CACTTC Education Conference
Burlingame, CA
October 10, 2013

Improving Portfolio Performance Through Better Cash Flow Forecasting

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The Cash Flow Forecast; What is It . . .?

- A management tool showing, as of a specific date or time, an estimate of:
  - the cash on hand

    PLUS
  - what cash will come in (receipts)

    PLUS
  - what cash will come from maturing investments

    MINUS
  - what cash will go out (disbursements)

- A good forecast tool enables the treasurer to become a more effective <u>investor</u>

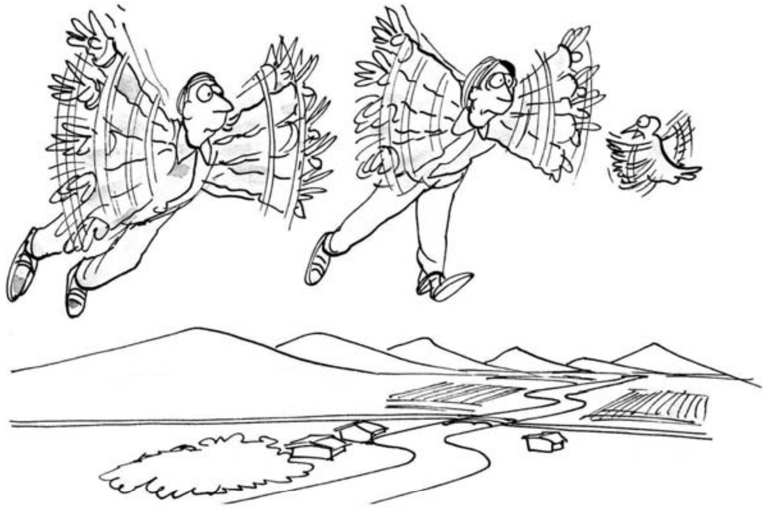
The Cash Flow Forecast Is NOT . . . the Budget

1. Budgets are an entirely different management tool
2. *BUDGET*: the process of establishing appropriations of funds to meet projected needs
3. There are essential differences between a "projection" and a "forecast"
4. *PROJECTION*: a "what-if" exercise. Example: "What if the State reduced our funding for budget item 'x'?"
5. *FORECAST*: "We think this can reasonably happen and the results shown are based on all knowable factors that might affect the outcome."

6. The budget appropriations create "encumbrances" that **reserve funds** projected to be available to satisfy projected liabilities; once they have been incurred, the cash is what pays those liabilities. **You need a FORECAST!**

Basic Goals for the Cash Flow Plan/Forecast

- Bring in the cash as quickly as possible
- Use the cash for identifiable/identified obligations
- Hold on the to rest as long as possible
- Keep the remainder invested in the most efficient manner



"Welcome to Change Management 101. We'll start with some free falls."

Benefits from Detailed Cash Flow Forecasting

- Assures greater liquidity
- Enables more effective investment decisions
  - If you know that the cash remains available, you will feel more confident in extending along the curve—that usually produces better yields and lower ticket costs
- Informs general management about the possibility of improvement/deterioration of the agency's fiscal condition—a deteriorating cash position is one of the key warning signs of fiscal crisis

Challenges in Preparing a Cash Flow Forecast

- How many periods to use?
  (San Mateo, for example, uses 16; that enables them to "see" two revenue cycles at once)
- How "granular" should the periods be?
  The State, in the peak of the fiscal crisis on 2009, began using daily cash flows!
- Good cash flow forecasts require the committed engagement of operating departments—this is <u>not</u> just a treasury function!
- It will require some education by you!
  Operating departments are trained to think "budget," but you want to re-train them to think "cash;" that may be harder than it looks.
- <u>The management cash flow forecast may share characteristics with the analysis you do for TRANs, but don't forget the audience!</u>

  The IRS doesn't care if you run out of money—they just don't want you to earn arbitrage!

Get Organized . . .

Decide on the forecast “horizon”

(Twelve months, sixteen months, etc.)

Determine the measurement period to be used

(monthly, quarterly, etc.; monthly is the most common)

Identify the “Big 3” revenue sources

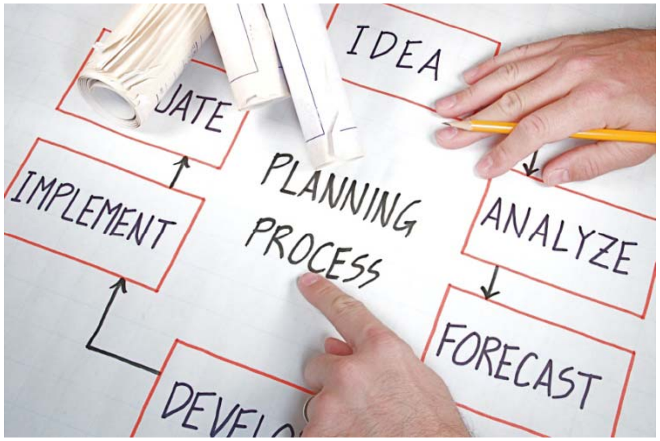
(aggregate the others, unless they vary wildly)

Document, document, document

(you <u>will</u> be asked to explain the assumptions!)

Kicking it Up . . .

- Consider some form of statistical analysis techniques to verify the relationship between economic activity and your "Big 3" receipt data
- The Philadelphia Fed publishes the "Livingston Survey" as a useful tool to obtain data on economic trends
- You are looking for high levels of "correlation" between economic events and your historical receipts
- Armed with that, you can model the future—within reason!
- "Past results do not guarantee future performance"



Own Your Data . . .

- An effective cash flow forecast is a management tool, therefore:
  - Management needs to be involved
  - Management needs to "own" the data prepared by others
- This is NOT a clerical function!

Trust, but Verify . . .

- Consider using variance analyses to "score" your forecasting accuracy after the fact—it will lead to improvement
- Variance analysis can help you forecast the future
  - By examining pattern of receipts over the past years, projecting receipts in the future may be easier (using % of total approach)
- Use scenarios—they can improve your performance!
- Resource: "*Tactical Financial Management: Cash Flow and Budgetary Variance Analysis*"

  by Shane Kavanagh and Christopher Swanson, Government Finance Review, October 2009.

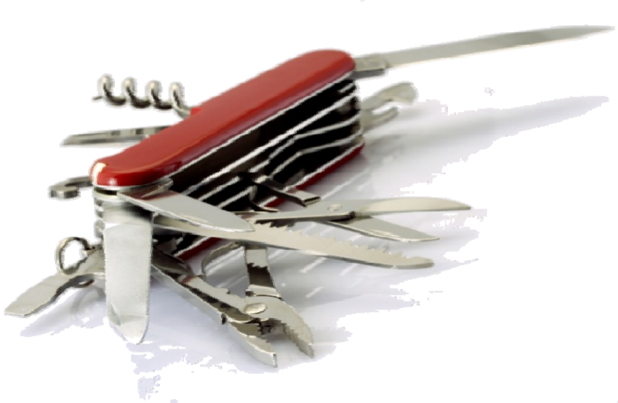
Where do You Want to Be Today, Milt?

- Baseline: the most probable set of expectations, based on the assumptions
- Optimistic: Results of "good things" happening to the most volatile items
- Pessimistic: Results of "bad things" happening to everything

  In other words, if you drop the jelly bread, assume that it will land face-down; and, that it will land on brand-new, snow white, wool carpeting that costs $90 per yard, uninstalled!

Techniques . . .

- Document, document, document
- Use an "assumptions" page
- Gather your "inputs" that affect the scenarios on one page, label it that way—this is where you can use modeling to "learn" the future!
- Avoid "hard coding" of numbers except where absolutely necessary
- The Excel "if . . ., then . . ." formula is your most powerful ally!



Here's an Example . . .

	% of Total	July	August	September	October	November	December	January	February	March	April	May	June	Total
GENERAL FUND BEGINNING CASH BALANCE		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
RECEIPTS:														
Property Taxes		-	-	-	-	-	-	-	-	-	-	-	-	-
Sales Taxes		-	-	-	-	-	-	-	-	-	-	-	-	-
Other taxes		-	-	-	-	-	-	-	-	-	-	-	-	-
All others combined		-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL RECEIPTS		-	-	-	-	-	-	-	-	-	-	-	-	-
DISBURSEMENTS:														
General government		-	-	-	-	-	-	-	-	-	-	-	-	-
Public safety		-	-	-	-	-	-	-	-	-	-	-	-	-
Community services		-	-	-	-	-	-	-	-	-	-	-	-	-
All others combined		-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL DISBURSEMENTS		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Net Cash Flow for Period		-	-	-	-	-	-	-	-	-	-	-	-	-
GENERAL FUND ENDING CASH BALANCE (before loans or repayments)		-	-	-	-	-	-	-	-	-	-	-	-	-
TEMPORARY LOANS (REPAYMENTS):		[redacted]												
GENERAL FUND ENDING CASH BALANCE		-	-	-	-	-	-	-	-	-	-	-	-	
AVAILABLE/BORROWABLE RESOURCES:		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
CUMULATIVE LOAN BALANCES:		-	-	-	-	-	-	-	-	-	-	-	-	
UNUSED BORROWABLE RESOURCES:		-	-	-	-	-	-	-	-	-	-	-	-	
TOTAL OF CASH & UNUSED BORROWABLES		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
CASH & BORROWABLES AS % OF DISBURSEMENTS		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
CASH & BORROWABLES DOH (of Disbursements)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Unassigned fund balance reserve level per policy: $1.2 million

The "Big 3"

About the Example . . .

- The only data that is “hard coded” is the yellow box that shows the starting cash
- The pink field at the bottom populates from an assumptions page
- The “available/borrowable” resources can include both internal and external borrowings (use caution!)
- The line highlighted in black is where the “if, then” statements can be entered, using the data from the assumptions page, including the “policy-driven” reserve level shown as a note at the bottom.
- Learn to use the Excel “camera” tool to show you the results of your inputs as you make changes
- Notice the “% of total” column—that’s designed to help policy-makers understand the dynamics of the scenario results based on the “Big 3”
- Notice that the analysis shows the “days cash on hand” in the last line—a valuable tool for comparing year-over-year data and estimating “basic” liquidity

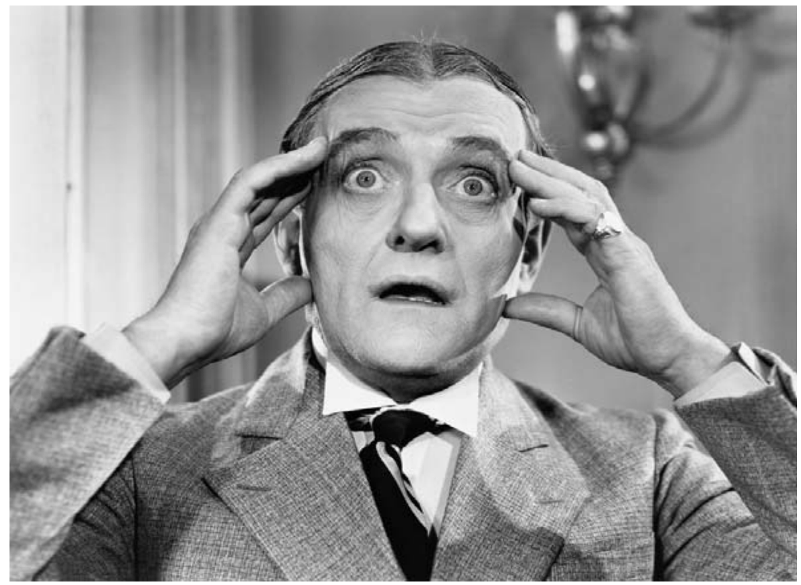
Adapting to Your Daily Needs . . .

- If you have done any variance analysis, you'll already have a sense of what days of the month are more "cash plentiful" than others.
- That's why a granular analysis of the data is critical.
- Consider reducing the length of the period being forecast for those months that are particularly lean (that's what the State does!)
- REMEMBER: always, always observe the minimum "safe" level.

(You have determined that, haven't you?)

- Consider developing a "wedge" strategy instead of a simple ladder until you get better at the forecasting.
- Once you've become proficient, you'll be extending out the curve and improving investment performance in no time!

Questions and Discussion . . .

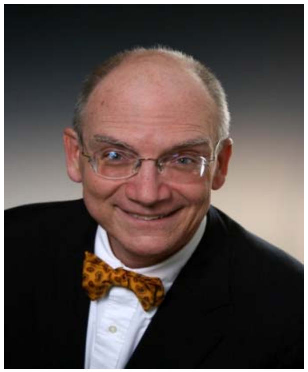


More information is available from . . .

- GFOA
  - Especially “Treasury Management” Newsletter of April 6, 2007 (Vol. 25, Number 4)
  - Policy statements and “best practices” from their web site
- The credit rating agencies
- Each other!
- This type of conference; CDIAC publications, etc.
- Federal Reserve Banks, especially Philadelphia and St. Louis
- “Cash Flow Forecasting Guide.”

  (Association of Public Treasurers of the United States and Canada)

The Speaker . . .



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Tim Schaefer is the founder of Magis Advisors, a public finance consulting firm in Orange County, California. He has more than forty years of experience in the municipal securities industry.

Prior to entering the financial advisory field, Tim managed the national municipal trading desk at Chemical Bank in New York City. He also managed the Public Finance Division of Bank of America in San Francisco.

He served more than twenty years on the Technical Assistance Committee to the California Debt and Investment Advisory Commission (including three terms as its chairman) and three years as a private sector advisor to the Standing Committee on Governmental Debt of the Government Finance Officers Association.

He is a co-author of the California Public Funds Investment Primer, published by CDIAC in 2006 and has authored a number of articles on the field of municipal finance.

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Tim is a registered investment advisor representative. Magis is an SEC and MSRB-registered municipal advisor.