The lifeblood of the business

THERE COULD BE NO BETTER TIME THAN THE CURRENT CREDIT CRUNCH FOR OUR IN-DEPTH FOCUS ON HOW TO MANAGE SHORT-TERM LIQUIDITY RISK. **WILL SPINNEY** OFFERS A DETAILED GUIDE TO KEEPING LIQUIDITY UNDER TIGHT CONTROL.

Executive summary

This article highlights the risks in managing short-term liquidity and proposes some responses to them. The key is to ensure diversification, principally of sources of finance but also of maturity of borrowings.

If liquidity describes a company's ability to pay its obligations when they fall due and to source additional funds to meet its obligations, then liquidity risk is the possible failure of these capacities. It is a risk with no upside. A treasurer's success in managing usually goes unrecognised, but any failure will have a powerfully felt impact.

Long-term liquidity risk is generally about the overall creditworthiness of the company over a period of years, and its continued ability to source funds. Short-term liquidity risk is about making sure payments can be made in accordance with contractual terms all the way through the company for the next year or so. The long term impinges on the short term by making facilities available and because with the passing of time the long term inevitably becomes the short term.

THE PROCESS To consider how to manage the short-term liquidity risk, take a look at Figure 1, and then apply the risk management framework shown in Figure 2 to each stage of the process. The basic question posed for liquidity risk is always the same: will a subsidiary, an operating unit or indeed the group be able to make its payments as they fall due during the forecast period? Some of the classic tools available for this evaluation are:

Sensitivity analysis Some inputs, such as creditor payments or customer collections, can be examined to see how a forecast changes, either for better or worse. Capital expenditure assumptions also commonly vary because much more control is possible over these than most other decisions about cash spend. The analysis is seeking to find what typical variations to inputs might cause liquidity issues.

Scenario analysis In the context of short-term liquidity, this is about considering what events would cause a liquidity issue. Scenario analysis is more event-driven than sensitivity analysis. It asks what would happen if, for example:

- the cash management bank became insolvent;
- a key foreign exchange rate moved up or down;
- embargoes on trade or currency exchange were put in place or lifted;
- the price of a key input – oil, say – jumped by 50%;
- rivals brought out a new product or offer; or
- a key customer or supplier became insolvent.

Statistics These include probability, mean and expected values, standard deviation and variance. Statistics are useful in understanding the sources of uncertainties or errors in cashflow forecasts and the measures of risks used in evaluating creditworthiness or credit ratings. Evaluation aims to try to measure liquidity risk so that a response to that risk can be formulated. Appropriate measures might be:

- the use of **threshold cash or net debt balances** to trigger action when cash falls below (or rises above) a certain level or debt rises above a certain level;
- monitoring **headroom**, and establishing responses if it falls below certain levels; and
- the use of **credit ratings and credit exposure** to measure the risk around the suitability of bank lenders, investments of cash or other credit risk positions such as those arising from hedging action (derivatives, for example).

Evaluation should be straightforward. However, there will always be grey areas and forecasting may be more optimistic

than actually justified. Many internal forecasts may be based on a deliberately challenging budget. This might be an appropriate measure for management but is inappropriate for liquidity. The treasurer needs to be more realistic to see if there might be a crisis; a range of outcomes is better than a single budgeted number.

CLASSIC RESPONSES TO SHORT-TERM LIQUIDITY RISK There are four possible responses to any risk: avoidance, retention, reduction or transfer.

With liquidity risk linked so strongly to the business itself, it is impossible to avoid all liquidity risk and still remain in business. And with the consequences of failure so high, retaining liquidity risk (certainly in its entirety) is also rare.

The most common response is to reduce risk, especially given the difficulties involved in transferring it (there is no single market for liquidity risk, and for some aspects there is no market at all).

As a result, effective liquidity risk management often requires effective systems, procedures and controls, rather than technical or market-based solutions.

IDENTIFY SHORT-TERM CASHFLOWS While not absolutely essential, a sound cash forecasting system, producing reliable cash forecasts, is seen by many as a key tool for liquidity management. Some treasuries (often in cash-rich and/or cash-generative businesses) find that the effort expended in generating cash forecasts is not justified in terms of the incremental benefit. However, in a heavily borrowed or highly volatile business, some form of cashflow forecast is essential in managing the company's liquidity. Short-term cashflow forecasting is for time periods from "start of business today" out to a time horizon appropriate to the business, often between 30 days and three months.

Bank systems Most corporates use bank reporting systems to help manage their cash and the modern ones are internet-based or accessed by SWIFT and heavily automated. They are typically used to collect historical bank statement information from the day before, but crucially also collect information on the activity for that day and even one or two days into the future. Many corporates will collect this intra-day information more than once a day to fine-tune their cash management outcomes.

Receipts and payment forecast Most companies use a receipts and payments forecast to predict the amounts of cash receivable and payable within the forecast period, on a daily, weekly or monthly basis. Its starting point is today's cleared bank account balances, projected into the future using a variety of techniques to identify as closely as possible when receipts and payments will clear at each bank account. A typical horizon for short-term cashflow forecasting is between one and three months.

It is important to understand the diversity of the sources of information for these transactions. Treasury-related flows such as interest payments, debt repayments, foreign exchange deals, tax payments, acquisitions and dividends are easy to research but for most businesses it is operational or commercial cashflows that are the key determinant of the cash forecast.

Of particular note here is that for large groups of companies, it is likely that the management accounts consolidation system will also be used for cashflow forecasting. Although consolidation systems are good at converting currencies to a base currency, they are poor at keeping information by currency and bank account – a key requirement for good liquidity reporting or forecasting.

Medium-term cashflow forecasting Some treasurers extend short-term forecasting into the medium term. They are usually based on accounting projections of revenues, expenses and changes in balance sheet items, and seek to establish overall trends and averages to give the treasurer a view of the overall liquidity patterns expected over the period. These accounting projections will usually be calculated on an accruals basis, and so will have to be corrected to arrive at the cash impact. Typically companies using medium-term forecasting have a rolling monthly forecast with a 12-month time horizon.

Figure 1: The process of managing short-term liquidity

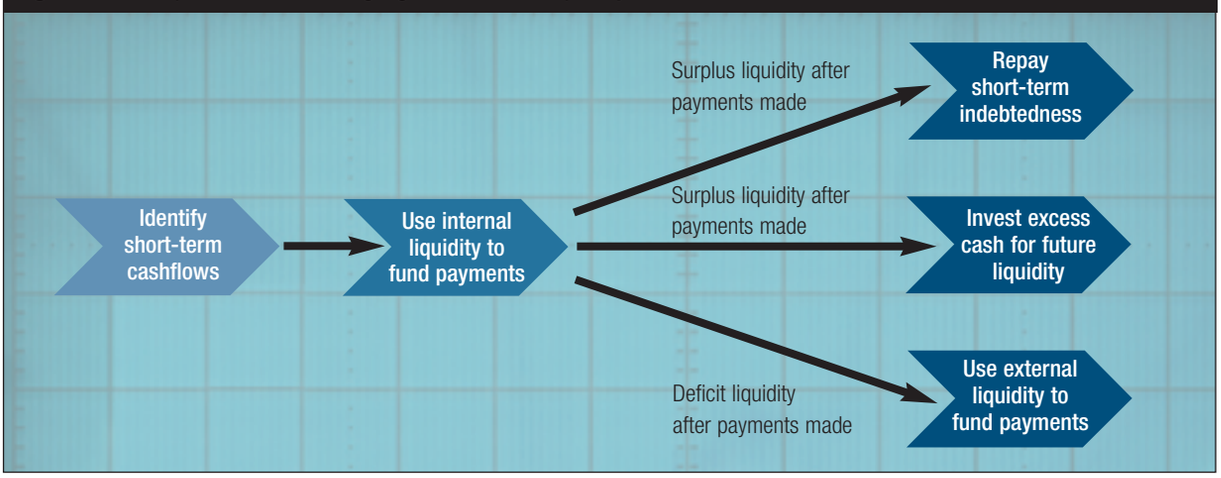
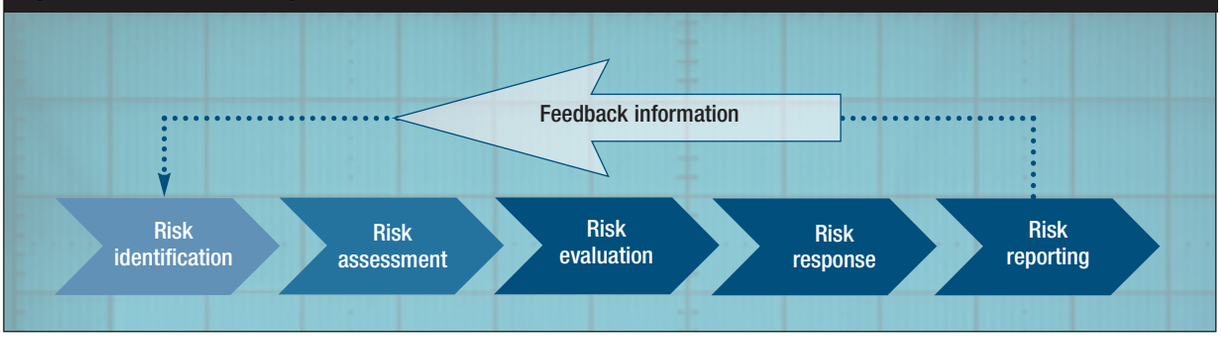


Figure 2: The risk management framework



IDENTIFICATION OF RISKS IN CASHFLOW FORECASTS
While the forecast highlights items of risk, the forecast itself may have inaccuracies or errors, which constitute another type of risk. Examples include inaccurate forecast sales receipts, payables, capex, salaries, interest, etc (for short-term forecasts); inaccurate forecast profit, capex and balance sheet items (for medium-term forecasts); and selection of parameters and "fit for purpose".

Cashflow forecasting needs to be appropriate to the needs of the business it serves. Key parameters include time horizon, frequency, line items to be forecast, degree of analysis required and materiality. There is therefore a risk that these may be chosen incorrectly, emphasising how the treasurer needs to "know the firm".

Sources of data In a large international group of companies there will be dozens, perhaps hundreds, of forecasts that must be collated and summarised to produce the cash forecast for the group. This can represent a significant driver of workload as well as creating potential for error if the processes are not rigorously designed and tested. Producing the perfect forecast may simply be impossible in these circumstances, but a workable cashflow forecast should be achievable.

Currency In any business with cashflows in multiple currencies, the aggregate forecast will reflect the exchange rates at which flows are converted. Consistency is therefore required, especially for intra-group items. Beyond this, an understanding of liquidity by currency is required to view both localised issues and trends by currency.

Example 1: Variance analysis in cashflow forecasting

Mouthmelters SA makes confectionery for retail distribution and the department responsible for receivables makes a weekly forecast of cash for input into the consolidated forecast. A statistical analysis of variances of "actual to forecast" reveals that the variances to actual display a normal distribution. The mean variance is minus 5% and the standard deviation of variances is 6%. This means that the department is on average optimistic on cash receipts by 5% and is within a range of +1% to -11% in 68% of all forecasts.

The other elements of the cashflow forecast (wages and supplier payments within the firm's control) are usually very accurate, so treasury's response is to adjust the receivables forecast for its purposes by 17% (two standard deviations), knowing that it will be more conservative than actual on about 99% of occasions.

Accounting compared to real cash The opening consolidated bank reconciliation needs to be understood as far as possible. In some groups this can be substantial, especially where large cash movements of collections or payables are commonly done around significant reporting days, such as month-ends.

Evaluation of risks The major tool here is variance analysis. Comparisons of actual to forecast, current forecast to prior forecast, and actual to actual (to pick up trends or seasonality) are essential. Similarly important is prompt feedback to and from the forecast authors about variances, so that actual and forecast outturn is properly explained. This should facilitate taking corrective action if needed and enhance the reliability of future forecasts.

Response to risks The usual response is to accept and reduce them by making the forecast as robust and reliable as possible. This does not mean perfection, but a forecast that reliably represents the expected position, and that reliably reflects the uncertainties in cashflow. A second response is to use the results from scenario analysis or statistical analysis to allow for how bad the forecast could be – see Example 1.

IDENTIFICATION OF RISKS FROM CASHFLOW FORECAST
The cashflow forecast will identify situations of shortfalls and surpluses from day-to-day operations. Specific risks include:

- Payments may not be internally fundable. In countries with exchange controls, it may be too difficult or expensive to transfer surplus funds from elsewhere in the group.
- Local shortfalls may not be externally funded. This may again happen in jurisdictions where bank lending is difficult or the creditworthiness of the subsidiary is weak and no parental support is available.
- Surpluses may be lying idle or be insecure or illiquid. Again this might happen in countries with exchange controls, or where the amount of the surplus is too small to justify moving it. For companies with a large number of bank accounts, each with a small balance, this can accumulate into a major drain on liquidity.
- Surpluses may expose the company to excessive credit risk. This might happen where a cash management bank is weak and if local staff lack the expertise to assess or deal with their banks.
- There may be an overall shortfall of funding for the

company, seen by negative forecast headroom, where continuing losses, overtrading or seasonal fluctuations mean that cash requirements exceed cash availability.

One type of liquidity that may not be forecast is the need for collateral for over-the-counter (OTC) derivatives subject to margin, exchange-traded instruments and the need for non-cash instruments such as bank guarantees and letters of credit.

RESPONSE TO RISKS IDENTIFIED FROM THE CASHFLOW FORECAST Let's look at typical ways of managing each in turn.

When payments cannot be funded internally The first approach to this type of risk is to reduce it as far as possible by matching receipts to payments. This should be done at all levels in the firm, from smallest subsidiary to the group overall, such as by spreading interest payments over a period rather than having all maturities falling on the same day.

Another approach is to transfer the risk by using cash management techniques that concentrate liquidity. The broad principle is that internal liquidity in any one part of a group may be used automatically in another, thus smoothing cashflow. Groups with any intra-group trading can also settle balances using a netting system or in-house bank.

For subsidiaries in countries with exchange controls, matching payments and receipts as far as possible is the first approach, after which external funding must be sought.

When local shortfalls cannot be funded externally The first approach to this risk is to accept and retain it, so long as the local operation can be funded centrally and on sufficient notice. A second approach is to transfer the risk by setting up local external borrowing facilities, reduced at local level by cash pooling or matching. In the case of subsidiaries in countries where both intra-group loans and external borrowing are impossible, the only response is to capitalise the subsidiary sufficiently with equity as a transfer of risk.

When surpluses are lying idle, or insecure or illiquid The first response to this risk is to remit the surplus to, usually, a treasury centre. However, this risk will mainly arise in countries where cash cannot easily be remitted, so in practice the risk is often accepted and retained. However, if cash is generated in these countries, the surplus will grow and deplete core liquidity.

When surpluses expose the company to excessive credit risk There is probably no way of avoiding this risk. Some companies accept and retain it on the basis that the evaluation indicates that they will never have a surplus big enough or long-lasting enough for the risk to be likely.

When there is an overall shortfall of corporate funding It is impossible to avoid this risk and continue in business. Therefore the first approach is to accept and retain the risk, on the basis that the company is creditworthy enough always to be able to borrow when needed. This approach assumes that nothing will happen to compromise the company's creditworthiness, or availability of funds in the markets. But within limits, a certain amount of retention is inevitable. Put another way, most companies would find it prohibitively expensive to establish committed bank facilities to cover every eventuality, even if there were sufficient credit capacity available in the market. In the short term, however, there is much more justification to transfer this risk by taking out committed revolving facilities.

A second approach to the risk is to reduce it by using cash concentration techniques mentioned earlier to achieve a similar matching effect automatically, although it will only go so far to minimise the total borrowing needed at any time.

The risk can also be reduced by ensuring that the group has free access to all the cash it generates, and can move that cash to wherever it is needed – see Example 2.

A further approach to reducing overall risk is to hold cash, even where the company is also a substantial borrower. Working from the cashflow forecast, treasurers commonly invest cash for a range of maturities to cover unexpected shortfalls in liquidity.

RISKS FROM USING INTERNAL LIQUIDITY TO FUND PAYMENTS The use of internal liquidity has its own risks. For example: it may be in the wrong currency or location (cash may be generated in dollars but investment spend may be needed in euro); in a jurisdiction where it cannot easily be remitted; impossible to extract immediately; of an uncleared nature; or required as collateral for external obligations. None of these risks will be identified by an accounting system. These risks cannot be avoided: they form part of the risk of being in business. The response is to accept and retain them and in some cases to transfer them.

Liquidity is in the wrong currency If the liquidity is in a convertible currency, the first response is to establish a process for allowing conversion into the correct currency by setting up a dealing team, trading facilities and so on. This amounts to acceptance and retention, on the basis that the depth of the foreign exchange markets makes it easy to source currency when it is needed (FX risk management is a separate issue).

A second response would be to ensure that the currencies of cash generation roughly match those of expenditure. If

Example 2: Gaining access to cash

Smooth Operator plc has subsidiaries all around the world. Those participating in cash concentration arrangements it designates as category A; those in countries not participating in cash concentration arrangements but where funding and de-funding can easily be made by intra-group loans or dividends it designates as category B; and those in countries where exchange controls make intra-group loans and dividends difficult it designates as category C.

Category A subsidiaries need no attention other than daily cash management procedures.
Category B subsidiaries are targeted on a monthly basis and a key performance indicator established for surplus funds left in the subsidiaries.
Category C subsidiaries are targeted annually by a capital review procedure to manage liquidity by capitalisation or dividends, etc.

necessary, borrowing in the cash generation currency allows there always to be a home for spare cash in that currency. A particular issue here is the currency of denomination of bank facilities – see Example 3.

Liquidity is in a jurisdiction where it cannot easily be remitted The risk must be accepted and retained because the difficulties of extracting funds mean the risk cannot easily be reduced. One way to transfer the risk is to set up local borrowings rather than funding the operating unit centrally.

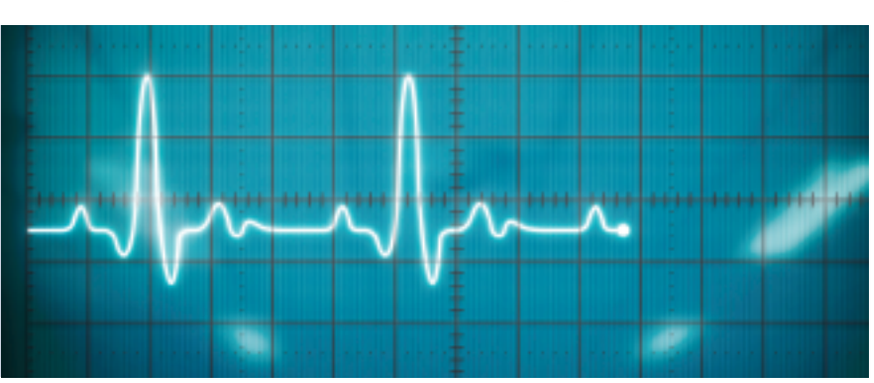
Liquidity cannot be extracted immediately The first response is to establish cash concentration mechanisms that make collections available immediately to central treasury and allow payments from liquidity elsewhere. A second response is to establish borrowing facilities that absorb the expected variations in cashflow. A third response is to leave sufficient cash in the required bank account (or at immediate demand) to meet payment requirements.

Liquidity is uncleared and cannot be remitted This is another risk that cannot be avoided. If the cashflow forecast is based on cleared balances, the risk does not arise, but many cashflow forecasts are based on accounting balances.

The first response is to understand what the components of the overall company's bank reconciliation are, and how they vary through the month or year. Then, when making the short-term liquidity plan based on the forecast, the risk can be reduced by this knowledge.

A second response (arguably amounting to transfer of the risk) is to maximise the proportion of remittances made electronically and value-dated, although timing differences will always arise between the company's accounting and cash management records.

Liquidity is required as collateral for external obligations This risk is integral to some industries, and so difficult to avoid entirely. Many companies, especially in long-term contracting industries such as construction, routinely need to issue performance bonds or third-party guarantees to give comfort to customers that their project will be completed. Such collateral is also often required in insurance arrangements, and derivative contracts are increasingly collateralised in much the same way as futures contracts have initial and variation margin.



A first response to this risk is to avoid it wherever possible. A second response would be to improve the creditworthiness of the company as many counterparties will reduce their demands for collateral if the business is a strong credit.

An important point to note is that collateral always ties up liquidity. Either the company puts up $100 cash, or raises a guarantee or letter of credit for $100, which will utilise $100 of credit capacity (in other words, its ability to borrow).

RISKS FROM REPAYING SHORT-TERM INDEBTEDNESS

Whenever there is surplus internal liquidity, the natural reaction of most treasurers is to use it to repay debt. Doing so eliminates the borrowing margin on the funds drawn down and in the current credit crunch arena the borrowing margin is likely to be substantial. However, there are risks to be aware of in this particular part of the process.

Identification of risks The following risks may arise when repaying short-term indebtedness:

- If the facility used is uncommitted, the funds may be unavailable for future drawing.
- If the facility is committed, a breach of one of its terms may mean the funds are unavailable for redrawing (there is commonly a difference between breaching a term for existing drawings and for new drawings).
- In any facility, the lender may become insolvent, making the funds unavailable for future drawings.
- If the indebtedness was commercial paper, there may be no willing buyers of future issues.
- Future drawdowns may require more notice than there is time to give.
- Drawdowns may be for extended minimum periods such as a month, leading to unnecessary borrowing.

The responses in this case are generally shared with the situation where external liquidity is used to fund payments and can be broken down into three broad categories: those related to lenders, borrowers and markets.

Individual lender issues These relate to the status of existing lenders and mainly from their participation in committed revolving facilities. This risk cannot be avoided.

A first response is to have a wide portfolio of lenders in the form of bilateral or syndicated facilities, so the loss of any one lender does not have serious consequences. Monitoring of lender performance will then lead to a second type of response: to change the lenders in the bank facilities. In the case of bilateral facilities, this means finding new lenders or increasing commitments of existing lenders. In the case of syndicated facilities, it can be very hard to replace lenders as the borrower usually has no power to make such changes.

Another response would be to draw down all available facilities, whether the funds are required or not. This is the closest to a transfer of this risk

Borrower issues A first response to this risk is to ensure there are never any breaches of any loan agreement that might create a default. This requires continual assessment of

Example 3: Multicurrency bank facilities

Protemp plc has significant operations in the US and borrows predominantly in dollars to fund investments there. Its main bank facility, however, is denominated in sterling because it is known by UK banks and has a UK quotation for its stock (although this by no means indicates that it could not denominate its facilities in dollars).

The facility is £100m and Protemp borrows $140m when the exchange rate is 1.8, which amounts to an equivalent of £78m or 78% usage. If the exchange rate drops to 1.4, the dollar borrowing amounts to £100m, the facility is fully used and Protemp faces a liquidity crisis.

performance under all covenants applying to the borrower, including financial and non-financial. This might require specific forecasting beyond that normally done inside a company. Naturally the purpose of the forecasting is to anticipate and if possible avoid breaches before they happen. This might lead to a borrower needing to request waivers from their lenders, so a good relationship will always be a help here.

A second response might be for the borrower to draw as much as possible for as long as possible under the loan. Representations and warranties are slightly less demanding for rollovers of loans than for new drawdowns, and this might give liquidity during the course of negotiations to ensure a more lasting solution to the problem.

Market issues This risk cannot be avoided. If a company needs borrowed funds, it needs markets in that debt to tap.

The only real means of risk reduction here is to borrow from a range of markets: bank debt, bond market and commercial paper (although that may require bank backup lines). This assumes the company has access to such a range (particularly in the short term), whereas many businesses are funded solely by bank debt. However, even bank debt has different forms, such as straight borrowing (overdraft, term loan, revolving credit facility, money market facility), leasing (operating or finance), and invoice discounting. It is very unusual for the bank market to be closed at any price for anything other than very short periods of time.

RISKS FROM INVESTING EXCESS CASH FOR FUTURE LIQUIDITY NEEDS If borrowings are not to be repaid or there are no short-term borrowings to repay, the next stage is for the treasurer to invest the surplus cash. In some companies cash surpluses are small and temporary, but for others they may be significant and long term. Some companies may also choose to have debt outstanding at the same time as having substantial cash investments.

The classic risk issues surrounding cash investment are not fully explored here but in order of importance are: security (both default risk and market risk), liquidity, (flexibility), risk diversification, and yield or cost.

These risks can only collectively be avoided by not holding cash. This is substantially impossible for any business, although the risks are proportionate to the holdings of cash. Therefore the emphasis is whether to retain or reduce.

RISKS FROM USING EXTERNAL LIQUIDITY TO FUND PAYMENTS The final stage in the liquidity management process, if required, is to use external funds to meet the liquidity demands of the company. This may happen under several circumstances, for instance:

- to cover the gap between making payments and receiving cash;
- where the company expects to invest more than is generated internally or for which it has cash available;
- if the company makes losses;
- funding requirements from seasonal demands (Christmas for some retailers);
- minor fluctuations, such as salary or wage or supplier payment runs;
- treasury cashflows such as interest payments, derivative rollovers or margin payments;
- pension contributions;
- repayment of longer-term debt; and
- any combination of the above.

Beyond the considerations seen for repaying short-term indebtedness, some other risks are apparent here.

Availability and continuity (liquidity) Bank facilities are considered very liquid because most are in the form of revolving credit facilities, so funds can be drawn down at short notice, allowing a company to borrow only when it actually needs to. Liquidity in the bank and capital markets can be variable, most notably recently when several markets dried up almost totally once the the credit crunch took hold.

Flexibility Flexibility is the ability to tailor borrowings to the company's anticipated cashflow requirements, and to respond to changes in circumstances. It includes:

- liquidity, as discussed above;
- the ability to borrow specific "odd" (rather than standard round sum) amounts; and
- the ability to borrow for specific "broken" (rather than standard) periods.

Diversification of sources The idea behind the diversification of sources is straightforward portfolio theory: a properly selected range of sources should reduce the chance that all become unavailable (for liquidity risk management purposes, additional cost is annoying but not critical).

Cost While cost is important, it rightly belongs at the bottom of the list in relative terms. This is because a company, when faced with no liquidity at all, will pay anything to ensure that it can continue to operate and avoid financial collapse. This might be a minor inconvenience for small amounts or short maturities, but may become very important for larger amounts or longer maturities.

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