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Fund of Funds Company

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VC Valuation in MENA
A Reality Check

August 2024

BANDR ALHOMALY
Managing Director and CEO, Jada Fund of Funds

We are delighted to introduce an important new report that aims to contribute intellectually to improving the private capital ecosystem in the Kingdom of Saudi Arabia and the Middle East and North Africa region.

Accurate and reliable valuations are fundamental to maintaining trust and transparency in the investment process, particularly in the opaque world of private capital.

This report is part of our ongoing efforts to enhance transparency and investor confidence. We envision a future where accurate valuations and transparent practices support our efforts in driving the growth of private capital markets. We aim to create a robust ecosystem where both investors and portfolio companies thrive.

We have collaborated with industry experts and practitioners to ensure that the methodologies discussed are not only theoretically sound but also practically applicable. This report is the result of consultations with leaders in the field, whose insights and experiences have been invaluable in shaping the content and ensuring its relevance.

We hope that you will enjoy reading this report. We are confident that its findings and recommendations will serve as a valuable resource for all stakeholders in our thriving ecosystem.

About Jada Fund of Funds

Jada Fund of Funds is a Saudi company based in Riyadh. Launched by a resolution of the Council of Ministers, Jada was established by the Public Investment Fund in 2018. Jada is a critical component of Saudi Arabia's Vision 2030 for the purpose of leading the development of a thriving Private Equity and Venture Capital ecosystem in Saudi Arabia.

For more information, visit jada.com.sa.
Follow Jada on LinkedIn and X @JadaFoF.

This report is authored by Claudia Zeisberger, Senior Affiliate Professor of Entrepreneurship and Family Enterprise at INSEAD, and David Munro, Head of Research for 5 Quadrants.

We extend our sincere gratitude to the following individuals who generously shared their time and insights with us, discussing their funds, investment strategies, and valuation methodologies for portfolio companies. Their contributions were invaluable in providing examples and context for our examination of the current state of venture capital valuations in the MENA region.

Mohammed Alyahya. Shorooq Partners, Saudi Arabia.
Felix Zimmermann. Beco Capital, Dubai.
Khaled Talhouni, Arnav Danthi, and Sarah Abu Risheh of Nuwa Capital, Saudi Arabia.
Abdullah Altamami and Abdulelah Alshareef of Merak Capital, Saudi Arabia.
Waleed Alballaa of Sukna Ventures, Saudi Arabia.
Omar Almohamdy, Arwa Aldryhim and Naif Alobaidi from Jada Fund of Funds.

We welcome updates and opinions about private capital valuation in MENA.
Please contact the authors at:
caudia.zeisberger@insead.edu
david.munro@5quadrants.com.

Claudia Zeisberger

PROLOGUE

The Big Picture—Private Capital in MENA

MENA's entrepreneurial and startup ecosystem started slowly a decade ago, passed a crucial inflection point five years ago, and is quickly reaching critical mass. Tailwinds from a young and growing demographic, ample sovereign capital and developmental support, and a rapidly rising yet notionally small flow of private capital have been propelling this region's nascent investment industry to new heights. Private investments by venture capitalists, growth investors, and private equity GPs are on the rise, and the volume and value of deals have surged.

Après Nous, Le Déluge[1]

But the 2022–2023 global technology sell-off was a wake-up call. It's easy to be a venture capitalist, pontificate on pitchbooks, grill founders, and explore innovative ideas and technologies while riding a steadily rising market. But when the tide turns, one realizes that company valuations can fall as fast as they once rose and that all those term sheets, SAFE note valuation caps, discounts, liquidity preferences, profit priorities, and options can have a material impact on your ownership stake in a company. When the LPs (or limited partners—the investors in those funds) question why your previous valuation was so lofty, it's time to hone one's valuation skills. And for entrepreneurs, understanding the implications of term sheets signed years earlier and keeping one's cap table simple and easy to understand from day one is a vital lesson.

Objectives of this White Paper

Investments need to be valued fairly, especially in the absence of publicly traded prices. In the opaque world of private capital, investors rely on accurate quarterly Net Asset Values (NAVs) of their investments from VC and PE funds. The funds strive to learn as much as possible about the growth prospects and financial metrics of their investee companies and develop models, checklists, and heuristics so they may produce accurate valuations. The regulators provide guidance, context, and rules to help the GPs (general partners, or fund managers) act professionally, ethically, and as trusted fiduciaries. Institutional investors with development mandates, such as Jada—the sponsor of this paper—also play an important role in raising the investment standards.
This paper provides a framework for valuing, managing, and regulating private investments.

[1]King Louis XV of France. "After us, the flood."

Fund Interviews

Our first step was conversations with the experts who invest in startups as a profession. JADA Fund of Funds arranged interviews with the managers of five venture capital funds they have invested in. The funds have reached various stages of growth, invest in a wide range of industries, take investee company valuations seriously, act professionally, and share some great stories that provide context. Their observations, wit, and cautionary tales were woven into the fabric of numerous valuation methodologies and add color to the theory. The funds' mandate was to invest in early-to-growth-stage companies, and this paper mirrors their early-stage focus.

How to Read This Paper

The first section addresses the concept of "*fair value*" of an investment and introduces the relevant regulators and industry bodies involved. We cover IPEV, IFRS, FASB and other organizations with important functions and dreary acronyms.

Next, we address the increased attention to valuation quality in 2023 by the accounting and investment heavyweights—largely in response to the 2022 market sell-off and the realization that valuations need to be current and accurate, and that term sheets matter.

A discussion of the differences between Private Equity (PE) and Venture Capital (VC) follows. Both invest in private assets, but the enormously different degrees of risk between the two, which are often ignored, are so extreme that they should be studied separately. PE takes companies from good to great, while VC creates companies. Leverage plays a key role in PE yet is largely absent in VC.

A general description of the interviewed funds comes next. We examine where they invest geographically, the stage of the companies they invest in, their industry focus, the initial check size, the number of investee companies, and other qualifiers of their investment mandate.

The section on Valuation Methodologies is extensive. We have tried to cover most techniques and provide examples, stories, and quotations from the funds where appropriate. Most of the funds make initial investments in companies that require a comprehensive valuation exercise and then, once invested, provide quarterly to yearly valuation updates to their LPs.

Investments such as SAFE notes, convertibles, common and preference shares, options, and warrants and the difficulty in deciphering the capital structure of a company with a complicated capitalization table ('cap table' for short) are next on the agenda.

Finally, we cover third party valuations, valuation frequency, and valuation volatility.

CONTEXT AND FRAMEWORK

Fair Value of an Investment; Demand and Supply

If you go back to first principles, valuation methodology is a conceptualization of the supply and demand for the equity, the future cash flows, or the profits of a business.

> *"We're trying to create frameworks—whether through DCF, comps, or scorecard analysis—to insert a placeholder for what demand and supply might look like [in the absence of a two-way market]. No matter what valuation methodology you're using, the purpose is to build a demand-supply model to represent the equity value of the company."* [2]

The goal of IPEV (International Private Equity and Venture Capital) guidelines[3] is to give founders and fund managers a framework to figure out the "fair value" of assets and investments that are subject to infrequent price discovery and therefore require significant subjective inputs, models, and estimations. The ability to derive reasonable, fair value prices through a well-defined yet flexible process gives the industry a credible base from which to grow. Arriving at a fair value price calls for a blend of theory and reality, models and markets.

> *"Don't lose sight of the fact that valuation methodologies are mathematical models or abstractions."* [4]

IFRS 13[5] defines fair value as "*the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (exit price).*"

"*Estimated market price*" may be a more accurate choice of words than "*fair value.*" Prices are defined by a transaction, are a function of demand and supply, and are completely objective. Value is in the eye of the beholder, derives from a combination of company fundamentals, market emotions, and macroeconomics, and is very subjective. Price is what it is, but value can fluctuate wildly. To avoid becoming mired in semantics and qualifications, this paper will treat price and value as one.

[2]Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024

[3]IPEV Valuation Guidelines, December 2022, https://www.privateequityvaluation.com/Valuation-Guidelines

[4]Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024

[5]IFRS 13 Fair Value Measurement, 2024. https://www.ifrs.org/issued-standards/list-of-standards/ifrs-13-fair-value-measurement/ or https://www.iasplus.com/en/standards/ifrs/ifrs13

What's a Level 3 Asset?

"The U.S. Financial Accounting Standards Board (FASB)[6], via an accounting standard called FASB 157, defined categories for asset valuation according to the degree of observable market prices. ASC 820 superseded FASB 157 in 2009 in an effort to simplify U.S. GAAP, but they did not fundamentally alter the original intent or key provisions of FASB 157."

Level 1

Level 1 asset prices can be observed on an uninterrupted time continuum (some on the weekend) and include exchange-traded securities, much short-term government debt, foreign currencies, precious metals, and now cryptocurrencies.

Level 2

Level 2 asset prices may not be subject to regular market pricing, but they can usually be valued with models based on Level 1 inputs such as interest rates, implied volatility, spot prices, and yield curves. Interest rate swaps and options are level 2 assets.

Level 3

Level 3 assets are rarely traded and therefore have unobservable or rarely observable prices. Their fair value must be estimated by business owners and investors using models and judgment.

> "Venture capital and private equity investments fall into the Level 3 category."

[6]FASB, Financial Accounting Standards Board, https://www.fasb.org/

CONTEXT AND FRAMEWORK

Increased Attention to Valuation Quality in 2023

IPEV guidelines and IFRS definitions have been around for a while, and banks and funds have spent much time and effort to comply with the standards. But a strict focus and rigid adherence may have waned until the 2022–23 market downturn brought them back to the foreground[7].
The markets had been hot, and both founders and investors were focused on making hay while the sun was shining, not on micromanaging valuations and securing priced equity rounds.

The December 2022 International Private Equity and Venture Capital Valuation Guidelines[8] recommend current best practices for the valuation of private equity and venture capital investee companies and assets across the complete spectrum of alternatives, from pre-seed to IPO.

Many accounting firms, management consultants, and advisors condensed, paraphrased, and summarized IPEV's 81-page tome, and published valuation reports during 2023. When public markets are rising, private market valuations step higher, more non-traditional private capital investors enter the space, dry powder is plentiful, and few focus on the details. When the tide turns, the ecosystem quickly learns about down rounds, reduced valuations, macroeconomics, liquidity preferences, and burn rate. The market retreats and focuses on defense and survival.

The following images from Magnitt (MENA) and Carta (US) show peak number of deals and peak cash raised in Q4 2021 and Q1 2022. Both measures grew steadily during the previous four years, from 2018 through 2021. Once deal volume and value subsided and investors and founders realized the implications of down rounds, the market focused on valuation policies, procedures, and methodologies. The fast and rising 2021 market encouraged writing deal tickets—securing investment stakes—whereas the subsequent lull in activity has encouraged participants to focus on operational efficiency.

"It's only when the tide goes out that you learn who's been swimming with liquidity preference provisions." [9]

[7]IFRS: most recent guidelines published in December 2022. Previous version 2018. First release 2009.

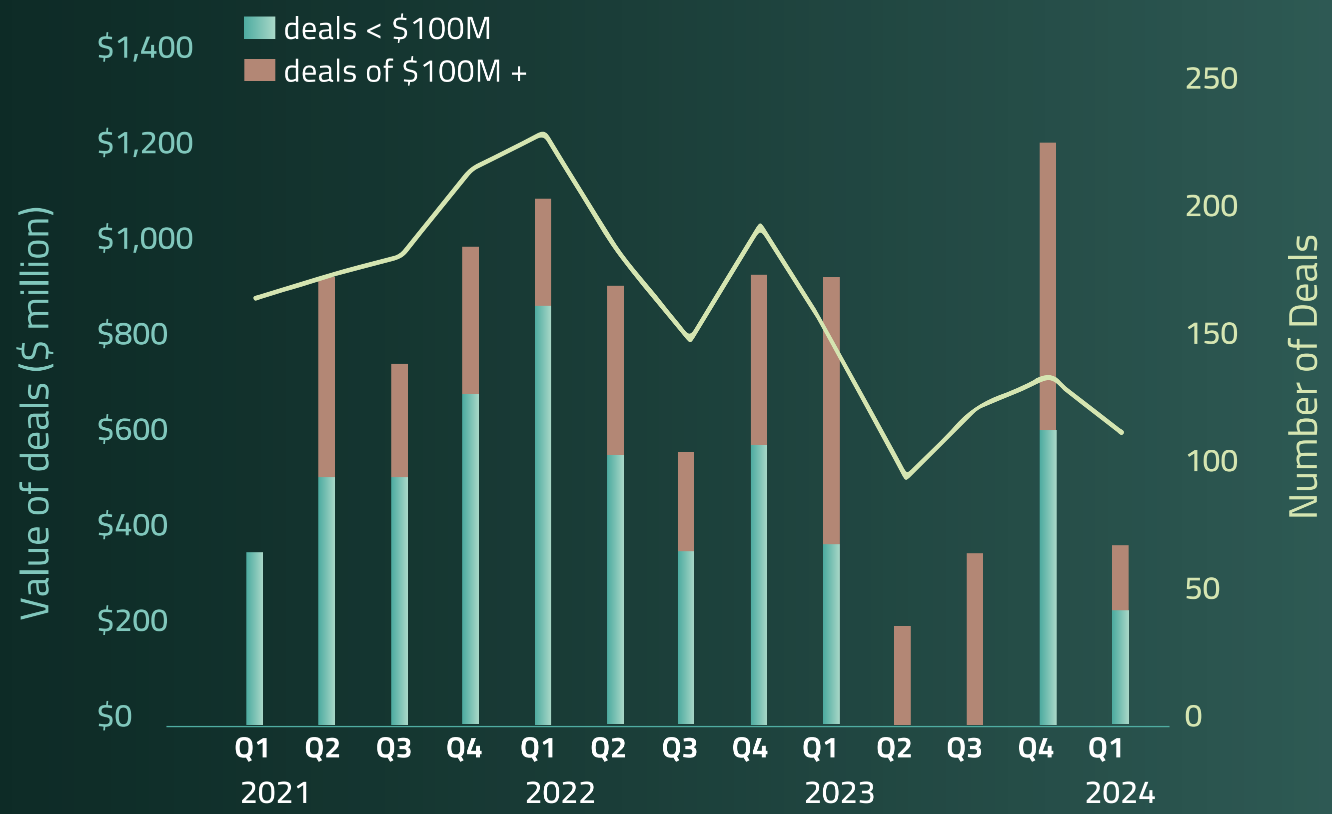
[8]https://www.privateequityvaluation.com/Valuation-Guidelines

[9]The author, paraphrasing a comment by Warren Buffett from a shareholder letter in 1992. Liquidity preference provisions gain importance (often by reducing investor equity stakes) in market downturns.

US Deal Value and Volume

Source: Carta, State of Private Markets: Q1 2024, Peter Walker & Kevin Dowd, chart by 5 Quadrants

MENA Deal Value and Volume



Source: Magnitt, FY 2023 MENA Venture Investment Report, chart by 5 Quadrants

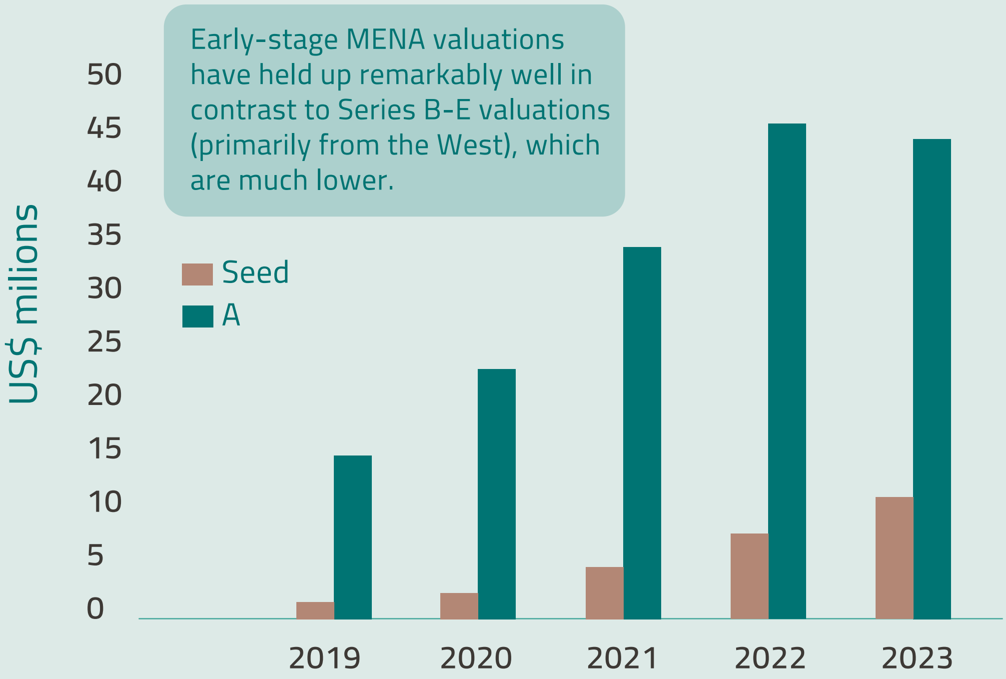
Deal Volume:

US deal volume fell by 59% from its Q4 2021 peak to the Q1 2024 low, and that trend remains down.
MENA deal volume fell by 58% from its Q1 2022 peak to the Q2 2023 low, and is up 18% from that low.

Deal Value:

US deal value is 76% below its Q4 2021 peak and has remained at this level for approximately 5 quarters.
MENA deal value fell by 81% to a Q2 2023 low, but has since displayed some resiliency thanks to Q4 2023 Mega deals (US$100M +).

MENA: 2023 Median Valuations



Source: Magnitt, FY 2023 MENA Venture Investment Report, chart by 5 Quadrants

Brief Overview of IPEV Guidelines

Prior to the introduction of these guidelines in 2009, there was a lack of consistency and transparency in how private equity and venture capital firms valued their investments. This made it difficult for investors to compare performance across different funds and managers and raised concerns about the reliability and fairness of reported valuations.

The guidelines aim to promote best practices in valuation and reporting, which are essential for investors to make informed decisions and fund managers to fulfill their reporting responsibilities.

By providing a common framework for valuation, the guidelines enable greater consistency, transparency, and comparability of performance across funds, ensuring that investors receive reliable information about the value of their investments.

Private capital fund managers globally use the IPEV guidelines to value their investment portfolios quarterly for reports to their investors, during fundraising to showcase the track record of previous funds, and when going through audits.

The IPEV Guidelines are widely endorsed by leading private equity and venture capital associations around the world, underscoring their acceptance as the industry standard for valuation practices.

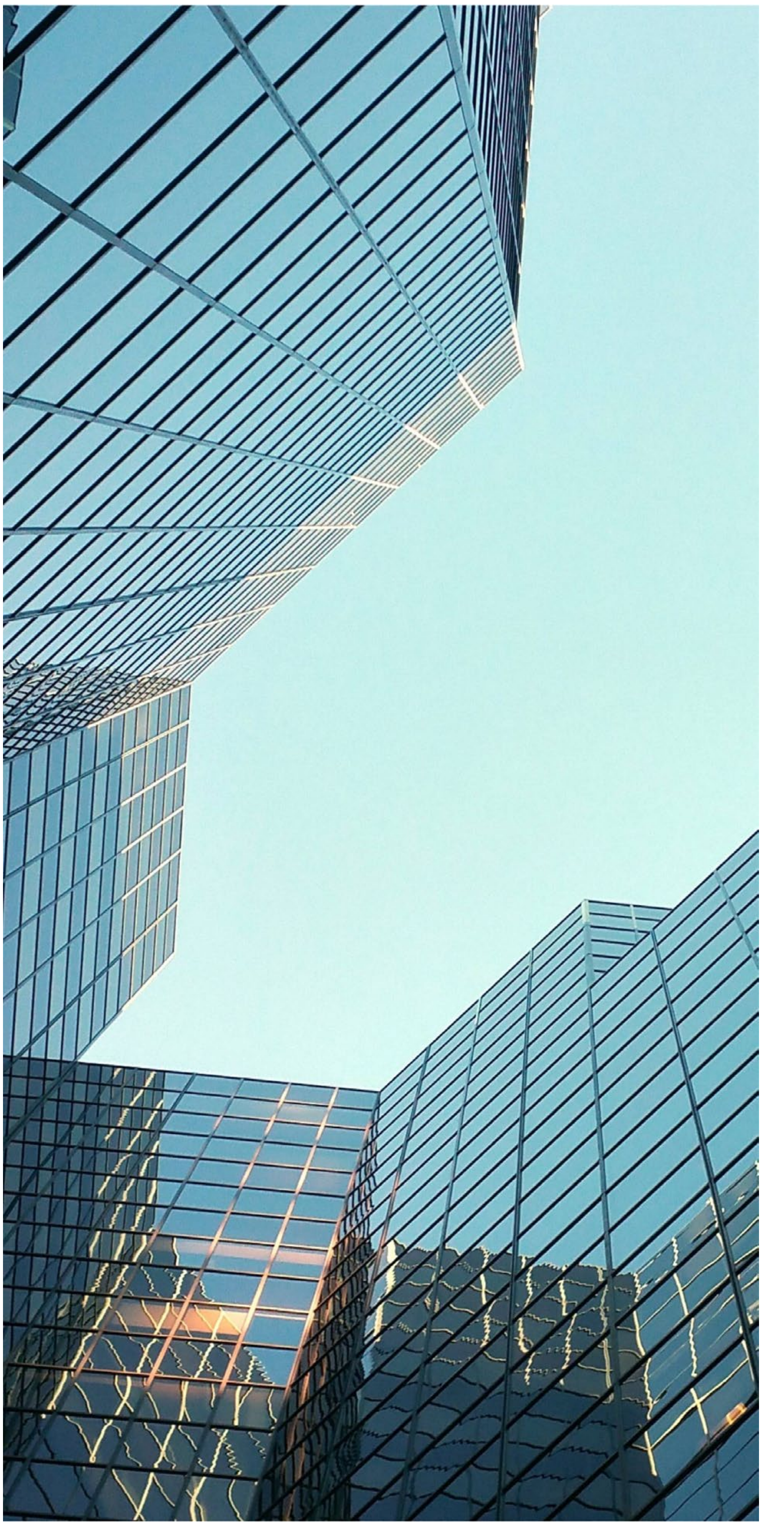
PE vs. VC

Private equity investors target to take their investee companies from good to great. They optimize established companies with a market-tested suite of products, improve (and rely on) positive cash flows, audited financial statements, steady growth, and low risk. At least that's the intention. They often succeed. Fewer than 13% of PE funds return less than 1x (for buyouts).

Venture capital is different. It steps into the unknown by investing in founders with ideas for creating products or services. The companies initially have little to no revenue, negative cash flow, certainly no profit or financial history, no product, and extremely high growth expectations and risk. Venture capitalists expect most of their investments to fail, and for the successful companies to generate such high multiples that the overall return of the portfolio tends to be high. High risk of failure for the many balanced by high rewards from the successful few.

PE and VC are often considered together under the "Private Capital" family name, as in the IPEV report, because they both deal with level 3 illiquid private assets and investments. But there is such a wide chasm between the two genres that they warrant separate discussions. Different capital requirements, different check sizes, different investors, and different stages of their portfolio companies. And of course, different valuation methodologies.

This paper will cover all valuation methodologies in brief and will offer a deeper dive into early-stage venture valuations. Late-stage, or PE valuation methodologies, are explained well in the IPEV guidelines. Additionally, the funds we spoke to were all early-stage investors, though some have experience with or are currently involved with later-stage companies, as well as private credit and debt. Our conversations were centered on pre-seed to Series A rounds and the valuation of early-stage companies.



PE Funds	VC Funds
Invest in companies	Invest in ideas
Optimization: from good to great	Creation
Invest in established companies that are well know and have been around for years	Invest in startups / founders with new ideas that have an uncertain future
Large check: $200 million	Small check: Seed $0.5 to 2 million Follow-on $3 to 10 million
Invests alone (mostly)	One of many investors
Exit in 3 to 6 years	Exit in 7 to 12 years

PE Portfolio Companies	VC Portfolio Companies
Well established and market-tested product suite	Often no product
Generally positive cash flow	Often no revenue. Cash can flow up?
Audited financial statements going back several years	Whats an audit?
Clear and often steady growth tragectory	Very rapid growth expectations
Return expectation of 2x to 3x over a few years	Expect at least 10x (up to 50-100x) over 3-5 years
Low risk	High risk. 8 out of 10 companies may fail
Debt is often involved (and serviced from cash flow)	Almost all equity. Very small amounts of Venture Debt

Source: 5 Quadrants Pte. Ltd.

THE FUNDS AND THEIR INVESTMENT MANDATES – within the MENA context

Geography

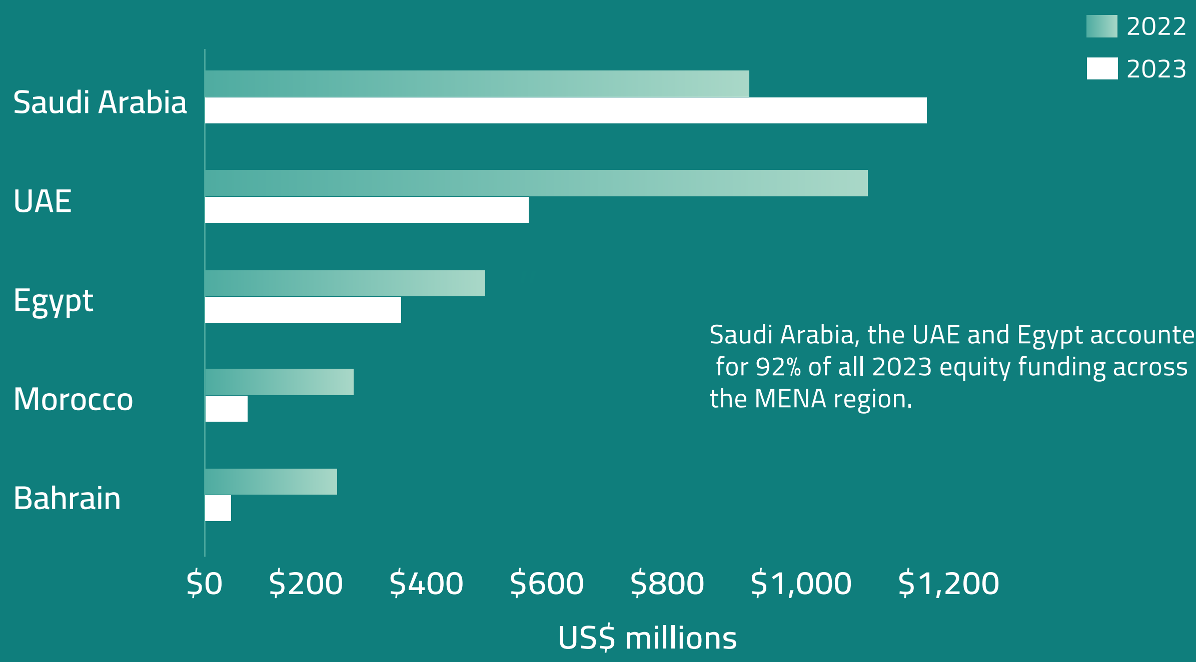
Saudi Arabia was the core market for most of the funds we interviewed, followed by the GCC (Gulf Cooperation Council countries—mainly the UAE), then Egypt, Turkey, and Pakistan. Stable Saudi and UAE currencies have likely aided the growth of investments and the startup ecosystem in those countries by reducing currency risk, which is notoriously difficult to manage. A currency pegged to the US dollar may be considered relatively risk-free if sufficient dollars or assets that are easily convertible to dollars support it.

Vision 2030, a Saudi government initiative launched in 2016 to diversify and develop the entrepreneurial potential of its young population, has created an especially strong tailwind for the venture capital and private equity ecosystems and has attracted the attention of foreign investors. The government introduced Jada, a fund of funds established by PIF (Public Investment Fund) in 2018, that partners with and mentors VC and PE funds that are focused on the Saudi market. Job creation and GDP diversification are two natural byproducts of this endeavor.

The Saudi Venture Capital Company (SVC) was also established in 2018 to address financing gaps for startups and SMEs by investing in VC funds and co-investing with angel investor groups.

Beyond the provision of capital, the initiative's focus on good governance for fund managers, the adoption of international standards, and the education of the stakeholders in the ecosystem has given Saudi Arabia a pole position in MENA.

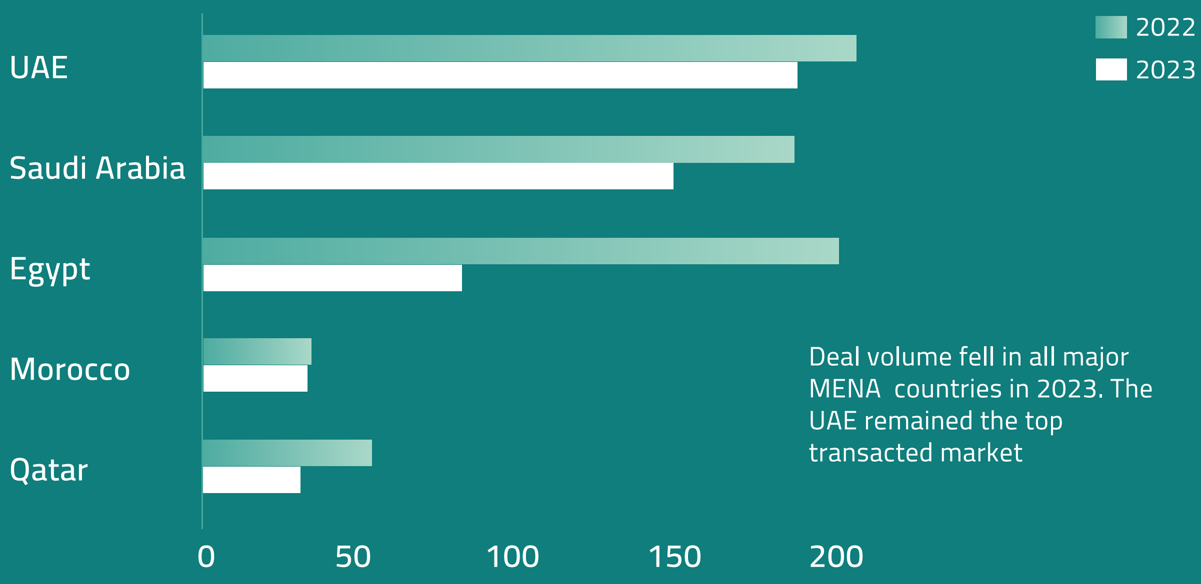
MENA Equity Deal Value: 2023 vs 2022



Saudi Arabia, the UAE and Egypt accounted for 92% of all 2023 equity funding across the MENA region.

Source: Magnitt, FY 2023 MENA Venture Investment Report, chart by 5 Quadrants

MENA Equity Deal Volume: 2023 vs 2022



Source: Magnitt, FY 2023 MENA Venture Investment Report, chart by 5 Quadrants

All the venture funds interviewed had at least one or two sovereign investors, and one had several, including foreign sovereigns. Most Saudi sovereigns have a local investment requirement. Since Saudi Arabia is the largest and fastest-growing market in MENA, a 50% minimum commitment to the country was sensible, and the funds had considerable discretion over the balance.

Investments in the US, and other countries outside the region have been made if it was felt that the company could benefit from entering the MENA market or if MENA could become one of their core markets.

Geography also influences the opportunity set and optimal fund size. A PE fund that targets an 18% return can deploy $200 million of AUM, but perhaps not much more. There were slightly over $1 billion worth of Series B and C rounds in MENA in 2023[10] . When it comes to fund size, the sweet spot for a VC fund looking to generate returns in the mid-30% IRR was thought to be $50-$100 million.

> *"To create big, scalable companies in our markets, you must be in four or five markets. Saudi is the most important single geography in the region, plus GCC plus Egypt, and then if you can throw in one or two others, like Turkey or Pakistan, then you have a 3.4 to 4 trillion-dollar economy to play with."*[11]

[10]Magnitt – FY 2023 MENA Venture Investment Report
[11]Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024

Home Field Advantage

As with many emerging economies, in the short run, regulation and limited supply can lead to higher valuations for domestic startups by limiting competition, but the ecosystem may lack the robustness that competition and diversity bring. Once the ecosystem matures, startups must contemplate their options in the event of regulatory relaxation or elimination.

> *"The demand for Fintech [in Saudi Arabia] is high, and the industry is very protected."* [12]

Pre-seed to Series A

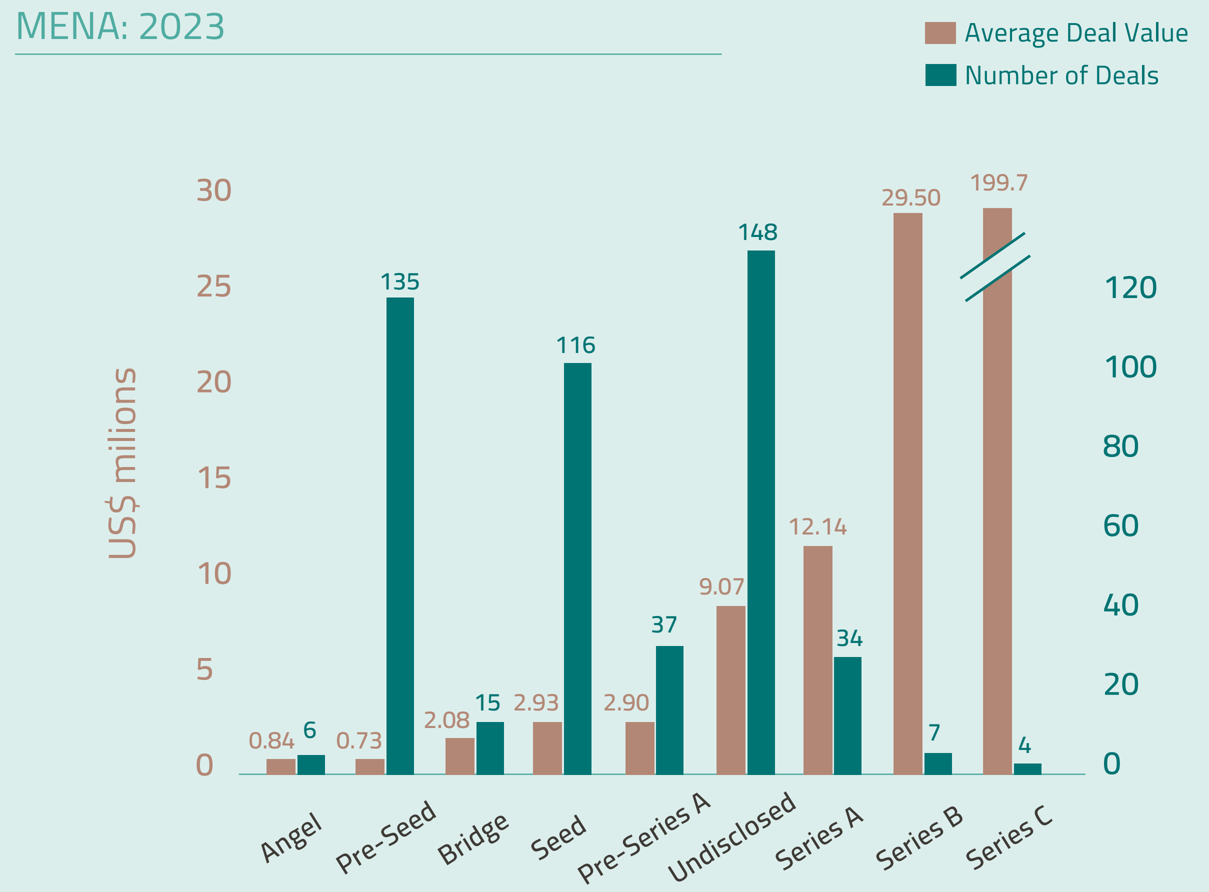
The interviewed funds were invested in pre-seed (idea stage) to series A companies. One fund skipped the pre-seed or angel stage, preferring to invest only when the company had a product, first revenues, or commercial proof points. By waiting for first proof of concept, the entry valuation is higher, but the odds of success increase at least proportionally.

Nuwa Capital had intended to invest in A and B rounds but shifted their mandate down to seed-to-A when valuations surged in 2021. A B-round investment would have required a disproportionate capital allocation.

> *"We couldn't get our heads around a $100 million series A valuation due to the 2021 market hype. It didn't make sense to us. We worried that we would invest in the right companies, but we wouldn't get the returns we needed. So, we decided to take earlier stage risk and do more pre-seed and seed. That's where the bulk of our portfolio is today."* [13]

The maturity of the region also influences the opportunity set and limits later stage opportunities for regional VCs. In 2023, there were 451 pre-seed to series A rounds in MENA, and only 7 series B and 4 series C rounds[14]. As the Saudi and regional ecosystems grow, the funds anticipate an increasing number of series B rounds.

[12] Abdullah Altamami, Merak Capital, on a Zoom, March 2024
[13] Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024
[14] Magnitt – FY 2023 MENA Venture Investment Report, Chart by 5 Quadrants



Source: Magnitt, FY 2023 MENA Venture Investment Report, chart by 5 Quadrants

Industry Focus:
Targeted or Agnostic?

According to Felix Zimmerman of Beco Capital, a fund that has been around for almost a decade,

"The composition of the fund in less mature markets mirrors the time. For example, in Fund I [2015 vintage] the market was still nascent, and startups were solving mostly consumer problems. Fast forward to Fund III where tech was solving problems across many more sectors and layers in the value chain. This relationship, of the fund reflecting the innovation of the time, becomes less relevant as the ecosystem matures. So, we are industry agnostic and thesis-driven, but of course we keep a close eye on these developments."[15]

This is an important observation. The vintage of a fund is often thought to reflect the macroeconomic advantage (low multiples after a downturn) or disadvantage (Q4 2021 after FOMO) of the cycle. It does that, but it also reflects the technological and innovation themes of the moment.

Other VC funds invested based on their prior areas of expertise. Merak Capital has a bias for FinTech because of the backgrounds of their partners but is also invested in consumer technology and enterprise software. They also recognize that portfolio composition is defined by the era.

[15]Felix Zimmermann, Beco Capital, on a Zoom, March 2024

"It's important to consider the state of the ecosystem during your deployment period. If the first three years of deployment are biased toward logistics, fintech, or mobility, your portfolio will obviously reflect that." [16]

Initial Cheque Size

$500,000 to $1,500,000 was the sweet spot for a first cheque into a startup. Most funds reserve 40% to 50% of their AUM for follow-on investments. The first check is often written to get a seat at the table. If the meal turns out to be Michelin-star quality, they'll be back and follow on with investments in subsequent rounds.

"We like to take an incentivizing stake at the start." [17]

A recurring theme amongst the interviewee funds was their search for startups with outsized potential based on the apparent market size for their product (or Total Available Market (TAM)) or service, as well as their scalability. GPs are comfortable occasionally overpaying—or at least being perceived to overpay—with their first ticket if they see high growth prospects.

Most LPs realize that a post-investment valuation may dip as the startup burns cash as they build out their ideas.

"For the initial check, we most certainly value high, and we know the hit that we will get at the end of the year. Our LPs are aware that we invest in potential. Part of the discussion with the LPs is that they should be prepared to accept a NAV deviation. They wouldn't accept that happening on the PE side." [18]

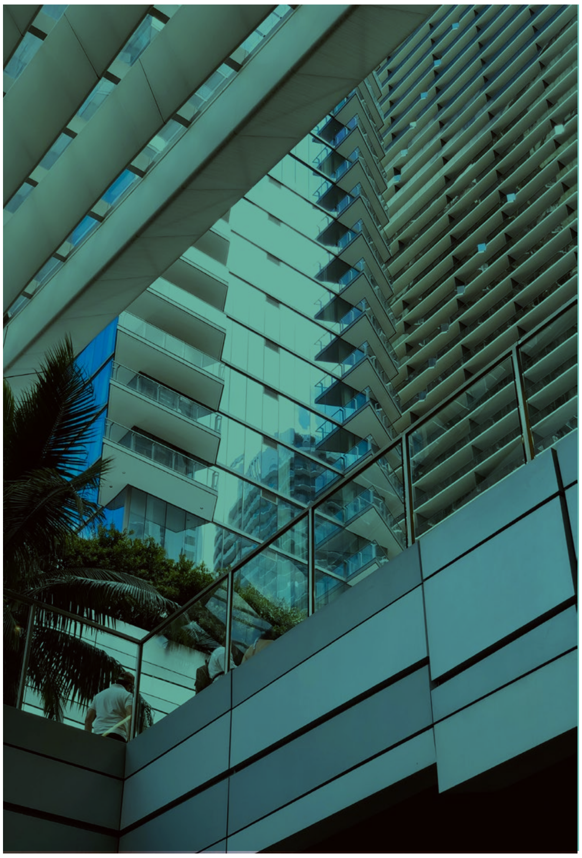
However, there is a limit. Investment hesitancy in 2021–2022, due to dizzying valuations, meant some newly capitalized funds received sideways glances from their LPs as they sat on their hands and didn't deploy. The valuations were just too high. A return to the deal table and increased deployment in 2022-2023 have led to some handsome TVPIs (a multiple relating Total company Value to Paid-In capital), as well as a lesson on how one should trust internal valuation guidelines and policies despite peer pressure and FOMO. The discipline of not deploying capital when valuations seem unrealistic and waiting for more reasonable investment levels can be difficult but effective.

Writing Down Underperforming Portfolio Companies

Writing down poorly performing startups to zero is an extreme valuation decision, and it involves a much less nuanced process than the many valuation methodologies that follow. But it is both necessary and effective. One VC in Asia with a larger number of portfolio companies has a policy of annually writing down the bottom six companies in his portfolio to zero so he can spend more time helping the winners. Concentrated portfolios may only need to write down one or two poorly performing companies. More than anything, it's a time and resource allocation issue. Focus on what matters.

One fund manager said that embracing the capitalist approach means not spending time trying to resuscitate a dying company, but instead putting his efforts into helping a company that may be a 50x become a 60x.

Cutting isn't easy though. One needs to be realistic, professional, and pragmatic, as well as support the entrepreneur during tough times. After all, VC is a people business, and those relationships often bear fruit in years to come. At times, finding a strategic buyer among your LPs or other GPs may be a solution, but that also takes time.



[16] Abdullah Altamami, Merak Capital, on a Zoom, March 2024
[17] Abdullah Altamami, Merak Capital, on a Zoom, March 2024
[18] Abdullah Altamami, Merak Capital, on a Zoom, March 2024

Investment Mandate – a VCs Policy and Valuation Statements

The fund's LPA (Limited Partnership Agreement) sets out the general terms and conditions applicable to all participants in a VC fund. This document establishes the rights and responsibilities of a fund's general partners and limited partners, including the reporting frequency and valuation policy.

In venture capital, the valuation policy statement must recognize the qualitative nature of early-stage investments, which are more art than science and more craft than art. A great deal of judgment is involved, so a deep understanding of local markets and the ecosystem is essential. It is crucial to emphasize the fundamental concept of fair value—the price that would be obtained through a well-structured transaction at any given measurement date. Externalities, such as the current industry flavor, the popularity of different sectors, and the macroeconomic environment, influence valuations, and a policy should recognize this. Understanding percentage equity ownership in a startup and how that changes according to conditions is also essential to put in print.

The LPA should specify that it will prepare financial statements in accordance with International Financial Reporting Standards (IFRS), apply valuations consistently based on the latest IPEV Guidelines, and classify investments as financial assets held at fair value through profit or loss (FVTPL) in line with IFRS 9's definition of financial instruments.

The initial fair value of an investment or entry valuation will be the cost of the instrument based on the post-money valuation of the financing round that the VC participates in, and for long closing dates, the pre-money valuation may be referenced.

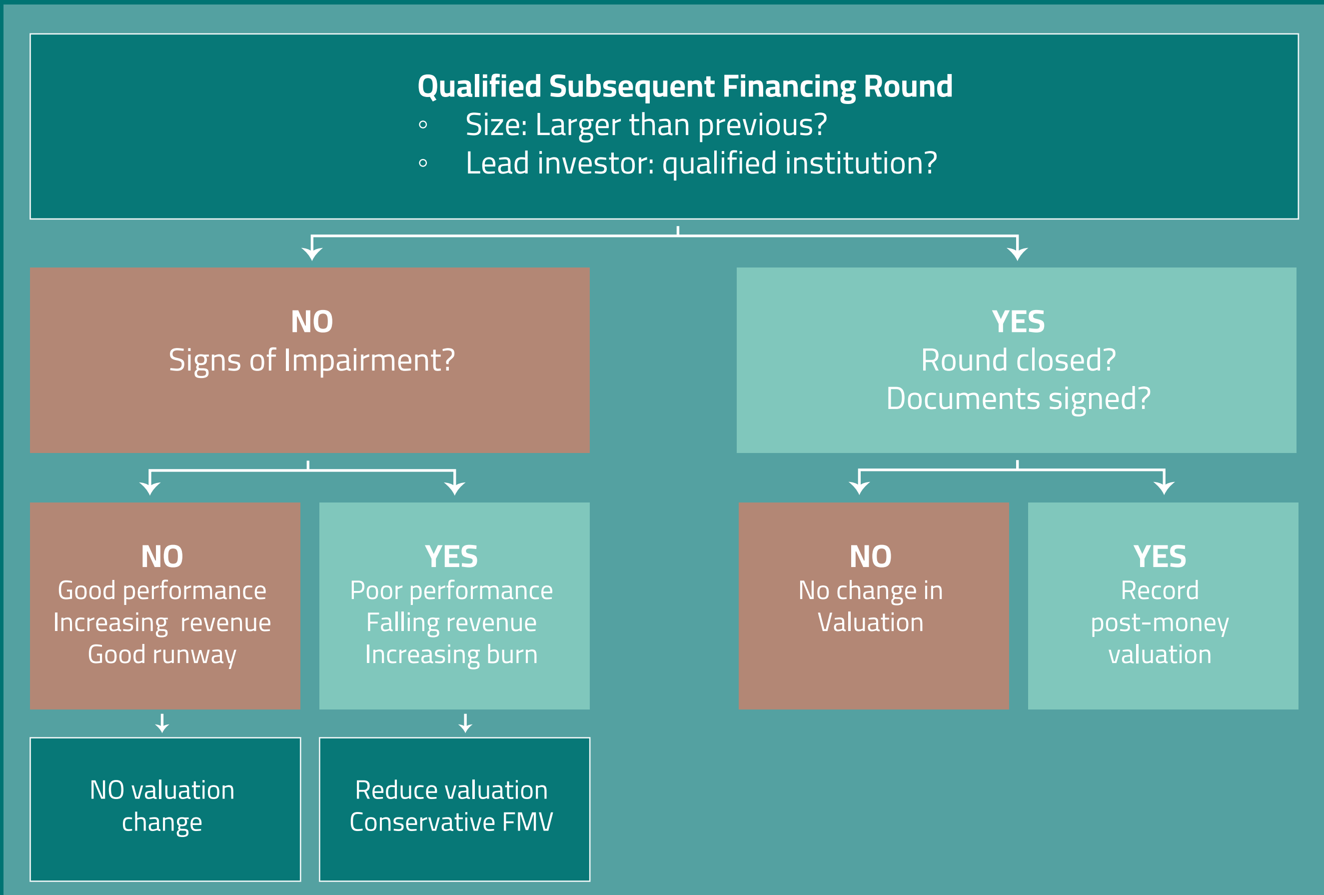
Valuation Policy

For most VC fund managers, valuations of their portfolio companies may only be marked up if a financing round is larger than the previous round, is led by a qualified institutional investor, not an angel or a "tourist," and the round must have closed with all documents signed.

In the past, a "closed round" was loosely defined to include almost-closed rounds. Since the closes often occurred within three months (within the quarter), fund managers were confident recording a new valuation prior to the signing of all documents, and it was rarely an issue. However, the recent trend has been toward longer closings (six months or longer), so funds now wait for signed documents before changing a mark.

When more than a year has passed since a priced round, some managers may write up valuations in response to strong company performance, a spike in the number of customers, the development of game-changing technology, or the achievement of a previously established milestone; more conservative VCs choose to hold valuations steady.

Reducing valuations is a less restrictive process. A down round—a priced round raised at a lower valuation than the previous round—by a qualified institutional investor or an impairment in a company's financials, growth prospects, industry, or market environment will all lead to a lower valuation for the next quarterly report to LPs.



Flowchart: 5 Quadrants. Inspiration, Shorooq Partners

SAFE NOTES: Understanding a Common First-Check Tool

For many investors in pre-seed, seed, and pre-series A rounds, a SAFE note is the most common way to invest in a startup. For the funds we spoke with, SAFE notes were the dominant investment vehicle.

"They make our lives much easier—we don't have to negotiate with founders over onerous deal terms that normally exist in an equity round (e.g., liquidation preferences, board seats, protective provisions, etc.) or go back and forth with the lawyers, a mentally draining process that rarely feels productive." [19]

With a SAFE note, an angel or VC invests now and learns the price of their investment and their ownership stake (percentage equity owned) at a later date when the company raises a priced equity round.

If there are no conditions on the SAFE, the investor's conversion price (the price per share at which the note converts into equity) is the same as the investors who come in during the equity round. But there are usually two features to a SAFE: a valuation cap and a discount.

The valuation cap defines a maximum value for calculating the SAFE investor's share price, and the discount (usually 20%) defines how much less the SAFE investor will pay relative to the equity investors if the company is valued at or below the valuation cap.

For example, a $1 million SAFE investment is made at a $10 million valuation cap and a 20% discount.

If the subsequent equity round is priced at $8 million (a down round), the valuation cap is irrelevant, and the SAFE investors share value is based off a ($8 million * (1-20%[20])) $6.4 million valuation.

If the equity round is priced at $20 million (an up round), the valuation cap kicks in (as would a call option), and the SAFE investors' shares are priced off a $10 million valuation.

[19] Arnav Danthi. Convertible Notes: Why The Nuance Matters, May 19,2023, and on a Zoom, March 2024.

[20] Forbes, Understanding SAFE Agreements: Benefits and Risks for Startups, June 2023. "The discount in a SAFE is used as a mechanism to address the higher risk of investment that SAFE investors take when investing in an early-stage startup. It is a discount off the price per share paid by new investors in the equity financing. The discount may range anywhere between 5% to 30% with 20% being the norm."

A solid education on SAFE notes, their advantages, disadvantages, and features, can be found in a paper written by Arnav Danthi of Nuwa Capital, one of the fund managers we interviewed for this project.[21]

Danthi relates how multiple SAFEs without an intervening equity round can inadvertently destroy founder equity if they are sequential SAFEs (one converts, then another, and then another) instead of all at once SAFEs.

He also mentions that Y Combinator refreshed its SAFE note template from a pre-money basis to a post-money basis a few years ago. While this eliminated the problem of sequential conversion, it increased the dilution of existing shareholders. Most US-based SAFEs are now post-money, but there seems to be some resistance to that trend from MENA founders.

"The new SAFE notes that YC (Y Combinator) uses are exclusively post-money and can be moderately dilutive to founders initially, becoming significant dilutive over time. Now we're seeing founders get smart on this and sometimes opt for pre-money SAFEs, as they recognize the long-term detrimental impacts of equity dilution with post-money SAFEs."[22]

Traditionally, there have been one, or a maximum of two, SAFE notes before a priced round. As the market heated up in 2020 and 2021, founders decided their time was better spent growing the business, not chatting with lawyers. The SAFE note benefits of increased speed and reduced cost (legal fees on a full-fledged priced round for an early-stage company can be disproportionate) were tangible, while investors were less demanding with due diligence and price and more concerned with missing a deal. SAFE notes were often stacked, one after another, before a priced round.

"We don't like stacking [one after another] SAFE notes, but if it's a single round that's followed by an equity round (so it goes SAFE—equity—SAFE—equity), we like them because they're easier and quick, and we outline our rights in a side letter. Sequential SAFEs create a lot of complexity in the cap table that we don't like. When the market was hotter, there was no way around them, because the founders had leverage and SAFEs were quick and easy. We're seeing fewer now. In a hot market, it's difficult to avoid them."[23]

[21] Convertible Notes: Why The Nuance Matters, May 19,2023
[22] Arnav Danthi, Nuwa Capital, on a Zoom, March 2024.
[23] Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024

VALUATIONS

A couple of founders with an idea may have no product or service, no clients, and consequently no sales. However, their idea may solve a massive problem with the potential to scale globally. Traditional corporate valuation methods, which rely upon financials (sales and earnings) and ratios (P/E, P/S), will be of no use, but a VC will still need to assign an initial value to the young company.

The checklist, scorecard, and venture valuation methodologies are useful tools for forming an initial, pre-financial valuation estimate for a startup with potential.

Once a startup is in the portfolio, has a viable product, paying customers, and a few quarters of financial history, it becomes easier to compare it to its peers or calibrate valuations from recent priced equity rounds.

The last-priced round, precedent transaction, and comparables (comps) methodologies are useful when the startup has some early financials or has reached its growth phase, while the venture valuation method remains a viable valuation technique. In addition to these methods, some funds continue to use a checklist or scorecard to keep track of progress and measure change.

Discounted cash flow (DCF), a method familiar to many, only becomes useful when the growth of revenue, expenses, and free cash flow becomes predictable. This method is more appropriate for private equity funds that are improving established companies but less useful for VCs with portfolios in the startup and growth phases.

All methods involve numerous estimations and defining one's target rates of return or exit multiple needs. While VC funds have favorite methodologies that vary according to a company's growth phase, most derive their valuations by triangulating multiple methods. In one fund, three partners with different backgrounds separately formed opinions and then, through discussion, converged on a valuation. Most VC funds we interviewed stressed the importance of a continuing dialogue with founders to understand the progression of qualitative aspects such as team dynamics, competition, moats, burn rates, and market growth.

The Go-No-Go Decision

The first question potential investors ask is binary: can the startup generate VC returns or not? Does the company provide an urgent solution to a significant problem? Is the solution viable? Can it be scaled? Does the startup have the potential to generate significant outsized returns—multiples of 30x to 100x? In other words, is it VC-backable?

" VC valuation is more art than science, more craft than art." [24]

Statistics warn that very few startups return double-digit multiples on invested capital, so VCs must first see compelling potential. Even if the initial valuation appears high compared to recent transactions in similar industries, if the company is viable, then the returns may come.

[24]The author, summarizing a mélange of comments on art, science, and craft.

Checklist and Scorecard Methods

With a seemingly infinite number of criteria available to analyze a business, the checklist and scorecard methods force one to narrow the selection to several key qualitative measures that are relevant to the startup's industry or sector and then assign weights to each measure according to their perceived importance to the success of the business.

Team dynamics, execution, and operational efficiency may be heavily weighted for a SAAS startup where the client wants to streamline a business process and avoid downtime, while product, moat, and regulatory approval may be the dominant factors when contemplating a biotech or medical device investment where lengthy clinical trials may factor in the decision.

With the aid of face-to-face conversations, Zooms, pitchbooks, questionnaires, and data room dives, the VCs form an opinion on the startup founders and team dynamics and rate the company on how well they have their key metrics under control.

Checklist

One of the funds created a comprehensive checklist that resembles an MBA curriculum infused with the wisdom of VC legends. As Atul Gawande, author of The Checklist Manifest, said,

> *"Under conditions of complexity, not only are checklists a help, they are required for success. There must always be room for judgment, but judgement aided—and even enhanced—by procedure."* [25]

The real test of a checklist is its usefulness; it must be comprehensive enough to prevent missing critical items, yet short enough to be usable. Gawande's checklist for surgical theaters went through years of iterations and edits and is now in use globally, purportedly saving many lives. Fund managers use them to avoid making bad decisions and to renew good ones. And for dealing dispassionately with adversity, such as a bad quarter or a founder's departure.

The checklist method is a relative valuation to a presumed perfect benchmark. It poses the question: if the top startup in a particular industry can expect a pre-money seed-round valuation of US$10 million, how should we value the prospective startup? In the following example, the founders look experienced (75% score), yet their ability to execute is in doubt (40% score). The checklist method suggests this startup is worth US$6.6 million, or about two-thirds of a perfect valuation.

[25]Atul Gawande, The Checklist Manifesto: How to Get Things Right

	Checklist Valuation Method	1	2	3	1*2*3
Key Measures	What to Look for	Measure Weight	Company Score	Perfect Valuation	Checklist Valuation
Founders & Team	Previous startups + references + conversations	30%	75%	10,000,000	2,250,000
Idea	Is it a great idea that solves a huge problem?	20%	70%	10,000,000	1,400,000
Market	Is it the market large and growing?	20%	70%	10,000,000	1,400,000
Product and IP	Is it the product an iteration or something unique?	15%	65%	10,000,000	975,000
Execution	Can the team execute?	15%	40%	10,000,000	600,000
		100%	Pre-money valuation =		6,625,000

Source: 5 Quadrants. Inspiration by Equidams Understanding Valuation report

Scorecard

The scorecard method is similar to the checklist method, but in this case, one assigns a premium or a discount (above or below 1.0) to six to eight key measures. The next step is to define a pre-money median valuation of recently funded startups in the same industry and geography. Multiplying the measure weight by the premium or discount and again by the industry median yields a scorecard valuation for each measure. The scorecard value is equal to the sum of the individual key measure values.

One of the interviewed funds scored startups against six key variables but gave a double weighting to 'valuation,' which awarded a fair, over, or under score relative to market norms or to the last mark provided by the company. Their 'runway' measure looked at cash in the bank and the monthly burn rate to determine how long the company had before they ran out of money. Evaluating 'founder dynamics and fit' was a common metric among the funds. One VC helped negotiate the winding down of a startup they had invested in because the founders' objectives and aspirations had diverged to the extent that the road to success was no longer clear. Another measure that underlined the importance of the human element to success was the 'overall feel of the team'. Once a startup has a minimum viable product (MVP), 'traction' (the ability to grow top and bottom line numbers) becomes an important measure. And finally, how do the founders come across when 'fundraising'; how are they perceived by potential investors? Do they present well?

In the following scorecard example, the founders have had previous exits, so that commands a 40% premium. The product's ultimate viability is uncertain, so this key measure is discounted by 30%. Since they're in a completely new space, competition is scarce and may take a while to catch up, so the Blue Ocean effect deserves a 30% premium.

According to the scorecard, the startup is worth US$8.9 million, or 11.5% more than the US$8 million median market valuation for similar companies. The positive assessment justifies accepting a slightly higher valuation (or a slightly lower equity stake) to get into this startup's cap table.

	Scorecard Valuation Method	1	2	3	1*2*3
Key Measures	What to Look for	Measure Weight	Premium /Discount	Pre-money median	Scorecard Valuation
Team Strength	Previous startups + references + conversations	24%	1.4	8,000,000	2,688,000
Opportunity Size	Is it the market large and growing?	22%	1.2	8,000,000	2,112,000
Product/Service	Prototype? Is it an iteration or a game changer?	20%	0.7	8,000,000	1,120,000
Competition	Is it a Red or a Blue ocean	16%	1.3	8,000,000	1,664,000
Marketing & Sales	Experience, partnerships, strategic relationships	12%	0.9	8,000,000	864,000
Need for Funding	Is it time for the next round?	6%	1.0	8,000,000	480,000
		100%	Pre-money valuation =		8,928,000

Source: 5 Quadrants. Inspiration by Equidams Understanding Valuation report

The downside of the checklist and scorecard methods is the inability to quantify or verify judgments (except in retrospect), as well as the possibility that key measures may be omitted. Experience enables more informed selection and judgement, reinforcing the notion that early-stage valuations are very much an art or a craft, but they improve with practice.

Venture Valuation Method

As early as the idea stage, VCs try to imagine potential future cash flows. Since they cannot be measured, a proxy is derived from estimating the market size (ideally massive), the achievable market share, and the expected profit margin. A terminal (exit) value years out is modeled and then discounted for risks.

In the early days, the exercise can't be scientific, and estimates are anything but simple. It is important to follow a well-defined process so emotions and the environment don't overly influence the decision.

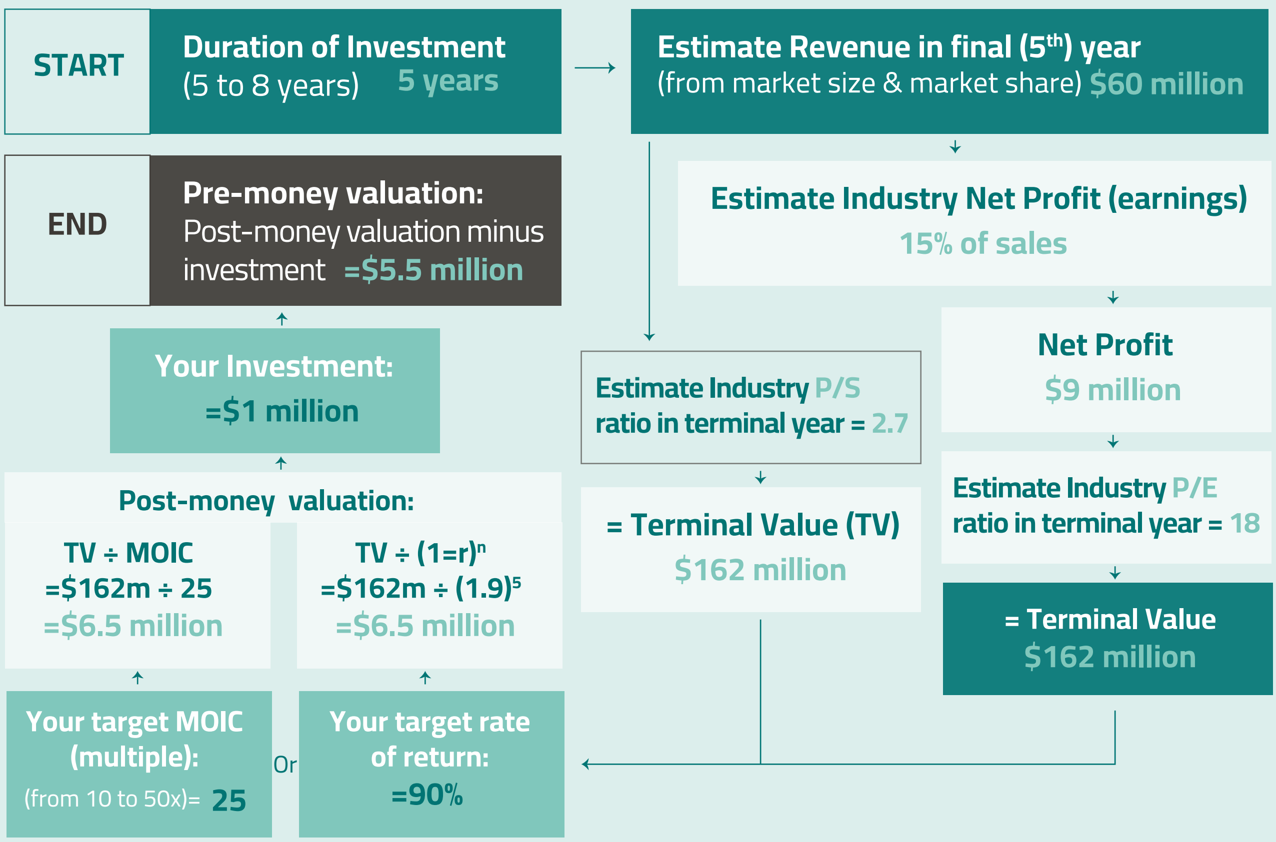
Some VCs consider the venture valuation method a useful tool for pre-revenue companies, and others use it only when a company has a predictable stream of revenues. Young, early-stage, or growth, the methodology requires one to estimate the terminal or exit value of a company years into the future from estimated final year revenues.

The following image displays the sequence of estimates and targets for a venture valuation exercise. The first step is to determine an exit date, which ranges from 5 to 10 years out. Next, they estimate revenues for the year in which they plan to sell the company. For a startup with no revenue, future reality will likely diverge significantly from initial estimates, but that's OK. The purpose of the exercise is to force an estimation of the total market size and then judge what percentage market share the startup can command. Is 10% of a billion-dollar market likely, or is 2% of ten billion more realistic?

From the final year's revenue estimate, derive the company's terminal value by applying an industry average P/S (price to sales) ratio. Alternatively, convert revenue to earnings by estimating terminal-year net profit and then apply a P/E (price to earnings) ratio.

Bring the terminal value to the present by dividing it by your target multiple or discounting it at your target rate of return. That becomes your post-money valuation, and subtracting your investment gives you the pre-money valuation.

Venture Valuation Method: (estimates & targets)



Source: 5 Quadrants

It's a quick and easy way to value companies, and a financial history (revenue and expenses) will increase its forecasting accuracy.

One of the interviewee funds said that because they were so early-stage, they focused more on the venture valuation method and tried to determine if the market was large and the business was scalable. Their primary metric was potential market size. They also tried to convince themselves that market and regulatory barriers to entry were either small or surmountable.

Venture Valuation Method: Based on EV/S

Target R of R	50%
Years until exit	3
Revenue est. (year 3)	$300
Industry EV/S ratio	2.25

Valuing a company with expected revenue of $300 million, three years from now, in an industry with an average EV/S ratio of 2.25, and a target return of 50%.

($ values in millions)

	Market Cap	Debt O/S	Cash	Ent Value	Revenue	EV/Sales
Listed Company A	$10,500	$2,500	$1,900	$11,100	$6,500	1.71
Listed Company B	$4,800	$0	$600	$4,200	$1,500	2.80
Private Company C	?	$0	$0	$676	$300	2.25
Discounted Value	$200	$EV/(1+r)^n = \$676m/(1.5)^3 = \$200m$				

Source: 5 Quadrants

In this example, we've selected two publicly listed companies (A and B) in the same industry and averaged their enterprise value to sales ratios (EV/S) to generate an "industry average" ratio of 2.25 for private company C.

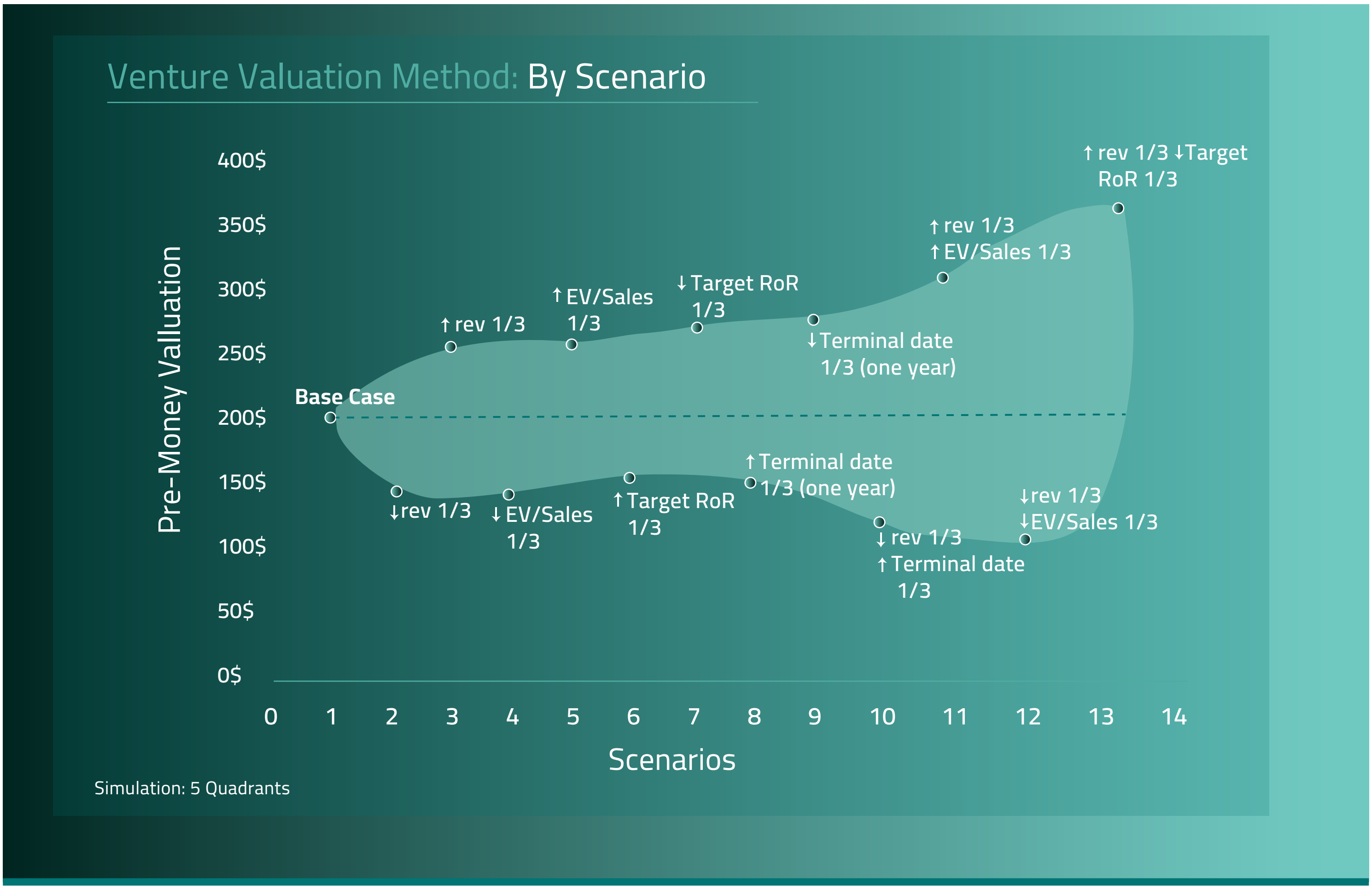
The expected year 3 revenue multiplied by the EV/Sales ratio yields an enterprise value of $676 million. Discounting that by a 50% target rate of return over 3 years results in a discounted value of $200 million [$\$676 \div (1+50\%)^3$]. That is a pre-money valuation. Adding our $20 million investment yields a $220 million post-money valuation.

What if our estimations are off by as little as one-third?

The following chart displays the base case pre-money $200 million valuation on the left and twelve more scenarios, with initially one and then two variables shifted up and down by one-third.

We shift revenue first, followed by EV/Sales, then our target rate of return, and finally the terminal date. Next, we shift two variables up and down.

With moderate changes to the inputs, the dispersion of values can be significant. The venture valuation method will generate a number that fund managers can use in their quarterly NAV reports, but both funds and LPs should be cognizant that valuations can change significantly with moderate estimation variations.



Comparable Company Analysis (Comps)

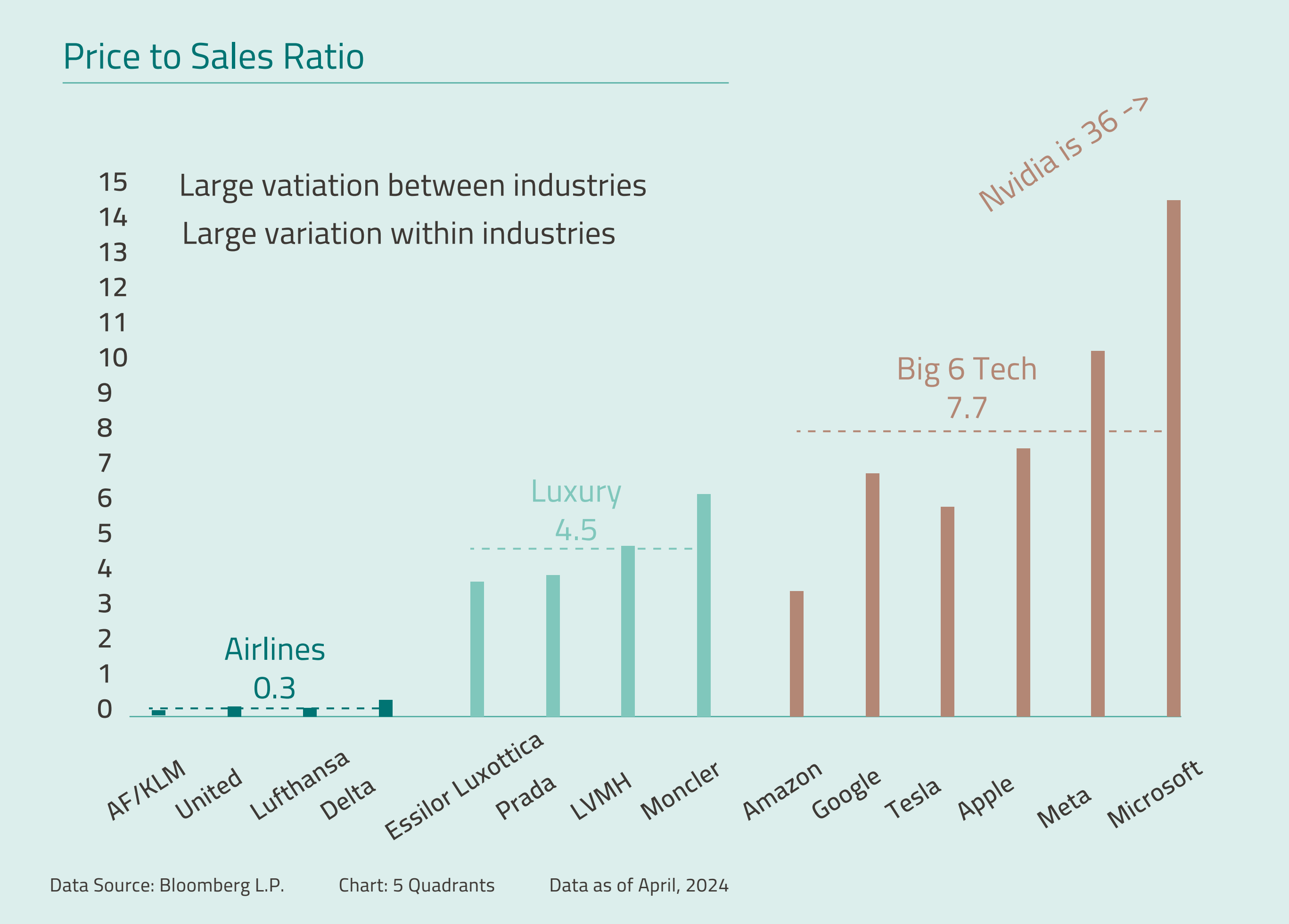
Comps is one of the more popular startup valuation techniques because it uses market-based numbers to value a company, not forecasts. To be comparable, a company must be a peer, in a similar business in a similar industry, and preferably in a similar geography. An appropriate premium or discount can be applied if it's in a different part of the world. Some would add similar size, but by then you're comparing to a clone, not a peer.

The comparison would be easier if the companies were also in the same growth phase, but that's rarely the case. Public company financial metrics and user numbers are readily available, and recent priced rounds or acquisitions for a comparable private company will also work (a recent private acquisition is required for the precedent transaction method, discussed next). The two methods are related.

EV/S, P/E, P/B, and P/S ratios (enterprise value to sales, price to earnings, price to book, and price to sales) are the most common valuation measures.

For example, a global ride-hailing app's P/S ratio may have been a good ratio to apply to Careem when determining a comparable valuation based on sales. P/E wouldn't have worked for obvious reasons.

The P/S ratios of the publicly listed stocks below make it clear that comps need to be with companies in the same industry. Airlines have enormous revenues and tiny margins, so their price-to-sales ratios typically range from 0.3 to 1.3. They're at the bottom of the range now, likely due to supply chain issues (staff and fuel) and product quality issues.



Luxury goods have gigantic margins and enjoy an average price-to-sales ratio of 4.5. And of course, the top tech companies, with their seemingly limitless digital growth capabilities, command an average P/S of 7.7. Industry matters. And even within industries, the variations can be extreme.

A caveat is that the ratios utilized in comps may fluctuate, so you'll need to update your comp-based valuations quarterly, err on the side of caution, and accept increased valuation volatility.

Non-financial metrics such as beds, rides, eyeballs, churn, and retention can also be compared.

Although the mechanics of the comparables method may be straightforward, ensuring that the comparable companies are indeed similar and that the ratios make sense requires experience and judgment.

As Morgan Stanley's Michael Mauboussin said in a September 2021 lecture:

> *"You have to earn the right to use multiples."* [26]

[26] Michael Mauboussin, Morgan Stanley, https://www.youtube.com/watch?v=zgfwWMSIol0 45:47

If a company is valued at 20x revenues, you would have to believe that it is a digital business with global potential and significant scalability. Mauboussin delivered his talk near peak startup FOMO, highlighting the importance of considering the advice of various thought leaders in the current context. A member of the audience said that the standard advice was to just price to sales, while Mauboussin recommended focusing on cash flow (support for the models that discount future free cash flow).

"That means, if you say 20x revenue is appropriate for [company] XYZ, you understand the economic implications of what has to happen for that to make sense. Otherwise, you've just lost your grounding." [27]

Sukna Ventures has a comprehensive methodology that first normalizes a measure or ratio, then applies a premium or discount as a means of comparison. Their inventory of factors is extensive, and their challenge is to narrow that down to what really matters.

"All of these metrics refresh my memory. Every time we look at an opportunity, I go through this list." [28]

They initially assess if the company being valued is really behaving like the category of companies to which it is being compared.

"WeWork wasn't a tech company." [29]

Regional risks are important for a premium or discount assessment. MENA is very different than the US and is discounted.

"A lot of VCs in Saudi refer to the MENA discount, which is 25%. We adjust that discount based on other factors." [30]

It is not unthinkable that in the current difficult fundraising environment, MENA-based investors, who are committed to supporting and growing the industry and are less cyclically influenced, may help to reduce that blanket regional discount.

Revenue quality—the ability to generate sustainable revenue and build moats to protect that revenue—will help determine if the ratio of price to sales should be 2x, 5x, or 10x. Effective moats will prevent copycats from easily entering the space.

Sukna also compares capital efficiency, cost structure, and unit economics with those of industry peers and identifies drivers of growth and cost to determine if the company can scale. One method of determining capital efficiency is the 'burn multiple' (net $ burned/net new ARR), which asks how much it costs the startup for each incremental dollar of annual recurring revenue. If the burn multiple is too high, the company's use of capital is inefficient, and they should consider cutting costs.

[27] Michael Mauboussin, Morgan Stanley, https://www.youtube.com/watch?v=zgfwWMSIol0 45:58
[28] Waleed Alballaa, Sukna Ventures on a Zoom, March 2024.
[29] Waleed Alballaa, Sukna Ventures on a Zoom, March 2024.
[30] Waleed Alballaa, Sukna Ventures on a Zoom, March 2024.

A host of other qualitative factors, such as product-market fit, degree of customer engagement, churn (rate of customer attrition), distribution channels, branding, and the quality of operations, all factor into the calculation.

The comprehensive process is more to understand than to guide or mentor, although many of the funds openly share their analysis with the investee companies.

Finally, it is important to isolate the 3 or 4 most important metrics for each company to simplify the process, and the catalog exercise—going through everything initially—helps to determine what is important.

"Because once it gets complicated, much of the data is garbage, analysis paralysis sets in, and it's just not worth it." [31]

Last Round and Precedent Transaction Analysis

These two valuation methodologies compare a company's progress to its most recent priced round ("Last Round") or apply ratios to a competitor's or peer's more recent equity round ("Precedent Transaction").

A transaction is a priced equity round, an acquisition, a secondary market deal, or an exit—basically anything that assigns a price to a round. SAFE notes are excluded as are very small equity rounds by a non-institutional investor.

Last round takes your portfolio company's last priced round and iterates or calibrates price based on changes in revenue, burn rate, number of customers, costs, margin, new products, or new technologies. It starts with the most recent objective point and measures progress or deterioration from there.

Precedent transaction takes a peer's last priced round and derives a valuation by applying the standard set of financial ratios (EV/S, P/E, P/B, or P/S).

The valuation policies of most of the funds we spoke with required a higher last-priced round of a startup—by a significant investor—to write up the valuation of the portfolio companies. They were all very conservative in this respect. There was little wiggle room for increases beyond the last valuation, even if the near future brought material changes in the number of clients, revenues, or growth prospects. Markdowns between priced rounds were applied for any company impairments or macroeconomic headwinds without hesitation, but higher marks were only allowed on a higher equity round.

"On the upside, it is simple: on subsequent priced rounds that have significant third-party investors, we mark it up or down to the traded price. On the way down, we employ a scoring mechanism based on several variables. We can mark a portfolio company down, but not up." [32]

[31] Waleed Alballaa, Sukna Ventures on a Zoom, March 2024.
[32] Khaled Talhouni, Nuwa Capital on a Zoom, March 2024

However, previous transactions don't age well. If twelve months have passed since a precedent transaction or the last round, the validity of these methodologies deteriorates.

The industry has been grappling with the question of whether a SAFE note's valuation cap or a convertible note's strike price are sufficiently priced for valuation purposes. Can one confidently deem a convertible transaction a 'qualified round' for NAV purposes? The short answer is no.

Valuation Cap and Delta

A SAFE's valuation cap is usually close to what one may consider a realistic value, but it doesn't have to be. Delta, in option terminology, assigns a probability of the price of an instrument being above the strike or conversion price on the conversion or expiration date.

A 50% chance (.50 Delta) of the price exceeding the strike price (or valuation cap) balances the odds of a higher or lower valuation, indicating a fair value. The 50 Delta is likely the 'correct' price.

A Delta of .20 implies a low 20% probability that the strike price/valuation cap will be reached, so that's not a good fundamental basis for a valuation. A high valuation cap simply means that you are likely to have your note converted to equity at the same price as the next equity round (less any discount). It doesn't imply that it's the company's true value.

If a $10 million startup accepts a SAFE note investment with a $20 million valuation cap, it doesn't imply the company's value has doubled. It just means that the valuation cap has a low probability of determining the future equity conversion price.

We've heard of cases where different funds that have invested in the same portfolio company report significantly different valuations because one fund valued at a low Delta, or low probability, valuation cap and the other ignored the SAFE.

When prices were rising in 2020 and 2021 and multiple SAFE notes were issued without an intervening priced round due to speed, cost, and convenience, valuation caps were often considered a valid price. But the equity value of a SAFE or convert is conditional on caps, discounts, and future-priced rounds. From an auditing standpoint, there is no determined value at the time a convert is issued.

A venture debt raise does not represent an exit opportunity for a fund, so it is not considered a price for valuation purposes, although it does provide useful information. According to Shorooq's Mohammed Alyahya,

"We definitely take it as an update and make a positive or negative determination (it's usually positive because it supports their cash flow and extends their runway), but we don't consider debt as a prompt to do a valuation." [33]

Interestingly, despite our recent comment that a SAFE valuation cap is probably not a valid price for valuation purposes, there have been instances where a VC assigned a SAFE to another investor, leading to an exit with a respectable multiple.

DCF (Discounted Cash Flow)

The DCF method is more appropriate for mature private equity portfolio companies. The method operates on the premise of deriving a company's value from all future free cash flows. Companies without an easy-to-estimate revenue stream, such as startups that are busy burning cash to build products and acquire customers, seldom use this valuation method. It's also well covered by the PE industry. We'll relegate the DCF discussion and example to the appendix.

Summary of Valuation Methodologies

Checklist	Identify key measures, score them out of 100, weigh them by importance, and derive a valuation relative to a "perfect valuation."
Scorecard	Identify key metrics, assign a premium or discount, weigh them by importance, and assign a valuation relative to the industry median valuation for a similar company.
Venture Valuation	Choose an investment duration, estimate revenue in the terminal year, derive a terminal value by forecasting future industry financial ratios, and then discount to the present.
Comparables	Find listed companies (or private companies with financial information—perhaps those in your own portfolio) that are in a similar industry, have a similar business, are domiciled in a similar geography, and are of a similar size, and apply common financial ratios and sound judgment to determine your valuation.
Last Round	Relative to your own last priced or qualified round, iterate or calibrate the valuation based on changes in your revenue, burn rate, number of customers, costs, margins, new products, and new technologies.
Last Transaction	Based on a recent peer transaction—a priced equity round, an acquisition, an exit, or a secondary market transaction—derive a valuation of your own company with the use of common financial ratios.
DCF	Discount future free cash flow to the present to derive a value.

[33]Mohammed Alyahya, Shorooq Partners, on a Zoom, March 2024.

ADDITIONAL VALUATION TOOLS

In addition to the seven valuation methodologies discussed above, there are a host of valuation tools and techniques that can be used to add context and perspective to a valuation.

Calibration for Portfolio Companies

Calibration serves primarily as a tool for updating the valuations of existing portfolio companies, not as a stand-alone methodology. As discussed in last round financing above, all the interviewed funds use some form of calibration to mark down the value of their investments, but rarely to mark them up. The tool is applicable to a wide range of VC and PE portfolio companies.

Some valuation inputs are observable. Calibration deals with unobservable inputs. If unobservable (forecast) inputs such as volatility, growth rates, and free cash flow change, the previous valuation can be calibrated or adjusted upwards or downwards in proportion to the change in forecast inputs. The rationale for the calibration should be well supported and documented.

Portfolio companies can also use calibration to support changes in their employee stock option plans (ESOPs).

Scenario-based Analysis

A scenario-based valuation method, also known as the probability-weighted expected return method, estimates a portfolio company's value based on the probability-weighted present values of various future outcomes for the business (e.g., IPO, sales, dissolution, or continued operation until a later exit date). This method can be complex to implement and may require detailed assumptions about potential future outcomes; estimating the probabilities of different exit events may be difficult to support. However, calibration can help mitigate these issues.

Milestone-based Valuations

Do not confuse valuation milestones with investment milestones, where pre-determined investment amounts are parceled out in tranches based on achieving a series of quantifiable metrics (sales, number of clients, or production numbers).

Valuation milestones can alter the value of an investment, but not the amount. Price per share may be adjusted up or down based on a scale of milestone achievements. Either begin with a base valuation and increase it line with milestone achievement (investors' equity declines and founders' rises) or begin with a maximum valuation and reduce it if milestones are not achieved (investors' equity increases and founders' decreases).

Milestone Example

A startup had traction, and sales had increased rapidly in the previous two years, albeit from an exceptionally low base. The founders expected the high growth rate to continue, and so did their lead investor. However, both parties were concerned about recording a high valuation and potentially setting themselves up for a future down round if the expected 6x sales growth failed to continue.

Both parties favored a milestone solution based on realized sales. If sales grew by 6x as forecast, the post-money valuation would remain as initially agreed. If sales rose by only 4x over the specified timeframe, the valuation would drop to 75% of the full valuation, and the investor's equity share would rise from 17% to 22%. A growth rate of 2x would drop the valuation by one-half, and the investor would have a 30% stake in the startup.

It is reasonable, in theory, to base an investment on realized achievements. In reality, it could mess up the founder's drive and increase the complexity of the cap table. The founder's ownership percentage will decrease, and the investor's stake will increase as the company underperforms expectations. Not a great outcome for either of them. It's generally not in the spirit of VC investing to reduce founder incentives as they struggle with performance. The conditional valuation and percentage ownership on the cap table may deter potential investors.

Secondary Markets

Secondary transactions usually take place at a discount to a recently priced round or valuation. In market downturns with few IPOs or exit options, secondary discounts increase since they are supply-led, with distressed and exit-hungry investors initiating them.

Some of the interviewed funds questioned whether selling in the secondary market at 3x to realize a return for the odd impatient LPs instead of waiting a bit longer for a target 25x is really in the spirit of VC investing. It was felt that through open conversations with their local LPs and a good mutual understanding of the macroenvironment, waiting was the best policy.

The large discounts also bring us back to the demand-supply equation. There appears to be a dearth of secondary market buyers.

Oddly, the funds we interviewed claimed that secondaries in MENA almost always trade at a 20% discount, regardless of different share classes, rights, or liquidity preferences. Perhaps few buyers expect a subsequent down round, or they understand the difficulty of enforcing rights. Theoretically, the tranches should be layered, and the differences accounted for.

> *"I don't think we've reached a level of maturity in the local ecosystem where different share classes are valued differently, even though everyone knows they have different rights attached to them."* [34]

[34] Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024

CURRENT ISSUES CONFRONTING INVESTORS AND FOUNDERS

Proliferation of SAFE Notes and Convertibles

"SAFE notes have proliferated and, at times, replaced proper priced notes. Maybe I'm saying this with hindsight, but I'm not sure this is the healthiest thing. There's a place for SAFE notes, but there are cases where the forcing function of a priced round must kick in as well. A priced round requires formal pricing discipline." [35]

Traditionally, there have been one, or a maximum of two, SAFE notes before a priced round. As the market heated up in 2020 and 2021, founders decided their time was better spent growing the business, not chatting with lawyers. The SAFE note benefits of increased speed and reduced cost (legal fees on a full-fledged priced round for an early-stage company can be disproportionate) were tangible, while investors were less demanding with due diligence and price and more concerned with missing a deal. SAFE notes were often stacked, one after another, before a priced round.

Out of Control Capitalization (Cap) Tables

Founders come up with amazing ideas that change the world. They create innovative products, services, and efficiencies that would be impossible to conceive in large organizations. But most haven't a clue—initially—about cap tables. Founders are not accountants. They often can't say with precision who owns how much of the equity and debt of their company. Lawyers are called in to decipher ownership, and founders soon realize the importance of getting their cap table in order very early in the game. The costs of not doing so include time, money, and future investors.

Investors need to know how much of a startup they will own post-money, and the first step to achieving this is to define the company's pre-money valuation according to the cap table, which represents all the economic and voting rights of the company's equity and debt holders.

Every SAFE, convertible note, share of common stock, option in the ESOP, or option promised to new employees or advisors must be on the cap table. Additionally, the cap table will clearly identify the class of shares issued for each equity round, as well as the rights or preferences associated with each instrument. Missing something can throw the numbers off. Securities may be reflected incorrectly, miscalculated, or completely omitted—not through malice, but because cap tables are complicated, and that complexity grows rapidly as the number of investors and creditors increases.

Most cap table advice focuses on managing or repairing a broken or complex spreadsheet, not limiting complexity in the first place. Each VC strives for the best terms and conditions when making an investment, but they may hobble the startup in doing so.

"It's not only about managing it. It is a more strategic decision to keep the cap table simple and clean without funky structures, which, IMHO, is the biggest of all headaches." [36]

VCs could help by ensuring that cap tables are included on term sheets and that everyone is on board so ambiguity over options, preferences, caps, and discounts is minimized. Once cap tables get out of control, investor hesitation and legal delays could negatively impact valuations and the ability to raise capital in the next round. New issuances typically require approval and board consent, but these are not always sought.

[35] Felix Zimmermann, Beco Capital on a Zoom, March 2024
[36] Deepak Shahdadpuri, MD DSG Consumer Partners,

A complicated cap table can easily be deconstructed according to its preferences and hierarchies, and equity ownership can be determined with a decent spreadsheet, but conditional probabilities quickly multiply. One's future ownership and preference position can fall into a rainbow of outcomes that are not obvious or intuitive.

If your cap table is a hierarchical mess, the best solution may be to engage a cloud-based cap table management company. There are three large ones, as well as many boutiques. (The author has no personal interest in any of them, but a reputable one with a track record could certainly help startups organize more effectively.) These companies usually offer pro forma cap table software that will let all investors and creditors know their position on a pre-money basis according to multiple scenarios.

"A cap table pro forma is probably the single most important exercise founders could do but do not. Planning dissolution early, before one takes on partners, investors, and team members, is essential." [37]

Another simplifying strategy is housecleaning. Create a process to buyback or reverse-vest departed founders, managers, or advisors, and consider pooling small individual investors into an SPV or implementing a rollup. Find some way for one vehicle to represent many.

Finally, avoid sweeteners. As badly as you may need the money, learn to say no to complexity. Potential investors may be inclined to walk away if the cap table contains securities with unfamiliar terms, several classes of common shares, single investor liquidation preferences, a series of SAFE or convertible notes without an intervening equity round, or special voting rights.

In a difficult funding environment, it is tempting to accept complicated, structured, conditional, and decision-tree-type investments to get funding in the door (after all, it's a funder's, not a founder's market). The problem with this is that you trade off short-term relief for long-term confusion. You may be complicating future raises if investors can't quickly decipher your cap table.

Determining Ownership When the Tide Goes Out

Funds are having more conversations on the full capital structure of their portfolio companies, including the OPM (Option Pricing Model), waterfall or liquidity preference (liqupref) analysis, and ownership protection when valuations fall.

"I think this has probably been neglected, because you don't need downside protection when everything has gone up for ten years." [38]

A liquidation preference waterfall analysis simulates the distribution of exit proceeds among shareholders in accordance with all the term sheets. Many PE firms build waterfall analysis models to predict the value of their holdings based on share class, vesting order, timing, and liquidation preferences. VCs are also learning the importance of this exercise.

An OPM models each discreet exit scenario from zero to infinity and calculates the value for each share class in each scenario. This model is most useful when a company has a complex capital structure with multiple classes of equity (preferred, common, convertibles, warrants, dividends, liquidation preferences, seniorities, SAFE valuation caps, discounts, and options). A sound option pricing model will include five inputs: the expected time to exit, the risk-free rate of the expected date, volatility for the duration (approximate with comparisons to similar public companies), company value, and strike prices (the price at which the option holder has the right to purchase the underlying asset). [39]

[37] From Professor Zeisberger's post of an article entitled "6 Ways To Make A Startup Uninvestable."
[38] Felix Zimmermann, Beco Capital, on a Zoom, March 2024
[39] Carta. What is the Option Pricing Model ("OPM"), January 29, 2020.

Often, a VC fund has not fully worked through the exercise of allocating values to the different equity classes. They may be 100% accurate on the overall value of a company, but way off when determining their own allocation. Falling valuations have catalyzed these discussions. The LPs are also learning.

"One LP complained that we were not doing enough to incorporate capital structure in our valuations. They changed their minds when they were unable to enforce most of their rights after an acquisition at a lower valuation and were burned." [40]

A portfolio company of one fund had an "aggravated" writedown, which was in and of itself unpleasant, but the fund was further punished by the "juniority" of its shares, which they had not taken into account in their valuation.

That makes it difficult for small funds to determine the right approach. How do you wrap a framework around something that is situation-specific and can often trump the legal structure?

"It's always tricky because you're writing a term sheet when you invest in a company, and anything can happen. Term sheets are legal documents, but you can't foresee everything. The moment you're digging for the term sheet to read the last clause, you're probably better off sitting down with your counterpart and with your investors to have a realistic look at the situation." [41]

It often comes down to a negotiation.

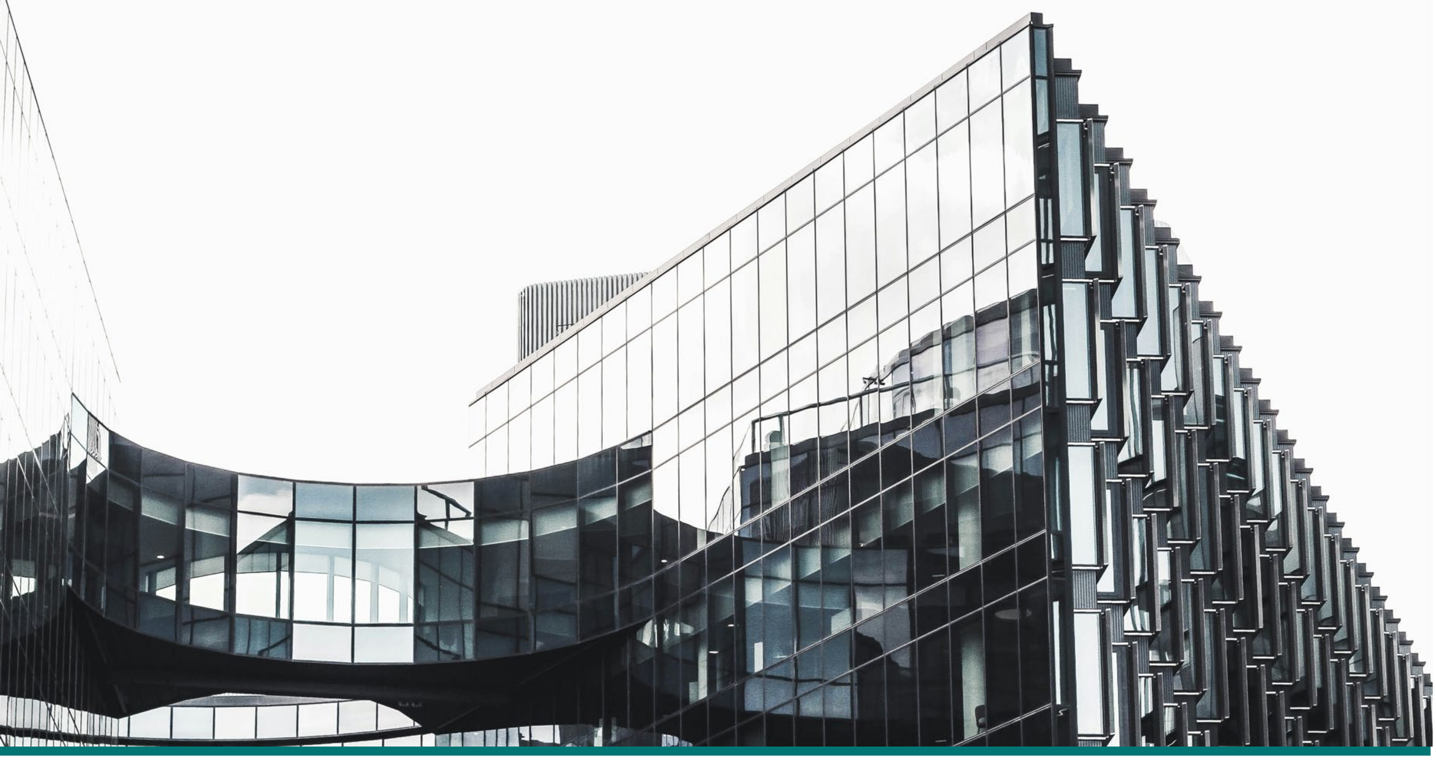
One fund sought opinions from numerous counterparts in different geographies. They asked how the funds calculated their own valuations. The answers ranged from "we just value them as converted and ignore the seniority because we don't think anyone can really enforce it" to the ones that value without any context and just "do it by the book."

Some MENA funds are so new that they haven't had an investment with a formal equity round yet.

"85% of our investments are in companies that are less than two years old, so they literally haven't had enough time to accumulate liquidation preferences. Many of these companies just have SAFE notes—not even a formal equity round yet." [42]

"As our portfolio companies mature and add more structures and preferences to their rounds and increase the complexity of their cap tables, we'll incorporate share class premiums and discounts in our valuation policies." [43]

[40] Anonymous.
[41] Professor Claudia Zeisberger on a Zoom with Beco Capital
[42] Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024
[43] Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024



Third-Party Valuations

> *"Saudi Arabia is very fragmented. Since there are many small funds, there is much overlap. An investor may have an interest in the same portfolio company through three or four funds and might receive as many different valuations."*[44]

> *"The first year we did our own valuations, and even though our calculations were accepted by a big-four auditor, we knew it was not best practice to value your own assets if you're building an institutional platform. So, we brought in a third-party valuer, even though it was not common nor mandatory to do so. They had no Saudi Arabian investment clients when we engaged them, but now they have many in the country."*[45]

The third-party valuer first determines an enterprise value for the portfolio company and then assigns it an industry-relevant multiple. They then account for the instruments and stakes on the cap table, and, if the capital structure is complex, assign equity values to the various share classes using the Options Pricing Model (OPM). Lastly, they apply discounts for lack of marketability (DLOM) and derive valuations for each instrument and right.

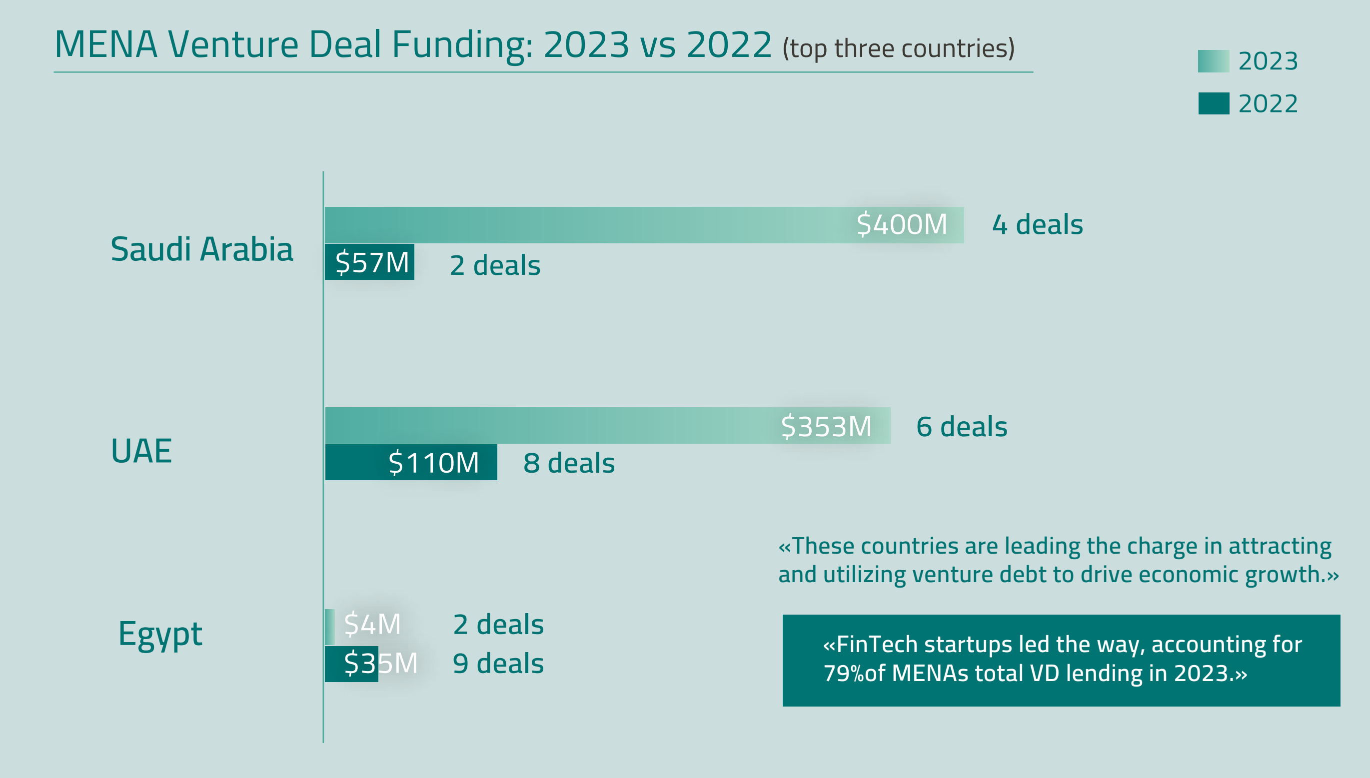
One fund related an extreme example where they valued a company at X, and another fund valued the same company at 10X. An LP, who owned the company through both funds, questioned how the valuations could be so far off. It turns out that the 10X valuation was based on a SAFE note valuation cap that was so high that the note was effectively uncapped. The fund that valued at X could only mark to a priced equity round, not a valuation-capped SAFE note, so the valuation cap had no impact on their mark. The fund that assigned a 10X likely missed the implications of a low delta (low probability) valuation cap and may need to inject a degree of intuition into their valuations.

Venture Debt

Debt is more a funding tool for established private equity firms than for venture and growth portfolio companies, but its recent prominence in MENA and the size of 2023 venture debt deals warrant a comment. From 19 deals with a value of US$202 million in 2022 to 12 deals with a value of US$757 million in 2023, average venture debt deal size has exploded from US$10 million to US$63 million.

The following graphic shows the number and value of venture debt deals in the top three MENA countries. There appears to be a rapidly growing appetite for debt-financed deals, with ten large tranches accounting for nearly one-third of total financing but only three percent of total deal volume. Venture debt deals of this size suggest that the companies raising the debt have a good deal of market traction and have likely already raised B or C rounds.

[44]Khaled Talhouni, Nuwa Capital, on a Zoom, March 2024
[45]Abdullah Altamami, Merak Capital, on a Zoom, March 2024



Source: Magnitt, FY 2023 MENA Venture Investment Report, chart by 5 Quadrants

Valuation Frequency

In line with ILPA principles[46] , institutional investors expect quarterly reports and adjustments to valuations for the portfolio companies in their respective funds. We asked some of our VCs how often they adjust the value of their portfolio companies.

Beco Capital conducts its valuations on an annual basis and has trigger points to adjust quarterly values. Following IFRS guidelines, they price at the latest round if there has been one within the last twelve months. If there has not been a recent price and there's a reasonable level of sustainable revenue, they'll use forward-looking revenue comps.

One exception was a decision not to mark up a valuation from a highly priced round where the institutional quality of the investor was questionable. The fund declined to invest in the tranche and continued to mark at the price of the previous round.

One scenario funds struggle with is when two to three years have elapsed since a portfolio company's last capital raise, revenue has yet to kick in, and the prior (often initial) round becomes outdated. They see this as a natural evolution—one of the many paths a company may take—yet the lack of comps plus an outdated transaction leaves the valuer with little to go on. The VC may begin with the previous round and calibrate based on subsequent developments. The exercise becomes more qualitative and situation-specific. Two or three valuation approaches may be used.

In cases where the monthly cash burn increases, the runway drops too rapidly, or other critical risks appear that render the company's viability as a going concern questionable, most funds will proactively write-down and err on the conservative side.

Asked whether LPs are OK with static annual valuations on their quarterly NAVs, one fund said that early-stage valuations really do not change that rapidly. Revenue forecasts for companies with low to no revenue will not change in three to six months. The only quarterly adjustments are up on a transaction or down on impairments. However, a go-to-market target of one year that morphs into two years will usually result in a writedown.

[46]https://ilpa.org/ilpa-principles/

A fund administrator said that valuation frequency was also a function of fund size. A high percentage of mid-sized funds were revaluing annually, but larger funds should be able to afford the workforce to value more frequently. The smaller funds complain that they lack the resources, talent, and scale to value quarterly.

Professor Zeisberger said that, based on her conversation with LPs, most would like to get as much as possible for their 2% and 20%, but understood that spending time conducting frequent valuation exercises may not be time well spent. The LPs were perfectly fine with quarterly reporting and yearly valuations for smaller early-stage funds.

Merak Capital produces yearly valuations in line with Capital Market Authority (CMA) requirements and concurrent with their audited financial statements. As of Q1 2024, they have engaged their third-party valuer to produce quarterly valuations for both their VC and PE portfolio companies. Abdullah Altamami thought it was not right for an LP to wait twelve months for an update. He thought an external valuation, if at arm's length, was more ethical than a self-valuation, and the process is structured and consistent. Merak thought it was a necessary operational measure to be able to receive (non-family) institutional money.

Asked if they accept or challenge the externally produced marks,

> *"The main reason to challenge numbers is if they have misunderstood the environment or the context for that company. Rarely would we challenge methodology. A significant change from one quarter to another would compel us to challenge or to ask them to justify."*[47]

Volatility of Valuations

> *"On the one hand, higher volatility for a portfolio of early-stage companies seems sensible. All the small cap indices, including Goldman's Non-Profitable Technology Equity Index, are very volatile. Yet we expect VC portfolios to be less volatile than the more mature indices."*[48]

There are a few issues at play. Since many VC deals fail, and do so in a relatively linear fashion, volatility (the degree of dispersion of market prices) is low. At best, markdowns due to impairments are quarterly and usually in one direction. Upside venture volatility can be extreme for the successful ones, but few are concerned with upside volatility. Drawdowns will be high, 100% in many cases, but not volatility.

From 2022 onward, the VC community discovered that rapidly rising, followed by fast-falling valuations, is the definition of volatility. Still, quarterly, or less frequent pricing points reduce volatility significantly.

> *"On the other hand, public markets are largely sentiment-driven, and since sentiment is muted in private, periodic valuations, low volatility may be justified."*[49]

[47]Abdullah Altamami, Merak Capital, on a Zoom, March 2024
[48]Felix Zimmermann, Beco Capital, on a Zoom, March 2024
[49]Felix Zimmermannm, Beco Capital, on a Zoom, March 2024

Professor Claudia Zeisberger felt that volatility was driven largely by the LPs and that perhaps VC and PE should be placed in different volatility buckets. For most LPs, both are considered private capital and fit into one category. An LBO fund wouldn't want to be writing an investment down 20% one quarter and up 30% the next, but that may be appropriate for a startup that experiences one quarter of bad luck followed by the addition of several new customers the next quarter.

> *"Most LPs start with buyouts, do a little bit of growth investment, and ultimately drop down to venture. And then they realize that venture moves."*[50]

LP allocations to private markets, especially European LPs, are driven by the desires for diversification and to keep volatility low, and they realize after the fact that venture moves more than they may have anticipated.

> *"I tell my students that PE is not VC. PE is about optimization, whereas VC is about creation."*[51]

Bottom line, it's the LPs that drive the volatility conversation.

Pre-seed and seed-stage valuations have held up better than late-stage valuations. The later stage a company is, the more it approaches public market valuation metrics and, therefore, the more volatile it becomes. Pre-seed and seed companies, which are more focused on ideas and the founder's ability to realize those ideas, have been immune to the emotions of the broader investment community.

The later the stage, the more valuations are influenced by the state of IPO markets. In the absence of IPOs and as time passes, GP anxiety increases as they strive to realize returns and return money to investors. Some VCs have opted for lower multiples to post an exit now instead of potentially much higher multiples in three years.

[50]Professor Claudia Zeisberger on a Zoom with Beco Capital, March 2024.
[51]Professor Claudia Zeisberger on a Zoom with Beco Capital, March 2024.

SUMMARY AND CONCLUSIONS

When considering an investment in a startup, VCs ask two key questions: "Is this a VC-backable company that addresses a large, urgent problem with a viable solution?" If the answer is yes, they ask themselves, "How can I value it?"

The initial go-no-go investment decision for a company with little or no financial, operating, or product history is often based on evaluating key components such as the team, product, and competition using the Checklist or Scorecard valuation methods. Additionally, VCs may use the Venture Valuation method, which involves forecasting sales or profit far into the future—in the year the VC hopes to exit—applying industry-specific financial ratios to derive an enterprise value and then discounting that value to the present using the VC's target return (IRR) or target multiple on invested capital.

As a company matures, develops a financial track record, and gains market traction, valuation methods shift to comparisons with industry peers. Valuations are iterated and calibrated based on the latest valid equity rounds of the company or its peers.

Many of the funds we spoke to use a few valuation methods, which often generate different results, and then, through discussion and debate—amongst partners and with founders—settle on a single number. The checklist method is often a mainstay as a means of measuring the growth and change of the company over time, and the comparison (comps) method is standard for ongoing calibration to industry peers.

VCs are quick to mark valuations down in response to high burn rates, impaired go-to market plans, flawed business models, or adverse macroeconomic conditions. Otherwise, VCs typically hold quarterly valuations steady and only mark them up after a higher-priced equity round.

To calculate the VC's equity share after determining a company's enterprise value, a detailed analysis of the cap table is required. This includes considering such factors as liquidation preferences, convertible securities, SAFE note sequencing, preferred versus common shares, stock options and employee stock option plans, anti-dilution provisions, follow-on investment rights, warrants, conversion rights, voting rights, drag-along and tag-along rights, redemption rights, and dividends.

When markets were rising and subsequent valuations stepped higher in 2020 and 2021, provisions and conditions had a minimal impact on percentage ownership. However, when markets turned down in 2022, these factors became crucial for VCs to accurately determine their percentage ownership and potential return on investment under various scenarios.

The VCs interviewed for this paper generally shared their valuations and methodologies with the founders, and they discussed the metrics in a collaborative fashion.

"The founders often end up better organized, with better financial understanding."[52]

Despite the private—unlisted—nature of venture capital and private equity and the resultant lack of pricing transparency for non-investors, the funds wanted to compare their valuation results with those of their peers to ensure they were approximately in line. The goal of the VCs was to avoid misreading or mispricing a nascent business opportunity. As a result, third-party valuation firms have become more common in MENA.

The surveys and interviews commissioned by JADA Fund of Funds enabled a comprehensive look into the policies, practices, concerns, and aspirations of the participants in MENA's rapidly developing private capital markets. Mohammed Alyahya, Shorooq's finance manager, sums up the region well with this closing comment:

"We are an emerging market, yet our investment approach, our decisions, and the companies we invest in are becoming more mature. Investors are becoming more sophisticated. And we would like the valuation side to mature in line."[53]

[52] Waleed Alballaa, Sukna Ventures, on a Zoom, March 2024.
[53] Mohammed Alyahya, Shorooq Partners, on a Zoom, March 2024.

DCF (Discounted Cash Flow)

As mentioned briefly in the valuations section, the DCF method is more suitable for mature private equity portfolio companies because it operates on the premise of deriving a company's value from all future free cash flows. DCF is less useful for startups with little financial history or unpredictable revenue streams, although the exercise would force one to think hard about the prospects of the business.

Selecting the appropriate discount rate can be challenging. Early-stage companies with a low probability of survival and poor cash flow visibility will command a very high discount rate to reflect their substantial risk. Discount rates ranging from 70% to 130% may be appropriate. As a VC portfolio company gains traction, visibility into future cash flows clarifies, survival probabilities increase, risk decreases, and the discount rate can drop as low as 30%, the approximate expected return in venture capital.

Once a company has grown to the point where it becomes attractive for later-stage PE investors, the discount rate may drop further to 20% or less, reflecting the expected average annual return for PE. For an established company, the discount rate could be their weighted average cost of capital (WACC), their cost of equity, the prevailing interest rate, or inflation rates, although the latter two may be too low and could lead to an excessive valuation.

There are three primary methods of calculating DCF:

- The dividend discount model (DDM) discounts a future dividend stream to determine its present value. We'll disregard this method because dividends are a luxury for later-stage companies where growth may not be the primary goal.
- Free cash flow (FCF) is calculated as cash from operations minus capital investments. This model assumes perpetual free cash flows until year 'n' and then discounts them to the present. You'll be estimating more future cash flows than may be reasonably imagined.

Discounted Cash Fow Formula (with perpetual growth or «n» periods)

Definition

FCF = free cash flow (cash flow less working and fixed capital expenditures)
r = discount rate

Formula

$$DCF = \frac{FCF_1}{(1+r)^1} + \frac{FCF_2}{(1+r)^2} + \frac{FCF_3}{(1+r)^3} + \frac{FCF_4}{(1+r)^4} + \frac{FCF_5}{(1+r)^5} + \frac{FCF_n}{(1+r)^n}$$

Graphic: 5 Quadrants

FCF with a fixed number of periods and a terminal value, where the terminal value is determined by either the perpetual growth or multiples method.

This model asks us to forecast future cash flows for a fixed number of years (five years in this example) and choose an appropriate discount rate. The terminal company value must also be calculated by approximating the value of the company beyond the 5-year free cash flow period. The terminal value can then be discounted and added to the discounted free cash flow sum.

Discounted Cash Fow Formula (with fixed number of periods + Terminal Value)

Definitions

FCF = free cash flow (cash flow less working and fixed capital expenditures)

r = discount rate

g = terminal growth rate

TV = Terminal Value $= FCF_5 * \frac{(1+g)}{(r-g)}$

Formula

$$DCF = \frac{FCF_1}{(1+r)^1} + \frac{FCF_2}{(1+r)^2} + \frac{FCF_3}{(1+r)^3} + \frac{FCF_4}{(1+r)^4} + \frac{FCF_5}{(1+r)^5} + \frac{TV}{(1+r)^5}$$

Inputs

Example:	FCF_1	FCF_2	FCF_3	FCF_4	FCF_5	r = 18%
	-50	-20	50	150	300	g = 2%

Output

$$DCF = \frac{-50}{1.18} + \frac{-20}{1.39} + \frac{50}{1.64} + \frac{150}{1.94} + \frac{300}{2.29} + \frac{1913}{2.29}$$

DCF = -42 + -14 + 30 + 77 + 131 + 836

= 1,018 Company Valuation

note: **TV** accounnts for a large part of the total valuation: **82%**

Source: 5 Quadrants

A terminal value is derived by multiplying the final year free cash flow estimate by (1 + terminal growth rate) / (discount rate minus terminal growth rate). The terminal growth rate must be less than the growth rate of the economy, so a range of 1.5% to 2.5% is common. The terminal value typically comprises a very large portion of the total DCF number (82% in the example below).

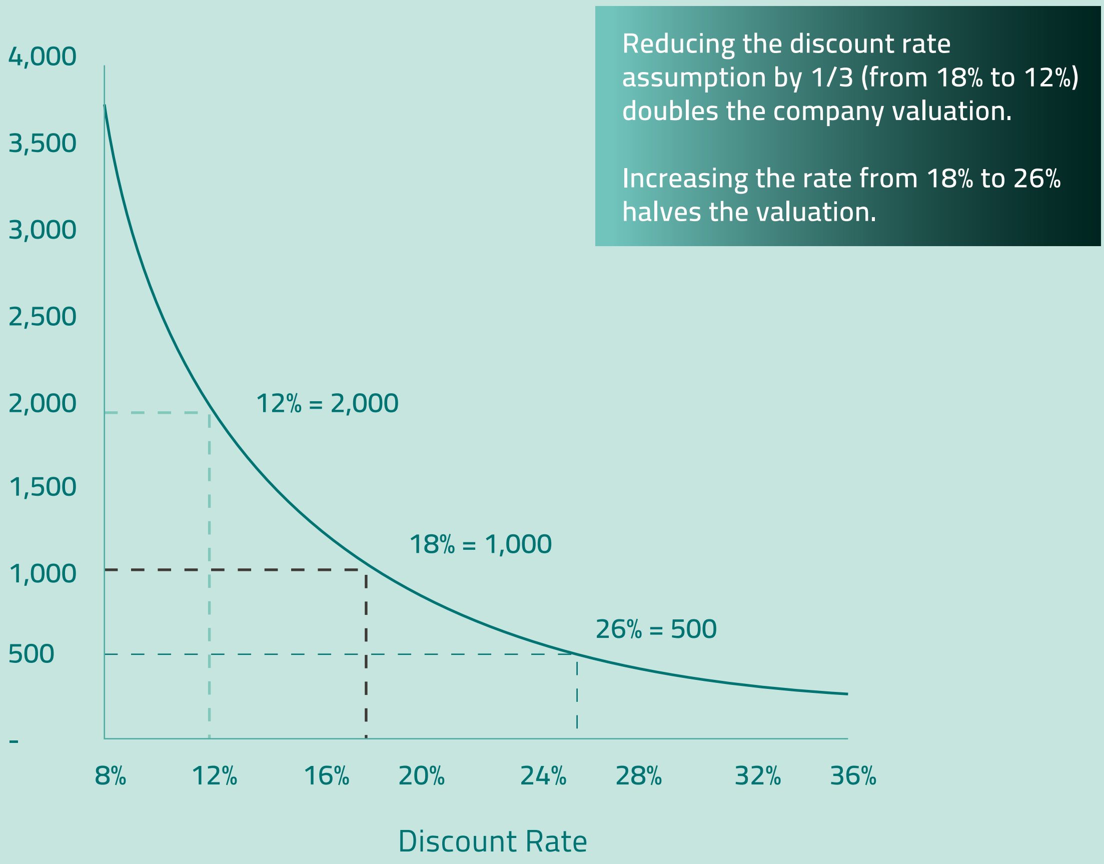
The above example shows a DCF calculation with a terminal value. Terminal value can also be calculated by the multiples method, whereby the estimated revenue of the final year in the DCF model is multiplied by an industry average and then discounted. The DCF method used in our example is referred to as perpetual growth.

Market demand, competition, new technology, obsolescence, and the macro environment are conditions missing from the DCF methodology (although all are theoretically incorporated into future free cash flow estimates). It might be best to combine DCF with other methods, such as comparables or precedents.

Finally, to reinforce the understanding that assumptions have a huge impact on valuations, the following chart plots the above example against a wide range of discount rates. Halving the discount rate from 18% to 12% doubles the discounted company value. Increasing the discount rate from 18% to 26% halves the discounted company value.

Cash flow changes have a linear impact on valuations, so if cash flow assumptions increased or decreased by 50%, the discounted company valuation would also rise or fall by 50%. Assumptions matter in the DCF model.

DCF Company Valuation vs. Discount Rate



Source: 5 Quadrants

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