Corporate Treasurers Council®

CTC GUIDE

Leadership in Treasury: Managing Risk in the Supply Chain

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Managing Risk in the Supply Chain

Executive Summary

Technological change has resulted in treasurers being able to perform their traditional roles much more efficiently. Globalization has allowed treasury to be managed from a single location across even the most complex multinational corporations. Tasks which used to take days can now be performed within minutes or a few hours. This means treasurers have more time to contribute to their organizations beyond their primary areas of responsibility. "All eyes in corporate treasury are on maximizing liquidity and mitigating risk, with prudent treasury departments advancing their strategic mandate by looking deeper into the dynamics of their global supply chain," says Jason Torgler, Vice President at Reval. Risk management skills are of particular value, with treasurers being asked to use their traditional risk modeling and management skills to support strategic decision-making.

In this guide, we explore some of the ways treasurers can use their skills and insights to support strategic management of risk in the supply chain. It is unlikely that most treasurers will have the responsibility for implementing supply chain risk management policies outside finance. However, the treasurer can help to identify, evaluate and suggest mitigation techniques across the whole organization. "By taking a closer look at the forces behind the supply chain, treasury is able to optimize its supply chain relationships and assess and mitigate potential supply chain risks," Torgler says. This guide looks at the distinct stages in managing supply chain risk, and identifies ways in which the treasurer can add value to the organization as a whole.

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Understanding the Treasurer's Traditional Role in the Supply Chain

Historically, the corporate treasurer played only a limited role in the supply chain. The treasurer's responsibilities concerned solely the management of cash and associated risks in the final cash collection and disbursement phase. Accounts payable and accounts receivable were typically outside the remit of the corporate treasurer, with those functions separately accountable to the CFO. The corporate treasurer then had to react to data provided from the accounts receivable and accounts payable. There was limited cash position forecasting, and corporate treasurers had little opportunity to manage activities proactively.

Most treasury activity was concentrated in group operating companies, many of which managed their own cash and liquidity independently of the main group. There was some group activity, although the group corporate treasury typically would have had only an advisory role to support cash managers in group operating companies. The treasurer may have been responsible for managing foreign exchange risk, too.

There have been two significant developments which have changed the scope for treasurers to act generally: globalization, and advances in treasury technology capability.

Globalization has affected multinational corporations in a number of ways. First, it has made it much easier to do business internationally. The emergence of regional trading blocs, especially the European Union, has resulted in a more standardized approach to trade, with tariff and non-tariff barriers to trade being reduced or, in some cases, abolished. Fewer exchange controls mean cash can be moved across borders more easily, so it is easier to adopt group funding strategies and implement group-wide liquidity management structures. Although there are still countries for which complete integration is difficult or not worthwhile, it is now realistic to manage treasury on a regional or global basis.

There has also been a globalization of regulation. The impact of Sarbanes-Oxley regulation, for example, has placed a responsibility on CEOs and CFOs to know exactly what is going on in group entities around the world. By extension, treasurers cannot afford to leave smaller operations within the business to manage their own activities. Regulatory pressure requires management to focus on all entities equally. In the most complex operations, this is only possible if a common set of policies and procedures is implemented across the organization. Many multinationals have responded by centralizing core services, including the treasury function.

At the same time, treasury technology functionality has improved significantly over recent years. Twenty years ago, many corporate treasury departments would have used spreadsheets to collate and analyze data from accounting programs and, possibly, an ERP system. Today, treasury and risk management systems are able to collate data from a variety of different sources: banks, asset managers, group operating companies, suppliers, and customers. This data processing capacity significantly reduces the time taken to perform traditional treasury tasks such as calculating cash positions and investing surplus cash. This means real-time cash positions are available via automated feeds from, or online connections to, banks. Banks in major financial centers publish account information on an intraday, often real-time, basis, allowing treasurers to manage cash positions on an intra-day basis, too. From a cash management perspective, treasurers are increasingly looking to improve the quality of their cash position forecasts so they can proactively manage cash and reduce speculative borrowing. They are also able to get improved visibility of cash throughout their global operations, depending on the capabilities of their banks, especially in emerging markets.

The impact of globalization and technology change have both required and allowed treasurers to play a more proactive part in managing activities within their organizations. At the very least, this has been to demonstrate central treasury control and visibility over the detail of global operations in multinational corporations. Even if this is at the level of adopting a group-wide treasury policy and allowing group entities to implement it, treasurers need to be able to demonstrate the ability to track performance, so that any breaches are identified and dealt with. This is both an investor expectation and a regulatory requirement.

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Playing a Strategic Role in Managing Risk in the Supply Chain

Globalization and technology change have had a significant impact on the treasury department. They have allowed treasurers to manage activities across multiple time zones and entities. At the same time, these activities have been simplified as information has become more available and accessible. There are two main results. First, treasury departments are able to 'do more, with less'. Second, treasurers have more time available to act more strategically, both within the treasury department and to support the wider business.

Identifying and Evaluating Risk in the Supply Chain

One of the challenges for all organizations is to make their supply chains as robust as possible. Using their traditional skills, treasurers are in a good position to support operations in the wider organization to evaluate the sources of risk within the supply chain.

Sources of Risk to the Supply Chain

Understanding the sources of potential threat to the supply chain is an important first step in managing risk. Broadly speaking, these can be divided into three categories: internal factors within the control of the treasurer's own organization; extended supply chain factors internal to one of the other parties along the supply chain; and environmental factors outside the direct control of any participant in the supply chain. We shall look at these briefly in turn.

Internal factors

There are a number of internal factors which can prevent the smooth operation of the supply chain and result in the company not delivering according to its contract. These will vary in importance according to the company's primary activities, the level of control it exercises over its supply chain, and the way its supply chain is structured. The most common factors include:

- Breakdown or delays in the manufacturing process. Companies use versions of just-in-time scheduling as a tool to minimize costs and, therefore, the need for working capital financing. As a result, any physical breakdown or delay in the manufacturing process can result in a bottleneck in production. Problems can range from mechanical failure on the production line, to issues with storage facilities within the company's control, or a failure in the onward distribution of finished goods.

  This principle can also apply to companies in the service sector, where scheduling conflicts, for example, can result in a key consultant being unavailable for particular pieces of work.

- Information technology problems. Information technology plays an important role in the management of all companies. Any failures of systems to deliver information output as expected can result in disruption to the supply chain. Problems can include errors in ordering or manufacturing items. These may be the result of human error, such as the incorrect initial set-up, or intermediate amendment, of systems, deliberate human error, including fraud, or as a result of a denial of service attack, or system failure, whether the cause is a hardware, software or electrical supply problem.

- Lack of access to working capital finance. Any inability to access working capital finance can be a significant brake on the activities of a supply chain. This is a core role for the treasurer, who is typically in the best position to understand the availability of working capital finance. There are two potential problems. First, the company may not have access to sufficient external finance when it is needed. Second, surplus cash within the organization may not flow efficiently to entities which have a cash requirement.

- Problems with contracts and other documentation. Companies will have series of contracts with customers and suppliers, all of which govern particular aspects of their activities. These will include contracts with suppliers to provide certain items at certain times to particular standards. Although the treasurer may be able to help evaluate whether a supplier may fail to deliver according to the contract

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(see below), it is important that the contract is drafted appropriately so that recompense, if appropriate, can be achieved via the legal system.

The company will also need to understand the potential implications in the event of failure by one of its suppliers. For example, if a supplier provides a sub-standard input, this can result in a sub-standard final product and, therefore, represents a reputational risk. If a customer rejects goods for being late or sub-standard, this can have a significant adverse effect on cash flow.

Treasurers can provide advice on when to offer and accept clauses in contracts offering discounts for early payment (from suppliers and to customers). Discounts for early payment or agreeing to pay early for a reduced bill should only be agreed if the net benefit is positive for the company. For example, the sales forces should not offer discounts for early payment which result in the loss of the company's complete margin. Likewise the company should only agree to pay suppliers early if the benefit exceeds any increase in the cost of borrowing to cover the increased period between payment for inputs and collection of outputs.

Treasurers may also be directly involved in contract or documentation negotiation. This is most likely when arranging loans and when using letters of credit and other trade finance techniques to manage supply chain risk. In both cases, the documentation must be prepared carefully and with a full understanding of the implications should things go wrong. For example, if a loan covenant contains tight conditions, this may constrain the use of cash within the organization, to the detriment of the supply chain as a whole. If security is required by the lender, the treasurer will want to ensure this is appropriate and will not constrain future financing needs. In the case of letters of credit, the details on each letter of credit need to be accurate and deliverable, otherwise a counterparty bank may refuse to make payment.

- Human resources problems. Human resources problems can arise in a number of ways. A lack of investment in training, for example, can result in sub-standard performance and can also result in a faster than normal turnover of staff.

  It is important that internal employee relationships are managed appropriately. Failure to do so can result in labor unions taking industrial action such as strikes or a 'work to rule' (where employees only perform the roles they are explicitly contracted to do). Both of these can be relatively public events and so can have a reputational risk for the company. If strike action results in a failure to deliver to customers, the company may find some of those customers start to seek alternative suppliers.

- Treasury as a source of risk. Finally, before acting in a wider strategic fashion, the treasurer must first ensure sufficient cash is available in the correct currency at the right time and in the right place to meet the company's obligations. A failure to make any supplier payment or loan repayment may have severe consequences, such as the withdrawal of supply or the foreclosure of a loan.

  More generally, treasury will need to avoid operational risk such as error and fraud, which can have an effect on the company being able to access funds to perform these tasks. General funding and cash and liquidity management strategies must be in place and must remain compliant with local regulations and tax codes, to ensure cash is not withheld or trapped when it is needed elsewhere.

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Case Study Managing Internal Cash Flows: Biomet

One of the best ways a company can manage its supply chain risk is to ensure that any exposures which arise due to its own actions are understood and managed appropriately. Most multinational companies are exposed to currency risk, financing risk and commodity risk in one way or another. Mike Hodges, Vice President and Corporate Treasurer, Biomet Inc., explains how he manages these risks to improve the efficiency of the company's financial supply chain.

Biomet Inc. is a US-headquartered multinational manufacturing orthopedic equipment, with annual sales in excess of USD 3 billion. It has 14 manufacturing facilities around the world, including significant operations in the USA, China, the UK, France and Germany. Its products are sold via subsidiaries and third-party distributors in 90 countries throughout the world. This structure gives rise to two main risks which need to be managed.

First, currency risks arise, because the company operates internationally and in multiple currencies. An important part of Biomet's strategy is to manage these exposures centrally, with distribution centers in the Netherland and the US playing a key role. Through billing its customers and by purchasing from the manufacturing entities in their functional currencies, Biomet concentrates the majority of its transactional risk in two locations.

Second, cash tends to be concentrated internally to the manufacturing centers, but it needs to be distributed within the group to entities with cash requirements. Biomet uses a twin track approach to manage cash within the business. "All entities participate in the company's global multicurrency notional cash pool, if local regulations permit them to do so. This allows us to make liquidity from one part of the business available to support others, while minimizing the administration," explains Hodges. Biomet also operates a monthly intercompany netting cycle. "Any intercompany transactions which are billed one month are then settled the next month. This means cash flows quickly within the business and currency exposures are minimized."

Biomet also has the option of varying intercompany payment terms to manage the flow of cash through the business. As an example, global pooling is not possible in China, but, there is potential for cash to accumulate since most of the output from the company's Chinese plants is exported. "We try to optimize cash levels within China and manage this as efficiently as possible," says Hodges. "By extending intercompany payment terms, we can slow the collection of cash in China in times of lighter cash requirements." This technique also works in reverse. Intercompany payment terms can be shortened, making cash available to a manufacturing entity more quickly.

Treasury activities in Biomet are centralized so Hodges is able to make the decision to alter payment terms, although this has to be done in collaborative way. "We hold weekly conference calls with participation from entities around the world. We discuss our plans for the immediate future and our longer-term strategy. These calls help everyone to understand which entities need financing. If we decide to change payment terms, we try to explain the reasoning behind the decision," says Hodges. He communicates any change in payment terms by email as a formal memo so it can be documented.

By careful planning and maintaining a clear understanding of entities' capital needs, Hodges is able to optimize intragroup funding. Management of the internal supply chain is one part of this process. This attention to detail also helps elsewhere. For example, as part of a multinational organization, treasury also has to work closely with the company's tax department to ensure its activities are tax-efficient as well.

This case study shows how careful internal structuring and management of cash flows can help to achieve a more efficient use of working capital within the business. This, in itself, is a key factor which helps to reduce reliance on external funding and, consequently, reduce exposure to interest rate risk. It reduces operating costs and strengthens the extended supply chain as a whole.

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Extended supply chain factors

The second set of factors derives from the extended supply chain. It is common to concentrate on potential downstream issues (from the suppliers), but it is important to recognize that actions by customers can have a significant impact on the integrity of the whole supply chain, too.

- Suppliers. The risks from suppliers to the extended supply chain revolve around three main factors.
- The supplier fails to deliver goods. The key risk is that a supplier fails to provide the expected items. If the company is unable to source an alternative supplier, then there may be a production delay, resulting in an increase in costs. The treasurer may be able to help the procurement teams anticipate a supplier problem: counterparty credit checks may indicate potential bankruptcy or cash flow problems in the supplier. Any advance warning the treasurer can provide to procurement can help to minimize the impact of any supplier problems.

Case Study Supplier Risk Management: AMC Theatres

For Terry Crawford, Treasurer at AMC Theatres, there are two distinct elements which help his company to manage supply chain risk effectively. First, the company's activities mean it is less exposed to potential upheaval than many other retail companies, although the growing importance of the restaurant side of the company is altering that to some extent. Second, the company's internal structure ensures good communication within the organization. Unlike many other companies, AMC Theatres' purchasing group is part of the finance function and Crawford, as Treasurer, is actively involved in managing counterparty risk within the supply chain.

As in many organizations, AMC Theatres used to have a decentralized procurement process. This changed approximately five years ago, when a central purchasing strategy was implemented. As part of the process, all contracts are reviewed centrally, with Crawford, as Treasurer, focusing on financial risk and the impact on liquidity management.

Crawford plays a much more active role in managing the counterparty risk from existing suppliers. "Every quarter, the treasury group identifies the top ten key suppliers that we consider pose the greatest risk to the supply chain as a whole," he explains. "We have developed our own scoring system based on a variety of data such as public financials and reports from Dun & Bradstreet. The model is essentially a traffic light system: any supplier which drops into the yellow zone requires us to take further action. Initially, we will enter into dialogue with the supplier. If we remain unsatisfied, we can revert to a back-up supplier." AMC Theatres has a number of back-up suppliers with which the company is in regular contact and which would be available at relatively short notice.

Looking to the future, it is likely that Crawford and his colleagues will continue to refine this process. One change under consideration is the outsourcing of the financial review process to a third-party provider. "Companies like Dun & Bradstreet do a very good job of evaluating the financial strength of many companies. Their results are better for public companies simply because much of the data is published, although they do provide analysis of private companies, too. We may well decide to outsource the first step in our process, the review of financials, to one of these companies. This will then give us the time to focus our attention on managing the suppliers which present the greatest potential risk to us."

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  - The supplier delivers sub-standard goods. The second area of potential concern derives from the provision of sub-standard goods. If the procurement teams are able to identify the sub-standard product, this may result in a delay in production as replacements are sought. However, if the sub-standard items are not identified, this can result in the need to pay compensation to final consumers, and a more general impact on the company's reputation.
  - Impact of regulation and sanctions. Alternatively, the supplier may fail to deliver as a result of government decisions. These may be in the form of export controls, tariffs or taxes (which may prevent or add cost to the import of goods), or export prohibition (either for exporter or importer country reasons or as a result of economic sanctions).

    Regulatory change can be difficult to protect against. but, again, treasury (and tax) often have a more current understanding of potential regulatory change in the jurisdictions in which the company operates and has a financial interest.

    Banks may try to insert sanctions clauses in letters of credit. Wherever possible, treasurers should not agree to this, as these clauses allow banks to avoid honoring otherwise compliant letters of credit.
- Customers. The primary risk from customers, whether they are retail consumers or other businesses along the supply chain, is that they fail to pay. Again, treasurers can support the sales teams by helping to assess counterparty risk and by helping to assess and mitigate the risk in any contract.

In addition, there are two further ways in which companies can be affected by their customers:

  - Change in demand for product. If the demand for a particular product changes, there will be an impact on the supply chain that produces it.

    For products for retail consumption, demand can change seasonally (retail spending habits change from summer to winter), as a result of technology change (individuals increasingly rely on smartphones rather than cameras to take photographs) and as a result of public campaigns (health campaigns have altered the perception of tobacco products, for example). Treasury can help to understand the impact of these changes through the modeling of collections information over previous months or years.

    Business-to-business transactions can be affected by similar effects. Changes in production processes may require the use of different inputs. Anticipating any such changes is an important part of the sales team's role.

    In both cases, customer perceptions of quality and value for money can have a significant effect on demand. This is most obviously the case in markets where items are easily compared, such as the automobile industry. Reputations for reliability and quality are hard-gained but easily lost.
  - Change in procurement strategy. Separately, the company can be affected by a change in procurement strategy by one or more of its key customers. This can be as simple as a retail outlet deciding to increase or reduce the number of stocked items.

    Some larger companies use their market power to impose additional conditions on their suppliers. This can include a requirement to adopt new processing methods (ostensibly to guarantee quality), the cost of which may be paid for out of a proportion of future sales. In this scenario, the supplier faces an increased counterparty risk with respect to that customer. Because the company is then tied into the customer, it becomes more difficult for them to withdraw from the relationship.

    Customers may also seek to impose changes to contracts, either by side letter or during renewal discussions. These may include an extension of payment terms or requiring suppliers to 'agree' to a general reduction in the value, say 2%, of all future invoices.

    Although the customer in this scenario has achieved improved quality inputs (from the new production processes) at lower cost, it may be at

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the cost of a weaker supply chain. If suppliers are required to cut their own prices, this can only result from improved efficiency, reductions in their own costs or in reduced profitability. If suppliers are unable to improve efficiency or reduce cost, the impact is on profitability, resulting in less scope to cope with a further increase in costs or reduction in revenues. Treasurers can help to evaluate these strategies both from a supplier perspective (what are the risks associated with accepting new production processes?) and a customer perspective (should the customer be seeking to transfer financial risk along the supply chain in this way?).

- Access to working capital finance for both customers and suppliers. Finally, the treasurer will understand that a lack of access to working capital finance can constrain both suppliers and customers. Generally, access to finance is determined by a range of external factors. These include:
  - Geography. Suppliers may operate in locations where their type of organization has limited access to working capital finance. For example, there may be a lack of liquidity in the local banking system or limited specialty invoice finance solutions available.
  - Size. Small businesses are constrained by the access to different types of finance simply because they do not have the range of assets which can be used by lenders as either formal or informal security. For example, property and machinery may be leased, and they may have very limited free cash flow, especially if they already use some form of invoice discounting.
  - General creditworthiness. As well as these points, smaller companies typically enjoy weaker creditworthiness. This means that even if the company does have access to finance, the cost of that financing may be too high to be worthwhile.
  - Additional costs. There may be additional costs associated with operating in particular markets. This may range from the need to use letters of credit or other techniques to manage risk in international transactions, to the additional tax costs. Retail-facing companies will also have to include the cost of collection payment, such as merchant fees, check-processing fees and the cost of processing any cash.

All these factors affect suppliers' and customers' cost of capital. In a company looking to improve the strength of the extended supply chain, a treasurer can help to achieve this by lowering the overall cost of capital and ensuring the entities with the lower cost of capital assume more of the financial risk.

Environmental factors

The third set of factors includes those beyond the direct control of any participant in the extended supply chain. Some can be protected against, some can be modeled and some can be minimized through the use of certain products or strategies. The most important factors include:

- Weather events. Weather events have the potential to cause significant harm to the supply chain. Treasurers can help their companies evaluate the impact of potential weather events by seeking to determine the likelihood of an event taking place, and the potential impact if it does. In the case of hurricanes, for example, a company can use established models to understand the likelihood of an event affecting its activities, as well as those of its supply chain partners. This might result in a loss of production either in an owned facility or by a supplier. Note that weather events may also have an impact on logistics: ships may have to be at sea for longer (to avoid a weather pattern) and aircraft may be grounded.

  Weather events can have an indirect impact on the company if they affect the availability of raw material inputs along the supply chain. For example, a coffee producer will be impacted by a drought affecting its coffee plantations.

  The treasurer may also help to understand that the impact of greater exposure to weather events on production costs. For example, companies operating in areas which experience severe winters have to construct buildings that are adapted to withstand those conditions.

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- Terrorism. The threat of terrorism is ever-present. It imposes cost not just via the likelihood of an actual event, but also via the adoption of preventative measures. These might include the cost of building protection for workers in areas at greatest risk, or the implementation of additional security measures, such as in ports or in office buildings.

  From a treasury perspective, there has been a significant increased cost of controls surrounding international cash management, for example, as a tool to prevent the laundering of money to support terrorist activities. All of these impose a cost on the supply chain.

- Economic factors. Finally, there are the wider economic factors which represent the key market conditions within which a company is doing business. These are the main market risks which treasurers have traditionally protected their companies against through financial risk management: changes in interest rates, in exchange rates, and in commodity prices (notably oil, but also other inputs, depending on the company's activities).

  More generally, the supply chain is exposed to the relative strength of the economy. Market downturns typically make it more difficult for companies to sell product (although some businesses are more resilient and better protected against market downturns – undertakers, for example).

  However, economic recovery also brings its own threats. First, employees often become more vocal, demanding higher wages, especially after a period of limited pay. They may also look for new jobs, as other companies start to hire again. This can result in key gaps in companies, which can be more difficult and costly to fill, especially at short notice.

  Second, the company's strategy for expansion during a recovery can be more challenging, Once a recovery starts, companies are under pressure to spend any cash surpluses and to borrow to invest in new product, staff and develop new markets. This can add significant cost to the business at a time when there is still considerable uncertainty. Treasurers can play a significant role in identifying the best strategy at this time. Their understanding of cash flow patterns will be a key element in ensuring sufficient cash will always be available during any expansion.

  The regulatory environment can also place additional burdens on a supply chain. This can be in the form of guaranteeing the provenance of goods – whether for import control reasons or for environmental protection – or in terms of additional safety requirements.

  Finally, the general availability and affordability of resources will also affect the underlying economics of a supply chain. This is notable in two main areas. Assessing the country risk associated with the location of any resources is vital. This applies both to the origin of the resources (for example, political upheaval in the Gulf region or in Russia has the potential to disrupt energy supply), and any transportation routes taken (for example, if goods have to be shipped via areas where piracy is a threat, the company may have to accept additional transport costs to cover diversions and/or the expense of additional security measures). Second, there is a general scarcity issue around many inputs – there are only so many of certain items provided from some locations. A good example is the rare earth elements used in smartphones. Even if a company has multiple suppliers, the raw material may well originate from the same place.

Treasurers have the skill set to help all parties within an organization evaluate the nature of any risks to which they are exposed. This may simply be a case of asking key questions about the nature of underlying transactions, including their timing, the nature of the counterparty and any parties on which the counterparty relies. An understanding of regulations in different countries around the world can help the treasurer identify whether country risk is also a particular factor.

Evaluating the Scale of Risk to the Supply Chain

Although there may be other potential sources of risk, the events most likely to have an impact are listed above. Some companies already have enterprise-wide risk management policies which look beyond financial risk and assess a much wider range of issues.

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However the company identifies potential risk to the supply chain, the next stage in successfully managing it is to evaluate the risks according to the level of seriousness. Essentially, this is a case of trying to identify how often a risk might materialize, and the impact on the company if it does. The treasurer can support this assessment, and should focus on the following points for each risk factor:

- Frequency. The first step in evaluating risk is to identify how frequently an event is likely to occur. For example, some locations are more susceptible to hurricanes and typhoons, although these may not occur that frequently; other locations have severe winter weather conditions every year. As an illustration, companies in hurricane zones will have a hurricane plan. This may include a full or partial shutdown of operations once certain weather conditions are forecast. On the other hand, the winter location will have to continue to operate normally during winter weather (unless it is particularly extreme), because such conditions are both frequent and regular.

- Short-term impact. The next step is to identify the short-term impacts on the company of each risk factor. For example, if a supplier fails to deliver a set of product, what will the impact be on production? Also, how long will it be before the company can source and receive alternative product? In the case of a weather event, can activities be performed elsewhere?

  Treasury should have its own strategies for short-term interruptions to service. These should range from alternative ways to approve transactions if technology fails (this might include using phone instructions), to a fully operational back-up system in a different location should the treasury headquarters be inaccessible.

- Long-term impact. The major concern is that the event has a significant long-term or permanent impact.

  First, failure to respond appropriately to a short-term impact can have long-term effects. This can apply if the company fails to compensate appropriately for poor or late delivery of goods, even if the cause is poor performance by a supplier. Customers may move elsewhere.

  The most significant risks will result in a permanent increase in costs or reduction in revenues. Cost increases might result from enhanced protection against weather events, the choice or requirement to source from more expensive suppliers, or as a result of increased compliance with ever more complex regulation. Revenue reductions can be caused by a variety of factors: technology can commoditize formerly handmade products, reputation risks can result in a decline in sales, and changes in consumer demand can permanently affect a company's sales figures.

Having identified both the likelihood of an event happening and the impact of such an event if it does, the next step is to try to identify the particular events, sets of events or counterparties which pose the greatest risk to the supply chain as a whole.

Armed with this understanding, the treasurer is in a better place to support the company to adopt strategies to strengthen the supply chain as a whole. This allows the treasurer, and the company as a whole, to focus on managing the risks which pose the greatest threat to the business. It might mean, for example, focusing analysis on the 20 most important suppliers to the company and either assessing their risk of failure, or identifying ways of transferring financial risk away from them.

Taking Action to Strengthen the Supply Chain

With an understanding of the risks and their potential impact, the next stage is to take action to try to make the supply chain more robust. This section assesses some of the tools and techniques a corporate treasurer in a global organization can use to support a strategy to achieve this objective. Note that in many organizations, the treasurer may not have the ability to implement all of these tools directly. Instead, the treasurer is able to play a strategic role by helping to identify risk, as discussed above, and then by supporting the implementation of other strategies where appropriate.

Extending Existing Treasury Activities

Many of the measures treasurers put in place to manage treasury activity, including the mitigation of financial

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risk, can be extended to support a wider supply chain risk management strategy. Financing strategies can be extended to entities outside the immediate ownership of the treasurer's own group of companies. Currency risk can be managed through a risk transfer structure. The examples below illustrate the ways in which treasury can innovate to support the supply chain as a whole. This is not an exhaustive list, but indicates how standard treasury activities can have wider benefits for both the company and the extended supply chain. For a strategic treasurer, such potential benefits can be an important element when developing the business case for new projects.

- Leveraging an in-house bank structure. For a company with a highly centralized treasury, an in-house bank allows group companies to bill via the center in their own currencies. This means currency risk is concentrated at the center, giving the treasurer good visibility over exposures. With many positions covered by intragroup hedges, this technique usually allows a company to reduce its use of derivatives with external providers.

  The same structure can be used to manage intragroup liquidity as intercompany loans are also managed through the in-house bank. Central treasury is then responsible for raising external borrowing (group entities are typically prohibited from raising external finance, as long as exchange controls make such a prohibition realistic), allowing the company to access funding at the lowest possible cost.

- Extending a netting structure. Even where an in-house bank is not used, a netting system allows group companies to net intragroup transactions. These solutions can be extended to trusted third parties as a way to reduce transaction costs.

- Managing risk while financing the supply chain. If the company has a supply chain financing structure in place, this can be extended to allow the company to assume any currency and commodity risk. Currency risk can be assumed by inviting all participants in the supply chain structure to invoice or be paid in their operating currency. Treasurers can manage commodity risk in their supply chain either by using derivatives to fix the price (where derivatives are available) or by purchasing the commodities (or the most important ones) from the mining company or refinery.

In some organizations, treasury is not in a position to establish such structures. In these cases, treasury can act strategically by proving advice to group entities. Central treasury can provide advice on how entities can manage their exposures from both a procurement and sales perspective. This can support procurement and pricing decisions by enabling these groups to identify where volatility may lie in the group's activities. Similarly, where group entities raise their own funds, treasury can advise on the most efficient use of assets to achieve the most appropriate funding mix.

Extending Treasury Influence into New Areas

A treasurer can also help to manage risk in the supply chain by working strategically in new areas, including the development of a supply chain risk management policy. It is unlikely that the treasurer will be responsible for implementation of such a policy. However, treasurers could play an important part in developing such a policy by using some of the insights and techniques outlined above. A number of key issues should be explored during the development of a policy. These include:

Help the company identify the key components of the supply chain

In many organizations, one of the greatest hurdles to effective management is a tendency to focus on the wrong problems. When working to make a supply chain more robust, the company should first identify its key components. These are:

- Key revenue drivers. The most important elements in all supply chains are the products and services which drive revenue. Without product, no supply chain will succeed.

  Treasurers can help by identifying the products which generate the most sales revenues, and those which generate the most profit. They can also help by identifying any risks to both revenues and profits. For example, which is a product's most profitable market? What factors could adversely affect sales in that market?

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- Key suppliers. The next stage is to identify the key suppliers for all product lines. The treasurer can help by identifying risks to those suppliers and also the value at risk to the company, should one or more fall into difficulties. The treasurer could go one stage further and identify key suppliers at risk. Some suppliers may be considered to be such good credits that attention should be focused on others.

- Key customers. Finally, the treasurer can help to evaluate the creditworthiness of key customers. This is particularly important if the company sells large volumes of product to a relatively small number of end users, as the concentration risk is more significant.

Evaluate risk to supply chain

The next stage is to evaluate the risk to the supply chain. This will build on the analysis outlined above, which will be used to identify risk factors and then to evaluate the level of risk each one poses to the supply chain as a whole.

Again, the treasurer can provide strategic advice in a number of areas. These include:

- Management of core financial risk. As before, it is important the treasurer has a clear financial risk management strategy in place. This should reflect the overall structure of the company's activities, and the treasury's responsibilities for discharging them. For example, the financial risk management strategy should reflect the existence of an in-house bank, if relevant.

- Assessment of counterparty credit risk. Understanding the nature of counterparty credit risk and using measures to quantify it is an important treasury skill. The *CTC Guide to Counterparty Risk Management: Measuring and Modeling* provides more detail on techniques which can be used to assess counterparty credit risk.

- Assessment of extent of potential loss. As discussed, one of the key elements for a company to determine when managing risk in the supply chain is the likelihood of a risk event and the potential consequences if it occurs. Treasury can use risk modeling skills to help to quantify expected loss following certain events. These might be used to develop a series of loss distribution models for particular potential events, or a series of value-at-risk methodologies. The balance between likelihood and impact will also help the company evaluate the best way to mitigate each risk.

- Implementation of a risk mitigation strategy. By acting strategically, the treasurer can help the company implement a flexible approach to mitigating risk. There is no single correct way to manage supply chain risk. The best approaches are likely to include a combination of tools which, when combined, mitigate risk in such a way that the supply chain is able to continue operating with all participants having confidence with each other. A number of different tools can be used:

  - Insurance. Insurance can provide a degree of comfort to protect against loss in a variety of circumstances. For example, it can provide compensation if a supplier fails to provide inputs on time, or if the inputs supplied are below the required standard. The problem with insurance, though is twofold. First, the cost of insurance is directly related to the likelihood of an event taking place. Therefore it is generally not suitable for events which take place regularly; self-insurance is more appropriate. Second, insurance can be difficult to obtain, and payouts difficult to obtain for consequential loss. For example, it may be possible to arrange insurance to cover the failure of a core supplier. However, it may be difficult or impossible to obtain recompense for lost revenues when a company loses customers, even if the main cause was a lack of stock due to the failure of a key supplier.

  - Using supply chain finance to strengthen suppliers and/or customers. Supply chain finance can be an effective way to strengthen the supply chain. The principle is that the strongest credit in the supply chain offers financing solutions to suppliers and customers.

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- **Reducing exposure to suppliers.** The treasury can alert the procurement and manufacturing teams to any undesirable concentration on a small number of suppliers. They can also help to identify any relative decline in the financial health of core suppliers, and initiate action to try to resolve problems before they occur. For example, if the treasury helps to identify a supplier with cash flow problems, discussions with that supplier might result in the company offering a solution (such as early payment) to cover short-term problems.
- **Extend assessment of internal supply chain risks to suppliers.** A strategic treasurer will look at his or her organization to identify risk factors across all activities, and certainly beyond the core financial risks. This strategic risk assessment should be extended to cover existing and potential suppliers. The treasurer might then be able to provide advice on managing country risk, for example, to suppliers in the same way as is already provided to group entities around the world. This becomes important when outsourcing production to countries where building and employment regulations are not the same as in the home market.
- **Adopting a clear business continuity policy.** Perhaps the most important way a treasurer can help to manage supply chain risk is by supporting the adoption or revision of a business continuity policy. This should cover the full range of company activity, and include disaster recovery, data backup and operational continuity from alternative or remote locations.

- **Continue to monitor existing data.** With a supply chain risk management policy in place, it is vital that the treasurer, and other figures, continue to monitor available data to anticipate problems. Each review of a cash position, sales or budget forecast should include an assessment of why any errors occurred. In some cases, errors occur as a result of incorrect data entry or incomplete software functionality. However, errors also occur because forecasts are based on past and expected future performance. This data is an essential tool for anticipating problems along the full length of the supply chain.

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Case Study Extending Treasury's Influence: Tiffany & Co.

Tiffany & Co. is a jeweler and specialty retailer, whose merchandise offerings include an extensive selection of jewelry (92% of net sales in fiscal 2013), as well as timepieces, sterling silverware, china, crystal, stationery, fragrances and accessories. The company manufactures approximately 60% of the products it sells, acquiring much of the underlying product (including gemstones and precious metals) in their natural state. From a supply chain management perspective, this vertical structure means that the company has direct control over the full range of activities for a majority of products, from raw material purchase, through manufacturing and the full logistics and distribution challenges before items are sold to the retail consumer.

For Mike Connolly, Treasurer at Tiffany & Co., evaluating risk in the supply chain is a key part of his role to support the business through strategic problem-solving. It starts with the traditional areas of responsibility, especially because the company's activities are subjected to commodity and currency risk. Connolly brings his treasury perspective to help the operational teams identify the nature of these risks. "My role is to ask questions of the procurement teams to help them understand the characteristics and flow of their transactions," explains Connolly. "This helps us identify, for example, how and when a currency risk might arise. Once we understand what creates these exposures, we can act to mitigate or avoid them." Much of this risk mitigation is achieved by purchasing derivatives or identifying natural offsets to hedge any exposed positions.

Also, where possible, Connolly will work with his colleagues to reconfigure a transaction so as to avoid unnecessary exposures. He cites for example, "If we see an entity conducting a transaction in other than its functional currency, we will look at the reasoning to determine whether the transaction can be adjusted to the functional currency."

This approach is also used to help the company to manage its counterparty risk in the supply chain. Connolly's strategy is to reduce the risk associated with a counterparty by assuming some of the financial risk to which that counterparty is exposed. "Tiffany contracts with highly skilled craftsmen to manufacture merchandise for the company. By leveraging Tiffany's cost of capital, we can remove a significant amount of the craftsmen's financial risk by providing them with the raw materials ourselves. This way, our partners would not have to carry the financial risk associated with the materials," explains Connolly. The result is a stronger supply chain and more control over cost and quality.

In a complex organization, with multiple group entities in multiple countries, helping to structure intragroup transactions efficiently is another way treasury can add value and help to reduce risk. "In treasury, as in tax, we have to have a full understanding of the legal entity structure of a multinational consolidated group of companies. This becomes important when the group is entering into new markets internationally," explains Connolly. "We have to determine capitalization structures in light of the new entity's operations and performance outlook. The answer depends on a range of factors which vary in each case: the laws in each country on corporate formation and cross-border financial activities, sources of liquidity, and treaty networks. It is critical that we get this right."

Finally, because of the nature of many of the transactions, the group uses the full range of financial support, including letters of credit, guarantees, customs bonds and back-stop facilities, to reduce risk in the supply chain. Treasury can work with the logistics teams to reduce costs in two ways: "First, because we have a good understanding of these techniques and an overview of the intragroup transactions, we can help our teams to structure logistics efficiently. For example, we want to make sure we are not exposed to a currency too early in a transaction and we want to avoid becoming liable for an import duty payment unnecessarily," explains Connolly. His challenge is to make financing as efficient as possible, by reviewing issues such as the applicable shipping terms and the timing of any

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transfer of title and the local rules surrounding the application of VAT and other local duties.

Connolly then uses this information to ensure any financial support is provided as efficiently as possible. "By leveraging our global relationship, treasury can ensure access to these products at much lower cost – percentage points at times – than is available to each individual group entity. Our challenge is to ensure our distribution and procurement teams know this and come to us for support."

Together, these examples show how Connolly and his team use traditional treasury techniques to play a strategic role in supporting the company's supply chain.

Conclusion

This guide has highlighted the key issues for developing a coherent approach to managing risk in the supply chain. In most cases, the corporate treasurer's role will be to help group operating companies assess risk in their own transactions and, once risk has been identified, work to identify a strategic approach to managing these risks across the supply chain. This might mean identifying ways in which their organizations can leverage their creditworthiness and cost of capital to assume financial risk on behalf of their smaller suppliers and partners. It might also mean encouraging (or requiring) group entities to route transactions through central treasury, to achieve visibility over and ensure mitigation of key financial and other risks.

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Best Practices for Managing Supply Chain Risk

There are a number of key best practices that all treasurers can take to support effective management of risk in the supply chain. In some cases, the scope for direct action by the treasurer may be limited by corporate organization or culture. In all organizations, the treasurer can provide information, analysis and support to operating units. This strategic support can be used to identify weaknesses in the supply chain and then find and implement solutions to make the supply chain more robust against many more of the risks it is exposed to.

Understand the objectives of managing supply chain risk

Managing supply chain risk is fundamentally about ensuring the company receives payment for the goods or services that it sells. The actions outlined below should ultimately be a tool to achieving this objective. Techniques to mitigate risk allow the company to hold lower precautionary balances to cover losses as a result of interest rate or exchange rate movements. Supply chain finance techniques can help to reduce production costs and allow suppliers to plan to invest in their own businesses. If suppliers have confidence they will receive payment on time, they will have less need to resort to expensive overdraft or other short-term finance. Any techniques to evaluate the level of exposure a company has to a particular counterparty (or set of counterparties) will help procurement teams identify where any short-term risks lie, and where it may be necessary to source additional suppliers, potentially avoiding bottlenecks in production.

Manage risk within traditional area of treasury responsibility

The most important task the treasurer can perform is to ensure risk is managed appropriately in the traditional areas of treasury responsibility. This means managing interest rate risk, foreign exchange risk and, where relevant, commodity risk, in such a way that any risks taken are fully understood and appropriate measures are taken to manage them.

This requirement can also include providing advice to other group entities on how best to manage any currency exposures for transactions which are outside the direct control of group treasury.

Treasury may also be able to leverage group creditworthiness to arrange lower-cost letters of credit and other trade finance techniques as an alternative way to reduce risk.

Ensure effective use of cash within the organization as a whole

The next task is to ensure cash is used efficiently across the whole group structure. This means that, first, cash is always available to meet payment obligations to suppliers and other parties and, second, that any internal cash surpluses are available to support other business units within the group.

An effective use of cash has the dual effect of reducing exposure of the company to external shocks, and also reducing the cost of any borrowing. (Central treasury can provide intercompany loans at a lower margin than would be available from external lenders, because a lower margin has to be applied to compensate for counterparty risk.)

If external borrowing is required, the treasurer will be able to think strategically about how best to raise it.

Note that the most effective way of managing liquidity within an international group may involve more than one structure. This is likely if cash is managed regionally or by division, or if the treasurer decides to manage some cash balances on an in-country basis only. Exchange controls and bank capital requirements may affect what is available in each location.

Look to finance suppliers and customers along the supply chain

For larger organizations, and those with access to cheaper external financing (or with good cash reserves), it may then be possible to implement a supply chain finance solution. This works by allowing suppliers to be financed via the early payment of invoices and customers being able to purchase on extended credit terms.

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By doing this at funding levels available to the strongest credit, the company can help other parties along the supply chain to fund themselves more cheaply than they otherwise would have been able to do. The result is a reduction in operating costs and, therefore, a reduction in the ultimate break-even price of the final product. This is a more conventional approach for large companies to finance their smaller suppliers, as all types of invoices can be financed (as long as the underlying solution allows them to be so).

Some companies facilitate sales by structuring customer finance. This works best when there are large volumes of similar payment obligations, as these can be modeled, so it is commonly used for instance by automobile manufacturers to allow customers to finance automobile purchases. Extending finance to a small number of customers for varying levels of finance requires a greater investment in counterparty risk assessment and management.

Look to assume financial risk from smaller suppliers and customers

An alternative to financing smaller suppliers is to identify ways to assume some of their financial risk.

The first way to do this is to ensure invoicing is denominated in the smaller company's functional currency. This is likely to be standard for suppliers in most cases. It may also be possible to invoice customers in their functional currency, with a commitment that any prices will remain constant for a specified period, perhaps up to a year. This will allow the customer to offer goods for sale at a fixed price with no loss of margin due to adverse exchange rate movements. The treasurer can then manage any currency risk over that time period.

The second technique is to avoid forcing suppliers (in particular) to accept changes in payment terms or reductions in invoice amounts. Both practices increase suppliers' funding risks, resulting in weaker supply chains.

The third technique is to purchase raw materials and other inputs directly and send them to the supplier to process. The company will have more of the financial risk to manage, and will be exposed should the supplier fail in mid-manufacture. There will also be some set-up costs to cover the need to draw up legal documents.

Use data from treasury technology to support internal decision-making

Treasury technology can capture a wide range of data which can help to support internal decision-making. This can provide important insights in three areas:

- Use data to identify any concentration of suppliers within the organization. A company may have multiple production sites but still rely on a smaller number of suppliers for particular inputs. Payment information, such as standard settlement instructions, can be used to assess where any concentrated dependencies might be. In some cases, this can be unavoidable. However, it can be a useful tool if the organization has decided to locate production facilities in different places as part of a way of managing risk. Any overreliance on one or more suppliers may need to be managed via the use of secondary suppliers.
- Use collections data to identify potential cash flow problems with customers. Treasury technology will also be able to track changes in times to receive payment from individual customers. Any lengthening in these times may indicate a problem concerning their creditworthiness.
- Use data to manage financial risk from a group perspective. Technology will also capture individual entity exposure to currency and other financial risk. Treasury can use this data to identify any natural hedges across the group, so that only exposed net positions are hedged using externally purchased derivatives, for example.

Identify the impact of new and renewed contracts

The treasurer can play an important role in understanding the implications of alternative clauses in new procurement contracts. Treasury can provide input and advice in the following areas:

- Counterparty risk management. Although new and renewed supplier contracts should be subject to stringent procurement contracts, treasury can provide advice on additional tests to assess

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counterparty strength. These might include the use of credit references or publicly available data to assess creditworthiness relative to previous performance and to similar companies.

- Payment terms and the use of discounts. The use of standard payment terms is an important tool when seeking to manage cash flow. Treasury will want to ensure any discounts available for early payment justify the impact on cash flow, and that they are compatible with any payment disbursement cycles the company offers for supplier payments.
- Impact on currency risk. Sourcing from new suppliers abroad can result in the assumption of additional currency risk. Treasury can help to identify these risks and advise on the best ways to manage and mitigate them.

Assess counterparty risk associated with existing suppliers

An extension of this is to then evaluate any changes in suppliers' economic strength once a relationship is up and running. This can help to protect the company against the effect of any interruptions in the supply of crucial inputs.

There are a number of tools available to the treasurer to support this.

- First, the treasurer can help to track billing dates – this can give an indication of later delivery of items.
- Second, the treasurer can track published financial data, including CDS spreads and other financial data. This is more appropriate for larger entities, for which more data is published.
- Third, the treasurer can use data feeds from more established credit analysts, including the likes of Dun & Bradstreet. However, the same rider applies: smaller companies release less data, so it is harder to assess counterparty risk, and in particular worsening counterparty positions.

Any changes can be a catalyst for taking further action to review existing supplier contracts.

Work with sales teams to evaluate risk from new and existing customers

Just as the treasurer can support procurement, the treasury can offer support for the sales force to evaluate the impact of contracts on cash flow and risk. Treasury can support in a number of areas:

- First, they can help the sales teams understand the impact of new and renewed contracts on use of working capital within the organization and downstream to suppliers. This is primarily an extension of the traditional treasury role. For example, a cross-border sale will often involve a currency risk, which will need to be managed at some point. The company could invoice in its own currency (so the customer assumes the risk), or decide to invoice in the customer's operating currency (so the company would assume the risk).
- Second, treasury should help sales understand the scope for offering discounts for early payment. Any sales discounts will need to be within pre-agreed parameters such that the cost to the company does not exceed the overall cost of capital.
- Third, just as with suppliers, treasury can support sales and accounts receivable to monitor relationships with existing customers. Work to improve the accuracy of cash position forecasts should also help to identify any worsening in credit terms taken by customers.

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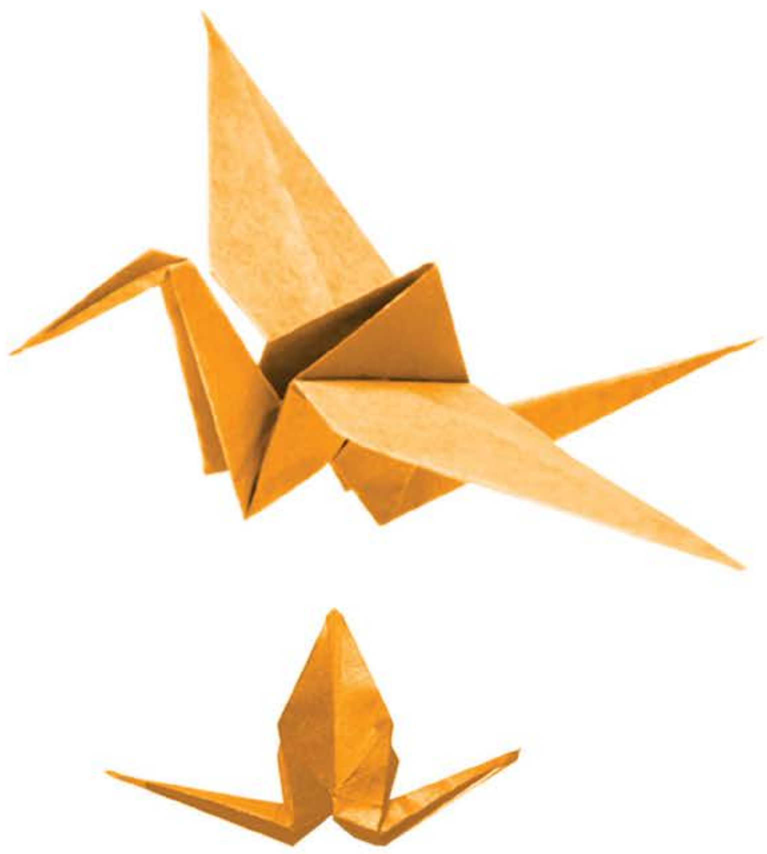

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