



TACTICAL
FINANCIAL
MANAGEMENT

Cash Flow
and Budgetary
Variance Analysis

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Most discussion of financial planning centers on a budgetary perspective — the revenues and expenditures that occur annually. Also, much attention has been focused on strategic financial management methods such as long-term financial planning and priority-based budgeting. A tactical perspective is especially important during times of uncertainty: the incidence and behavior of revenues and expenditures during the course of the year. In the current environment, public officials can't wait until the end of the year to get an accurate picture of financial position, and the choppy seas of the economy require constant course corrections. The ability to make these timely alterations guards against having to make more draconian adjustments later.

Two related techniques can help keep the financial ship of state on course: cash flow analysis and monthly budget variance analysis. Cash flow analysis tracks actual income against outflows of cash to discern patterns, providing insight into a government's ability to meet expenditure obligations without resorting to the use of reserves or short-term debt. Cash flow can also highlight patterns that might affect long-range financial position. Variance analysis compares monthly budgets against actual numbers to highlight deviations between strategy and execution. Variance analysis can illuminate the beginnings of unsustainable trends and help the organization manage its budget in a way that is better aligned with its strategic goals. Variance analysis also helps track cash by comparing what was expected to happen

The Relationship Between Cash Flow and Variance Analysis

The chart to the right depicts the relationship between monthly operating revenues and expenditures, and cash flow from operations. Revenues, expenditures and income or losses (shown in parentheses) are directly related to the organization's operating budget. "Total Adjustments" come from balance sheet asset and liability accounts, and yield net cash flow provided from operations when added to operating income and losses. The distinction between operating income and losses and net cash flow must be kept in mind when preparing a variance analysis. In fact, the term cash flow is often misused when describing what is actually operating income. To derive net operating cash flow, adjustments must be made to operating revenues and expenditures to reflect the impact of non-cash items such as depreciation and amortization — which are typically included in operating expenditures — and other balance sheet activities (e.g., changes in accounts payable, accounts receivable, accruals, working capital). Therefore, while the operating budget provides the baseline for analyzing cash flow on a monthly basis, adjustments must be made to budgeted operating income and losses to estimate a corresponding cash flow budget, which can provide an early warning system that can help identify unfavorable trends and help officials take prompt corrective action and plan for contingencies (e.g., accelerate revenue collection, reduce expenditures, prepare for short-term borrowing).

Reconciliation of Operating Income/(Loss) to Net Cash Provided/(Used) by Operating Activities

1. Operating Revenues	\$5,000,000
2. Operating Expenditures	4,750,000
3. Operating Income/(Loss)	250,000
4. Add: Depreciation and Amortization	2000,000
(Increase)/Decrease in Assets	
5. Accounts Receivable	(1000,000)
6. Other Receivables	(50,000)
7. Inventories	30,000
8. Prepaid Items	5,000
9. Other Post Employment Assets	(100,000)
10. Other Assets	10,000
Increase/(Decrease) in Liabilities	
11. Accounts Payable	60,000
12. Accrued Liabilities	(100,000)
13. Unearned Revenues	50,000
14. Compensated Absences	(20,000)
15. Risk Claims	50,000
16. Other Post Employment Benefits	100,000
17. Other Liabilities	(30,000)
18. Total Adjustments (Add lines 4 through 17)	105,000
19. Net Cash Flow Provided/(Used)	355,000
20. Cash — Beginning	5,000,000
21. Cash — Ending (Add line 19 and 20)	5,355,000

versus what actually did.¹ Together, cash flow and variance analysis provide unique tactical insight.

This article describes some of the most useful applications for cash flow and variance analysis, what a good cash flow and variance analysis model looks like, and specific modeling techniques. The following organizations contributed to the Government Finance Officers Association’s research on cash flow and variance analysis: Prince George’s County, Maryland; the City of Irvine, California; and the City of Scottsdale, Arizona.

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VALUABLE APPLICATIONS

Investment Management. Investment management is the most common use of cash flow modeling for local governments. Cash flow modeling can determine the dollar amount that the portfolio needs to remain liquid and meet disbursement obligations (generally within a six-month period), thereby revealing the amount available for investment. Prince George’s County has found that its cash flow manage-

ment practices have provided comfort that liquidity needs can be met, thereby providing the confidence to invest over a longer timeframe than it otherwise might. In 2001, the county started making investments with maturities that were greater than one year. This change in tactics added \$10 million in investment income (government-wide) on an average \$750 million investment portfolio (of course, going long might not offer the same advantages today).

Sizing Fund Balance. Cash flow and variance analysis can be used to demonstrate the need for working capital. The

City of Irvine has found that getting a better handle on volatility informs reserves requirements. If cash flow analysis reveals that revenues are very volatile such that cash reserves may become dangerously low for a period of time (during revenue low points), this suggests the need for a higher working capital reserve. At least one rating agency apparently agrees with the city, advocating that a government’s formal operating reserve policy take into account the

Exhibit I: Monthly Variance Analysis, Aggregated Chart

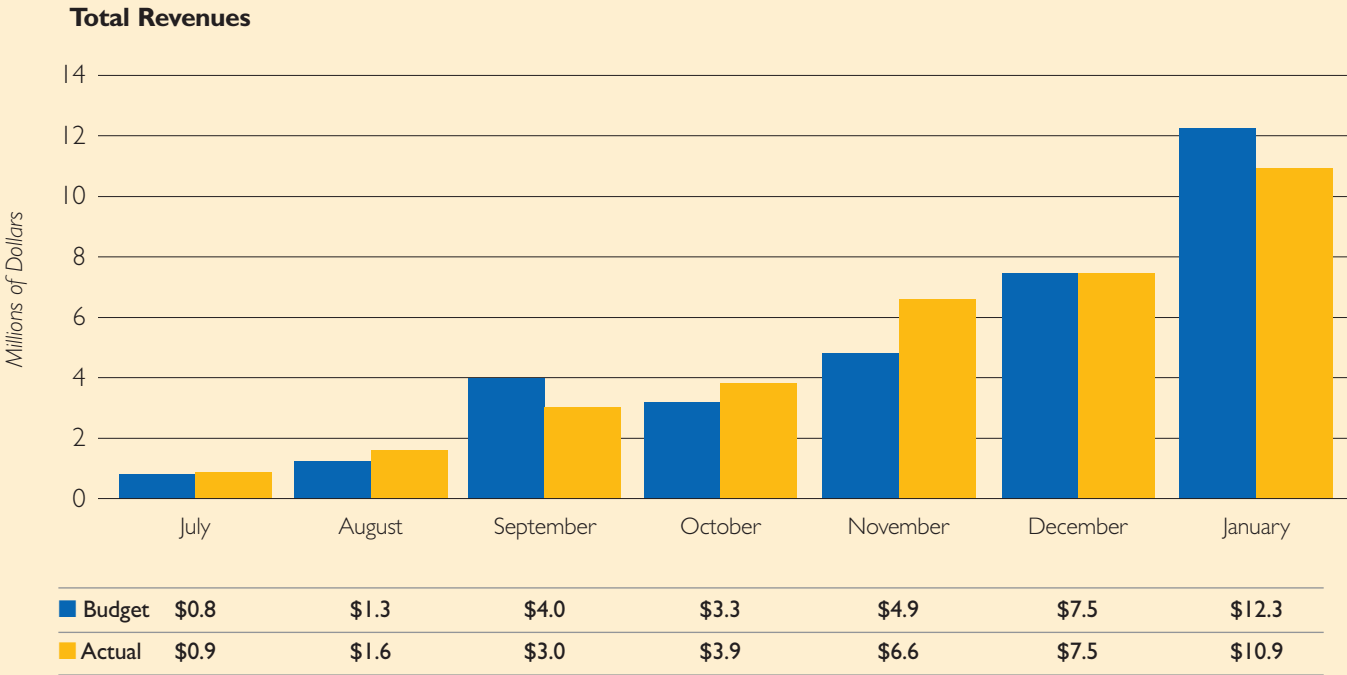


Exhibit 2: Montly Variance Analysis, Detailed Table

All Revenues Sources	Fiscal Year 2008-2009						FY 2007-2008		
	Annual Budget Adopted	Budget Adjusted	YTD Budget Jan 2009	YTD Actual Jan 2009	Favorable/ (Unfavorable)	Percent	YTD Prior Year	Change from Prior Year	Percent
Sales Tax	\$27,941,250	\$27,941,250	\$11,957,965	\$10,473,760	\$(1,484,204)	-12%	\$12,563,400	\$(2,089,640)	-17%
Property Tax	21,708,500	21,708,500	11,423,198	11,417,680	(5,518)	0%	11,059,684	357,996	3%
Hotel Tax	5,315,000	5,315,000	2,591,568	2,079,686	(511,883)	-20%	2,240,279	(160,593)	-7%
Franchise Tax	3,717,500	3,717,500	532,537	808,138	275,601	52%	445,022	363,116	82%
Community Services Fees	3,527,895	3,477,951	2,087,354	2,253,237	165,883	8%	1,989,651	263,586	13%
Utility Users Tax	2,218,500	2,218,500	1,119,272	1,196,681	77,410	7%	1,169,846	26,835	2%
Fines & Forfeitures	1,066,000	1,066,000	518,174	488,260	(29,914)	-6%	601,946	(113,686)	-19%
Documentary Transfer Tax	800,000	800,000	357,661	268,934	(88,727)	-25%	308,780	(39,845)	-13%
Motor Vehicle In-Lieu Revenues	496,500	496,500	222,266	162,519	(59,747)	-27%	210,300	(47,781)	-23%
Licenses & Permits	813,000	813,000	415,991	441,752	25,761	6%	493,634	(51,882)	-11%
Miscellaneous Revenues	352,573	352,573	221,102	137,922	(83,182)	-38%	285,724	(147,802)	-52%
Revenues from Other Sources	875,991	958,428	531,559	309,537	(222,023)	-42%	299,041	10,496	4%
Fees for Services	597,302	597,302	325,008	369,924	44,916	14%	343,115	26,808	8%
Community Development Fees	112,500	112,500	63,573	53,815	(9,758)	-15%	67,704	(13,890)	-21%
Public Works Development Fees	34,660	34,660	20,194	2,493	(17,701)	-88%	18,111	(15,618)	-86%
Total Operating Revenue	69,577,170	69,609,663	32,387,424	30,464,337	(1,923,087)	-6%	32,096,238	(1,631,901)	-5%
Transfers In	4,448,093	8,671,903	1,726,600	3,954,754	2,228,153	129%		(1,631,901)	
Total Revenues & Sources	\$74,025,262	\$78,281,561	\$34,114,024	\$34,419,090	\$305,066	1%	\$32,096,238	\$2,322,852	7%

government's cash flow requirements and volatility of revenues and expenditures.²

Managing Financial Stress. As far as most people are concerned, the primary use of cash flow and variance analysis for managing financial stress is making sure the bills can be paid. It describes where income and disbursements are coming from and where they are going. For example, during a recession in the early 1990s, Prince George's County found that summer is traditionally a lean time for revenues and that short-term borrowing would be needed to bridge those months. The county's elected officials did not generally look favorably on the prospect of short-term borrowing, but management was able to demonstrate, using its cash flow models, that bridge financing could be a responsible solution for the summer cash shortage because revenues would return in the fall. The county's cash flow model also served as the basis for communication with rating agencies. The county was able to maintain its bond rating, despite short-term borrowing, by

illustrating how the borrowing fit into a cogent financial strategy and by using the model to identify and explain variances from its financial strategy.

Cash flow and variance analysis is not just of value in a cash shortage. It foreshadows unfavorable trends that will develop into problems later in the year, thereby enabling better strategic management for both revenues and expenditures. For example, the City of Irvine used variance analysis to discover that its revenue income was fluctuating from monthly expectations (which were modeled on detailed month-over-month comparisons from previous years). This prompted the city to analyze its actual revenues in more detail, discover the root causes to the variances, and then adjust the city's short- and long-term forecasts accordingly. (Exhibit 1 shows a consolidated view of all revenues compared with monthly budgets for a hypothetical municipality. Exhibit 2 presents monthly variances by revenue type.)



Cash flow and variance monitoring can also help stabilize tax and fee changes, which is important to constituents who are also contending with the recession. The City of Scottsdale continually monitors its tax and fee performance against expenditures on a monthly basis.³ For instance, one of the city's goals is to keep its water usage rates stable, with incremental increases from year to year that users can afford

instead of less frequent but larger increases. By monitoring the extent to which water revenues are meeting current expenses and obligations, while simultaneously building up funds for future infrastructure projects, the city can avoid rate spikes and achieve long-run rate stability.

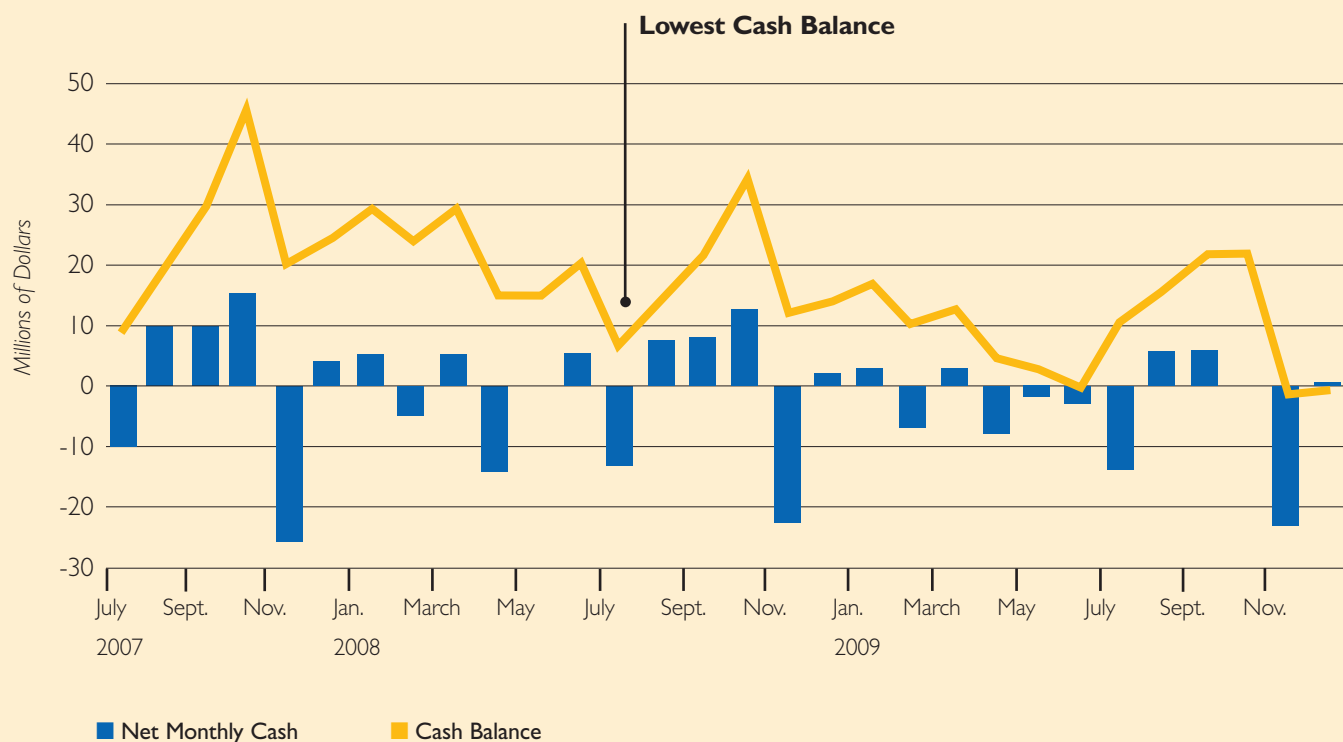
Many states are experiencing severe financial distress, and the effects are trickling down to local governments. Cash flow and variance analysis can be used to model legislative initiatives and proposed changes to financial plans. For example, a new law might defer receipt of revenues or even reduce them outright. In Scottsdale, the state legislature passed legislation to reduce the property tax assessment ratio for commercial property by 1 percent per year over five years. The city built cash models to see how this tax reduction would affect the availability of funding to provide a stable portfolio of essential services throughout the five-year projection period.

Modeling and monitoring salary variances for attrition or delayed recruitments helps Scottsdale develop more accurate assumptions for position vacancies. The city is able to make better long-term forecasts of salary expenditures and to better estimate the vacancy savings in its budget. The potential savings from position vacancies is significant, so it is critical to estimate them as accurately as possible.

Exhibit 3: Converting Annual Budgets into Monthly Estimates

E	F	I	J	K	L	M	N	O	P
		ALLOCATION METHODS							
		[OPEN]	0						
		STRAIGHTLINE	1						
		AVERAGE - 1 YR	2						
		AVERAGE - 2 YR	3						
		AVERAGE - 3 YR	4						
		QTRLY - 3RD MONTH	5						
		QTRLY - 1ST MONTH	6						
		MANUAL	7						
REVENUE GROUP	REVENUE TYPE	ALLOCATION METHOD	#	JUL	AUG	SEP	OCT	NOV	DEC
PROPERTY TAX	SECURED	AVERAGE - 3 YR	4	-	14,938	70,941	25,435	551,838	1,825,439
PROPERTY TAX	UNSECURED	AVERAGE - 3 YR	4	-	-	120,401	-	-	58,418
SALES TAX	SALES TAX	AVERAGE - 1 YR	2	-	-	1,576,638	1,313,034	1,750,713	1,897,416
SALES TAX	SALESTAX IN-LIEU	[OPEN]	0	-	-	-	-	-	-
DOCUMENTARY TRANSFER	DOCUMENT TSF TAX	STRAIGHTLINE	1	-	-	283,481	106,134	85,539	133,927
HOTEL TAX	HOTEL TAX (TOT)	AVERAGE - 1 YR	2	-	760,122	909,841	761,764	1,155,818	984,048
UTILITY USERS TAX	UUT-ELECTRIC	AVERAGE - 2 YR	3	960	123,324	329,195	398,101	390,213	332,345
UTILITY USERS TAX	UUT-GAS	AVERAGE - 3 YR	4	-	5,927	6,235	9,078	8,359	8,149
UTILITY USERS TAX	UUT-PHONE	QTRLY - 3RD MONTH	5	-	-	-	-	-	-
UTILITY USERS TAX	UUT-ALT MAX PAY	QTRLY - 1ST MONTH	6	-	15,796	63,146	62,956	67,786	63,566
		MANUAL	7	-	-	-	-	-	-
		AVERAGE - 3 YR	4	3,373	-	1,687	-	-	1,687

Exhibit 4: Cumulative Cash Flow



As a final example, Scottsdale uses cash flow and variance analysis for capital improvement projects that are in progress to determine the completion dates of projects that will affect operations (e.g., hiring, utilities). The timing of when a particular project will be completed, such as a fire station or a park, needs to be evaluated against the cost of facility utilities, maintenance, and new staffing costs. These supporting activities must be initiated when required at the project's completion and must also be affordable within a balanced budget plan. This area of capital improvement project work-in-progress analysis is also critical to properly timing and sizing debt issuances and pay-as-you-go funding for capital projects.

Communications and Exercise of Financial Leadership. For people who do not have a financial background, cash is potentially an easier concept to understand than accrual information. A more intuitive presentation of financial data creates a better understanding of the organization's financial position and better credibility for the finance officer, which helps the finance officer in leading financial strategies. For example, Irvine uses its analysis to help the City Council

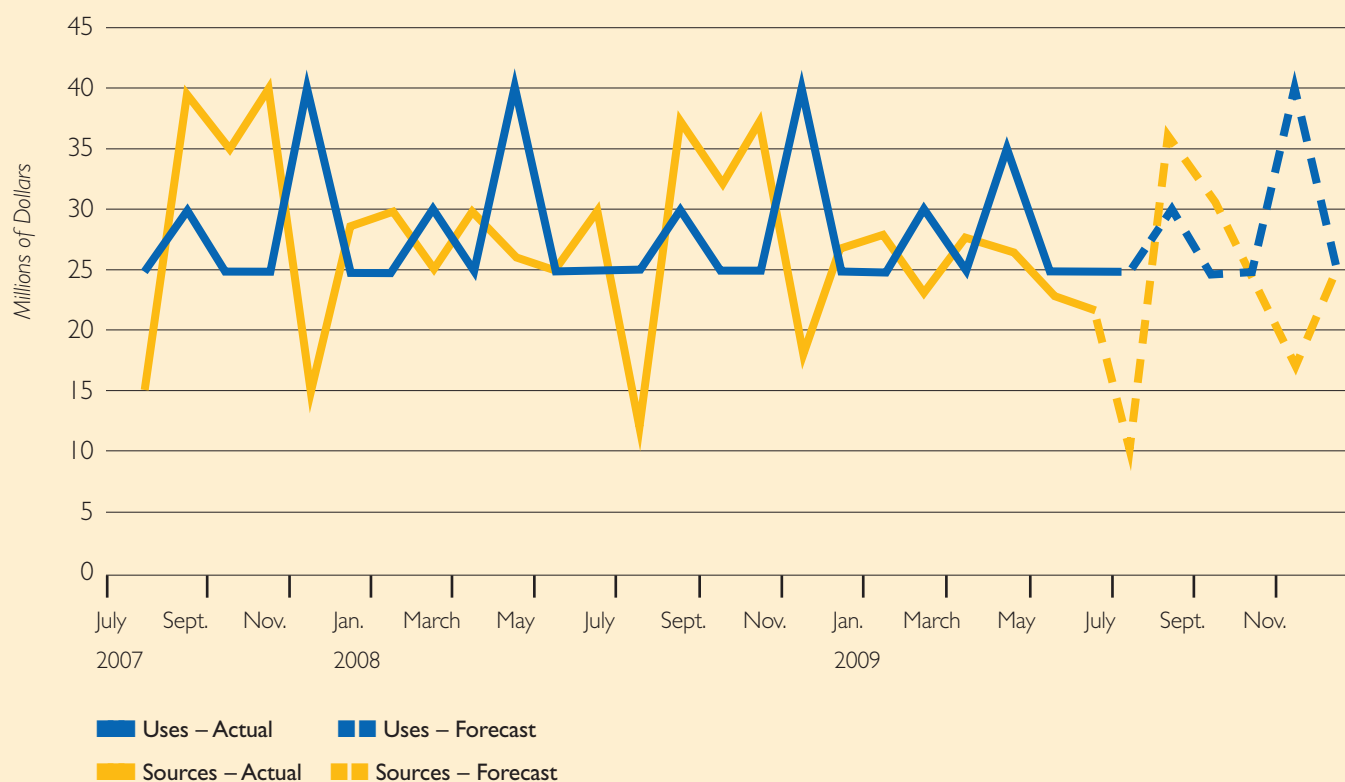
better monitor available funds for projects outside of the city's strategic business plan. This has helped restrain the tendency found in any political environment to add special projects beyond those originally contemplated in the budget. Irvine has also found that departments are more apt to use the city's analysis to communicate to relevant boards and the public, thereby infusing financial information into decentralized decision making.

ANATOMY OF CASH FLOW AND VARIANCE ANALYSIS MODEL

Foremost, a model breaks revenues and expenditures into meaningful categories. For example, inflows include receipts such as property taxes, utility payments, user fees, and investment income and maturities. Maturities include all items held in investments that will mature during the forecast timeframe. A number of factors should be kept in mind when developing the cash flow and variance analysis model:

- **Be Conservative.** Cash position is hard to change on short notice, and surprises are not uncommon.

Exhibit 5: Cash Uses and Sources



■ **Incorporate Historical Data.** Historical data is crucial for analyzing the month-to-month pattern that will be reflected in the model. Typically, two to three years of historical data can provide an adequate base of information, though up to five years is ideal. Keep in mind that new revenue sources with no historical track record will be added, and economic dislocation can reduce the predictive value of historical data. Exhibit 3 illustrates an example of techniques used for converting annual budgets into monthly estimates.

■ **Include a Way to Document or Footnote Important Assumptions or Historical Information.**⁴ These notes clarify the logic of the model and make it more accessible to users, and they can also be used to highlight points during the year when the forecast should be revisited — if, for example, new and valuable information on anticipated property tax receipts becomes available three

months into the fiscal year. In Microsoft Excel, the cell “comments” feature can be used to add and store such notes.

■ **Divide Sources and Uses into the Predictable and the Volatile.** The incidence of predictable expenditures such as salaries and benefits can be analyzed using historical experience. Expert judgment can be focused on the more volatile items.

■ **Engage Operating Departments.** Ideally, operating departments will be involved in developing reasonable expectations for when planned expenditures will occur during the year. However, Prince George’s County has found that departments are accustomed to building budgets for a year-long period and may find it difficult to make the switch to monthly perspective — as such, their broad input on a cash flow and variance model may not provide as much useful information as it could. Instead, it

might be more profitable to focus operating department input on helping finance offices sharpen their forecasts for unpredictable or non-recurring events such as capital projects and grants. During the year, departments should explain variances from the plan and find root causes of anomalies.

MODELING AND ANALYSIS

There are a number of ways in which cash flow and variance analysis can contribute a unique perspective to financial analysis. Below are some of the most important.

Analyze Special Situations. Modeling can help recognize the issues and situations that influence the organization's cash position. Diagnosing these items can lead to strategies for cash management techniques such as collecting receipts as soon as possible and managing disbursements judiciously — a good example is Scottsdale's analysis of capital project spending patterns to better align financing with the incidence of expenditures. Finance officers can use their expertise to decide what issues might provide most management benefit in their own organization.

Improve Forecasting. The cash flow curve from past years can be used to predict the same general pattern going forward. This knowledge will help with financial strategy development, such as Prince George's County's experience with knowing that lean summer revenues might lead to a need for bridge financing. In addition, variance analysis can help users recognize emerging trends that might suggest a change to the forecast. This information should be used to refine annual forecasts and, ideally, to create an adaptable system of monthly rolling forecasts, like the cities of Irvine and Scottsdale have done. Exhibits 4 and 5 show examples of cash flow curves and how they reveal trends across multiple years.

Analyze the Organization's Financial Position. Cash flow and variance analysis can introduce a number of analytical perspectives on the organization's current financial position.

■ **Budget versus Actual.** How does the monthly budget compare to actual experience? The power of this technique depends on using an appropriate formula to distribute the budget over the year.⁵

■ **Year over Year Comparisons.** Experience from the current month can be compared to the same month last year. Is there a logical explanation for any variance? Is the reason documented in footnotes in the analytical model?

■ **Year versus Year Comparisons.** Comparing the cash flow curve of the current year to those of previous years can provide a big-picture perspective on possible structural changes that may be occurring in government finances.

■ **Cash Flow and Accumulated Cash.** Analyzing this area shows how cash flow is expected to affect reserves. Since reserves are important to many elected officials, this type of analysis can resonate with them.

■ **Sources of Cash.** Maintaining historical revenue data provides a basis for analyzing trends in cash sources that may affect future revenue trends.



CONCLUSION

Cash flow and variance analysis provides tactical insight into financial position. It can reveal if the implementation plan for long-term strategies, as expressed through the budget, is proceeding as anticipated. It can indicate the need for updates to long-range forecasts. It can provide special analysis of and perspective on a variety of operational issues. This kind of tactical financial insight is essential during the current environment of instability. It helps ensure that essential services can be provided consistently and that long-term strategies can stay on track despite short-term volatility. ■

Notes

1. Budgets often use a cash or cash plus encumbrances basis of accounting, which then makes monthly variance analysis very compatible with cash flow analysis. If the budget is accrual based, then adjustments must be made to the budget numbers by adding or subtracting non-cash accounting components.
2. "Financial Management Assessment," a white paper from Standard and Poor's, 2006.
3. The Scottsdale examples were adapted from a GFOA white paper by Craig Clifford, "An Introduction to Cash Flow Planning and Long-Range Financial Planning," available at http://www.gfoa.org/downloads/CashFlowAnalysis_Scottsdale.pdf.
4. Richard S. Linzer, Anna O. Linzer, *Cash Flow Strategies: Innovation in Nonprofit Financial Management*. (Jossey-Bass: San Francisco) 2007.

5. For distribution techniques, see Christopher J. Swanson and Shayne C. Kavanagh, "Identifying Shortfalls: The Importance of Cash Flow Analysis in Times of Fiscal Stress," *Government Finance Review*, April 2009.

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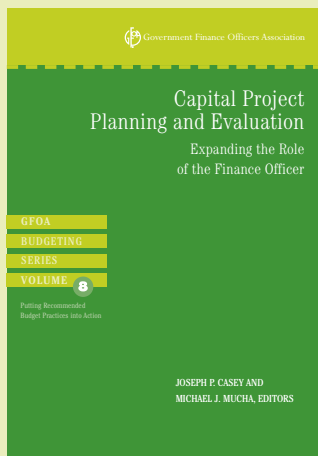
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A well prepared capital budget is necessary for successfully planning, funding, and implementing capital projects, but the process of recognizing capital needs and the creation of a capital plan occurs long before the development of the annual budget. Finance officers have an opportunity to contribute valuable insight at all stages in the capital planning process and help local governments make capital project investments that align with long-term service goals, objectives, and strategies.

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