

Jörn-Henrik Thun, Daniel Hoenig, An empirical analysis of supply chain risk management in the German automotive industry, *International Journal of Production Economics*, No.131 (2011), pp. 242–249

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## Objectives and methodology

More and more nowadays one faces the idea of supply chains. The spread of supply chains has reached not only the entire economic sector but it is also extending to politics, culture, to the social environment, as a whole. These chains are of high relevance and importance to society for they are ensuring the flow of social actions, but also they are very susceptible to risks. For this matter, the current material is reviewing the analysis conducted by Jörn-Henrik Thun and Daniel Hoenig in the German automotive industry sector, regarding its supply chain risk management.

The paper addresses the general vulnerabilities of supply chains and then examines key drivers of supply chain risks. Therefore, analyzing the risk's likelihood to occur and their potential impact on the supply chain, the authors manage to conceptualize a 'probability-impact-matrix' that distinguishes between internal and external supply chain risks. Also, in order to separate companies, two clusters emerged, based on performance criteria. Thus, companies showing a *preventive* supply chain risk management are more likely to generally perform better than those companies having a *reactive* risk management of the supply chain or no risk management at all.

The research objectives are looked into by the authors through the use of a survey, conducted with 67 manufacturing plants in the German automotive industry, out of 204 contacted companies and 185 sent questionnaires. The respondents were managers in charge of supply chain management or logistics, since they were expected to know the most about the domain of interest for this study. The questions were based on five-point Likert scales, ranging from 'strongly disagree' to 'strongly agree'. The collected data was then transformed into items and indicators that allowed the authors to show a two type pattern of dealing with supply chain risk management.

## Main conclusions and debates

It is very interesting that on a scale from 1 to 5, the average value of all respondents is 3.19, regarding the estimation of supply chain vulnerability (considering the company

respondents work in). And almost 40% of the companies regard themselves as being highly vulnerable (point 4 or 5 on the Likert-scale). The opposite, only one every fourth manager estimates his supply chain as being little or not at all susceptible in terms of supply chain disruptions (point 1 or 2 on the Likert-scale). To put it differently, about 75% of managers do not regard the vulnerability of their supply chain as being low.

Analyzing the key drivers for supply chain risks, the authors notice the idea that **the more complex a system becomes the more susceptible it is to risks**. But not only. Supply chain risks are also driven by approaches such as building up a lean supply chain (outsourcing), reduction of suppliers, or the focus on efficiency. And these are analyzed through the 'probability/impact' matrix. The most critical risk appears to be the supplier quality problems, since it has both a high probability to occur, as well as a high impact (once produced). As well, supplier failure and a malfunction of the IT system are severe problems, but it is less likely they occur. In opposition, increasing raw material prices, customer demand changes and delivery chain disruptions register the highest probability values.

One of the most important aspects the authors address is that of instruments of supply chain risk management (SCRM). Being grouped into three clusters – preventive instruments, reactive instruments, and companies with low implementation of supply chain risk management –, these instruments show the level of performance corresponding to each type of management of supply risk within companies. The authors noticed that companies with no SCRM register the lowest values for each performance criteria, while there are some differences between the two groups conducting supply chain risk management. The group pursuing the instruments for preventive supply chain risk management has higher average values in terms of an increased flexibility and decreased stocks, also registering higher values concerning reactivity and cost reduction. Contrary to that, the group representing the companies with reactive supply chain risk management instruments has higher average values in terms of the reduction of the bullwhip effect and external disruptions resilience.

In conclusion, the paper is showing with a great deal of success the importance for risk management in companies. The very idea that supply chains are predominantly regarded as vulnerable not only lets us opt for a risk management, but reclaims its usage. With globalization driving the supply chain risks into a new dimension (given an increased complexity) and given the importance of supply chains for a company or even an industry sector, the risk management tool should become a permanent instrument for a stable economy. Nevertheless, one should not overdo it because affairs are driven by risk assuming, therefore a too strict management of risks can interfere with the overall vitality of a business. All these

ideas could and should be taken into consideration while studying social environments, institutions, infrastructure and even communities.