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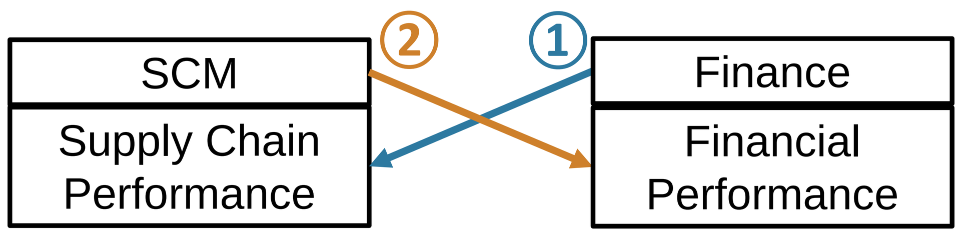
Investigating the connection between Supply Chain Management and Finance

Issues and stakes

Supply Chain experts, practitioners and researchers, want SCM to be considered at its fair value within the firm.

➔ This requires proving, especially to financial experts, the importance of the interaction between the two disciplines.

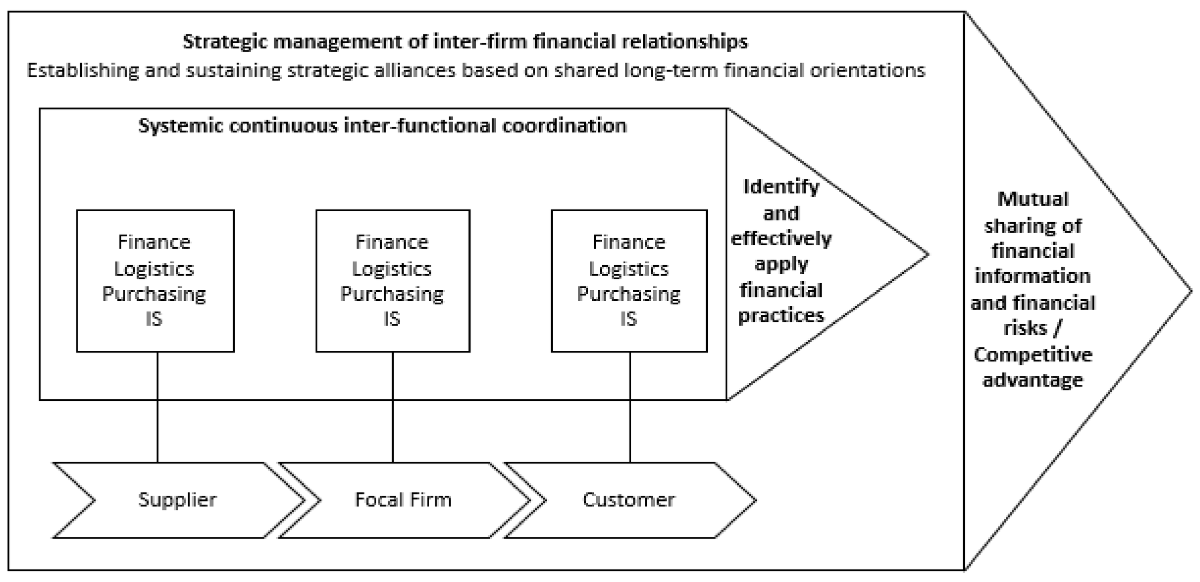


1 How the application of some aspects of Finance theory in SCM theory, commonly referred to as Supply Chain Finance (SCF), can help to improve supply chain performance?

2 How SCM activities can improve financial performance?

Supply Chain Finance

Supply Chain Finance Definition:



- SCF is the strategic management of inter-firm financial relationships, and the systemic continuous coordination of the following business functions across the entire supply chain: logistics, finance, purchasing and IS, for the purpose of allowing the mutual sharing of financial information and financial risks and achieving a competitive advantage for all supply chain members.

Supply Chain Finance instruments:

- "A SCF instrument is an agreement for transferring financial flows in a supply chain" (Zhao and Huchzermeier (2015))
- A classification of 21 SCF instruments by object of financing:

SCF instrument	Object					
	Equity related	Fixed asset	Working capital			
			Pre-shipment	In-transit	Post-shipment	
					A/P	A/R
Currency risk sharing		x				
Dynamic discounting					x	
Equipment financing		x				
Factoring						x
Financing warehouse				x		
Forfaiting						x
Joint venture	x					
Inventory in-transit financing				x		
Inventory pledge credit				x		
Invoice discounting						x
Minority interest	x					
Pay on production		x				
Purchase order finance			x			
Raw material financing			x			
Receivable purchase						x
Reverse factoring					x	
Structured commodity finance			x			
Supplier subsidies		x				
Takeover / merger	x					
Vendor leasing		x				
VMI			x			

Case study research: First conclusions

SCF instrument	Carrefour	LVMH	Louis Vuitton	Sanofi	Safran
Trade credit	x	x	x	x	x
Bank loan	x	x	x	x	x
Factoring / Forfaiting	x	x		x	
Dynamic discounting				x	
Supplier subsidy	x				x
Their own instruments	x	x			x

- Future projects of SCF:
  - Carrefour: Co-funding platform customers and suppliers could, with their agreements, finance local projects or finance other suppliers.
  - Safran: Reverse factoring; Purchase-to-pay process automation.
  - Sanofi: The development of some financial techniques for particular high-risk cases such as Greece, Iraq or Iran.

➔ Companies are becoming aware of the importance of the SCF.

SCM activities and financial performance

Qualitative research: Multiple surveys

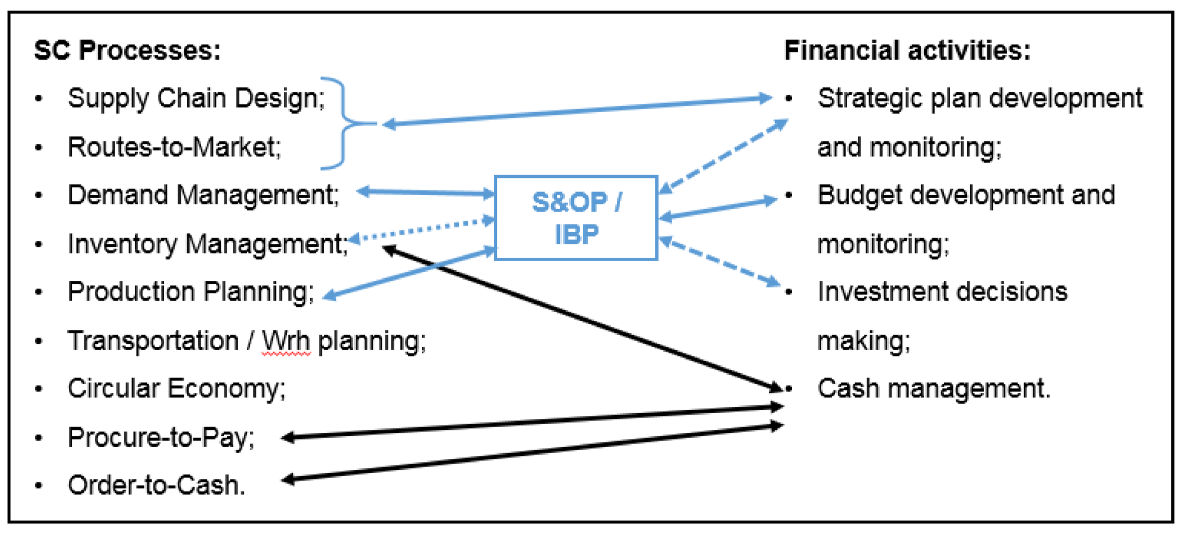
- Objective:

Studying interactions between SCM activities and the following areas of Finance
  - Strategic plan development and monitoring;
  - Budget development and monitoring;
  - Investment decisions making;
  - Cash management.

+ Investigating the S&OP process as a possible important link.

- Research method:
  - 5 surveys and 5 discussion sessions in collaboration with 5 firms: Carrefour, Louis Vuitton, Safran, Sanofi and Sephora.
  - Participants: Senior managers from both departments.

- Conclusions:
  - Draft mapping of interactions between supply chain processes and financial activities.

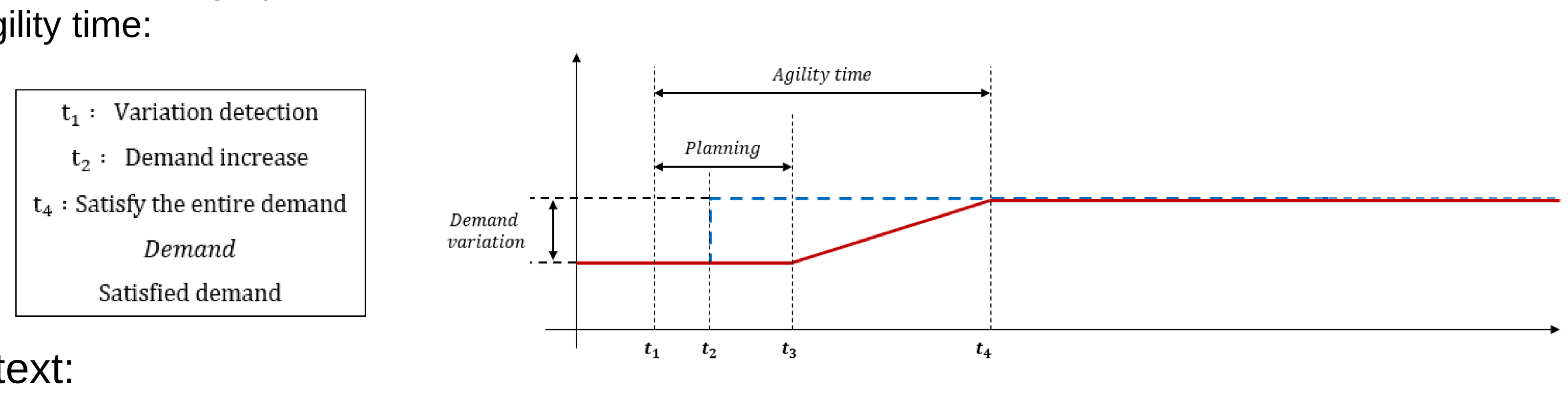


  - 25 points for better interactions between supply chain and financial departments.

  ➔ Showing financial managers the real value of SCM.
  - Maturity matrix for the relationship between the two disciplines is under development.
  - Two important questions identified:
    - How does supply chain agility impact financial performance?
    - How to financially value service level and customer satisfaction?

Agility impact on financial performance:

- Definitions:
  - "Ability to quickly respond to changes in an uncertain and changing environment" (Iskanius 2006).
  - Focus on the agility situation: Demand variation.
  - Agility time:



- Context:

Two types of demand variation situation:
  - Temporary situation;
  - Permanent situation.

Two scenarios to respond to an agility situation: Levers in Anticipation mode or levers in Reaction mode
  - Definite situation = Reaction;
  - Unclear situation (Uncertainty about the date and the duration of the variation) = Anticipation.

The main levers of agility are:
  - Increasing capacity;
  - Lead time reduction;
  - Increasing the safety stock;
  - Reduction of the frozen planning period.

➔ In the "single-product" case, these levers are the most common.
In the "multi-product" case, there are other levers such as flexibility and versatility.

- A Lever = several actions:
  - Example:

  For the "Capacity Increase" lever: Passage from 2 to 3 teams, use of subcontracting or addition of new production equipment.

- Modeling:
  - Modelling the cost of agility generated by a single action:

$$\text{Action "a" cost} = \text{implementation cost} + \text{operating cost}$$
$$\text{Implementation cost} = \text{fixed cost of implementation } (CMF_a)$$
$$\text{Operating cost} = \text{variable operating cost } (CFV_a) \times \text{operating time } (\Delta tf_a)$$
$$\textbf{Action "a" cost} = \mathbf{CMF_a + CFV_a \times \Delta tf_a}$$

  - Modelling the cost of non-agility: two cases
    - The unmet demand is lost: Lost sales;
    - The unmet demand is postponed: Backorders.

Conclusions and Perspectives

- Conference paper "Literature Review on Shortage Cost Modeling in Inventory Management": Done.
- Journal paper about SCF: On going.
- Agility impact, a temporary demand variation with lost sales: Done
- Agility impact: a temporary demand variation with Backorders, and permanent demand variation: On going.

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