The Issue We'll Address

- Combining portfolio returns that involve both private and public equity, can be a challenge, since privates are typically measured using the IRR (money-weighted), while publics use time-weighting
- How can this be done to provide the most meaningful information to the clients, prospects, or stakeholders
- <u>Note</u>: there are a lot of calculations in the slides that follow. I'm happy to provide copies my spreadsheets that contain all the details, if you'd like

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Our approach

- We will assume the entity we're looking at is an asset owner or an OCIO, although it can be applied to any organization that has portfolios with a mix of assets, where returns for some are measured using TWRR and MWRR for others
- <u>The question</u>: how should we measure the performance of a collection of portfolios as well as the entire portfolio?
- The ideas shared will hopefully spark discussion and insights

The source for what we'll review

Much of what will be presented is derived from "Combining Returns of Multiple Portfolios," an article to be published in *The Journal of Performance Measurement®*, Summer 2025

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Quick framing of what will be provided; it's a:

heterodox

adjective

het·ero·dox | \ ˈhe-tə-rə-ˌdäks (audio), ˈhe-trə- \

Definition

1 : contrary to or different from an acknowledged standard, a traditional form, or an established religion : UNORTHODOX, UNCONVENTIONAL

// *heterodox* ideas

2 : holding unorthodox opinions or doctrines

// a *heterodox* religious sect

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Background

- Combining returns of two or more portfolios is frequently done
- It is a fundamental part of the GIPS® standards, which require compliant firms and asset owners to combine returns using an asset-weighted methodology, regardless of what *type* of assets that are held (e.g., public equities, private equities, real estate)
- In addition to the two asset-weighted methods, firms may use the "aggregate method" for composite returns.

Example of a GIPS-acceptable approach
We combine the portfolios' returns using the beginning period plus weighted flows method

Example of a GIPS-acceptable approach

We combine the portfolios' returns using the beginning period plus weighted flows method

Portfolio	V_0	January				
		Cash Flow	CF Weight	Overall Weight	Return
A	1,100,000	50,000	0.87	19.29%	4.85%
B	1,150,000	100,000	0.55	20.32%	1.00%
C	1,170,000			19.74%	0.43%
D	1,200,000			20.24%	0.42%
E	1,210,000			20.41%	0.58%
Composite	5,830,000	98,387		100.00%	1.43%

$$R_{Composite}^{BeginningValuePlusWtdFlows} = \frac{\sum_{i=1}^{n}\left[V_{0_i} + \sum_{j=0}^{m}\left(C_{i,j} \times W_{i,j}\right)\right] \times r_i}{\sum_{i=1}^{n}V_{0_i}\left[+ \sum_{j=0}^{m}\left(C_{i,j} \times W_{i,j}\right)\right]}$$

Challenges: dealing w/a mix of assets, where typical their return calculations differ, e.g.

- Private equity:
  - Typically valued quarterly
  - Uses since-inception IRR
- Public assets:
  - Typically, valued at least monthly, if not daily
  - Uses a time-weighted return method

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Our approach

- We will consider three broad scenarios, and suggest ways to calculate the combination of their respective portfolios' returns
- We will suggest what the results translate into; i.e., what they mean and/or what question(s) they answer

Recall

- **Time-weighted** returns are used to measure *the performance of managers that <u>do not control</u> the external cash flows* (e.g., typical for firms who manage public assets, such as public equities)
- Money-weighted returns are used *to measure the performance of managers that <u>do control</u> the cash flows* (e.g., typical of private equity managers).

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Only TWRs

- We repeated the same asset-weighted approach as shown earlier for January, to derive the returns for the entire year.
- These returns were geometrically linked, to yield the annual portfolio and composite returns.
- This approach works well for portfolios using TWR, and is frequently done by GIPS-compliant firms

Portfolio	Annual Returns
A	2.64%
B	-4.21%
C	-0.67%
D	5.06%
E	4.18%
Composite	1.34%

What does the return measure?

- The TWR of a group of portfolios tells us *how they performed as a group*: how the collection of public asset managers performed.
- We typically compare the results with a benchmark.
- If the portfolios represent different strategies or asset classes (e.g., 80% equities; 20% fixed income), we would expect the indexes to be asset-weighted accordingly.
- Each individual portfolio's TWR tells us how that manager did

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Only IRRs

- For our example, we will consider a plan that is invested in three different partnerships, each being measured using the IRR
- And, we will consider two approaches to derive the overall return

Only IRRs

- The IRRs were calculated using XIRR, with the first order of approximation derived using Modified Dietz.
- Here are the details for General Partnership A (GP A).

General Partnership A			For Modified Dietz	
	Dates	Amounts	Amounts	CF Wts
Start Date	1/1/2023	(1,000,000)	1,000,000	
CF #1	3/15/2023	(100,000)	100,000	79.73%
CF #2	6/30/2023	(150,000)	150,000	50.41%
CF #3	9/20/2023	(200,000)	200,000	27.95%
End Date	12/31/2023	1,500,000	1,500,000	
Mod Dietz	4.13%			
IRR	4.14%			

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The three partnerships individual returns

Note: these two start at the beginning of the year

While the third starts in March

General Partnership A	Dates	Amounts
Start Date	1/1/2023	(1,000,000)
CF #1	3/15/2023	(100,000)
CF #2	6/30/2023	(150,000)
CF #3	9/20/2023	(200,000)
End Date	12/31/2023	1,500,000
Mod Dietz	4.13%	
IRR	4.14%	

General Partnership B	Dates	Amounts
Start Date	1/1/2023	(1,500,000)
CF #1	4/10/2023	(150,000)
CF #2	7/15/2023	(200,000)
CF #3	10/22/2023	225,000
End Date	12/31/2023	1,700,000
Mod Dietz	4.52%	
IRR	4.54%	

General Partnership C	Dates	Amounts
Start Date	3/5/2023	(1,700,000)
CF #1	4/20/2023	(100,000)
CF #2	8/1/2023	(200,000)
CF #3	11/5/2023	(300,000)
End Date	12/31/2023	2,400,000
Mod Dietz	5.27%	
IRR	5.16%	6.29%

Regarding General Partnership 3

General Partnership C		
	Dates	**Amounts**
Start Date	3/5/2023	(1,700,000)
CF #1	4/20/2023	(100,000)
CF #2	8/1/2023	(200,000)
CF #3	11/5/2023	(300,000)
End Date	12/31/2023	2,400,000
Mod Dietz	5.27%	
IRR	5.16%	6.29%

This is what XIRR calculated, but it's automatically annualized

Since the period is < a year, we need to de-annualize it

$$XIRR_{De-Annualized} =$$

$$(1 + XIRR_{Annualized})^{(\frac{\#DaysInPeriod}{365})} - 1$$

Method 1: Asset-Weight the Individual IRRs

- We use the same approach as we used for TWR
- We use the beginning values of each GP (V_0) and their weighted cash flows to derive their respective weights.
- These weights are multiplied times their IRRs to get the overall IRR

	IRR	V_0	Wtd CFs	Weights
GP A	4.14%	1,000,000	211,233	27.10%
GP B	4.54%	1,500,000	157,740	37.09%
GP C	5.16%	0	1,601,096	35.82%
Asset Wtd IRR	4.65%	2,500,000	1,970,068	100.00%

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Method 1: Asset-Weight the Individual IRRs

- The overall combined result (4.65%) tells us how the private equity managers performed
- This is equivalent to what we do with public managers, where the results tell us how those managers performed.

	IRR	V_0	Wtd CFs	Weights
GP A	4.14%	1,000,000	211,233	27.10%
GP B	4.54%	1,500,000	157,740	37.09%
GP C	5.16%	0	1,601,096	35.82%
Asset Wtd IRR	4.65%	2,500,000	1,970,068	100.00%

Method 2: Treat the partnerships as a single portfolio

- This is similar to the *aggregate method* that is permitted for GIPS composites
- V_0 is a combination of A & B
- V_E combines all three GPs
- The flows are from all three, too
- The result tells us how the private assets performed *as a collective*; <u>not</u> how the individual managers

	Combined GPs		For Modified Dietz	
	Dates	Amounts	Amounts	CF Wts
Start Date	1/1/2023	(2,500,000)	2,500,000	
CF #1	3/5/2023	(1,700,000)	1,700,000	82.74%
CF #2	3/15/2023	(100,000)	100,000	80.00%
CF #3	4/10/2023	(150,000)	150,000	72.88%
CF #4	4/20/2023	(100,000)	100,000	70.14%
CF #5	6/30/2023	(150,000)	150,000	50.68%
CF #6	7/15/2023	(200,000)	200,000	46.58%
CF #7	8/1/2023	(200,000)	200,000	41.92%
CF #8	9/20/2023	(200,000)	200,000	28.22%
CF #9	10/22/2023	225,000	(225,000)	19.45%
CF #10	11/5/2023	(300,000)	300,000	15.62%
End Date	12/31/2023	5,600,000	5,600,000	
Mod Dietz	5.02%			
IRR	5.05%			

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Method 2: Treat the partnerships as a single portfolio

- Note that GP C's initial funding is captured as an inflow

	Combined GPs		For Modified Dietz	
	Dates	Amounts	Amounts	CF Wts
Start Date	1/1/2023	(2,500,000)	2,500,000	
CF #1	3/5/2023	(1,700,000)	1,700,000	82.74%
CF #2	3/15/2023	(100,000)	100,000	80.00%
CF #3	4/10/2023	(150,000)	150,000	72.88%
CF #4	4/20/2023	(100,000)	100,000	70.14%
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CF #8	9/20/2023	(200,000)	200,000	28.22%
CF #9	10/22/2023	225,000	(225,000)	19.45%
CF #10	11/5/2023	(300,000)	300,000	15.62%
End Date	12/31/2023	5,600,000	5,600,000	
Mod Dietz	5.02%			
IRR	5.05%			

Which method is "correct"?

- First off, <u>there is no</u> "correct" method, since the returns represent different things, and both approaches are acceptable, just as they are for public equities that use TWR
- If the question is "<u>how did our private equity managers perform overall</u>?," then Method 1, asset-weighting, is the approach to use
- If the question is "<u>how did we (the asset owner) do</u>, overall, in our private equity investments?" or "<u>how did our private equity assets perform</u>?," Method 2, the aggregate method, is the approach

Combining TWRs and MWRs

- This is the biggest challenge facing asset owners, OCIOs, and anyone that wants to combine portfolios where some are better measured using MWR and some using TWRs

What does the GIPS standards say?
- Use TWR -

- When we asset-weight portfolios of managers that we use the IRR for, with managers that we use TWR for, the composite's TWR yields a result which, arguably, <u>has no meaning</u>; no way to interpret.
- What question does it answer?
- The reality is that this is what is typically done by asset owners, because it's been that way forever ...

Asset-weight the mix

- <u>Remember</u>: I promised you something herterodoxical; this is it!
- Use the standard asset-weighting approach, against the mix of TWRs and MWRs.
- Perhaps you're thinking of a different "h-" word: heretical?
- The TWRs and MWRs do the same thing: evaluate the manager.

Asset-weight the mix

TWR Group	V_0	Annual TWR	Wtd Cash Flows	V_0 + Wtd CFs	Overall Weight
A	1,100,000	2.64%	49,589.04	1,149,589	10.90%
B	1,150,000	-4.21%	96,438.36	1,246,438	11.81%
C	1,170,000	-0.67%	91,506.85	1,261,507	11.96%
D	1,200,000	5.06%	3,452.05	1,203,452	11.41%
E	1,210,000	4.18%	9,972.60	1,219,973	11.56%

IRR Group	V_0	Annual IRR	Wtd Cash Flows	V_0 + Wtd CFs	Overall Weight
GP A	1,000,000	4.14%	211,233	1,211,233	11.48%
GP B	1,500,000	4.54%	157,740	1,657,740	15.71%
GP C	-	5.16%	1,601,096	1,601,096	15.17%
Grand Totals	**8,330,000**	**2.74%**	**2,221,027**	**10,551,027**	**100.00%**

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Asset-weight the mix

- The resulting composite hybrid return, 2.74%, represents the performance of all managers, be they private or public managers
- What does it represent? How the managers, as a group, performed

TWR Group	V_0	Annual TWR	Wtd Cash Flows	V_0 + Wtd CFs	Overall Weight
A	1,100,000	2.64%	49,589.04	1,149,589	10.90%
B	1,150,000	-4.21%	96,438.36	1,246,438	11.81%
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E	1,210,000	4.18%	9,972.60	1,219,973	11.56%

IRR Group	V_0	Annual IRR	Wtd Cash Flows	V_0 + Wtd CFs	Overall Weight
GP A	1,000,000	4.14%	211,233	1,211,233	11.48%
GP B	1,500,000	4.54%	157,740	1,657,740	15.71%
GP C	-	5.16%	1,601,096	1,601,096	15.17%
Grand Totals	**8,330,000**	**2.74%**	**2,221,027**	**10,551,027**	**100.00%**

And/or, use IRRs against the entire portfolio

- Another option is to use the IRR against the entire portfolio
- The U.S. Government Accounting Standards Board (GASB) <u>requires</u> this on an annual basis from public pension funds.
- What does it represent?   <u>How the fund did itself</u>, since it is ultimately responsible for the cash flows into and out of the overall fund.
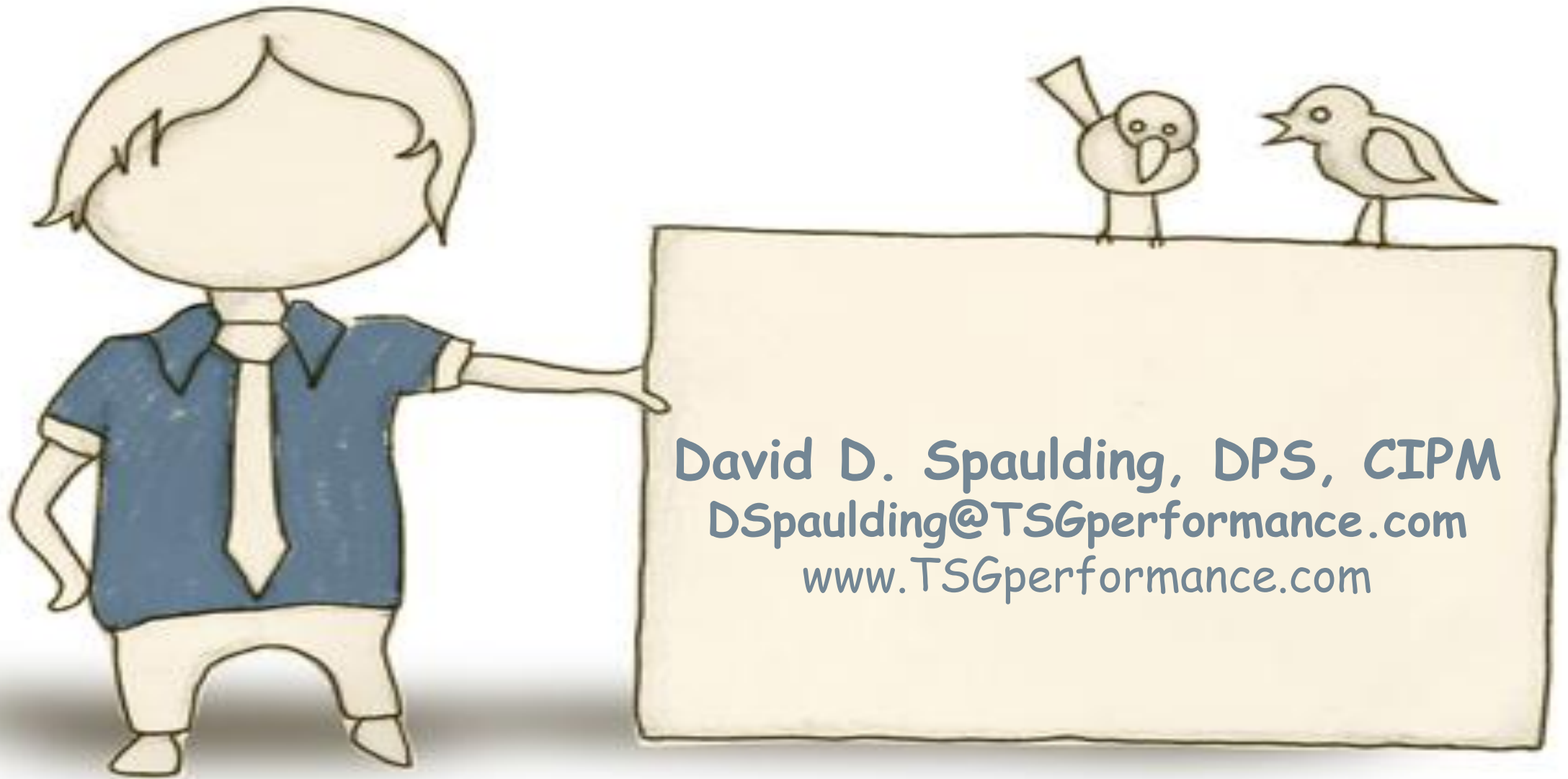
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Using IRRs against the entire portfolio

		Entire Plan's Assets		For Modified Dietz	
		Dates	Amounts	Amounts	CF Wts
	Start Date	1/1/2023	(8,330,000)	8,330,000	
IRR Account Cash Flows	CF #1	3/5/2023	(1,700,000)	1,700,000	82.74%
	CF #2	3/15/2023	(100,000)	100,000	80.00%
	CF #3	4/10/2023	(150,000)	150,000	72.88%
	CF #4	4/20/2023	(100,000)	100,000	70.14%
	CF #5	6/30/2023	(150,000)	150,000	50.68%
	CF #6	7/15/2023	(200,000)	200,000	46.58%
	CF #7	8/1/2023	(200,000)	200,000	41.92%
	CF #8	9/20/2023	(200,000)	200,000	28.22%
	CF #9	10/22/2023	225,000	(225,000)	19.45%
	CF #10	11/5/2023	(300,000)	300,000	15.62%
TWR Cash Flows	CF A	1/5/2023	(50,000)	50,000	99.18%
	CF B	1/15/2023	(100,000)	100,000	96.44%
	CF C	2/2/2023	(100,000)	100,000	91.51%
	CF D	10/10/2023	(15,000)	15,000	23.01%
	CF E	11/11/2023	(70,000)	70,000	14.25%
	End Date	12/31/2023	11,845,000	11,845,000	
	Mod Dietz	2.89%			
	IRR	**2.90%**			

Summary

- When an entity (e.g., a pension fund, endowment, OCIO) has an overall portfolio that is comprised of both private and public assets, they evaluate the performance of the individual managers using <u>either</u> MWR or TWR.
- We've discussed approaches to evaluate the overall performance of the collection of managers
- As well as of the fund/plan, itself
- <u>Reminder</u>: the spreadsheets used are available

Your thoughts? Questions?

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David D. Spaulding, DPS, CIPM
DSpaulding@TSGperformance.com
www.TSGperformance.com

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