



FIRST REPUBLIC

EMERGING MANAGER OPERATIONAL ROAD MAP
REAL-WORLD INSIGHTS FROM THE EXPERTS

Venture Fund Portfolio Construction Models



Introduction

One of the first steps a general partner (GP) must take when starting a venture fund is to develop the fund's investment strategy. Next, it's important to develop or quantify that strategy in a financial model that can be understood by prospective investors.

The rules and parameters that define how a fund's portfolio is constructed drive the operation of the fund and its performance. Consequently, portfolio construction is a major consideration potential investors use to evaluate a manager during fundraising, as well as offering GPs and limited partners (LPs) guidance over the fund's operation.

First Republic Bank recently organized a **panel of experts** to discuss the role and construction of portfolio allocation models, the latest real-world modeling insights, and identification of modeling best practices and common errors. The discussion was directed to First Republic's growing community of venture CFOs and GPs. This document highlights the key points made by panelists.

Expert Panel

Anubhav Srivastava, Founder of Tactyc, a platform that makes it easy for managers to construct and manage portfolios. He previously spent five years at a venture capital fund.

Mike Palank, one of the founding GPs of MaC Venture Capital, a seed-focused venture firm that was an early investor in Tactyc

Taylor Davidson, Founder and CEO of Foresight, which builds financial projection models for startups and venture capital firms

Sean Park, Managing Director, Business Banking, First Republic Bank (moderator)

This article is part of Emerging Manager Operational Road Map: Real-World Insights From the Experts, First Republic's series for emerging manager VCs.

What Is a Portfolio Construction Model, and Why Is It Important?

"I think of a portfolio construction model as a quantitative representation of an investment strategy or an investment thesis," says Taylor Davidson, Founder and CEO of Foresight, a firm that builds financial projection models. "It provides a way to visualize how you're going to invest, over time, the capital you raise from investors. It's a rationalization of your investment approach."

"I like to say, you wouldn't go out and build a house without a blueprint," adds Mike Palank, a founding GP of seed-focused venture firm MaC Venture Capital. "Similarly, it's foolish to go out and start to deploy capital out of a fund without a portfolio construction model. It is your blueprint for how you plan to operate and deploy capital."

"A thoughtful portfolio construction model is driven at its core by what you are really good at, which defines your investment strategy," Palank points out. A good model with this basis enables you to think methodically about key variables such as fund size, expenses and returns. Extending the blueprint analogy, Palank says: "You don't build a blueprint and throw it away as you start building a house. You go back to it every day and make sure that you are on target. And if you are deviating, make adjustments — the same with a fund model."

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TAYLOR DAVIDSON
FORESIGHT

The Model-Building Process

"It's the process and the journey of building a model that's far more important than what tool you're using, according to Anubhav Srivastava, Founder of Tactyc, a firm that provides portfolio-building tools. In line with this thinking, Davidson reflects on developing a solid model. "I think there is a path of increasing tool sophistication that a GP goes through as they evolve their business," says Davidson. He thinks a spreadsheet works fine when you first start thinking about what a fund would look like, but "as you evolve and want to be able to manage an increasingly complicated business, you need to move beyond spreadsheets to a model that can handle a lot more detail."

The basic inputs for building a portfolio construction model come from a GP's investment strategy — many of which can be sourced directly from a limited partnership agreement (LPA). As shown below, the key parameters represent the model's constraints and operating assumptions. These are integral in determining headline outputs such as performance metrics, including IRR, DPI and TVPI, which LPs care about.

Key Fund and Portfolio Allocation Parameters

Fund size: The amount of capital committed to the fund.

Investment period: The period during which the fund will be making initial investments.

Management fees and carry percentages: Typically, funds have a 2% yearly management fee over the 10-year life of the fund (for a total of 20% of fund size) to cover all overhead expenses and a 20% carry (the percentage of profits the GP receives after investors are paid back in full).

Fund level expenses: Other expenses that are deducted directly from the fund assets. These fees include legal setup costs; fundraising expenses; and other administrative, legal and infrastructure costs.

Number of total company investments: Some funds run a concentrated strategy and aim to invest in a total of 12 to 15 companies over the life of the fund; others take a more diversified approach and aim to invest in 30 to 40 companies.

Average initial check size: The average amount that will be invested in the first round of fundraising (assuming that more will be invested in the top-performing companies if there's allocation to follow-on investments).

Target ownership from initial investment: The percentage of the company the firm will look to get with its average initial check size.

Allocation parameters: The dollar allocation for each stage of investment.

Follow-on reserves: The percentage of the fund that will be reserved to make follow-on investments into the fund's best-performing companies.

Follow-on rounds: The number of rounds the fund intends to participate in.

Fee and expense recycling: Reinvesting exit proceeds to cover fund expenses and fees.

Targeted net return: The targeted amount of capital the fund looks to return to its LPs.

Graduation rate: The likelihood that a company will graduate from its present investment stage.

Exit rate: The likelihood that a company will exit.

Sources: Mike Palank and Anubhav Srivastava.

As the model's assumptions and calculations are updated, Srivastava notes, GPs gain guidance on whether they're investing in line with their strategy. In his experience, "It's best to enter the early phase of model building with as open a mind as possible about the process — and let the model, for example, tell you what your reserve should be or how many deals you should be doing, as opposed to you defining them as inputs."

Trade-Offs: Detail Versus Simplicity and How to Think About Graduation Rates

In thinking about the trade-off in models between detail and simplicity, Palank likes to cite a lesson learned when he raised his first fund and had no deep knowledge about fund construction strategy. "I thought the general rule was that you arbitrarily picked a follow-on reserve — the average being 40% to 60%," he says. "We thought 40% follow-on for fund one, and we were going to put that 40% into our top 25% performing companies." But taking this non-modeled approach didn't make sense. "How can you say you're going to put your allocation in your top 25%? What if you're only halfway through allocating into your initial investments? Without a detailed model, you can't think about the different options in a disciplined way."

Experience has taught Palank that GPs should think more about the graduation rate. "If we invest in 50 company portfolios and it's a 50% Seed to [Series] A graduation rate — that means we'll have 25 companies raising Series A rounds," Palank says. "What percentage of those 25 do we want to do, and what percentage can we do?" The bottom line for Palank is that there's added value in thinking in a more granular way,

which can take in human dynamics (e.g., interaction with founders) and enables a more thoughtful and informed approach.

Srivastava notes that his tool graduation rates are preloaded in industry profiles — so a GP can, for example, look at the graduation rates for AI or for e-commerce companies. These benchmarks are sourced from third parties such as NVCA, PitchBook, Aumni and Crunchbase. In his experience, most managers, especially those who have moved to a second fund, tend to override these benchmarks in favor of the experience gained from their first fund investments. As a rule, Srivastava notes: “If you have market data, use that as a starting point. If you have your own track record data, you can use that to override the market data if you can convince your LPs.”

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MIKE PALANK
MAC VENTURE CAPITAL

Follow-On Reserve Strategies: An Important Modeling Consideration

GPs who invest in early rounds of startups tend to be in a great position to both evaluate and positively impact a founder’s success. If you’ve negotiated a pro rata right, then when the next round is raised, you’re positioned to invest more money and maintain your ownership percentage. Consequently, GPs put aside a percentage of their fund as follow-on reserves to reinvest in their best-performing companies.

In thinking about reserve strategy, Davidson always asks GPs, “What’s your overall fund strategy?” He points out that you can gain more flexibility in thinking about your reserve strategy by looking beyond raising or optimizing one fund and instead focusing on managing capital to deploy over multiple funds over a long period of time.

What are GPs in the market doing with respect to follow-on reserves? Srivastava shared an analysis that looked at follow-on reserve percentages, on average, across funds for Q3 2021. He found that the smallest funds — those less than \$50 million — and the largest — those greater than \$200 million — have the widest variance in their follow-on strategies (see the table below). This group, he points out, “is investing as little as 22% in reserves all the way up to 60%, while the midsize funds are investing up around 45% to 50%.” In Srivastava’s view, this means that some of the smaller funds are willing to increase their concentration on initial investments — whereas some midsize funds appear to be less willing to do so. The lower share of follow-on reserves, he cautions, may be explained by the rise in special purpose vehicles (SPVs) and opportunity funds for reinvesting.

Initial vs. Follow-On Capital by Fund Size

Fund Size	Lower Quartile		Median		Upper Quartile	
	% Initial	% Follow-On	% Initial	% Follow-On	% Initial	% Follow-On
<\$50M	40%	60%	52%	48%	66%	34%
\$50M–\$100M	45%	55%	48%	52%	53%	47%
\$100M–\$200M	45%	55%	51%	49%	59%	41%
\$200M+	45%	55%	62%	38%	78%	22%

Source: Srivastava presentation.

Fee Recycling Challenges

The fact that there are multiple forms of fee recycling presents a source of GP confusion, according to Srivastava. “There’s the concept of straight exit proceeds recycling — which means whenever you have an exit, some percentage is taken and is applied to a new investment until a cap of committed capital is reached,” he says. Second, “there is management fee recycling (which is also exit recycling). It’s just capped up to the level of management fees earned to date.” According to Srivastava, most funds recycle 20% to 30% of their committed capital base. This is where LPs get back their fees as well as a small share of expenses. Srivastava adds, “The data shows that you have a higher chance of successfully raising a fund if you are recycling and are aligned with your LPs.”

Common Issues and Mistakes

Davidson notes that one of the bigger mistakes GPs make in portfolio construction and modeling is with respect to reserve strategy. He points out that it’s very common for GPs to “focus on what their first, second and third check sizes are going to be in terms of follow-on investments — but [they] give less thought to their actual ability to get into these quality deals and what they need to do to maintain their pro rata ownership stake.” Another set of mistakes concerns capital deployment and budgeting for fees over time. All the money raised from investors does not go strictly into investing, but some goes toward management fees to support the fund, and some extra fees get charged to the fund on top of that. For a first-time manager, he points out, “this can create confusion about what fees get charged to the fund, how those fees work and then how to budget for them appropriately.” A basic takeaway, Davidson suggests, is that “when you are putting together a fund model, realize up front that not all the committed capital can be allocated to investments.”

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FORESIGHT

“What we’ve seen is that GPs tend to not spend enough time on expenses,” says Srivastava. “They spend a lot of time on management fees, but expenses are not something that they usually build out a full budget for or give much thought.” The reality is this: Expenses matter — as they reduce your investable capital. They “represent dollars that are never going to see the light of day in terms of real investment.”

“Many portfolio construction problems can be traced to not carefully distinguishing what are a model’s inputs and outputs.”

ANUBHAV SRIVASTAVA
TACTYC

According to Srivastava, “Many portfolio construction problems can be traced to not carefully distinguishing what are a model’s inputs and outputs.” Similarly, managers need to think carefully about identifying constraints. Is it the number of deals, a small team size, the check size, or because you want a certain ownership? By identifying constraints, “you can let all the other pieces fall out where they may, instead of trying to have them fit into a specific profile that you might be looking for.”

“At the same time, when you start changing assumptions or changing ideas, it can be hard to manage the portfolio construction process and make sure the model structurally works,” warns Davidson. He notes that it can be hard to create the deployment of capital that matches up with fees and total committed capital. “It’s a common error that happens when you try to build a per-investment-style structure — as it encourages you to make a lot more assumptions, input more data and thus create more opportunity for errors,” Davidson points out.

“The fact that return structures over many companies are based on power laws suggests the need to be careful about creating a deterministic model, given they are likely to introduce even more variability into the results.”

Final Thoughts

Portfolio construction models are meant to provide a clear picture of how fund managers plan to execute their investment strategy. Thus, they’re critical tools for informing perspective investors of the credibility of a manager’s investment thesis and providing a fund manager with guidance on whether they’re investing in line with their strategy. As highlighted by the expert panel, well-constructed models enable fund managers to think in a critical and disciplined fashion about the trade-offs involved in important investment strategy parameters, such as follow-on reserves, graduation rates and budgeting for fees.

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