

Whitepaper series

February 2010

Five important questions CEOs and CFOs should ask their Supply Chain Directors

by

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Abstract

Complex supply chains are inevitable in many Australian and New Zealand businesses. The complexity brings about uncertainty and increased levels of risk. Businesses pay for this risk by carrying higher inventories and incurring a higher cost of funding within the supply chain. Understanding and managing these supply chain risks are key to improving the overall performance of the supply chain. Five key questions should be asked by CEOs and CFOs to begin the process of managing this risk.

Uncertainty is the mother of inventory¹

If you are accountable for running one of the many and varied supply chains that criss-cross the country and parts of the world, increasing supply chain complexity is likely to be a major strategic issue.

Whether the complexity is driven by the elongation of your supply chain as manufacturing moves offshore, or your product and channel strategy keeps changing to keep up with the market, the challenges remain the same:

- ***How do you avoid the silent build-up of inventories that takes place due to the increasing uncertainty in supply and demand?***
- ***How do you convince your financing partners that your supply chain risks are sufficiently mitigated to qualify for a reduction in the cost of capital?***

This whitepaper explores these key challenges and presents a fresh approach to managing supply chain risks by use of actuarial modelling techniques, stock insurance and supply chain optimisation. We conclude by posing five critical questions that can be used to consider opportunities for better management and mitigation of supply chain risk.

Risk drives inventory levels

Higher inventory levels, coupled with rising interest rates and nervous capital, have made the task of supply chain management even more demanding. This is because supply chains are becoming inherently more complex – and complexity generates uncertainty in systems.

Complex supply chains will usually display some of the following characteristics:

¹ Martin Christopher, *Logistics and Supply Chain Management*, Prentice Hall, 2005

- The need to hold stock because customers won't wait
- A large and varied customer base that is geographically dispersed
- Difficulty in forecasting sales accurately
- Large numbers of SKUs with varied prices
- Many sources of supply from different geographical locations and countries
- Some products and vendors with long lead times.

Generally, these characteristics spell uncertainty and unpredictability in the supply chain. In turn, this means higher inventories and a greater allocation of working capital to the supply chain.

Supply chains are voracious consumers of working capital. The table² below shows that wholesalers / distributors will allocate significant amounts of working capital (as a proportion of revenue) to funding their supply chains. Most managers know that this can be reduced through better supply chain design and inventory management, but the risks of change are high in volatile and uncertain market conditions.

	General wholesale trade	Building supplies wholesaling	Paper wholesaling	Pharmaceutical wholesaling
COGS as % of revenue	85.5%	68.5%	83.3%	77%

In the post GFC environment, these pressures will most likely increase as off-shoring of manufacturing continues and supply chains become even further elongated and complex.

Given the supply chain's appetite for working capital, it is vitally important to optimise the application of these funds. This should be achieved by measuring and managing the risks associated with the demand and supply – usually manifested by the levels of stock carried at various points in the supply chain.

Optimisation is best achieved by modelling the requisite number of stocking locations and stocking levels. Importantly, we need to move past the conventional min/max methodologies and mathematical approaches to set re-order points. Instead, an actuarial approach is recommended in order to understand the business risks involved in forecasting reliability, supply reliability and other supply chain dynamics.

Understanding these risks produces a more accurate and reliable picture of the uncertainty in the supply chain. Stock levels and optimum stocking locations can then be reset to optimise the overall supply chain design. **In essence, understanding the risk is the key input to optimising the investment in inventory.**

² IBISWorld Industry Reports, June 2009

Lean Capital in the supply chain

Lean capital is a relatively new area of focus for supply chain funding solutions and has not received much attention to date. Importantly, the inefficiencies in sourcing supply chain capital can undo the benefits of an optimised design.

Because of the high demand for working capital, businesses have resorted to various alternative external financing options. Unfortunately, many of these options are costly and particularly susceptible to recessionary environments where lenders withdraw funds due to concerns, rightly or wrongly, about the viability of the business. In many cases, these lenders rely on incomplete and unrepresentative data to make these assessments. Ironically, these actions often weaken the businesses and result in a self-fulfilling prophecy.

Recently, a number of alternative solutions have been offered by various financiers and supply chain partners. These include:

- Speeding up invoicing and settlements – increasing the velocity of the WC
- Factoring and securitising the receivables
- Financing (a portion of) the stock by 3rd party logistics suppliers
- Buyers assisting in arranging credit for their suppliers

However, all of these options suffer a similar difficulty. They are all vulnerable, in varying to degrees, to a sudden withdrawal of funding because the lenders have an incomplete understanding of the risks involved. As the knowledge of the risk decreases, so the perceived risk increases. And as the perceived risk increases, so the willingness to fund will decrease and costs will increase.

There is an alternative approach to supply chain financing that uses actuarial principles to understand the risks involved - and therefore can increase the security of the funding arrangements. This alternative financing model can provide lower costs as well as more certainty to both lenders and borrowers.

Typically, much effort is expended on removing costs from the supply chain to achieve optimum efficiency. In so doing, we often overlook the other side of the coin – ***the use of Lean Capital to fund that supply chain.***

The requirements for Lean Capital

We know that the Basel II stipulation for banks' exposure is linked to risk. If the risk is quantified and / or reduced, more can be lent at a lower cost of capital. Actuarial models are most appropriate for measuring and managing risks – and these models work best when based on the granular detail of actual transactions and their history.

It has been shown that adequate documentation and history can reduce the risk to approximately half of that without such documentation. Furthermore, by taking out inventory obsolescence insurance, this risk can be reduced even further.

In other words, the Basel II stipulations mean that when the lending financial institutions has a good understanding of the risks posed by the underlying transactions being funded, they can lend more without having to increase their own capital structures. This is reflected in both a willingness to lend as well as a lowering of the cost of the funds.

A suggested approach is to measure and manage supply chain risk to as low a level as possible, and then to provide transparent access to this information for the financing institution. This can reduce the cost of financing and release significant amounts of working capital for the business.

In summary, we achieve an efficient and effective supply chain by optimising both the source and application of funds. Both of these are reliant on the measurement and management of risk.

How can we manage risk to optimise the performance of the supply chain?

At least five key stages are involved in the process of managing the risk and improving the performance in the supply chain:

1. Create an end-to-end model of the Supply Chain

Ideally, the supply chain should be modelled (and managed) as an integrated end-to-end entity to allow for the capturing and documenting of supply and demand transactions. This should be undertaken on a platform accessible to all trading parties, including the financier or banker.

2. Design the architecture for optimum data integration

The data-flow design should be based on transaction-tracking and be as granular as possible. Transaction histories should be kept and updated on a daily basis. The transaction data should allow end-to-end tracking of product flows against plans and projections.

3. Implement transparent data collection and management

Lenders' confidence and funding security will increase where the data is collected and managed in a transparent manner. This can be achieved by setting up a shared data platform for publishing the tracking and performance information to all involved parties. The financing institutions are particularly interested on this transaction-underlying data and documentation. This transparency produces an important basis for measuring and managing the risks at all levels in the supply chain.

4. Further reduce risks through obsolescence insurance

Although the lending risk can be reduced by measuring it through the steps above, the residual risk can be further reduced by using stock obsolescence insurance. Based on a new breed of financial risk models that are linked to inventory obsolescence, superior understanding of these risks can be made available to insurers. Under certain conditions economical stock obsolescence insurance can be obtained to further reduce the lending risks for financial institutions. Their appetite for funding, as well as the costs of the funds, can now be optimised at source.

5. Optimise stock locations, levels and re-order points

By using actuarial risk models rather than the simple algorithmic methods, we can accurately measure the real risks involved in forecasting reliability, supplier performance and other supply chain dynamics. These can be linked to optimum stock levels. In this way, the application of supply chain funding can be optimised.

There are obvious advantages to managing the risk in the supply chain

An optimised supply chain is best achieved by addressing both the source and application of funds. A key element to achieving this is to understand the real risks involved in forecasting reliability, supplier performance and related supply chain parameters. These are best understood and managed when they are quantified and monitored by means of risk models on a consistent basis. Managing the risk in this way will both improve the confidence of lenders as well as the performance of the supply chain.

Clearly, the advantages of an optimised supply chain include a freeing up of working capital, greater funding security (“recession-proofing”) and a lower weighted average cost of capital. Improved product availability, increased stock turns and better financial returns generally can be expected to follow.

Because the loan capital is linked to underlying transactions with (most likely) reliable transaction histories, the financing institutions are much less likely to initiate a sudden withdrawal of funds when economic conditions deteriorate.

As industry observers³ note, non-traditional financing techniques are now becoming mainstream. These solutions would seem to indicate a paradigm shift in the way that capital is sourced and applied in the supply chain.

What are the important questions to ask your supply chain director?

So, faced with a complex supply chain and the need to manage the risk at both the source and application of funding, what are the important questions to ask your

³ Demica – gtnews 19th May 2009

supply chain director? Our work suggests five key questions that CEOs and CFOs should be asking:

1. **What level of dialogue and joint planning do we undertake with our key supply chain stakeholders, including financiers?**
2. **Is there sufficient granularity and history in our data collection for our stakeholders to form a view about the risks involved?**
3. **How do we update and share our data with our key supply chain stakeholders?**
4. **How do we minimise our supply chain risks and spread these amongst our supply chain stakeholders? Do we use insurance to reduce risk?**
5. **How have we used our understanding of the risks to design the supply chain, and to set our inventory and re-order points?**

By using these questions, you should be able to start a discussion about the opportunities to better manage and mitigate risk in your supply chain.

About the authors

This paper is a joint effort between **Dr Norman Chorn**, **Ed Tidmarsh** and the partners at **Inovatum**.

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