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RPM Ep 22 transcript

Michael Venne: [00:00:00] Welcome to RPM, the podcast that explores the world of private markets. I'm your host, Michael Venne. In the first year of 2022, more than 60 central banks have raised policy rates. And a couple of weeks ago, depending on when this airs, the Federal Reserve raised rates by an additional 75 basis points. Considering the implications for economic growth, this spate of contractionary actions has investors wondering where private market valuations will land.

Whereas public markets are sufficiently liquid to allow investors to answer this question in real time, private market investors typically must wait longer. But what if LPs could monitor their portfolio balances in real time? To help them do just that, we built the Daily Valuation Engine or DVE, and here with me to discuss this Qi Liu, a Vice President on our data science and engineering team. Qi, Thanks for joining us. Welcome to RPM.

QL: [00:00:55] Thanks, Michael. Very excited to be here. My very first recording, so thanks for the invite.

MV: [00:01:00] First of many, I hope. So, Qi, the DVE is one of our data science and engineering team's latest creations. Before explaining how it works, take us behind the scenes. When did we build it and why?

QL: [00:01:14] Sure. As you mentioned in your intro, Michael, private market asset valuations are typically lagged. They are produced quarterly and often delayed by anywhere between 2 to 4 months. To give you an example, we're now in the middle of August, and most of our GPs are still finalizing and sending out Q2 valuations at this point. And when I checked at the end of last week, only about 15–20% of our private market funds have issued reports for June 30. That means the remaining 80–85% of Funds' assets are still being valued based on reports that were issued March 31st, which now at this point is more than 4 ½ months old.

So, how do we value these assets in today's market? Currently, the conventional approach is what we call the cash-adjusted method, which basically takes the latest reported values again for most of the funds they are as of 3/31 and adjust the valuations by cash inflows and outflows since the reporting date without making any assumption on any changes to the value of the assets. But, fundamentally, as you know, as market prices fluctuates, the private market asset's valuation should fluctuate as well. And especially in times of market volatility, such as the one we are in right now, it's important to for our investors and for us to understand where our valuations are moving. And this is the problem that we are trying to solve here. So instead of using the cash-adjusted method, which makes no assumption on the changes of the valuation since last reported, we think we can do better in estimating the value by using the information we have from the public markets. And the Daily Valuation Engine basically seeks to estimate how GPs value these assets using public market indices. And as the name suggests, this engine can be run daily, so it can reflect a market, public market valuation changes in real time.

MV: [00:03:40] Right! And so, we released our latest estimates for the quarter ending June 30. I think we said we expect private equity valuations to be down 6.5% quarter over quarter. And while you've told me before that DVE is not meant to be a crystal ball, I'm sure you've been asked "how accurate is the model?"

QL: [00:04:01] That's right. We issued the estimate on July 1st, right after the quarter end. We sent our email to our audience with the estimates. And some of our listeners may have received the email. And since we issued estimates, several large GPs have issued their Q2 reports, and their reported numbers are very close to what we have issued in our estimates. And so, as you mentioned, we estimated that quarter-over-quarter we expect to see somewhere around 6.5% change. While I can't disclose the name of these GPs here on the podcast, these large GPs, you know, they have investments across multiple asset classes. They are global and their numbers are somewhere between 6 to 6.7%. So very close to our estimate, which is good, good news and also, you know, an indication of accuracy. So that's just for Q2, right. To answer your question about the accuracy of the model and how do we get comfortable around the algorithm, we back tested the model. And but before we go into the results of the back testing, I just want to basically mention that there's two comparisons that we need to make here to assess the accuracy of the model. The first comparison we compared the estimated value generated by DV to the actual reported value. So, the example I gave earlier, the 6.5% that we issued on July 1st, how does it compare to the actual evaluations that we have received so far? So that's the first comparison.

QL: [00:05:58] The second comparison is we compare the valuations to our conventional cash adjusted method. So, like I mentioned before, cash adjusting is basically the conventional method that we use in the private markets today, and that's really the benchmark we try to beat. Right. So, if we if we are more accurate than the conventional method, we see as a bit of a win. For the back testing looked at about 3,000 funds across different asset classes with more than 80,000 quarterly valuations take from '08 to 2020. We calculated the error rate of the DVE estimates to the actual reported valuations for each fund every quarter. And so that's about 14 years of data or so. And you know, to sort of summarize the results, on average, our quarterly error rate is about 1.8%. So, what that 1.8% represent is that our estimated values are on average less than 2% off from the actual report. So that's the first comparison that I mentioned. To make the second comparison, we also calculated the error percentage of our conventional cash adjusted method. So just using cash adjusting method, how far off will we be? So, with the same set of funds, same sets of time periods and quarters, the average error rate using the cash adjusted method is about 4%. So, comparing DVE to the cash adjusted method at 1.8% versus 4%, DVE cut the error rate by more than half.

QL: [00:08:06] . And, you know, I think that's pretty awesome. Maybe one more thing before I turn the mic back to you. My goal is, I want to emphasize how we calculate the error rate, the 1.8% I mentioned for DVE. So that 1.8% is what we call MAPE, so meaning absolute percentage error MAPE, which is different from our normal simple average that we are used to seeing. To illustrate the difference between the simple average and the MAPE. I'll give you a very simple example. So, say we calculate it an error rate for two quarters in a row. The first quarter we got -20% as the error rate and the next quarter we are + 20%. So, what that means is these aren't like very good estimates, right? We are underestimating 20%, one quarter overestimating 20% in another quarter. But if we just take the simple average of these two numbers, we would have calculated 0% as the average by taking the absolute value of these two error rates. And then take the average, you'll get 20%, which is more accurate representation of the error rate. And that's exactly the approach we have taken for DVE

to measure the accuracy, which we think is the more honest representation than taking the simple average there.

MV: [00:09:46] So, Qi essentially, you know, being twice as accurate as the conventional cash-adjusted method, that sounds impressive. But a lot of times these models—any model really—work best under certain assumptions. What sort of constraints are at play here?

QL: [00:10:04 That's a great question, Michael. The one of the first thing that comes to mind is the size of the portfolio. That's one constraint. We sampled the number of investments to determine basically how big or small a portfolio needs to be for the DVE to be most accurate. If you can imagine if the portfolio just have one asset, it's not going to be much better than cash adjusting. So, we went back and sampled and tested a lot and found that at a minimum, the portfolio needs to have at least 7 funds for DVE to be more accurate than the cash-adjusted method. And fortunately, most of our institutional investors, they are invested in more than 7 to 10 funds. So, I think DVE can be broadly applicable.

We also need to have accurate GPs reports in a timely fashion. As you can imagine, DVE, it's based on data, it's based on private market data, it's based on public market data. On the public market data side, we could in real time gather and build the system to feed those in. On the private market data, it's much more labor intensive. So, once we receive the GPs' reports, we need to then bake them into our system so that the model knows what to pull to calculate the estimate. The model without data can't really do much. And that's why I want to give a big shout out to SPAR, our reporting team. They have done a great job of gathering and maintaining a very substantial database across different asset classes and geographies and portfolios. And as a data science team, we really benefit from that database and we're really lucky to have such a database to be able to train our model and do various fun things with it.

MV: [00:12:14] Yeah, you're right, our SPAR team is doing fantastic work. So we've dug into a little bit on the "why." Let's talk about the "how." How does DVE formulate these estimates and what are some of the key data inputs?

QL: [00:12:30] Right. So, the crux of the idea is pretty simple. The idea is basically using our latest GPs reported valuations and then we take that latest valuation. We combine it with the information that we can observe from the public markets and use the algorithm to generate an estimate based on the public market movements. And so, the first step here for us is to identify what sorts of public market information is relevant. And so, we identified for each asset class and strategy within our private market portfolio the best public market index to use. So how do we define the best index rate? So, we, we look at historical data we studied are again, private market marks historically to the public market movements. We find the one that has the highest correlation and the lowest variance that generated model parameters that are statistically significant. And we test it a lot of different indices and you know, there were a lot of brainstorming, testing, backtesting and ruling out and to basically generate the one that we think is the best. And again, it's only possible because we have the wealth of private market data available from our internal Omni System and being able to back test, being able to actually have many different data points with different characteristics, not just the valuations. We look at operating metrics, we look at sectors, we look at geographies, all sorts of different characteristics and data points that our data team tracks to identify the appropriate index So, so the crux of it is we look at public market indexes that we identified and then we build in a lot of other bells and whistles, so to speak, to make the algorithm smarter, incrementally.

QL: [00:14:56] And so, one of the things that. There are a lot. I'll just mention a few here in the podcast. One is very obvious one public private tag. So, our reporting team on asset-by-asset basis will identify which investments companies are public, which are private, and all the public investments. Very simple for our algorithm. We basically look at the public market prices and bake in that return change in our algorithm. So that's one that's easy. And the other one is, you know, age of assets. And so, as you can imagine, some of the funds in our portfolios are very young or some of them are very old. And so, a lot of the old funds we have to tail-end assets that's not really generating value. It's there in the portfolio. The GPs is perhaps trying to figure out ways to monetize it, but they are not sort of in the value creation phase of their of their lifespan. And so, we have different algorithms in terms of treating these assets that are fundamentally different from the bulk of our portfolio. So those are a couple examples. Another example is young contributions. And so, what I mean is investments that are newly made, right? So, GP has just made the investment, they just paid perhaps the market valuation for these assets. And so, we treat these differently because more often than not GP's hold new investments at cost. And so, these are a few examples I want to mention there, Michael.

MV: [00:16:57] So finally, Qi, let's discuss use cases. You sit in on a lot of calls with clients and prospects. What are some of the ways in which our clients have been using this analysis?

QL: [00:17:08] Yeah. So again, I think this is…I'm, I'm biased, but I'm very excited about DVE. I think being able to observe valuations in real time is great in many ways. One of the things that I can think of it being useful is for our corporate pension plan, clients, corporate pension plans. They typically need to issue quarter and reports shortly after quarter end. So instead of using lagged valuations, leave can be used to give some indication of the portfolio valuations in real time, which I think would be a great help there. Another use case is clients who want to have updated valuations for their allocation or portfolio planning purposes. For a lot of our pension plans, retirement plans, investment teams typically need to basically present to their boards what their expected allocations and portfolio investment plans are for next year. So, towards the end of the year, they need to present the plans for next year. And so, without sort of updated valuations, they may be working off stale numbers. And so, running DVE in real time will be a help there as well. But also, any plans of funds or vehicles that are semi liquid in the market that requires daily, weekly, or monthly evaluations can be utilized here. And so, those are a couple use cases from our client perspective. And I want to want to mention one more use case. I think that's been really helpful internally is secondary process, right? So, you can imagine when there's a secondary deal, we typically need to give a pricing indication based off the latest report. Evaluation from GP again will be lagged by several months at least. And so, running DVE on that portfolio, coming up with a real time estimation of the assets valuation can help in the secondary transaction process and that's something that we've been helping our team on internally at is to sort of help our secondary team give a first pass indication.

MV: [00:19:59] A more efficient pricing mechanism.

QL: [00:20:01] Exactly.

MV: [00:20:02] Qi, it looks like we are out of time. Thank you so much for joining me today. Be well and I hope to see you again soon.

QL: [00:20:09] Thank you, Michael.

MV: [00:20:14] That does it for this episode of RPM. For more information on DVE, Omni or other technology solutions, visit us at Step Stone Group. RPM is available on Apple Podcasts, Spotify, Stitcher and other podcast platforms,