realisation of the research and has taken responsibility for the direction and progress of the research, while other authors have made valuable contributions. The author's role in conducting the bulk of the research planning, execution and reporting work in each article warrants the inclusion of them in this thesis. The research methods and procedures were described in order to establish their degree of validity and reliability.

3 THEORETICAL FRAMEWORK

This chapter provides a theoretical framework, based on the previously presented a priori model (Figure 1). While Eisenhardt (1989, 536) argues that *theory-building research is begun as close as possible to the ideal of no theory under considerations and no hypotheses to test*, she nonetheless continues: *admittedly, it is impossible to achieve this ideal of a clean theoretical slate*. In this vein, a review of the literature on the components or theoretical constructs of the a priori model is presented. This lays the groundwork for the addressing of the research questions.

Firstly, supply chain management (SCM) is defined by focusing on its key property: process integration. Supply chain uncertainty is also considered as a key theoretical construct under the SCM umbrella (Sabri & Beamon 2000). Furthermore, SCM in an international context is expounded. Secondly, the emerging market concept is defined, and three different perspectives are taken on the topic: research on emerging markets in general, emerging markets as a context for supply chain management, and emerging markets as a target for internationalisation. Third, the system constraints are examined in an attempt to summarise the whole chapter, which concludes the chapter on the underlying theories of the study.

3.1 Supply chain management

3.1.1 Focus on integrated processes

Over the years, supply chain management has experienced identity development, which is evident from the increasing demand for theoretically based conceptual development in contrast to the past focus on empirically based descriptive research (Croom et al. 2000). Nevertheless, Burghes et al. in 2006 claimed that the characteristics of SCM research entail a multidisciplinary approach and a lack of consensus in terms of definitions. Furthermore, a lack of rigorous methodological discussion was detected in the discipline's related case study research (Hilmola et al. 2005). According to some researchers, however, the phenomena around the discipline demonstrate

increasing coherence, quality and impact, explicit discipline theory, and a maturing application of existing theory; thus the signs of an emerging discipline are becoming visible (Cousins et al. 2006; Harland et al. 2006).

With this background, a brief definitional treatment is provided here, with the aim of bringing out the key property of SCM. LaLonde and Masters (1994) define supply chain simply as a set of firms that pass material forward. Several independent firms are involved in manufacturing a product and placing it in the hands of the end user in a supply chain. The members of the supply chain include raw material and component producers, product assemblers, wholesalers, retail merchants and transport companies. Lambert et al. (1998) define a supply chain as an alignment of firms that brings products or services to the market (see also Mentzer et al. 2001).

The definition of SCM has enlarged from being a mere logistics subsection to encompass the wider concept of integrating and managing key business processes and flows (e.g. material, information, finance) across the supply chain. As was mentioned before, a clear consensus on SCM definition seems to be lacking (Burghess et al. 2006), but the view of the Council of Supply Chain Management Professionals (CSCMP) is taken here as it has become prominent in the literature on the subject (see Grant et al. 2006, 15):

The planning and management of all activities involved in sourcing and procurement, conversion, and all Logistics Management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, Supply Chain Management integrates supply and demand management within and across companies.

In this definition the role of inter-firm relationships and processes and their coordination (integration) is at the forefront, and therefore sets the stage for network oriented thinking on SCM. The terminology varies in network oriented SCM literature, as some prefer to use the term supply networks (Mills et al. 2004), while another term that allows the distinction of upstream and downstream relationships and processes, namely demand supply networks, has been used for example by Kaipia et al. (2006).

In general, process integration has a central role in SCM literature (Mouritsen et al. 2003), starting with, for example, Stevens' (1989) model of gradualist integration increase. The fundamental idea behind integration is that if key business processes can be managed across departments and firms in the supply chain, with increased visibility and customer orientation, a number of performance related benefits may be reaped, such as the reduction of uncertainty.

Focusing on this fundamental idea, a number of researchers have established a positive relationship between integration and performance. For example, Vickery et al. (2003) found supply chain integration to increase customer service levels directly, while indirect positive effects were found in relation to financial performance. Duffy and Fearne (2004) investigated suppliers' financial performance benefits with respect to collaboration in UK fresh produce supply chains. They found support for the theory that partnerships do improve performance. Cousins and Menguc (2005) established the favourable effect of socialisation on business relationships and the enhancement of supply chain integration strategy. Rosenzweig et al. (2003) provide empirical evidence that supply chain integration in the consumer goods sector leads directly to improved business performance. Frohlich and Westbrook (2001) define the arcs of integration and discovered that the widest approach (supply and demand side, ultimate supply chain) leads to performance improvement.

Empirical evidence on the state of integration has been presented by, for example, Bagchi et al. (2005), who have drawn conclusions on the relatively low level of integration in European industries. Power (2005) provides a literature review on supply chain integration and implementation. Implementation is seen to require significant intra and inter-organisational change because process redesign initiatives are usually required.

The role of information technology in the SCM related integration process is vital, as it is largely facilitated by the high utilisation rate of novel technologies, such as electronic data interchange, enterprise resource planning software, and the Internet (Boubekri 2001; Williamson et al. 2004). Well-managed supply chains essentially require the application of information technologies both internally and across the supply chain (Forman & Lippert 2005).

3.1.2 Uncertainty in supply chains

When facing complexity and uncertainty managers and decision-makers intend to be rational in their decisions, but fail to do so due to their limited human reasoning capability (bounded rationality) and information constraints (Simon 1979; March 1994). As it arises from complexity and limited knowledge, uncertainty is a significant factor in economic decision-making and is reflected, for example, in the theory of transaction costs (Williamson 1979). According to Duncan (1972), environment can be a significant contributor of uncertainty in two dimensions, namely, simple-complex and static-dynamic. The latter was found to be more important, which implies the

relevance and interrelatedness of change and turbulence in the consideration of contextual uncertainty.

A summarised review of key contributions in the field of supply chain uncertainty is provided in Appendix 1, which spans a more than a ten-year long period. Most of the literature acknowledges Davis' (1993) influence on the subject through the identification of sources of uncertainty in the supply chain that are defined as supplier performance, manufacturing process, and customer demand. Wilding (1998) describes dynamic behaviours in supply chains, an example of which is the bullwhip amplification effect (Forrester 1961; Lee et al. 1997), which underlines the role of demand dynamics in the generation of uncertainty (Prater et al. 2001).

Geary et al. (2002) add control uncertainty to the earlier identified supply, demand, and own process uncertainties. They emphasise the role of information flows in transforming customer orders into production targets and into supplier raw material requests. Complex material flow is argued to be the leading indicator of supply chain uncertainty, among other symptoms, by Childerhouse and Towill (2004). Applying certain rules for the simplification of the flow (for example: eliminate all uncertainties in all processes) holds the key to the integration of the supply chain (Childerhouse & Towill 2003), and the reduction of safety stocks in incumbent companies (Christopher 1998).

The role of environment and the related uncertainty is considered in a number of studies. For example, Bhatnagar and Sohal (2005) consider environmental factors to be separate from supply chain uncertainty in relation to facility location decisions, while Prater et al. (2001) consider vast geographic expanses, border crossings, and varying political and regulatory contexts in international supply chains to also be sources of uncertainty. Arvis et al. (2007a) point out the dire situation of landlocked countries, which suffer from unpredictable transit transportation times with log-normal distribution, and therefore higher logistics costs, due to hedging in the form of holding larger inventories (see Guasch & Kogan 2001). Van der Vorst and Beulens (2003, 413) consider the characteristic features of the chain and exogenous phenomena as sources of imbalance in the system, and provide the most clear-cut definition of supply chain uncertainty:

Supply chain uncertainty refers to decision making situations in the supply chain in which the decision maker does not know definitely what to decide as he is indistinct about the objectives; lacks information about (or understanding of) the supply chain or its environment; lacks information processing capacities; is unable to predict accurately the possible impact of control actions on supply chain behaviour; or, lacks effective control actions (noncontrollability).

Both endogenous and exogenous sources of uncertainty are present in this definition. Various operationalisations of supply chain uncertainties are provided in Appendix 2. The identified sources of uncertainty are based on the summarised literature review in Appendix 1, as well as on the author's views. The operationalisations are useful for the analysis of supply chain development in foreign markets. The provided influence strategies identify general and specific ways to overcome these uncertainties (Appendix 2).

3.1.3 International dimension of managing supply chains

Research on international issues in supply chain management often takes the form of looking at the global configuration of the supply chain, and its optimisation. Also other issues of global supply chain management have been on the research agenda for the past few years. A recent cross section of current topics and discussion provides a convenience sample of relevant work (see Hult 2004). The aim in focusing attention on global SCM was to strengthen the integration of the two areas of international business and supply chain management and provide a direction for future research.

The contributions presented tackle specific issues such as global supply chain decision models (Narasimhan & Mahapatra 2004), outsourcing (Kotabe & Murray 2004), sourcing through online reverse auctions (Emiliani 2004), market segmentation from logistics service providers' point of view (Mentzer et al. 2004), the relationship of logistics competencies and performance (Closs & Mollenkopf 2004), the institutional analysis of supply chain innovations (Bello et al. 2004), which together constitute a diverse collection of topics. Furthermore, Handfield and Nichols (2004) have listed the key issues in building a global supply base and made conclusions on the significance of the human element in the development of high performance global supply chains. Flint (2004) addresses the challenges in reaping the benefits of global supply chain wide marketing efforts.

While the future research opportunities proposed above are mainly the same as the dominant SCM research issues in general they still direct us in the identification of relevant issues in global SCM and the implementation of SCM in diverse national markets. One clear common denominator seems to be the call for research that would enable firms to deal with the increased complexity and uncertainty that the global and international environment entails.

In a key contribution on global SCM, Christopher et al. (2006) have presented a useful taxonomy for selecting global supply chain strategies. The

rising trends of global sourcing, as well as the demand for responsiveness to customer demands, has placed an increasing emphasis on managing and designing global supply chains that support the execution of companies' international strategies. Evidence is provided that supports the argument for the careful analysis of the demand and supply characteristics of the various products and markets served by a company.

Table 4 depicts the taxonomy for supply chain strategy planning in the previously mentioned dimensions, effectively suggesting that there might be four generic supply chain strategies.

Table 4 Determinants of international supply chain strategies (Christopher et al. 2006)

<i>Supply / demand characteristics</i>	<i>Resulting pipelines</i>
Short lead time + predictable demand	Lean continuous replenishment
Short lead time + unpredictable demand	Agile quick response
Long lead time + predictable demand	Lean, planning and execution
Long lead time + unpredictable demand	Leagile production / logistics postponement

In the case of short replenishment lead times due to, for example, close geographic proximity and predictable demand, such as large volume consumer goods sold at a retailer's premises, manufacturers should utilise, if possible, point-of-sales data and initiate measures for the implementation of e.g. vendor managed inventory.

In the opposite situation, where replenishment lead times are long (for example due to long-distance international transportation) and demand is unpredictable companies have to carry strategic inventory and implement classic logistics postponement strategies in the form of e.g. assembly, configuration or distribution.

In the case of long lead times and predictable demand, lean production principles need to be employed. This should be done by carefully planning for the demand in advance and by sourcing efficiently. And finally when lead times are short and demand is unpredictable an agile quick response strategy should be taken, which is common among the, often benchmarked, fashion industry.

The ideas presented in the study by Christopher et al. (2006) are interesting in terms of globalisation and the tendency to locate production in low-cost countries. In many cases products demonstrate demand patterns that can be disaggregated into a baseline component and the variable or seasonal component. In an international context it is useful to design the pipeline

strategy by sourcing the baseline component from low cost countries or suppliers with possibly long lead times. Through lean production oriented planning and execution low landed costs can be achieved. The variable or seasonal component is therefore sourced and/or manufactured in close proximity, thus allowing for agility and customer responsiveness. The solution of sourcing, for example, from Europe or the USA to allow for agility will potentially pay off in terms of customer satisfaction. However, combining different pipeline strategies for different demand components allows for the finding of the best aggregate solution.

To summarise, global supply chains or production networks that span countries and continents are subject to varying environments and operating conditions, implying long and unpredictable lead times and uncertainty in general. To understand the effect of these conditions on the supply chain and related strategy execution, such as lean or agile, is a key question in global supply chain management or managing individual supply chains in specific foreign markets.

3.2 Emerging markets

3.2.1 Definition and comparison of related terms

Due to the central role of the emerging market concept in the thesis, a definition is provided and elaborated on in the following. Additionally, related concepts have been given attention, in order to clarify the contextual position taken in this thesis.

The International Financial Corporation coined the emerging market term (more specifically: Emerging Financial Markets) in 1981, to describe certain countries that were included in standardised stock indices (Sakarya et al. 2007). The novel term replaced the use of the term developing country for countries aiming at the liberalisation of their markets. Since then, the use of emerging market, as a term to describe assets based in markets with long-term financial growth opportunities, has broken out of the financial market context and become a term that reflects business opportunities in less competitive markets that have increasing disposable incomes, large populations of young consumers, economic liberalisation and such characteristics as high-growth, high-potential, and high-risk (Sakarya et al. 2007). Many use the term emerging market economy or emerging economy, to describe countries with

the previously presented characteristics (Kula & Tatoglu 2003; Rahman & Bhattacharyya 2003).

Other relevant and related terms have been used to describe groups of countries in various development phases and on various paths towards becoming a high income, industrialised, developed, and market economy based country. The term newly industrialised country (NIC), has been widely used in the literature (e.g. Husseini & O'Brien 2004; Prajogo et al. 2007), to emphasise a relatively short history of, or newly found, industrial capability. Haggard (1990) has described two groups of NICs, in terms of their strategies and pathways to industrialisation. The first group of countries (e.g. Brazil, Argentina, Mexico, India), has emphasised self-reliance and import substitution in developing their strategy towards industrialisation. The second group (including e.g. South Korea, Taiwan, Hong Kong and Singapore) has concentrated on the industrialisation strategy of export-led growth. The difference in these strategies is its focus. The first one is essentially inward-looking, while the second is strongly focused on world markets.

The second relevant term to consider is the transition economy, which essentially means countries making the transition from a centrally planned to a market based economic system (Fischer et al. 1996). Countries associated with the term have usually included those of Central and Eastern Europe, i.e. countries that were part of, or under the influence of the Soviet Union. Other countries should, however, also be included in this category, e.g. Vietnam and China, and the African nations of Angola, Ethiopia and Mozambique (Fischer et al. 1996). Transition has commonly been defined as including six actions that facilitate progress to a market economy. They are: macroeconomic stabilisation, price liberalisation, trade liberalisation and current account convertibility, enterprise reform (privatisation), the creation of a social safety net, and the development of the necessary institutional and legal frameworks (e.g. Lipton & Sachs 1990). Liuhto (1999) has described the transition economies as turbulent or as revolutionary business environments, resulting in unexpected and discontinuous changes, i.e. in uncertainty for economic exchange parties.

This thesis employs the term emerging market, and concurs with the above presented definitional characteristics of the concept. The chosen point of view and terminology focuses on opportunities, but also on challenges, rather than on the phases of industrial development, or transition from planned to market economy.

3.2.2 Review of the research on emerging markets

Due to the fact that the origin of the term emerging market comes from financial markets, literature dealing with emerging market stock price development and volatility (Michelfelder & Pandya 2005; Ayadi et al. 1998), currency trading (Ahmed et al. 2005), and corporate governance (Ararat & Ugur 2003) is plentiful. During the last decade or so there has also appeared a body of literature on business issues and managerial problems in the emerging market context, of which the work of Cavusgil et al. (2002) is a good example, covering a wide range of issues from business negotiations to entry strategies. They make the interesting postulation that a paradigm shift in international business has taken place in terms of the developing countries, as some of them are now perceived as emerging markets.

Table 5 essentially demonstrates the change in the perceptions of and attitudes to the developing countries: i.e. in some cases, the substitution of the term developing country with the use of the word emerging market conveys an optimistic view of untapped resources and new opportunities in less mature business environments. Crucially, the relationship of multinational corporations (MNC) and some of the developing countries has changed under the new paradigm. The emerging economies are increasingly seeking to gain from mutually beneficial partnerships with Western MNCs (Cavusgil et al. 2002), instead of being subjected to disadvantageous terms of trade that inhibit development.

Table 5 Change in perceptions in the realm of IB (Cavusgil et al. 2002)

<i>Developing countries (prior to 2000)</i>	<i>Emerging markets (2000 and beyond)</i>
<ul style="list-style-type: none"> • High risk for foreign business • Economically and technologically backward • Consumers had poor purchasing power • Few opportunities for business 	<ul style="list-style-type: none"> • Risks are increasingly manageable • Higher income growth than developed nations • Technologically competitive • Increasing purchasing power among consumers • Offer many opportunities as large untapped markets and low cost, high quality sources

Some other specific topics in the emerging market business literature range from first mover advantages for foreign companies in emerging markets (Rahman & Bhattacharyya 2003; Nakata & Sivakumar 1997) to market size evaluation for service franchising (Alon 2006), and the impact of culture on relationships and network formation (Fletcher & Fang 2006). Haley and Haley (2006) have elaborated on strategic decision making in emerging markets, and distinguish between the information rich Western markets and the information void of emerging markets. Based on their convenience sample of senior

managers, they claim that best practices developed for the information rich environment were not effective in contexts where information is scarce. This statement has an interesting contact point with SCM.

Coleman (2007) argues that in order to succeed in emerging markets, companies need to develop new competencies and organisational structures that facilitate the generation of innovative and customised products for both business to consumer and business to business markets. Matching the lower purchasing power in these markets requires lower prices, which can be achieved through local subsidiary autonomy in R&D and operations, coupled with a parent company's effective business processes. Braithwaite (1992) makes similar arguments and finds the effective organisation of global logistics is dependent on localised customer service and centrally coordinated material flows. Flores et al. (2003) on the other hand, claim that companies entering emerging markets should appeal to customers' drive to build and transform their lives and therefore essentially differentiate their offerings. As productivity enhancing systems with cultural appropriateness are offered, successful sales with profitable margins can be achieved.

A very relevant issue in terms of the large emerging markets is approached by Cui and Liu (2000). They argue that regional diversity in large markets, such as China in their case, should be taken into consideration in company strategies. The possible misconception of market homogeneity makes demand potential assessment difficult. This is due to the fact that, consumer purchasing power, attitudes, lifestyles, media use and consumption patterns may vary significantly in the various regions of a country. As companies advance from the main urban centres, such as the capital area, to regional urban centres or rural peripheries, strategies need to adapt to local market conditions.

The brief review presented here serves as a sample of current issues in terms of research on emerging markets and business issues. It may be concluded that capturing the opportunities in emerging markets requires special localised strategies that take into consideration the typical characteristics of these markets, namely the role of culture and networks in business, information scarcity, a population's drive to improve living standards, and how large the national market size is and if great regional variety in terms of purchasing power, attitudes and logistics infrastructure exists. Paying attention to local market specifics while possessing the global centralisation of supply chain processes seems to be what some authors suggest will bring good results. As will be shown later, supply chains also require significant degrees of localisation, although centralisation and consolidation should be pursued in global terms.

3.2.3 Emerging markets as a context for supply chain management

This section firstly introduces the concept of comparing countries and markets in terms of logistics performance on a macro level. Second, a review of CEE focused logistics and SCM literature is presented.

In relation to evaluating the costs associated with international logistics in various environments, the concept of logistics friendliness, i.e. the ease of arranging international freight operations to and from a particular country (Murphy & Daley 1999), is relevant. Ojala and Naula (2004) have operationalised this theoretical construct and surveyed logistics experts for country specific logistics friendliness scores, thus offering insight into the management of international logistics in mature markets, emerging markets, and developing countries. Later, the term Logistics Performance Index (LPI) was introduced by the same authors (Arvis et al. 2007b).

The index incorporates respondent views on several logistics and supply chain dimensions of a country on a 1 to 5 scale. In essence this is the efficiency of the clearance process by customs and other border agencies, the quality of transport and IT infrastructure for logistics, the ease and affordability of arranging international shipments, the competence of the local logistics industry, the ability to track and trace international shipments, domestic logistics costs, and the timeliness of shipments in reaching their destination (Figure 3).

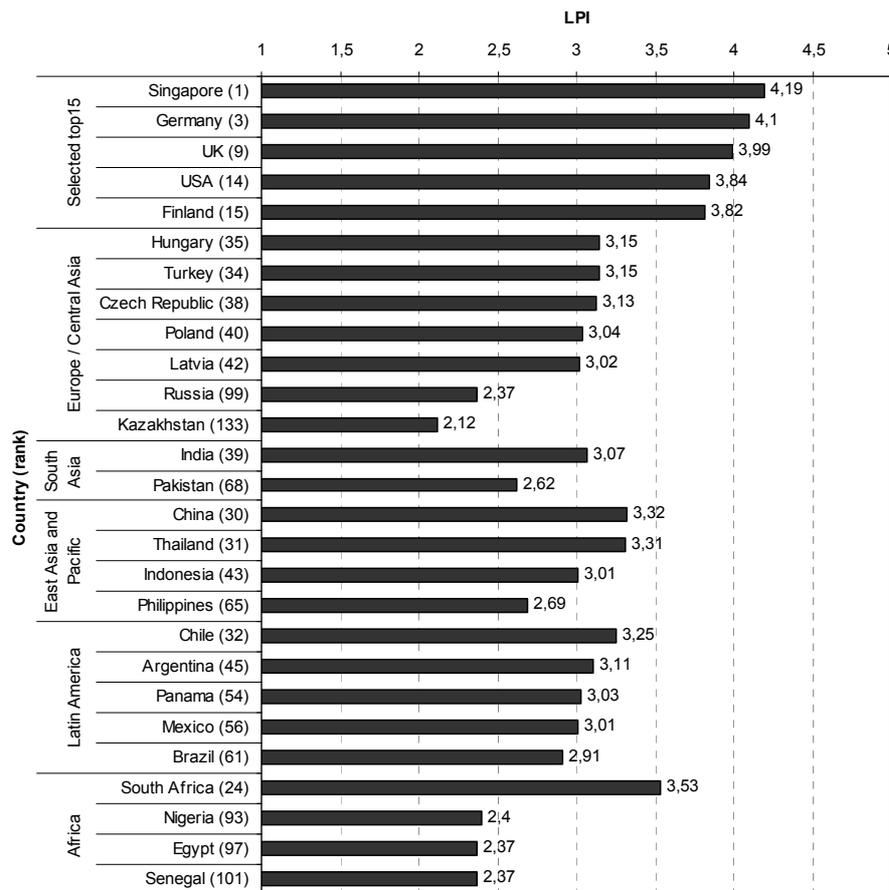


Figure 3 Country comparison in terms of the LPI (Arvis et al. 2007b)

The major Asian transportation hub Singapore is ranked first. Some countries from the top performing group have been indicated with scores ranging from 4.10 (Germany) to 3.82 (Finland). The other geographical regions contain a variety of countries, of which most of them could be labelled as emerging markets (e.g. BRIC). While China (3.32), India (3.07), and Brazil (2.91) do fairly well, Russia, the focus country of the thesis, scores only 2.37 and takes 99th position in the ranking.

Overall, based on the LPI, we may perceive a distinct logistics gap between the developed and emerging economies, and other developing countries (Arvis et al. 2007b). In fact, the key factors in determining high LPI are quality of infrastructure, the competence of private and public logistics service providers, the performance of customs and other border agencies, the level of corruption and transparency, as well as the reliability of the trading system and supply chains. Although in BRIC, the regional variations are naturally significant, the aggregate level of analysis is relevant, as it pertains specifically to international transport and trade logistics.

The review now moves on to consider research that has been conducted on more of a micro level. Generally, in terms of SCM in emerging markets, the

conclusions of Coe and Hess (2005) are highly relevant for this thesis. The supply network restructuring effects of a large multinational retail expansion to emerging markets are elaborated on, and some of them include the polarisation of supply systems for the benefit of the large retailers, developments towards the use of a centralised supply, the implementation of a logistical system upgrade, and the shortening of the supply network. Effectively, FDI induced restructuring facilitates the convergence of supply chain practices in mature and emerging markets.

Cadilhon et al. (2006) have compared the traditional and modern fresh-produce supply chains in Vietnam, and have elaborated on the impact of modern supermarkets on the supply chains and society as whole. For example, food quality improves as incumbents copy practices from the modern supply chains, which rely on high quality produce. As a consequence, agri-business farms will also have an incentive to develop their processes and operations, but the required investments may also result in driving small farms with limited resources out of business (consolidation). Additionally, the supermarkets' focus on leanness may drive down consumer prices. The general effect is therefore mixed, and it should be concluded that policy makers do not solely promote the modern alternative, as the traditional supply chain has an important function in Vietnamese society. Again it is possible to identify the emerging and modern retail sector, with often capable foreign entrants, as the driver of supply chain and distribution system change in emerging markets.

In the following, a literature review of logistics, distribution and supply chain management related research that specifically targets the emerging markets of the CEE, is presented⁶. The focus market of the research (Russia) is part of this larger geographic area, in which the relatively aligned political and economic histories of the individual countries (i.e. command economy and transition economy) perhaps implies similar properties in terms of management practice evolution and logistics development.

The aim of the literature survey⁷ is to facilitate the understanding of the challenges in the CEE logistics and SCM. It seems that only some CEE

⁶ The complete review has previously been presented in Article 4 of this thesis.

⁷ An attempt was made to cover as much as possible of the work conducted so far by using the various electronic journal databases available (e.g. Emerald Fulltext, ABI/INFORM). Therefore, only research in English was included in the survey. The CEE emerging markets were operationalised by means of the S&P emerging markets indices (IFCG Composite and Frontier Composite; Standard & Poor's), and thus included the following countries from Europe: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Slovenia and Ukraine. Articles were further searched for from journals on the focus area (e.g. Journal of East-West Business), and identified as a result of references from colleagues. In addition to the findings and results, interest in the work reviewed is concentrated on the relevant target era, industry, and geographic context of the articles (see Appendix I of Article 4).

countries have been targeted with distribution and supply chain management research.

The academic research on the focus subject in the CEE context can roughly be divided into three time periods: (1) research targeting the command economy (pre-transition) era issues, (2) research targeting issues after the launch of the economic transition period in the early 1990s (early post-transition era), and (3) research targeting current and post 1998 financial crisis issues in Russia, and the new millennium and EU accession preparation era in the other CEE countries (late post-transition). It is perceivable that the majority share of the research has been concentrated on the early post-transition period and historical reflections on the command economy system, describing the effects of transitional disruptions, restructuring, deregulation and the privatisation of logistics functions and markets in general, as well as distribution and supply chain management in specific sectors. The historical heritage, or even burden, is described in many of the contributions (e.g. Davies & Schmidt 1991; Waters 1999b).

The 1998 financial crisis in Russia, which affected the consumer goods sector significantly through inflation and the domestic incumbents' regaining of competitiveness, is highly significant in the country's recent economic history. A notable fact is that only three articles describe the distribution related issues in the post-crisis environment in Russia (Menkhaus et al. 2004; Roberts 2005; Lorentz et al. 2006), which to some foreign companies meant reduced levels of operations or a total withdrawal from the market.

Notably, Menkhaus et al. (2004) observe that since the early 1990s, three major developments have taken place in the aggregate Russian food supply chain: (1) the newly introduced market economy encouraged small retailers and farms to establish operations, (2) supply chains that involve primary producers, processors and retailers have emerged, and (3) major foreign retailers have entered the market with a drive to establish their own supply chains. Intermediaries have had a significant role in the overall system, as they have reduced transaction costs, which have been perceived to be relatively high, and essentially connected the recovering food supply chains. However, these intermediaries add to the total costs of the system, and therefore the tendency is to seek to reduce the role of the intermediaries, which is a process that provides the intermediaries with incentives to seek alternative business. Intermediaries may seek to establish a role in either processing or retailing, or in both, and establish crucial links in otherwise dysfunctional supply chains.

Menkhaus et al. (2004) also note the important evolving role of the Russian retail sector as a provider of consumer information. In many cases, however, the information cannot be passed forward past the wholesalers, who are fearful of disintermediation. The key areas to be developed in the future are the

communication lines from the retail sector to the upstream incumbents. Only vertically integrated structures have been able to link effectively retailing with processing and production. For policy makers the authors point out the crucial role of the dynamic retail sector in making the food market functional and consumer oriented. Hence, evolution towards a food industry that converges with other market economies in terms of cost efficiency and being consumer orientated, can be seen as taking place in Russia.

The foreign retailer point of view is given by Roberts (2005), who speculates that a specific foreign entrant's success in the Russian market is determined by a number of factors, among which distribution abilities has a crucial role in supporting the successful implementation of a business concept. Roberts (2005) cites the work of Salmon and Tordjman (1989), in which it is claimed that multinational retailers will internationalise in markets where they will have a competitive advantage over the domestic actors. The advantage may result from excellence in areas such as information systems, logistics capabilities, and collaborative relationships with the supply base. These considerations are crucial in the emerging market context.

Some notable late post-transition research addresses the focus issues in the other CEE. They mainly concentrate on the logistical role and development of certain countries (such as the Baltic States) after their accession to the EU. For example Spens et al. (2004) consider the role of the Baltic States as transit transport countries for trade between the EU and Russian. Increasing trade volumes, according to the commonly accepted forecasts, will strengthen the role of the Baltic States in the logistics chain. However, the authors question the ability of the Baltic States to maintain their role, as logistics chains and transport modes need to be developed holistically, and in close co-operation with service providers, which is a typical trait of intermodalism and SCM. The capability to facilitate such development seems to be lacking in these markets.

On the other hand, Naula and Ojala (2007) describe the logistical impacts of EU enlargement in the context of the Baltic States and the Nordic countries. Day-to-day trade practices have experienced a major impact, while dramatic changes in international trade and investment patterns were not detected. Thus, while trade barriers were significantly reduced, the impact was minor due to the already integrated nature of the Baltic economies, in terms of international trade.

Apart from the previously described research, fresh contributions to the current issues are scarce: Russia and Poland have been the major targets of inquiry, while the other first wave EU entrants, such as the Czech Republic and Hungary have attracted less interest. This is even more pronounced in the case of the second wave of EU entrants of Bulgaria and Romania. Intuitively

one may perhaps conclude that global economic significance has something to do with the level of research interest.

In terms of target industries, the focus has been very much on retail business (James 1992; Krasny 1992; Roberts 2005), and food supply chains (e.g. Morton 1993; Menkhaus et al. 2004), with an emphasis on related retail distribution (e.g. Taylor 1994; Dawson and Henley 1999). In addition, general logistics issues and transportation industry specific issues dominate, especially in the case of Poland, where the privatisation and deregulation of industry has opened new opportunities for entrepreneurs (Rydzkowski 1993), and additionally, EU membership is perceived as a catalyst for the modernisation of infrastructure and logistics systems (Spillan et al. 2003; Kisperska-Moron 2005). The new political and economic geography in the CEE area has implications for international logistics operations. For example, the role of Lithuania as a logistics gateway has been investigated by Jauernig and Roe (2001). As was elaborated before, the Baltic States as an aggregate have been recently examined in terms of their transport sector development and their changing role in the facilitation of logistics between the EU and Russia (Naula & Ojala 2007; Kovács & Spens 2006).

In general, the rate of change in these markets has been tremendous, causing uncertainty and complexity in the incumbent foreign companies. It is clear that the heritage of the centralised, planning oriented command economy, with its focus on manufacturing, the expense of a logistics infrastructure and poor retail development, caused significant problems for consumer goods distribution in the post-transition environment (Rodnikov 1994; Taylor 1994; Waters 1999b). Complicated and inefficient supply chain structures emerged in order to cope with the general fragmented nature of industries in the consumer goods value chain (Menkhaus et al. 2004) and the high transaction costs that arose from the institutional void that had been generated during the long years of centralised planning and also the shorter transition period. In the wake of consumer purchasing power induced development trends, bargaining power in the supply chains has been shifting towards the retail sector (Mueller et al. 1993; Waters 1999a). For example, foreign entrants leverage their bargaining power towards suppliers, who had previously been orientated towards dictating the rules of the game (Roberts 2005).

In the early years of the transition, the comprehension of logistics and supply chain management concepts was poor. Trained staff and management were difficult to find for the facilitation of supply chain operations (Rydzkowski 1993; Rydzkowski & Spraggins 1994). Although this may be true in general, James (1992) presents a case study of a successful domestic retail operation based on a good understanding of local business realities.

Demonstrating the need for further research on SCM in the transitional emerging markets, Kovács and Spens (2006) argue for sustained efforts to introduce a supply chain orientation in, for example, the Baltic States and thus enable logistics advancement from the mere facilitation of transport to a more collaborative mode of logistics.

It might be reasonable to call for research that fully utilises the prospects for theory development based on empirical logistics, distribution and SCM research in the CEE. As a research gap is claimed to exist, research needs to keep addressing supply chain issues in that changing environment and move on to creating theories that aid in the understanding of the relationship of constrained and changing contexts and supply chain management. Internationalisation should become part of this research as it is capable of explaining supply chain related commitments and investment in emerging markets.

3.2.4 Emerging markets as a target for internationalisation

The internationalisation of companies has been one of the most essential issues of IB research for decades. The stream is among the most frequently cited in the IB literature (Leonidou & Katsikeas 1996). In a way, the international expansion of a company and its operations is essentially growth, which is an issue that has been subjected to seminal research by, for example, Penrose (1955; 1995). As an introduction to the emerging market related considerations, a brief treatment of the internationalisation process (IP) model is provided.

The study by Johanson and Wiedersheim-Paul (1975) underlined the importance of the process approach to the study of the internationalisation of firms. This approach was more fully presented in the Uppsala IP model developed by Johanson and Vahlne (1977), which has been particularly influential with its structured argumentation. The argumentation runs as follows: firms internationalise in gradual terms by acquiring, integrating, and using their knowledge of the foreign market, they increase commitment in an incremental manner (a process) because they lack knowledge of the foreign market and consequently have to face a degree of uncertainty.

The IP model has experienced revisions over the years (e.g. Johanson & Vahlne 1990). One target of focus has been the aspect of building and changing business network relationships that encourage or enable entries into new markets (Johanson & Vahlne 2003). Later, Johanson and Vahlne (2006, 176) concluded that *the incremental internationalisation process is about exploiting the opportunities identified at the moment*. The opportunities

identified may be dependent on accumulated knowledge and the level of existing commitments. The author's own interpretation of this is that the greater a company's involvement or commitment (investments, relationships) in a foreign country's business networks, the greater the propensity to identify, discover and crucially develop opportunities. Business opportunity developments in a foreign country's business networks may take place in a unilateral, bilateral, or multilateral fashion (Johanson & Vahlne 2006).

Another approach that utilises the network paradigm is the focus on network position as a result of an internationalisation process. As the essence of the industrial network theory is about relationships and positions in networks, the main strategising issue becomes that of interaction. Strategic action is taken to influence a firm's position in a network of business relationships in order to make it more favourable (Gadde et al. 2003), which is a process in itself. Along this line of thought Ghauri & Holstius (1996) presented a model of the foreign market entry process, in which the outcome of three entry phases and the matching activity on global, macro and micro levels is a business network position in a foreign market (the empirical data was collected from the Baltic States).

In addition to the study by Ghauri and Holstius (1996), there has been a surge of Nordic internationalisation research, with a network flavour, that has focused on economies in transition (Björkman & Forsgren (2000), especially those in Eastern Europe or the former Soviet Union countries. This has contributed to our knowledge of the impact of context on a company's operations.

For example, Törnroos (1996) utilised the network approach to analyse the process of internationalisation and business to business relationship formation in a foreign market, namely in Estonia. This work was continued on a larger scale in Törnroos and Nieminen (1999), with insightful contributions on the processes of network relationship development, learning and adaptation in the transition economies of Eastern Europe. In general, networks are considered as prerequisites for doing business in these markets, as they are *needed first of all to cover the insufficiencies of local markets and institutions* (Törnroos & Nieminen 1999, 293). Network oriented management should be considered as the crucial success factor for foreign companies in these markets. In terms of market entry, networks were considered to play a key role in order *to make investments work and to be efficient* (Törnroos & Nieminen 1999, 301).

Hadjikhani and Johanson (1999) provide insight into the interaction of market change and a firm's internationalisation process through a longitudinal

account of expectations⁸ and commitment change processes in terms of Karlshamn's (Swedish oil and fats producer) Russian operations. The essential observation is that experiential knowledge may lose its value as markets and environments change rapidly, making business management difficult, the level of uncertainty high, and exit from a market a likely outcome.

Later Salmi (2000), underlined the role of involvement in business networks when turbulence is high in the entry target market. Key issues in the network are orientation and positioning, with risks and uncertainty more manageable as the network is viewed from the inside, underlining the importance of an early presence in the market.

At this point it is useful to consider the relevance of what has been discovered from the literature so far. It seems that SCM is essentially the management of integrated processes and flows in the network, with an emphasis on information richness and sharing. As emerging markets may be considered to lack information, the task of managing supply chains in these settings is by definition challenging and subject to uncertainty. As companies internationalise in these new environments their positioning activity becomes essential in order to preserve experiential knowledge, solve possible information voids and build interfaces and bridges for supply chain flows in the inter-organisational network.

3.3 System constraints

The last section of the chapter on the theoretical framework not only defines system constraints, but also briefly summarises the main conclusions drawn from the topics identified in the a priori model of the thesis (Figure 1).

To start off, constraint is, among others, a concept of mathematics that is used in defining linear programming problems that take the form of linear equalities or inequalities. Feasible solutions may be sought later on for the optimisation of systems that satisfy the set constraints (Luenberger 2003). Relevantly for this research, a relaxation of a constraint in a system may facilitate the achievement of a greater level in optimised output.

Fundamentally, the same role, although in more abstract terms, may be attached to constraints in business systems, or, in fact, to any organisational system in the sphere of manufacturing, service, government, education and even family (Schrageheim & Dettmer 2001). Constraints may be defined as the weakest link(s) or bottlenecks in a system, inhibiting the achievement of

⁸ Expectations are based on *what firms know and what they wish to happen in the future* (Hadjikhani & Johanson 1999, 100)

the system's goal, which may be the earning of profit or the serving of other recognised purposes of organisations, such as learning, personal achievement or happiness.

Along this line of thought, the Theory of Constraints is a prominent management philosophy (Goldratt 1990), which underlines the ever present nature of system constraints, i.e. every system always has at least one constraint (Rahman 1998). The existence of constraints presents improvement opportunities for an organisation, therefore, the location of an organisation's constraint, for example, for achieving greater levels of profit should always be known, in order to concentrate scarce management attention properly. In addition to constraint identification, the constrained resource's full exploitation, and possibly constraint elevation, should firmly be on the management agenda (Rahman 1998). Constraints never disappear, but migrate either within an organisation (e.g. to the next poorly functioning or low capacity production capital unit, or to a sales department with insufficient capabilities or resources), or to the surrounding environment. This can be embodied as low demand for a company's products or poorly performing business partners (Schrageheim & Dettmer 2001).

In supply chains, the concept of constraints is highly relevant. Production lines, warehouses, transportation equipment or facilities in general, have capacity constraints that determine the maximum level of physical goods flow in a supply chain (Chopra & Meindl 2001, 6). Often the capacities are the subject of long term planning as they cannot be changed overnight, but require investment planning procedures or negotiations for outsourcing. Decisions concerning the strategy, design, and planning policies, therefore set the parameters or the constraints for optimisation that a company must subject its operations to (Chopra & Meindl 2001, 6). Naturally, the context in which a company operates in may set specific constraints for supply chains. This occurs due to the limiting of the general availability of capacity for production and logistics, either in-house or as an outsourced service.

Simatupang et al. (2004) utilise the Theory of Constraints approach in the analysis of the supply chain collaboration issue, a crucial component in the realisation of SCM and improved performance. The dilemma of supply chain collaboration is presented, with the objective of maximising the benefits of the collaboration. The requirements for that are (1) the maximisation of the revenue of the supply chain from sales to end customers, and (2) the protection of the profitability of each individual member of the supply chain. The prerequisites of the requirements creates a dilemma, as they essentially mean that decisions should be made on supply chain wide measures in the first case, but should be link-centric in the second (Simatupang et al. 2004, 59). This essentially implies a conflict between local optimisation and system

optimisation. A twofold approach to solving the dilemma that constrains the profit generating ability of a supply chain has been suggested. It involves engineering collaborative replenishment policies, e.g. vendor managed inventory, and implementing collaborative and supply chain wide performance metrics (Simatupang et al. 2004, 59). Collaboration is the common denominator in this approach, and therefore business culture, practices, orientations etc. that inhibit collaboration in important supply chain relationships, may also be seen as supply chain constraints.

To sum up the whole chapter, it is argued, in support of the a priori model of the thesis (Figure 1), that constraints oriented thinking has particular relevance for the understanding of management activities in general, and supply chain management activities in particular, in the information scarce emerging market context. The fundamental difference between the home country and emerging market business operations of an established manufacturing firm may be the degree, number and type of contextual constraints that are encountered and which inhibit the integrated flow of materials, information and finance in a network. These constraints have an effect on the supply chain management and logistics of companies establishing network positions in emerging markets, and also in developing countries of the world.

In some cases, whole business models and operations of firms may have to be rethought, re-engineered and adapted for a specific emerging market and its network properties. Organisation structures, supply chains and logistics competencies may have to be customised or developed. In this adaptation process, strategic positioning and market knowledge, gained through participation in local business networks, may be essential in mitigating uncertainty, which seems to be a key theoretical construct in both supply chain management and internationalisation.

4 CONCLUSIONS

This chapter concludes the thesis by reviewing the main empirical findings as well as by offering final conclusions. The main results are derived from the thesis articles, while additional insight is gained from a set of so called supporting articles (Hilletoft, Lorentz, Savolainen, Hilmola & Ivanova 2007; Hilmola, Abraha & Lorentz 2008; Lorentz 2008b), which have been created during the research process, address similar topics, but were perceived not to be among the core contributing work. They also draw from a more diverse empirical base, such as Finnish retailing, machine building and manufacturing in general. The conclusions are first offered per SRQ, and finally the main research question is addressed. Importantly, a section on enfolding literature (Eisenhardt 1989) is also included, in which the idea is to reflect on the conclusions in the light of extant literature. Finally, the limitations of the research and further research opportunities are considered.

4.1 Review of the main empirical findings

This section proceeds to firstly present the thesis articles' results separately, in a sort of a within-article manner (as in within-case vs. cross-case, see Eisenhardt 1989). Second, a cross-article analysis is conducted, facilitated by data displays (Miles & Huberman 1994). The aim of this process is to build a bridge from field work to conclusions.

4.1.1 Within-article analysis

Article 1 describes the developing food retail industry in Russia. Major trends are identified, such as the polarisation of retail outlets into traditional and modern. The growth of the modern retail sector is concentrated in major urban centres. The possible entry of international retailers, as well as the restructuring and increasing competitiveness of the domestic retail industry will have an impact on the distribution and supply chain structures of food and consumer goods in Russia. Essentially, traditional retail formats and related

complex distribution structures will give way to modern practices in the food retail supply chain.

In Article 2, the significant weight of the supply chain related factors in the location decision, underscores the total supply chain wide functionality oriented thinking in the food industry. The ability to secure the supply of raw materials and attain significant enough a market share in order to compete in a given business and as a supply chain, are issues that are high on a management's agenda. Additionally, consumption and distribution potential factors weigh significantly on the decision, as their combined weight reaches 13 per cent. In addition, SCM readiness and the know-how factor's weight of 9 per cent portray the emphasis that food industry experts place on supply chain collaboration and IT diffusion in a supply chain. The factors with less significance convey firms' perceived abilities to make an impact with an investment or create external effects in a local economy and its business networks. Labour can be educated and trained to support the activities of a company, while infrastructure can be developed in cooperation with regional authorities and ecological risks can be managed with an adequate quality inspection regime in place. Lastly, legal and financial risks can be managed with local experts and social networks.

The main postulation of Article 2 is that supply chain considerations are a major factor in food industry location decisions due to the need to utilise local sourcing, distribution and services in a market. Consequently the development of upstream and downstream industries, logistics services and general know-how, or perhaps the whole supply chain, in the target market, is crucial to the entry and business development decisions of foreign firms.

Article 3, has two case studies which show that the distribution structures of CEE are still complicated and contain overlaps. It is argued that this is caused by the simultaneous existence of traditional (indirect) and modern (direct) retail structures. In order to achieve large enough sales volumes, both channels must currently be utilised in a carefully balanced manner, while the modern key accounts and supply chain partnerships offer few prospects for improved distribution operations.

It is also interesting to note that as complexity and uncertainty is higher in emerging CEE markets, the location of factories and warehouses will become an even more pronouncedly significant issue that affects supply chains. The confectionary manufacturer correspondingly established an operational base in St. Petersburg within a highly developed modern retail industry that has good logistics connections to Moscow and CIS markets. In conclusion, the article argues that a distribution system's evolution does affect company decision making in terms of supply chain management and specifically, network design related planning.

The research findings in Article 3 support the general theory of supply chain management as well. In the confectionary manufacturer's case a simpler and shorter supply chain resulted in a lower amount of variation in demand with more easily manageable forecasting and operations. However, changes in demand variation were less obvious in the toy manufacturer's case due to the fact that demand often spiked and was seasonal. Nevertheless, the management argued that the somewhat lower variation in demand made by key account customers facilitated a better forecast accuracy and consequently improved supply chain performance considerably.

The conclusion of Article 3 was that modern and more direct channels of distribution seem to offer operational benefits for manufacturing companies, such as lower demand variation, better forecasts and general performance, especially in the case of functional products where actual demand patterns can be made more visible through collaboration in the sphere of information sharing.

Article 4 elaborates on contextual supply chain constraints and focuses on the processes of overcoming the constraints. The paper presents a seven-dimensional model describing the demand supply network (DSN) opportunity development process. It postulates that the process has its starting point in the perception of opportunities in foreign markets for the development and optimisation of supply chains that aim at improved customer service. The network positioning process is subject to several constraints that also cause supply chain uncertainty. In terms of constraints, it appears that in addition to the business environment (e.g. an insufficient logistics infrastructure), the DSN structure and incumbent capabilities may be considered to be constraints working against the establishment of a competitive supply chain.

The presented empirical cases in Article 4 provide highly relevant examples, such as lengthy distribution channels (structure), a diverse retail sector (structure), missing or inaccessible high quality raw material suppliers (structure, capability), insufficient logistics services capacity and quality (capability), a business culture adverse to collaboration and planning (capability), and a low comprehension level of SCM concepts and practices (capability). The constraints seemed to be a major cause of low visibility, planning inability, investment delays, relatively high logistics costs, and increased inventories; all of which are symptoms of contextual supply chain constraints.

Overall, the presented model in Article 4 seems to encapsulate the properties of the DSN opportunity development processes in emerging market environments reasonably well. It is quite interesting to consider the feedback loop from constraints to DSN uncertainty and onwards to the perception of opportunity. In extreme cases, it seems that high constraints and an inability to

penetrate them can affect opportunity perception so negatively that an internationalisation process or business expansion is delayed or cancelled.

4.1.2 Cross-article analysis

The cross-article analysis is facilitated by data displays that present evidence on the nature of contextual supply chain constraints (see SRQ1), and the effects of contextual supply chain constraints on foreign firms (see SRQ2). The data displays separately present the evidence from the thesis articles (Table 6) and the supporting articles (Appendix 3).

Table 6 Evidence from the thesis articles on the nature of contextual supply chain constraints and their effects on foreign firms

<i>Thesis articles</i>	<i>Descriptions of contextual supply chain constraints, and related issues</i>				<i>Effects on foreign firms and related issues</i>			
<i>Article 2:</i> Lorentz (2008a)	Shortage of fresh milk supply in Leningrad Oblast	Diminished pork supply base in Leningrad Oblast	Fragmented milk production sector in Krasnodar Krai (1/3 comes from private backyards with low productivity)	Challenging to secure a supply of raw pork meat for processing in Krasnodar Krai	Processors create own distribution channels in order to optimise marketing and distribution costs in Krasnodar Krai	The study was initiated by the Finnish food industry in order to evaluate food supply chain functionality in the target regions.	Supply chain functionality is a significant factor in the food industry's facility location decision.	Development of industries, services and know-how in the target market is crucial for the entry and business development of foreign firms in Russia
<i>Article 3:</i> Lorentz et al. (2007)	In general, a complicated distribution system with traditional and modern channels may be perceived in Russia	Some actors in traditional channels tend to be uncooperative, and not customer oriented	Unclear role of cash & carry retail format negatively affects the development of modern retail (and corresponding supply chains)	The case company's traditional channels are characterised with multiple echelons and inventories, poor visibility, and forecasting difficulty		In the case company, modern distribution channels are prioritised in marketing and sales, due to better control and performance, as well as lower supply chain uncertainty.	Traditional distribution channels have to be utilised in order to enjoy economies of scale in production.	Evolution of logistics and distribution systems affects company decision making in terms of locations, and network design
<i>Article 4:</i> Lorentz & Ghauri	Lengthy distribution channels, and diverse retail sector	Missing or inaccessible suppliers of high quality raw material (e.g. raw material availability and quality vary greatly according to season)	Insufficient logistics services in terms of capacity and quality	Traffic congestion in growing urban centres not designed for high auto usage	Business culture adverse to collaboration and forward looking planning, low level of logistics competence	E.g. low supply chain visibility, planning inability, investment delays, relatively higher logistics costs, increased inventories, difficulty of maintaining service levels	One case company delayed local dairy production facility establishment due to poor local availability of high quality raw-milk.	Raw material (milk) supplies imported from Finland to Russia.

The descriptions of the issues and phenomena, that may be perceived as contextual supply chain constraints, range from a shortage of raw material (e.g. fresh milk and pork) in specific Russian regions and a fragmented primary production sector, to complicated distribution channels, the low availability of high quality logistics services, congestion, an SCM adverse business culture, and many others (Table 6). Further, the supporting articles bring in insights on complex and changing regulations, a poor transport infrastructure and services, and generally high logistics costs (Appendix 3). It seems that in Russia, there truly are a number of different types of constraints that may affect SCM strategies and their implementation by foreign firms.

The effects on foreign firms are also diverse. Article 2 as a whole seems to imply that SCM factors weigh heavily on food industry decision making, and the whole described study in Article 2 embodies a thirst for knowledge about the feasibility of establishing functional supply chains. In general, relatively higher logistics costs, the difficulty of achieving high service levels, and high levels of uncertainty are some of the performance related effects experienced by foreign firms.

Additionally, the behaviour and decision making of foreign firms is affected in the areas of internationalisation or market expansion, facility location, as well as transport route and mode selection. In other words, strategic level supply chain design and configuration come under scrutiny, and in these fields collaboration efforts seem to bring in the greatest benefits.

4.2 Answers to the research questions

In this section the research questions of the thesis are addressed. The sub research questions are considered first of all and then the main research question is answered.

What is the nature of contextual supply chain constraints? (SRQ1)

Based on the previously presented cross-article analysis, it is perhaps reasonable to conclude that the nature of contextual supply chain constraints may well be defined in terms of three distinct categories, namely (1) infrastructure, (2) institutions (North 1990) and (3) networks (Christopher 1998), which can all lack something in comparison to the respective elements found in the company's home market, i.e. deficiencies do exist in these areas in emerging markets. A network constraint may additionally be broken down into the capabilities of a network's incumbents and network structures.

In terms of infrastructure, the potential development gaps and bottlenecks may lie in the various malfunctioning parts and capacity constraints of sea ports, as well as the railway and road transport infrastructure, such as border-crossing points. These kinds of constraints may have crucial implications for e.g. international supply chains that serve or source from a particular emerging market. In fact, a poor domestic transport infrastructure may cause urban congestion (hampering distribution) or long intercity transport lead times. While infrastructure does not seem to play a dominant role, for example, in the food industry facility location, it still weighs some 2 per cent in the decision (Article 2). Hence, the importance of carefully considering the total costs of operations (such as landed cost) due to infrastructure cannot be ignored.

In terms of institutions, it seems that the emerging market context does play a role as to what extent the transfer of supply chain management concepts (i.e. rules of the game for facilitating and managing inter-organisational material, information and finance flows), which may have been designed to constitute a part of a firm's competitive advantage, are possible. Institutional constraints may inhibit a frictionless transfer; therefore special localised strategies may have to be employed. Article 4 demonstrated some evidence of institutional constraints for integration, which included a lack of trust and unwillingness to openly cooperate, in some network relationships. Practical examples of culture and language constraints, in the case of the establishment of manufacturing, in Russia are also presented in Hilmola et al. (2008). Government policies, i.e. formal institutions, also seem to act as constraints for SCM, as a complicated and changing regulatory framework of international trade causes uncertainty and affects decision making.

It may be said that this thesis makes its contribution mainly in terms of its contribution to the network level of supply chain issues. Network structures (e.g. complicated and opaque distribution channels, missing links and sectors) and incumbent capabilities (e.g. low logistics competence, unavailable logistics services) were seen as constraints for functional supply chains, improved performance and uncertainty reduction in emerging markets (Article 4). Some strategies were also suggested for the building of a functional and competitive supply chain or a demand supply network. In addition, highlighting the importance of staying informed and knowledgeable about trends and structural changes in a network, in order to time capacity investments and network relationship design properly, was suggested.

The presented contextual supply chain constraint categorisation scheme may enable companies to analyse the implementation potential of supply chain strategies in emerging markets, especially when combined with flow considerations (material, information, finance). A constraint-flow matrix may

be crafted to help in the mapping of constraints in terms of category and the relevant supply chain flow.

How do contextual supply chain constraints affect internationalising foreign firms? (SRQ2)

The previously presented cross-article analysis leads to conclusions on the effects of contextual supply chain constraints on foreign firms. Two main effect categories are perceived, namely effects considered performance⁹ related, and effects considered configuration¹⁰ related.

In terms of performance effects, it was possible to perceive the prominent role of relatively higher logistics costs, challenges in maintaining customer service standards, as well as the high level of uncertainty in general. Supply chain uncertainty may also be claimed to contribute negatively to logistics costs and customer service. Essentially, performance suffers due to contextual constraints, even to the point where chosen and tried and true supply chain strategies may be impossible to implement and execute. The performance effect is direct, by nature, as it does not depend on a decision maker's actions. However, the performance effect has additional indirect implications in terms of adjustments in short-term planning policies and operations tactics implemented through decision maker behaviour (Chopra & Meindl 2001). The contextual supply chain constraints may have a large, medium or a very limited performance effect on SCM, depending on the severity of constraints (i.e. severity and effect are correlated).

On the other hand, configuration effects are mainly realised through long-term oriented decision maker behaviour on the strategic level, in reaction to the perceived severity of contextual supply chain constraints. In some cases, it was possible to perceive such severe effects as delayed internationalisation or investment in production facilities due to a missing local raw material base. Also, efforts to carefully assess potential supply chain functionality with regard to the establishment of a planned manufacturing facility were detected in some cases. Furthermore, designing shipment routings in ways that minimise exposure to poorly functioning international trade logistics related infrastructure and regulations, and consequently avoiding potentially uncertain costs and lead times, was evident in some cases.

⁹ Gunasekaran et al. (2001) on supply chain performance: each organisation needs to capitalise on supply chain capabilities and resources to bring products and services to the market faster, at the lowest possible cost, with the appropriate product and service features, and the best overall value.

¹⁰ Mabert and Venkataramanan (1998) on supply chain configuration: the overall configuration of the chain includes the determination of the number of facilities, distribution centre (DC) locations, transportation modes, product design, vendor support, etc.

It perhaps warrants saying that many of these behaviours boil down to uncertainty avoidance in the sphere of SCM. It is important to note that these effects were not universal but, nonetheless, evident in some specific cases, where constraints were relatively severe from certain companies' given perspectives, and therefore triggered the configuration effect.

What is the essence and implications of supply chain management in emerging markets for internationalising foreign firms? (main research question)

Having considered both of the sub research questions, it is now time to summarise and address the main research question: What is the essence and implications of supply chain management in emerging markets for foreign firms? The main conclusions reached in the previous paragraphs are depicted in Figure 4, in which the a priori model of the study has been refined, contextualised, and the categorisation schemes and effects that relate to the sub research questions, added.

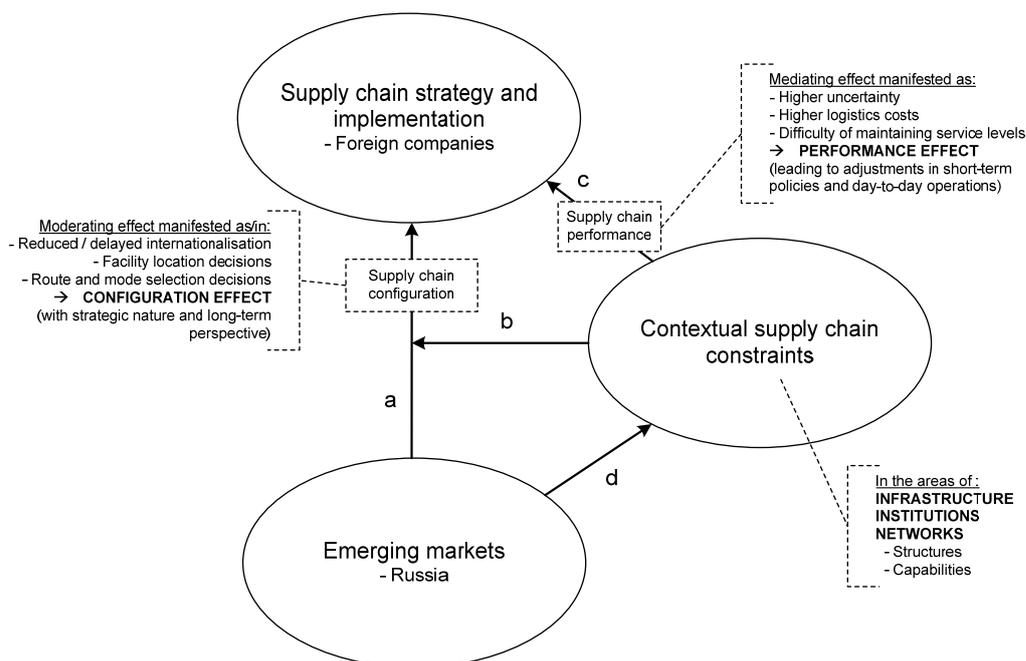


Figure 4 Refined and contextualised a priori model with conclusions

In reference to the main research question, it is concluded that the refined a priori model of the study seems to have relevance in understanding SCM in emerging markets. A greater understanding of the fit of SCM strategies may be reached through the analysis of contextual supply chain constraints, their

contact points with different supply chain flows, and their role in moderating and mediating an emerging market context's influence on supply chain strategy and implementation. The major new elements of the model are elaborated on in the following.

First, supply chain performance has been added as an additional mediating variable on the original path c. It is suggested that variations in the severity of contextual supply chain constraints significantly account for variations in supply chain performance, and variations in supply chain performance significantly account for variations in SCM in general, or in more detail, in the success of supply chain strategy and implementation. These relationships are theorised to be close to linear, or perhaps, quadratic (Baron & Kenny 1986), as e.g. the greater the traffic congestion problems in an area of distribution operations, the greater the variability in delivery lead times and uncertainty. The proposed relationship of contextual supply chain constraint severity and effect (i.e. performance effect) is stylised in Figure 5.

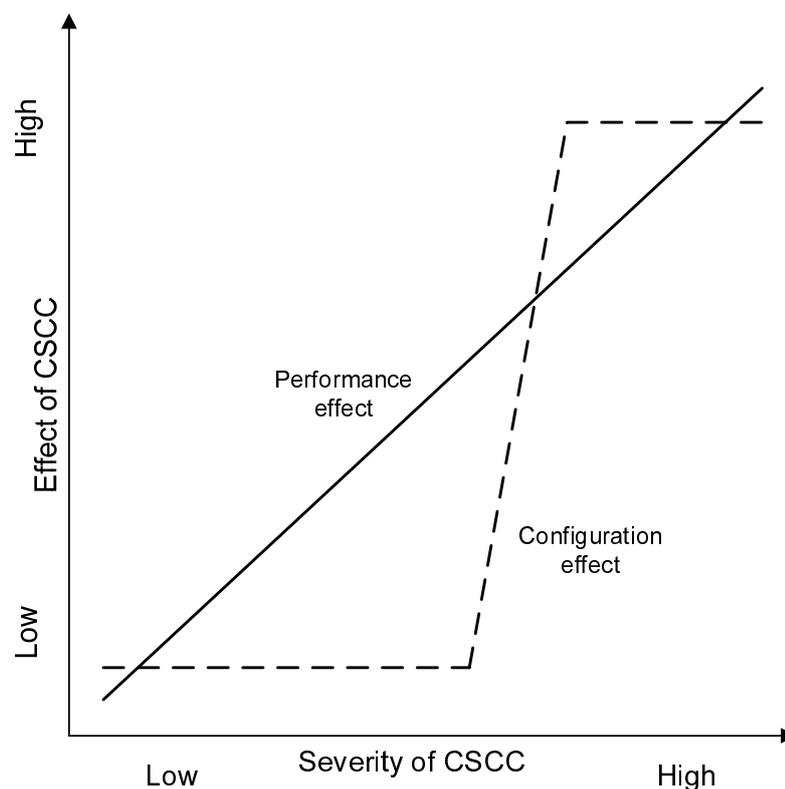


Figure 5 Stylised relationships of the severity and effect of contextual supply chain constraints (CSCC)

As was noted previously, the performance effect may further lead to short-term oriented decision maker behaviour, i.e. adjustments in planning policies

and the nature of day-to-day tactical decisions in the supply chain. Therefore in aggregate terms, the effect of contextual supply chain constraints may also demonstrate step-wise marginal increments as severity increases.

Second, supply chain configuration has been placed on the original path a, in such a way that the contextual supply chain constraints moderates the effect of the emerging market environment on supply chain configuration (Figure 4). It is proposed, that only in high levels of contextual supply chain constraint severity¹¹ does this effect takes place, as, for example, minor logistics competence related problems may not deter firms from setting up manufacturing, but a missing supplier network or poorly functioning customs procedures at the border may very well may trigger configuration effect related strategic decisions with a long-term perspective. Supply chain configuration in turn affects how supply chains will be managed and what the relevant supply chain strategies will be. This theorised step-type of the moderator's configuration effect (Baron & Kenny 1986) is stylised in Figure 5.

In other words, in the light of empirical evidence from the thesis and supporting articles, it is proposed that the emerging market operating environment, moderated or mediated by constraints, affects foreign firms in the broad sphere of configuration and performance. In addition, it does that in practice by, for example, creating a degree of inability that prevents the transfer of supply chain strategies and SCM practices from home or other mature markets across national borders to the emerging markets. This is probably a relevant problem for manufacturing companies in general, but is particularly accentuated in those cases where SCM is the core, or a crucial component of the firm's business model. That is, contextual supply chain constraints may represent serious set-backs for companies whose business models are based or heavily dependent on specific types of advanced supply chain strategies, and are therefore supply chain dependent¹².

¹¹ Contextual supply chain severity may be determined along two variables, namely (1) the constraint's impact on a firm's business model, and (2) the cost of constraint mitigation and elimination. In cases where both are high then serious problems may be expected.

¹² On supply chain dependency: Essentially, the firm being competitive or customer orientated may be based on the supply chain strategy being aligned with and supportive of, the firm's business strategy (e.g. Fisher 1997). Possibly an advantage in the sphere of marketing is coupled with an advantage in the sphere of the supply chain. That is, firms will gain a more sustainable advantage by not only offering superior customer value propositions (marketing), but by having a unique business system to support it (Kumar et al. 2000). This entails having a business system that creates, produces and delivers a value proposition referring essentially to SCM (Jüttner et al. 2007). Additionally, due to various sought after specialisation advantages and/or a lack of resources, vertical integration to vital production inputs or distribution may not be a viable option. Therefore the firm may be, due to its business model boundaries, dependent on the existence and functionality of the supply chain.

4.3 Enfolding literature

4.3.1 Nature of contextual supply chain constraints

This research suggests that contextual supply chain constraints exist in emerging markets predominantly in three distinct areas: infrastructure, institutions, and networks. In the following, a review of the presented conclusions, in the light of the extant literature, potentially identifying similarities, conflicts and contribution, is presented.

Luo et al. (2001), as previously mentioned, propose that logistics is culture, economic system, and infrastructure related, and therefore different in Western developed countries to other countries of the world. This categorisation of differences resembles the constraint categorisation presented in this thesis, and therefore comparison is fruitful. In the parlance of this research, culture and economic system could be placed under the more general institutions category, while the soft infrastructure (efficient financial and legal institutions), in contrast to hard infrastructure, could also be considered to be institutional or perhaps network related. It seems that the network category in its full capacity is missing from the propositions of Luo et al. (2001).

Literature in connection with the subject area is discussed in the following. Meixell and Gargeya (2005) have reviewed literature on decision support models for the location related design of global supply chains, and conclude that location specific variables such as tariffs and duties, non-tariff trade barriers, currency exchange rates and corporate income tax rates are often incorporated. As an example of such a model, Bhatnagar and Sohal (2005) establish the relationship of diverse location, uncertainty and manufacturing practice related factors to supply chain competitiveness. Such factors as labour, infrastructure, business environment, political stability, proximity to markets, proximity to suppliers, key competitors' location, supply chain uncertainty as well as manufacturing practices affect the operational measures of supply chain competitiveness. Further, Fraering and Prasad (1999) identify policy measures through which authorities may increase a country's attractiveness in terms of manufacturing and logistics operations. Countries with high tariffs, a volatile currency, poor infrastructure, and a poor setting for SCM should be approached with caution in terms of location decisions.

The above facility location related models include diverse factors that are important for decision makers. Poor performance in some of these areas, that seems to fit well into the suggested constraint categorisation scheme, may become a supply chain constraining factor in a country, region or site. In

particular, infrastructure and institutions related constraints are evident in research. As such, the models also reflect the behaviour of managers in terms of facility location decision making and provide insight into the configuration effect.

Further work on institutions comes from Bello et al. (2004). They argue that the adoption of supply chain innovations in international marketing channels is often constrained by the institutional context. Elements, especially those of a regulatory (e.g. laws and government requirements), normative (e.g. society's values and norms) and cultural-cognitive (socially mediated framework providing templates and scripts for action) nature may make or break the attempt of exchange partners to form a suitable institutional arrangement for the facilitation of a supply chain innovation adoption.

In addition, Tan (2001) elaborates on the conditions conducive to supply chain management by pointing out some institutional elements. In particular, change in corporate cultures towards the appreciation of long-term system wide benefits and competitiveness is required, as are the business building activities of mutual trust and commitment.

The IB perspective also seems to bring in supportive insight, e.g. Törnroos and Nieminen (1999, 301) sum up the work of several researchers, and argue that, at the time, Eastern European markets suffered from *undeveloped commercial legislation, non-functioning market institutions resulting in corruption and shadow economy, obsolete physical infrastructure, and problems in distribution*.

While it is impossible to cover the whole existing body of literature in this limited space, it seems to be possible to find support for the conclusions in the extant literature. Perhaps network related contextual constraints have not been well covered so far, especially from the perspective of a deeper analysis that goes beyond the mere identification of a supplier's location as being important in locating manufacturing facilities, and that distribution might be problematic. From the SCM point of view, however, a network that will enable SC functionality and management is crucial, and this research has made an attempt into providing insight in this area.

4.3.2 Effects of contextual supply chain constraints on foreign firms

This research suggests that contextual supply chain constraints have an effect on supply chain strategies and implementation. This effect takes place in two ways: (1) through an effect on supply chain performance, or (2) through an effect on decision maker perceptions and behaviour that influence supply chain configurations. In the following, a review of the presented conclusions

in the light of the extant literature, potentially identifying similarities, conflicts and contribution, is presented. The discussion of the configuration effect is limited to the internationalisation issue, as it is perhaps the broadest and most scientifically interesting topic, and is interconnected with the strategic facility location, route and mode selection issues.

First, under the performance effect, the most relevant supporting evidence comes from the recent World Bank sponsored comparative research on international trade logistics performance, i.e. the previously mentioned LPI study (Arvis et al. 2007b). Some key insights from the LPI are as follows. Supply chain predictability and reliability is of primary concern to international traders, even more than direct freight costs. Long supply chains that involve a number of national borders, modal changes and involved parties can be slowed down by only one weak link in a chain, with any breakdown potentially inducing other costs, such as the costs of hedging against unreliability, higher inventories, and non-delivery in general. These induced costs may be very high, and may effectively eliminate the savings in direct freight costs that are sought by sourcing from low cost countries. Developing countries and most emerging markets typically perform poorly in terms of the LPI, and operations in these environments face high both direct freight costs and induced costs (Arvis et al. 2007b).

Another comparative study on logistics was performed in the Baltic Sea region (BSR), with survey results drawn from eight different countries, regions or cities in the area (Ojala et al. 2007). While the surveyed geographic entities differ significantly, for example, in terms of regional GDP, no notable premium in logistics costs was perceived in the areas with below average prosperity of the BSR. This is perhaps due to the respondents' inability to perceive the true total cost of logistics, i.e. including the induced costs of e.g. poor customer service or variations in transportation lead time.

Second, under the configuration effect, a reduced level or speed of internationalisation was mentioned. Therefore, topics such as export barriers and internationalisation inhibiting factors in general, should be considered more thoroughly here. Morgan (1997) provides a thorough literature review on the subject, and distinguishes between internal-domestic (e.g. lack of staff time, lack of trained staff), internal-foreign (e.g. logistical difficulties, high risks and costs, difficulties in providing after sales service, limited market knowledge), external-domestic (e.g. high excessive documentation requirements), and external-foreign (e.g. unfamiliar business practices and protocols, lack of distribution channel development, regulatory import controls, exchange rate fluctuations). All the mentioned examples are relevant from the supply chain management point of view and provide support for the conclusions of the thesis.

Cuervo-Cazurra et al. (2007) make a relevant contribution to the literature on internationalisation by looking at the causes of the difficulties in internationalisation from the resource based theory point of view¹³. The analysis is limited to market seeking internationalisation, and is based on the assumption that a firm is able to transfer some resources across national borders, because without this ability internationalisation would hardly take place at all.

The most prominently relevant internationalisation difficulty arising from the SCM point of view is the case of a loss of an advantage that is specific to a firm, i.e. the *inability to transfer advantage*. This is defined as: *A resource that was the source of advantage in existing operations loses its advantageous characteristic when transferred to the new country* (Cuervo-Cazurra et al. 2007, 713). Support is thus found for the thesis conclusion that contextual supply chain constraints may stand as barriers to internationalisation through export or FDI.

While the effect on the facility location decision was already touched upon briefly in the previous paragraph, further insight may be gained from previous economics and IB literature. In addressing the explanations of cyclical investment fluctuations Bernanke (1983) provides a key observation that emphasizes the roles of uncertainty and information in investment decisions, such as the establishment of a manufacturing facility in a foreign market. His analysis is based on two assumptions: (1) individual investment projects are economically irreversible, i.e. they cannot be undone or altered without significant cost; (2) new information will become available over time that aids in the assessment of long-term project returns. It follows that by waiting or delaying an investment, a manager may improve the chances of making a correct decision. Therefore, a manager may face a trade-off in gaining the extra returns from early commitment against waiting and making the correct decision that was initially perceived as risky or costly. For example, in the case of uncertainty with regard to supply chain functionality a configuration effect may take place in the form of delayed internationalisation.

In the IB literature, Anderson and Gatignon (1986, 2) developed testable propositions concerning a particular question: *Under what circumstances is an entry mode the most efficient choice in the long run?* Their presented propositions are based on four, mainly transaction cost (Williamson 1979) related theoretical constructs that determine the optimal degree of control over foreign market business, namely transaction specific assets, external

¹³ The resource based theory purports that the firm as a bundle of resources generates products and services and has the resources classified as tangible or intangible assets associated with the firm (Wernerfelt 1984).

uncertainty, internal uncertainty, and free-riding potential. External uncertainty is particularly relevant to the current discussion through the following proposition: *the greater the combination of country risk... and transaction-specificity of assets..., the higher the appropriate degree of control* (Anderson & Gatignon 1986, 15).

In terms of operation modes it may be assumed that asset specificity in terms of a market is lower in the case of exports, in comparison to, for example, facility establishment in a foreign market. This is because the transferability of managerial resources, time, and capital investments will no doubt be lower in the latter case. Thus, in a case of perceived high risk and uncertainty, and difficulty in the establishment of a manufacturing facility, the degree of control that is required over supply chain operations has to be considerable. The fact that supply chain management implies a drive to exert control (or at least influence) over and across the extended enterprise (Davenport & Brooks, 2004) implies that the threshold is potentially higher for supply chain dependent companies that wish to initiate FDI.

Relevantly, the three strategic choices for multinational companies in dealing with institutional voids in emerging markets, such as the lack of specialised intermediary firms and regulatory systems, have been identified by Khanna et al. (2005). These include: adapting the strategy, changing the context, and most relevantly for the discussion here, staying away. In summary, ample supporting literature for the internationalisation side of the configuration effect may be found, which increases confidence in the thesis' findings.

4.4 Limitations and further research

The thesis makes an attempt to present conclusions which can be generalised to apply across a variety of emerging markets. While this may be possible with the presented research, especially with the confidence gained from agreement with the enfolding literature, it must be underlined that the conclusions are based on empirical data from one emerging market only, namely Russia. Therefore, a certain level of caution should be exercised in terms of how representative the Russian based results are when compared to the situation and phenomena prevalent in e.g. in the other BRIC countries.

In addition, the presented conclusions are mainly based on case studies, and while their relevance can hardly be disputed, they do not convey a broad picture, especially as they are mostly limited to the food industry and foreign companies, mainly from Finland. For the record, statistical generalisation is

obviously not attempted, while a degree of analytic generalisation (Yin 2003) is possible and has been facilitated by a review of the enfolding literature.

The discussion on the limitations of the study leads conveniently to suggestions for further research. The proposed frameworks on contextual supply chain constraints and their theorised effects should be tested and validated with empirical research in general, but especially so with empirical data from other emerging markets and developing countries. This kind of sustained effort would gradually enhance the picture of managing supply chains in emerging markets, and challenging circumstances.

As a final note, Peng et al. (2008, 931) have recently concluded that the institution based view on international business strategy, especially in emerging economies based research, puts the *strategy tripod on firmer ground*. The institution based view is expected to shed significant light on, for example, this fundamental question: What determines the international success and failure of firms? With its contribution, this thesis has provided some insight on how institutions matter, but also argued that in the case of supply chain dependent firms, infrastructure, and crucially, supply chain networks are also highly significant. Research that places performance in terms of the supply chain as the dependent variable, and sheds light on how to succeed in environments with contextual constraints, will be well equipped to address this fundamental question of IB research.

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APPENDIX 1 SUPPLY CHAIN UNCERTAINTY LITERATURE

<i>Reference</i>	<i>Aim and context</i>	<i>Definitions and concepts for supply chain uncertainty</i>	<i>Findings / implications</i>
Davis (1993)	To present complete supply chain management methodology, developed at HP	Complex networks are plagued by propagating uncertainty, which may be e.g. late deliveries, machine breakdowns, order cancellations; lead to increased inventories; sources of uncertainty: and problems with supplier performance, manufacturing process, customer demand The combination of deterministic chaos, parallel interactions and demand amplification can significantly increase the degree of uncertainty within a supply chain system	Actions proposed to reduce uncertainty in both product and process dimensions;
Wilding (1998)	Describes effects causing dynamic behaviour in supply chains, and discusses the implications for supply chain strategy and manufacturing logistics		Supply chain complexity triangle provides a useful structure within which to understand the generation of uncertainty within a supply chain; the key implications are: treat a supply chain as a complete system, focus on a customer by relaying demand information in the chain, undertake detailed validation when changing computer software or hardware
Prater, Biehl & Smith (2001)	Case studies are used to show how firms have successfully made a trade off between vulnerability and supply chain agility in international context	Demand and forecasting uncertainty in supply chains considered	Uncertainty (demand and forecasting) and complexity determine the supply chain exposure, which includes the following contributing factors: extent of geographic areas covered by the supply chains, political areas and borders crossed, number of transportation modes and their speed, technical infrastructure and its use, random occurrences
Geary, Childerhouse & Towill (2002) van der Vorst & Beulens (2003)	To suggest that a seamless supply chain is not just a theoretical concept but a realisable goal Presents a qualitative research method for analysing a supply chain network and for identifying effective chain redesign strategies; empirical data from the food industry	Supply chain uncertainty can be classified into four categories: supply, demand, process and control uncertainty "Supply chain uncertainty refers to decision making situations in the supply chain in which the decision maker does not know definitely what to decide as he is indistinct about the objectives; lacks information about (or understanding of) the supply chain or its environment; lacks information processing capacities: is unable to predict accurately the possible impact of control actions on supply chain behavior; or, lacks effective control actions (noncontrollability)." Concur with van der Vorst & Beulens (2003): The level of uncertainty in the supply chain can be determined from a set of dynamic behaviour, organisational, situational and process observations.	Uncertainty related to supply chain evolution framework (integration); uncertainty related causes and effects and strategies for uncertainty reduction presented. Sources of uncertainty: (1) inherent characteristics that cause more or less predictable fluctuations, (2) characteristic features of the chain that result in potential disturbances in supply chain performance, (3) exogenous phenomena that disturb the system.
Childerhouse & Towill (2003; 2004)	Present supply chain audit methodology for the identification and codification of uncertainty		Introduces the uncertainty circle concept and the sources of uncertainty: own value-added process, supply side, demand side, control, complex material flow is the leading indicator of supply chain uncertainty (among other symptoms, categories: dynamic behaviour, physical situation, operational characteristics, organisational characteristics); 12 simplification rules introduced
Bhannagar & Sohal (2005)	To propose a framework that includes qualitative factors concerning plant location decisions, supply chain uncertainty, and manufacturing practices	Concur with Davis (1993): supplier uncertainty, process uncertainty, demand uncertainty; measures for sources identified; location factors considered separately	Supply chain uncertainty due to different sources (suppliers, process and demand), were found to be significant in almost all the cases. Supports the earlier results of Davis (1993) who found that that uncertainty has a significant negative effect on supply chain performance
Coelho & Easingwood (2005)	Explores the determinants of multiple channel choice in financial services; data collected from UK financial services industry	Environmental uncertainty: "the extent to which future states of the world cannot be anticipated and accurately predicted"; three sources of environmental uncertainty were linked with multiple channel utilisation: environmental heterogeneity, volatility and conflict	Positive relationships established between all the sources of environmental uncertainty and the use of multiple channels of distribution
Prater (2005)	To provide a framework for understanding the different types of uncertainties that can impact supply chains and their attendant information systems	Reference to Davis (1993) and Geary et al. (2002)	Identifies uncertainties in supply chains on macro level (micro level): general variation (variable, multiple goal, constraint), foreseen uncertainty (amplification, parallel), unforeseen uncertainty (deterministic chaos, long-term planning), chaotic uncertainty (general non-deterministic chaos)

APPENDIX 2 SOURCES OF SUPPLY CHAIN UNCERTAINTY

	<i>Source</i>	<i>Operationalisation</i>	<i>Influence strategies</i>
Endogenous Company	Own value-adding process	Duration of planned shutdown Duration of unplanned stoppages that significantly affect operations	Implement measures for process performance, introduce proactive maintenance, optimize shop floor layout, integrate value-streams (Geary et al. 2002)
	Own control process (Geary et al. 2002)	Associated with the information flow that transforms customer orders into production targets and supplier raw material requests; control uncertainty is driven by the algorithms and control systems that are used to transfer customer orders into production targets and further into raw material requests from suppliers	Improve stock auditing, synchronize and improve visibility among adjacent processes, enter correct supplier lead times to MRP/ERP logic, increase frequency of MRP/ERP runs (Geary et al. 2002);
	Firm resources /characteristics (authors)	Lack of knowledge: SCM, foreign market characteristics Lack of embeddedness	Training, internationalisation, network positioning for actor bonds and resource ties (Johanson & Vahlne 1977; Håkansson & Johanson 1992)
Exogenous Network	Supply side	Average on time deliveries made by suppliers Average supplier accuracy in filling orders Average supplier quality in filling orders Average length of relationship with suppliers	Lengthen notification of changes to supplier requirements, reduce supplier delivery lead time, improve supplier relationships, implement measures for supplier performance (Geary et al. 2002); subcontract inbound freight handling, source locally, review stocks more often (Davis 1993)
	Demand side	Average accuracy of monthly demand forecasts Size of customer base Order policies and delivery requirements	Improve customer stock visibility, improve customer relationships, reduce the amount of large and infrequent deliveries to customers, reduce product modifications (Geary et al. 2002); introduce improved forecasting techniques, subcontract distribution operations, build near customers (Davis 1993)
	Control process (Geary et al. 2002)	As above in own control process, but on the chain and network level: the flow information throughout the supply chain incumbent companies (operations and systems integration)	Integrate operations and data systems (Evans et al. 1993), share information and plan with strategic partners (Davis 1993)
Environment	Infrastructure	Availability of land, energy, transport, and telecommunications; quality of telecommunications and transport infrastructure	Facility location decision making, own investments and lobbying for government investments
	Business services	Availability and quality of air freight services, sea freight services, land transport services, financial services, legal services, and IT services	Vertical integration, communicate demand to improve availability
	Labour	Education level, skill level, impact of labour action, availability of engineers, executives, operators, foreign workers, and productivity	Training
	Government	Presence of support agencies, stability of government policies, stability of tax policies, stability of fiscal policies, protection of foreign investment, level of government support, administrative efficiency and transparency	Lobbying (Hadjikhani & Ghauri 2001)
	Geography (Prater et al. 2001)	Extent of geographic areas covered by the supply chains, political areas and borders crossed, number of transportation modes required and their speed, random occurrences (earthquakes, floods, avalanches and other natural disasters)	Facility location decision making, supply chain vulnerability and risk management (Peck 2005; Jüttner 2005)
	Business culture	Lack of trust and commitment in business relationships (Wu et al. 2004; Sahay 2003)	Own commitment and non-opportunistic attitude, identification of benefits gained from trust (e.g. the sharing of information) (Sahay 2003)

Source: Bhatnagar & Sohal (2005), unless indicated otherwise

APPENDIX 3 EVIDENCE FROM THE SUPPORTING ARTICLES ON THE NATURE OF CONTEXTUAL SUPPLY CHAIN CONSTRAINTS AND THEIR EFFECTS ON FOREIGN FIRMS

<i>Supporting articles</i>	<i>Descriptions of contextual supply chain constraints, and related issues</i>			<i>Effects on foreign firms and related issues</i>		
Hilletoft et al. (2007)	Complex Russian foreign trade legislation and changing tariff policies	Malfunctioning railway connection between Asia and Europe (Trans Siberian Railway)	Malfunctioning ports (variability in lead time and service)	Low availability of high quality rolling stock and containers	Case company utilises a Finnish warehouse as consolidation point for global sourcing (e.g. from Asia) of goods destined for the Russian market.	Truck is the favoured mode of transport due to flexibility and relative reliability.
Hilmola et al. (2008)	High costs of inbound material flow e.g. due to customs.	High costs of outbound material flow e.g. due to distribution	Poor business culture, low language skills		High logistics costs for a Russian based manufacturing facility may negate the savings from potentially lower labour costs.	
Lorentz (2008b)	Long and unpredictable truck queues on the border crossing point between Finland and Russia	Existence of cross-border variables (e.g. geographical distance and differences in business culture) that moderate the levels of supply chain collaboration and achieved changes in performance			It is challenging to realise benefits from cross-border supply chain collaboration	In difficult and uncertain contexts, firms should concentrate on basic supply chain issues, such as supply chain design (location planning, mode and carrier selection, material flow management)

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