Risk Management in Global Supply Chains:
Research by Case Studies of UK Companies

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Abstract (150 words)
Supply chain risk management advocates risk management by lean methods (kanban, waste eradication, etc.), supplier integration (co-makership), postponement, strategic inventory, mass customization, and the philosophies of agile and "leagile". The global applicability of these risk management methods has not been empirically supported, nor has a model of the global agile supply chain been proposed. This research attempts to bridge these gaps by empirical study conducted to expand existing theory on agile supply chains into a five factor model of global agile supply chain management that incorporates human/relational factors, since these in certain cultural contexts influence supply performance significantly.

Research will necessitate case studies by semi-structured interview with managers of representative firms operating UK-inbound supply chains. Value mapping of product families back to source will depict the relationship between points of risk and value. This research will report how UK companies overcome risk to build performing supply chains, and what relational management methods they employ when dealing with culturally and geographically distant partners.

Keywords

supply chain*, logistics, risk management, business continuity, supplier-buyer integration, global risk management

*management/risk/vulnerability/resilience
Background
Since risk increases with supply network complexity and internationalization (Christopher and Peck, 2004), risk management has become a high priority on the research agenda. The consensus of current supply chain literature informs us that today's supply chains are more accurately termed "supply networks" and are predominantly global in span (Christopher, 2011; Monahan et al., 2003). Despite its many definitions, "supply chain management" consistently promotes internal risk management through a formula of supplier-buyer integration and market effectiveness through lean and agile methods. The applicability of these tenets lacks empirical support from studies of global/ transnational supply chains. The proposed research project will use case studies to identify types of internal risk in UK-inbound supply chains, report the activities used by firms to manage those risks, compare those activities with theories of risk management extant in the literature of supply chain management, and use that comparison to develop theorization of transnational supply chain risk management.

Key Literature
Efficiency boosting methods such as lean, ECR, and QR, along with philosophies of effectiveness such as supplier-buyer integration, agile, leagile, and flexible constitute the literature's recommended counters for supply chain risk (e.g. Christopher, 1998; 2000). Core to the theory of supply chain management is the principle of the lean supply relationship, which is predicated on the advantage of integration between parties in the supply chain (Lamming, 1993; Dyer, 2000). Large food retailers, for example, have embraced this philosophy for its cost-cutting potential (Jones, 2002; Womack and Jones, 2005). However, a model expounding management of supplier relations over spatial and cultural distance awaits introduction.

Scholastic interest in supply chain risk management is developing. Between 2006 and 2011, 82 journal articles contained "supply chain" and "risk management" in their abstracts. The figure for 2000 to 2005 was 13. To paraphrase Ponomarov and Holcomb (2009), supply chain risk management focuses on the identification and management of risks for the eradication of vulnerability. Although much has been written on supply chain vulnerability and its complement "the resilient supply chain" (the 2004 paper by Christopher and Peck is particularly influential), few researchers to date have tested the extensibility of the tools and philosophies of supply chain risk management when transplanted to global, trans-cultural contexts. Chinese business for example is highly personalistic (Lee and Humphreys, 2007) but relationship management between culturally disparate supply chain entities is unincorporated in the supply chain management paradigm and lacking from models of supply chain agility. Only one article concentrates on risk to UK-inbound supply chains originating in less developed countries (China and Romania): Masson et al., 2007.

Redress is however emergent: Jia and Rutherford (2010) proposed the existence of supply chain relational risk (SCRR) and identified cultural differences that constitute a subset of factors within SCRR. Olson and Wu (2010) established a generic framework of China-Western risk management that invites empirical validation. Masson et al (2007) examined agile supply chain management practices adopted by UK clothing retailers to manage the supply of high-fashion product offerings sourced from two low-cost locations - China and Romania. Multiple aspects of standard risk management and agile practices - such as market mediation, postponement, and collaborative partnerships - were represented in the early and later delivery stages of the supply chain, but crucial supply chain activities were performed by intermediaries who achieved close-to-agile practices through adversarial pricing and lead time auction sourcing. Semi-formal practices in supply chain activity are prevalent in low-cost countries and could be key to greater agility. The proposed research
will reveal the persistence or demise of these phenomena, and the strategies UK firms use to circumvent or exploit them.

This research foresees the development of a quintuple factor model for the "Global Agile Supply Chain". This model is an expansion of the quadruple factor model by Harrison et al (1999). The original model incorporates no relational dimension; the Global model includes relational management. In the original model, "network based" could conceivably cover management, but is ambiguous. The model envisaged by the present research explicitly recognizes relational management as influential to offsetting risk and increasing agility in global supply chains. Relational management demands close integration based on cross-cultural understanding, shared objectives, and network-wide diffusion of risk and reward.

In the Harrison et al model (1999), the supply chain responds to real demand. Information systems allow data on sales to be circulated throughout the supply chain. Although not a risk management model per se, the model reflects the methods-bias/positivist leaning of supply chain risk management. Agility moderates risk and is the product of four methods. A methods-biased approach complicates inclusion of human (relational) factors that could influence integration in the cross-cultural arrangements that characterize global supply chains.

The Agile Supply Chain
(Harrison et al, 1999)

The Global model is similarly information-facilitated and network-configured, but is relationally managed to achieve greater integration and responsiveness. Relational management impacts on network cohesion and supplier-buyer mutuality, reducing general risk. Culturally sensitive management allows for improved network performance. Relational management encourages supplier cooperation. Supplier intelligence of local markets can help increase market sensitivity in supply chains where manufacturer and market share cultural/geographical proximity. Suppliers are able to communicate local issues regarding materials, selection of second tier suppliers, and knowhow on local logistical issues. The
relationally managed supply chain thus achieves greater agility. Relational management is non-adversarial and cooperative, which reduces the risks hitherto presented by geographical and cultural/psychic distance.

The Global Agile Supply Chain, in which relational management increases supply chain integration. Overseas suppliers provide local knowhow, including market sensing for goods sold in their regions. General agility is thereby increased and risk reduced.

Research Objectives
The overarching objective of this research is to enrich the body of knowledge on supply chain risk management by generating new theorization on risk management in global supply chains. This will be achieved by the following:

1. Discovering how UK companies manage risk in their global supply chains, to develop an empirically-supportable model of global supply chain risk management.
2. Where possible, reporting the extent and impact of losses resulting from UK-inbound supply chain failures.
3. Reporting the countermeasures that companies have developed.
4. Testing whether those countermeasures correspond with the risk management strategies proposed in the literature.

Methods
This research will trace the value chain of one product family (e.g. textiles) back to source. At each point in the chain, risk and value will be identified. Mapping value added is a technique of lean manufacturing (Womack and Jones, 2003), but value and risk are rarely depicted in dyadic terms in the supply chain scenario. The resultant risk/value map will inform theorization and generate real options of utility to business continuity planning, and conceivably to simulation/war gaming activities.

According to Näslund (2002), only 7% of articles published in the Journal of Business Logistics and International Journal of Physical Distribution and Logistics Management used
case studies to gather data. It is possible that important dimensions of logistics await elucidation not possible through quantitative methods. If this is the case, non-quantitative research is necessary and overdue. Ellram (1996) argues that the epistemology of logistics could benefit from case study-based research. The case study method normally entails systematic interviewing and direct observation (Creswell, 2003). This makes it suitable for research into the relational dimension of logistics. Thus, the required information will be gathered through qualitative methods (interviews and case studies). Semi-structured interviews with supply chain decision makers in representative UK companies will provide details on the various stages of the supply chain and how risk in those stages is managed. This method should also elicit accounts of the humanistic dimensions of supplier-buyer cooperation (what I have at this point termed “relational management”). The unit of analysis is therefore the firm. Because a restricted sample set reduces the theoretical extensibility of a study’s findings, the companies selected for case study will be as representative as possible, e.g. UK-based retailers such as Tesco and Wilkinson. Such companies import a wide range of goods sourced in China and many other countries at very high volume.

Contributions to Knowledge
This research will address a deficit in the literature on supply chain management. Thus far, theory in the field has offered tools as methods of supply chain risk management, but neglected to provide normative guidance on the use or applicability of those tools in transnational supply chains where culture and distance present challenges. This research will test the concept of the integrated supplier-buyer network, by comparing the data it collects with the orthodoxy of supply chain management theory, which promotes integration as key to competitive advantage. This research hopes to illuminate the relational dimensions of global supply chain management and show how conventional methods of risk management (e.g. lean/agile) fail or succeed when applied to global supply chains. This project will address the omission of empirical focus on UK-inbound supply chain risk management by gathering data from companies managing global supply chains serving a UK base. Following this, innovation in risk management theorization will become possible (e.g. the quintuple Global Agile Supply Chain model). Such a model – developed from or supported by the evidence collected in this study – will provide practical commercial benefits to companies seeking to manage UK-inbound supply chains.

If current trends in EU trade can be considered predictive, non EU-originating exports will continue to grow into the long term, and companies operating in the recession-struck EU will seek to improve their competitive performance by application of effective supply chain risk management. The academic and commercial case for the research project proposed here is premised on these assumptions.
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