CASH FORECASTING PROVIDES CORPORATE TREASURERS WITH THE ABILITY TO PREDICT THEIR COMPANIES' FUTURE LIQUIDITY REQUIREMENTS AND ENSURE THE LEVELS OF CASH NEEDED. WITH MODERN METHODS IT IS A PROCESS THAT CAN BE IMPROVED ON AND REFINED ALL THE TIME. **MIKE GALLANIS** AND **STEPHEN BAIRD** REPORT.

A brighter future for forecasting

Executive summary

- A formalised cash forecasting process can bring huge benefits to your cash management, potentially adding 30bps of added return to a portfolio.
- Survey results indicate that many treasurers are frustrated with their cashflow forecasting – 40% identified it as a leading cause of excess cash balances.
- The most common pitfalls in forecasting are limited resources; inaccurate/insufficient cashflow data; and process design flaws.
- Successful forecasting calls for solid data collection; consistent methodologies; a process to analyse variances; and effective reporting mechanisms.
- The three most commonly used forecasting methodologies – balance sheet forecasts; statistical models and receipts and disbursement forecasts – have their own strengths and weaknesses that lend them to specific situations.
- A cash forecasting process must validate projections against results; understand current variances; and determine how the forecast can be improved.

Unlike classical treasury domains, such as cash and bank relationship management, cash forecasting is a financial planning discipline. As a result, it requires a unique set of skills and competencies. Effective cash forecasting can demand in-depth knowledge of business processes, the ability to cultivate broad and informal lines of communication, a detailed knowledge of the general ledger, an understanding of advanced statistical techniques, and the ability to communicate the results of complex financial analysis to senior management and operating personnel.

Reliable cash forecasting can serve as an effective tool to not only support cash positions, but also to provide an early warning signal regarding liquidity concerns, enhance debt and investment management decisions, and provide critical support to managing relations with investor constituencies. In order to expedite the forecast design and implementation process, avoid project pitfalls, and quickly realise benefits, it is advisable to seek the help of experienced external resources. The result should be a forecast process that is accurate, well-communicated, and maintained without depending on excessive staff resources.

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CASHFLOW FORECASTING FUNCTION. Cashflow forecasting resides squarely within the mandate of treasury. In a recent survey, nearly 90% of the corporate treasurers said they had responsibility for developing accurate and timely projections of future liquidity.

This is hardly surprising, considering that treasury managers routinely rely on cashflow forecasts to set bank balances, adjust the maturities of investments, and arrange loan funding and repayments. The goal, of course, is to ensure liquidity while keeping excess cash (and borrowings) to a minimum. For those who have successfully established a formalised forecasting process, the benefits are tangible and significant. Another recent survey also revealed that firms that forecast cash realise 30bps of added portfolio return over those that do not forecast.

However, many treasurers remain frustrated with their cashflow forecasting process. Forecast variances are large and difficult to explain to senior management. Receipts and disbursement projections are often not adequately reconciled to accounting-based revenue and expense forecasts. Treasury staff, not accustomed to cultivating informal lines of communication across departmental boundaries, do not become aware of new business developments that affect liquidity. And thinly stretched treasury personnel, encouraged to operate leanly and rely on technology, find that automated forecasts lack transparency and accuracy, and become bogged down in complex, poorly designed spreadsheet models.

Indeed, 40% of the respondents to *Treasury Strategies' Corporate Treasury Survey (2004)* identified imprecise cashflow forecasting as a leading cause of excess cash balances. While treasurers struggle to allocate increasingly scarce resources across a broad array of initiatives, from bank relationship consolidation to Sarbanes-Oxley compliance (see *No shelter from the storm*, page 18) and technology implementations, nearly 70% are also revisiting their cash forecasting process this year.

PITFALLS. While forecasting difficulties are due to many factors, three specific areas deserve particular attention:

- ***Lack of proper resources*** – Many companies lack the proper resources to effectively address forecasting. Often the resources assigned to create and manage a forecasting process lack sufficient experience or training, a situation exacerbated by the fact that forecasting is frequently an incremental responsibility for these employees or contractors.
- ***Inaccurate or insufficient cashflow data*** – Cashflow data deficiencies usually result from decentralised, multi-faceted processes or business structures. It is rare for an individual to understand all of the key inflows and outflows that shape a company's cash position. More often, this knowledge is spread throughout the organisation. The complexity of cash management and banking structures can also be a hindrance to forecasting as these processes produce meandering, multi-step cashflows that are rarely understood. Data deficiencies may also be the result of ineffective, disjointed, or manual systems. Companies that lack automated, integrated financial systems will often lack the robust data repositories necessary to support effective cash forecasting.
- ***Forecasting process design*** – Design flaws may relate to any of the fundamental elements in the forecasting process – data collection, methodology, variance analysis, or reporting. For example, forecasting processes may not have an effective means of collecting accurate and timely cashflow data. Some firms utilise ineffective forecasting methodologies that are inconsistent with forecast objectives. Others have weak variance analysis capabilities that effectively limit the firm's ability to understand the cause of the variances. Finally, there are times when the forecast is well designed, but the reporting mechanisms fail to meet the needs of the end users.

Elements of a successful cash forecasting process

More than any other treasury function, the cashflow forecast process is usually unique to each company and reflects the special characteristics of the business.

The most successful forecasting processes contain four common elements:

1. A solid data collection process.
2. Methodologies consistent with the purposes of the forecast.
3. A process to analyse variances and utilise the findings to refine the forecast.
4. Effective reporting mechanisms.

Access to the right data is paramount to an effective forecasting process and it is vital that the quality, quantity and reliability of the data is sufficient for the selected forecast methodology.

The process used to collect the data is also important because it can be supplied in a number of ways, ranging from PC spreadsheets, manually populated with the various cashflow data required for forecasting, to elaborate Enterprise Resource Planning (ERP) systems, which download specific data to the forecasting model.

Some of the most effective data collection tools are associated with treasury workstation technology. These systems import Bank Administration Institute (BAI) data that reflects all transactions on a company's bank accounts. This is then sorted and catalogued by the system before it is retained in a data repository for later use. The degree of automation these systems offer can make them incredibly effective cashflow forecasting tools if combined with an effective methodology.

SELECTING THE RIGHT FORECASTING METHODOLOGY. Simply stated, the methodologies used will serve as the cornerstone of the forecasting process. Three cash forecasting methods commonly used today are: balance sheet forecasts, statistical models, and receipts and disbursement forecasts.

Each method has its own strengths and weaknesses that lend it to specific applications or situations. As a result, it may be appropriate to deploy multiple methodologies, though it will then be important to put in place detailed reconciliation processes as different methodologies will almost certainly produce different results.

- ***Balance sheet forecasts*** – With a balance sheet forecast, specific line items are projected through the use of financial ratios, budgetary estimates, and other historical information. Results are presented in the same line-item structure as a balance sheet. This approach facilitates effective actual-to-forecast variance analysis and is fairly easy to use and simple to understand. It can also reflect the assumptions underlying detailed revenue and expense projections for months or even years. Unfortunately, this method only reflects periodic point-in-time projections of cash that typically correspond to financial statement presentation dates. Furthermore, this method represents a projection of 'book cash' (the cash level as reflected in the ledger) rather than 'bank cash' (the result of float, timing and accrual accounting practices).

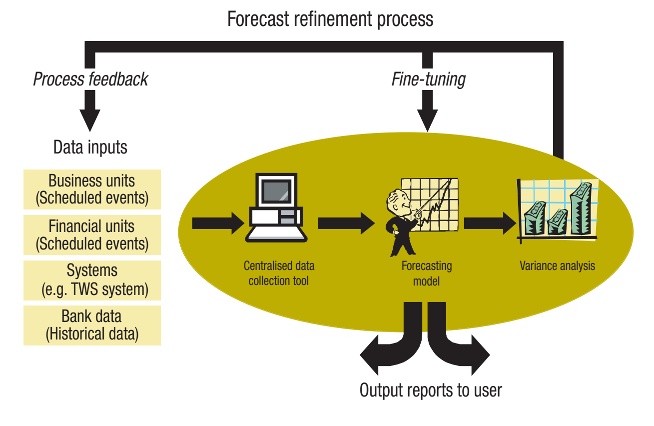
- ***Statistical models*** – Many different statistical techniques are available for forecasting applications, ranging from simple averaging techniques, to multiple linear regression techniques and probabilistic models. The most common statistical technique used in forecasting is regression analysis, which relies on independent variables to predict the dependent variable 'cash'. Statistical techniques can be used to accurately project bank or book cash for any term (i.e., daily, weekly, or monthly), but require an intermediate knowledge of statistics from both the forecaster and the forecast recipients.
- ***Receipts and disbursements*** – The receipts and disbursements forecasting approach focuses on categorising and scheduling individual disaggregated cashflows that comprise the change in an organisation's net cash position. When viewed in aggregate, cashflows represent a myriad of activity, including large inflows and outflows, some small inflows and outflows, some that were unanticipated, and some that were well anticipated. This forecasting approach splits these flows and schedules them by category in their expected order of occurrence to project bank cash for any period of time. Unfortunately, this method can become less accurate beyond a short forecast horizon, for example, in projecting receipts beyond the current accounts receivable collection cycle. Treasury Strategies' survey found that 90% of firms that prepare cash forecasts use this methodology.

THE FORECAST REFINEMENT PROCESS. A critical component of any cash forecasting process is the mechanism used to validate projections against actual results, understand the current variances and determine how the forecast can be improved to minimise variances in future iterations. Several techniques are available, ranging in their levels of complexity.

One of the simpler methods is known as basic forecast-to-actual reconciliation. Forecast line items that represent specific inflows and outflows are compared to the related 'actual' figures, and the resources (most knowledgeable about the actual flows) are asked to help explain the variances that occur.

Some firms choose to apply more statistical methods to measure aggregate forecast variances such as mean squared error (MSE) or mean absolute deviation (MAD), a process that quantifies the variance between actual and forecast data points. A key benefit of these techniques is their ability to provide aggregate statistics that measure the improvement or decay in the accuracy of the entire forecast model.

Figure 1. Optimal cash forecasting process



REPORTING. It is best to develop different types of reports to meet the needs of different end users (i.e., senior management, operations, or control functions). The needs of most users vary and it is not unusual for one to require a report that denotes changes in the company's liquidity, while another may be interested in specific cash inflows or outflows.

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