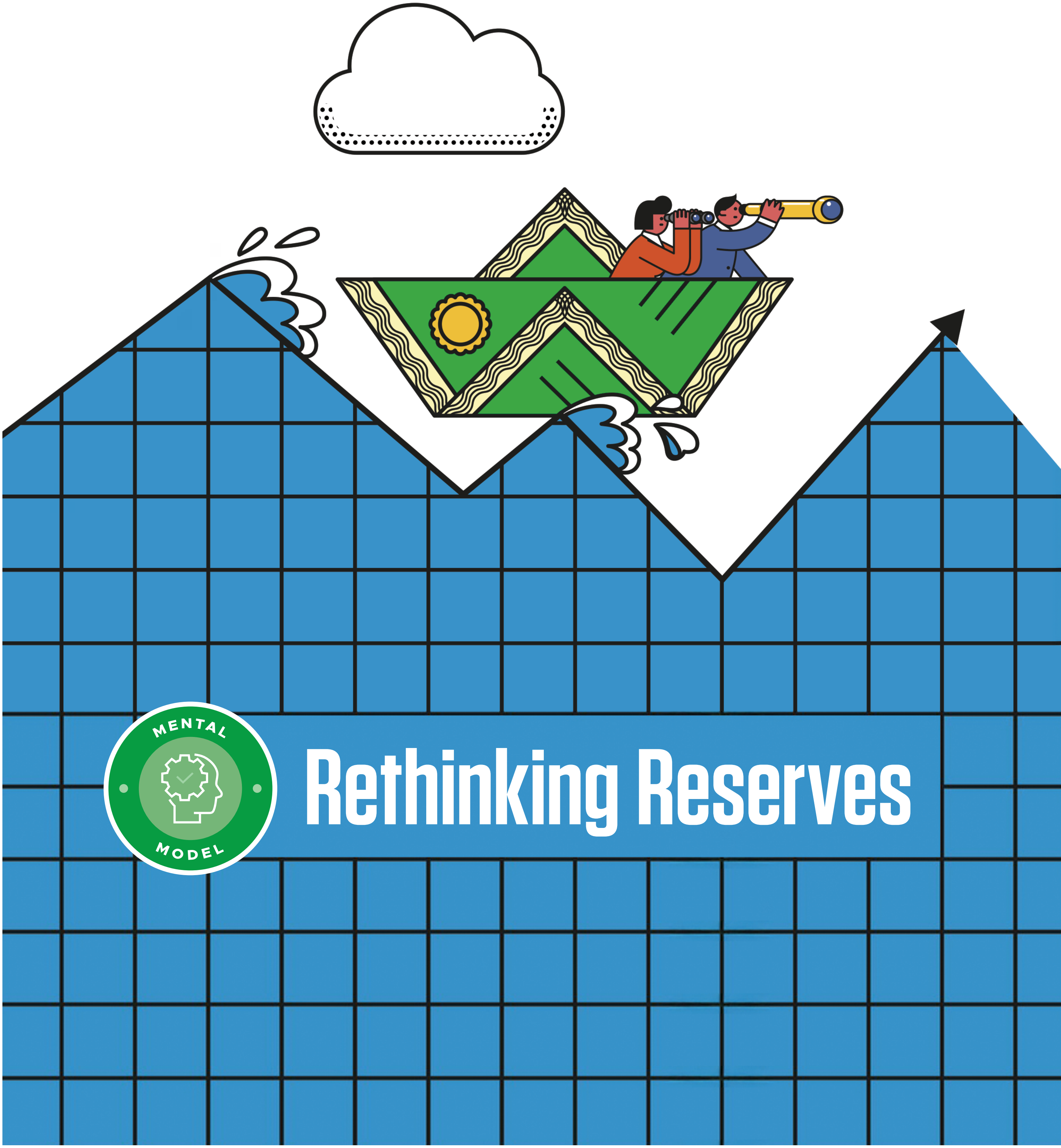


Rethinking Reserves

What is a mental model?

A mental model is a representation people hold in their heads of how things work in the real world. A good mental model simplifies complex systems in a way that helps people make more informed and better decisions. Finance officers can improve their own thinking and support others in making better decisions by creating and sharing better mental models for complex public finance topics.

Using a mental model to rethink reserves

"Reserves" is a budget and policy term that describes the resources available outside of the budget for use if the resources appropriated inside the budget are insufficient. This offers protection against unplanned, unavoidable costs or losses. Why do we need a mental model for rethinking reserves?

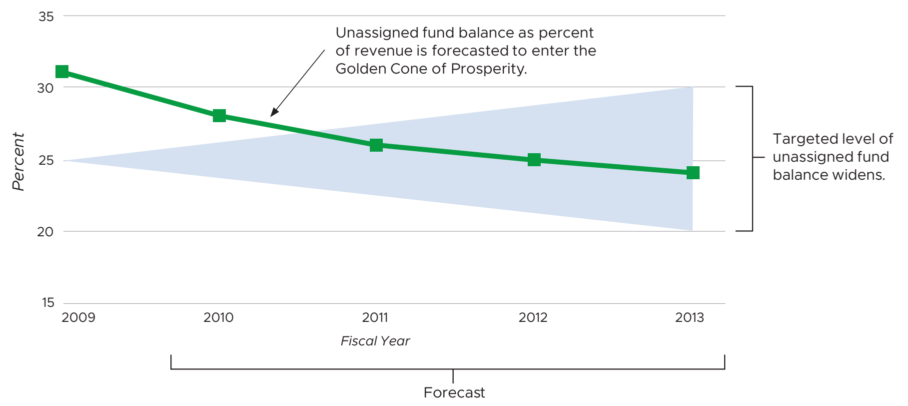
The traditional mental model for reserves is "the savings account." This model is easy to grasp, and it seems like an obvious parallel to our personal lives—but it's too limited. Savings is more commonly seen as deferred spending than as a way to manage risk. It implies that more is better, which isn't necessarily the case.

What is the alternative? The insurance policy model. A reserve manages volatility; risk is a product of volatility; therefore, reserves help manage risk. One advantage is that it also provides an obvious parallel to our personal lives. This model invites us to think how commercial insurance complements reserves and implies that there is an optimal amount, and it also invites us to think how commercial insurance complements reserves.

The best way to think about reserves is to combine the insurance and savings account models. The first step is to approach risk analysis by thinking of it as a range rather than a single point—that is, instead of deciding that your policy is to maintain reserves equal to 20 percent of annual revenue, for example, it's better to target maintaining reserves between 15 and 25 percent of annual revenue.

Why think of reserves as a range? It recognizes that you need a margin of error to manage risks; accommodates different risk appetites; better supports strategic, long-term thinking; and provides a clear floor and ceiling. This mental model is demonstrated by the "golden cone of prosperity" (see Exhibit 1).

EXHIBIT 1 | **Tempe's Golden Cone of Prosperity in 2009**



Defining your reserve range

How do you arrive at your range? There are many different methods, but three popular approaches are qualitative risk analysis, the "single number" qualitative analysis method, and the "chance-based" qualitative analysis method.

Qualitative analysis is the most accessible approach, and it helps you assess your exposure and then consider a range to accommodate that exposure. It's easy, and it gets people thinking about risk. Still, there are cons—the results are subjective, which raises the chance of error.

Chance-based qualitative analysis is the method used by insurance companies. Risk is not condensed to a single number; rather, it uses the full range of variation. This provides the best estimate of optimal reserve range, and the best way to take advantage of "power tools" of risk-aware thinking. Technology makes this more practical than ever before. It might, however, require special training and/or consulting support.

The importance of overcoming biases

We need these tools, in part, to help us overcome our inherent cognitive biases. These include:

- **Overconfidence bias.** We are overconfident in our predictions and underestimate uncertainty. Research shows we usually underestimate uncertainty by around 50 percent.
- **Availability bias.** Details that are more easily recalled are overweighed when assessing risk (e.g., flood insurance).
- **Confirmation bias**. Random patterns will be taken as evidence if they match an expectation.

Risk is in the eye of the beholder—but how much is enough? We need to balance the level of services we provide today with using funds to prepare for the future. The correct answer for your organization will depend on your own risk tolerance, future plans, and values of key decision makers. To find your "Goldilocks," just-right amount of reserves, go to **gfoa.org/risk-analysis.**