



Start-ups and Early Stage Companies

A Valuation insight

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Dear reader

Although (some) lockdown measures are still in place, many countries have begun to see signs of hope as large-scale vaccine campaigns progress.

With a renewed focus on the future, we can look forward to the promise of greater workplace flexibility and innovation in remote collaboration. Against this background, we want to celebrate the businesses that innovate, sculpt our future and address some of the world's greatest challenges head-on: start-ups and early-stage companies.

Start-up founders, entrepreneurs, venture capitalists and state-owned agencies bolstering young businesses are forging the world of tomorrow through innovative products, services and solutions. Their efforts advance our quality of life and make the world a better place. That's why we're focusing on early-stage companies in this edition of our insight, where we explore the many ways, they give us hope for a brighter future.

In this insight, we address typical questions that arise when valuing early-stage companies:

- Which methodology should be used to properly capture the value potential of an early-stage company?
- How is the specific risk profile of early-stage businesses reflected in a valuation, even when they have zero sales or have not yet obtained required regulatory approvals?
- Is there a way to assess potential value development over time?

Answers to these questions would facilitate more transparent discussions between founders and investors regarding value and price of early-stage companies – allowing for a better allocation of risk and return.

We look forward to discussing how we could help you assess the potential of your business and the possibilities the future holds. Stay safe, stay healthy.

Yours faithfully, with optimism



Ankul Aggarwal
Partner, Deal Advisory
KPMG in Kuwait



Nitin Bahl
Associate Director, Deal Advisory
KPMG in Kuwait

Early-stage companies: From unicorns to decacorns!

Investments in early-stage companies represent an asset class of their own, attracting growing interest across the world. The number and size of successful start-ups is on the rise; investors have never seen unicorns at such unprecedented levels.

4%

Despite the COVID-19 crisis, global venture capital funding increased 4.0% year over year to USD 300 billion in 2020. The funding growth was attributable to industries such as healthcare, education, finance, retail and entertainment, which migrated their service offerings online as a result of the global pandemic.¹

154 billion

In OECD countries³, out of the VC investments of USD 154 billion made in 2019, USD 8 billion (5%) went to seed financing, USD 55 billion (36%) to start-ups/early-stage companies and USD 89 billion (58%) to later-stage ventures.

2.8-fold increase

Based on VC investments² in 2019, the main markets in Europe are the United Kingdom (USD 2.9 billion), followed by France (USD 2.3 billion) and Germany (USD 2.1 billion) – a 2.8-fold increase on 2010 (USD 2.6 billion for all three countries combined).

Public vs. Private exit

Exit via acquisition is the long-term exit strategy for most US (58%), UK (58%), and Canada-based (60%) entrepreneurs. Among Chinese entrepreneurs, 46% expect to exit via an IPO⁶.

998 billion

Total venture capital (VC) investments (assets under management) came to USD 998 billion as of H1 2019, with North America leading the pack (43%), closely followed by Asia (42%) and Europe (11%)².

18%

In the US, total VC investments² totaled USD 136 billion in 2019, compared to USD 30 billion in 2010, representing 18% CAGR over the last 10 years.

265

In 2010, 33 companies were newly listed on the NASDAQ⁴, the emblematic stock exchange of internet and tech companies, of which six were unicorns.⁵ In 2020, the NASDAQ welcomed 265 new companies (eight-fold increase), of which 79 were unicorns (13-fold increase).

30

As of February 2021, it is estimated that there are now 30 decacorns (valued at over USD 10 billion) in the world⁷.

Volatile capital markets – agitated by crisis-related corrections – also affect transactions involving early-stage companies. Alongside general market risks, start-up-specific risks should be considered in any early-stage company valuation. Failing to appreciate a start-up’s specific risk profile can lead to inaccurate assessment of its full value potential in an exit scenario unless there is sufficient transparency of existing risks and opportunities to promote robust price negotiations. How can this be considered in the valuation approach? Do the special characteristics of start-ups require unique valuation procedures? We examine these questions, discuss the archetypical evolution of a start-up’s risk profile and explore how this can be reflected in valuations through a dynamic valuation approach.

Start-ups – a somewhat traditional asset class

From an economic viewpoint, start-ups are investments involving an upfront payment today – e.g. founders’ labor and intellectual property, the contribution of business ideas or financial resources – with the expectation of receiving (higher) financial resources at a later date, e.g. upon (private or public) sale. How high expected future cash flows should be depends on the perceived level of risk of the founders and investor. It is hardly surprising that the respective parties may have vastly differing opinions as to the future development and financial outcome of an early-stage company. Founders and investors may have greatly diverging views on what should be contributed by each party, and what share in the start-up each participant should receive. Many start-ups already had numerous financing rounds and changes in ownership behind them, especially at the beginning, meaning that issues around proper distribution of value (i.e. financial performance and risk) between the participants are more common than in deals with established companies. Insufficient information makes it difficult to get expectations right and find alignment. With future operational performance still to be proven, the various stakeholders are most likely to disagree on value expectations. With this in mind, utmost transparency is

critical in making valuation assumptions.

Regardless of the valuation purpose, a company’s value is always based on the expectation of future uncertain payments – usually in the form of distributions or exit proceeds. Founders and investors expect adequate future remuneration for their invested capital, and start-ups are no exception. Forecasting future financial returns therefore plays a central role in the valuation of start-ups. The time frame (usually the exit time of a participant), absolute expected amount (reflecting the performance) and expected range (reflecting the risk) of possible returns are all relevant. In this respect, start-ups are no different from any other investment. Taking an investment-oriented view, forward-looking valuation methods based on future cash flows, i.e. a discounted cash flow (DCF) method, should be the preferred valuation method for start-ups.

When considering the peculiarities of start-ups (e.g. absence of revenue, unknown interest of customers in the new product or service, evolving operating model, etc.), the traditional application of the DCF method may not appropriately reflect the risk-return profile of start-ups at first glance. This may suggest established cash flow-oriented valuation methods may be difficult in practice. Therefore

“alternative” valuation methods are often applied to start-ups.

Market multiples as an alternative valuation method

For early-stage companies there are, without doubt, challenges associated with forecasting future cash flows, correctly reflecting the risks (specific and systematic) as well as capturing the evolving risk-return profile over time. Start-ups typically face a high number of valuation events, e.g. development milestones reached as well as transactions due to investor changes. Alternative valuation methods, typically based on the market approach and comparison of specific price multiples, are therefore frequently used. These alternative valuation methods, however, typically do not offer a solution to the problem, but abstract from the problem itself by greatly simplifying it. As a result, they sometimes result in a high degree of uncertainty of the value conclusion, lack transparency, or mix up long-term company values with short-term achievable company prices due to initially rather short-term investment horizons. In particular, methods that are strongly oriented toward purely operational key figures (e.g. number of customers, click rates, etc.) attempt to compensate for the lack of information or even readiness regarding the start-up’s operational business model (organizational and cost structures). Methods based on financial key

figures (e.g. sales) are intended to circumvent the problem of negative earnings in the initial loss-making phase. These multiple-based methods, which focus on operational or financial KPIs, assume that key figures obtained from – somewhat – comparable companies can be transferred to a start-up for pricing purposes. They are technically quick to apply, replace the subjective price perceptions of the participants with the alleged objectivity of the market, and can appear to save time and costs. Ultimately, however, they provide an initial, very rough price (but not value!) estimate. While multiple-based methods play an important role in determining an initial rough price estimate based on limited information, the result cannot be compared to the detail of a more intrinsic, future-oriented valuation based on expected returns specific to the valuation target.

Start-up valuations are complicated by the fact that the multiples typically observed for other companies cannot be applied due to the limited empirical basis available for new business models. In other words, the innovation

brought by a specific start-up cannot be captured through the application of price multiples observed for other companies as their business models are different.

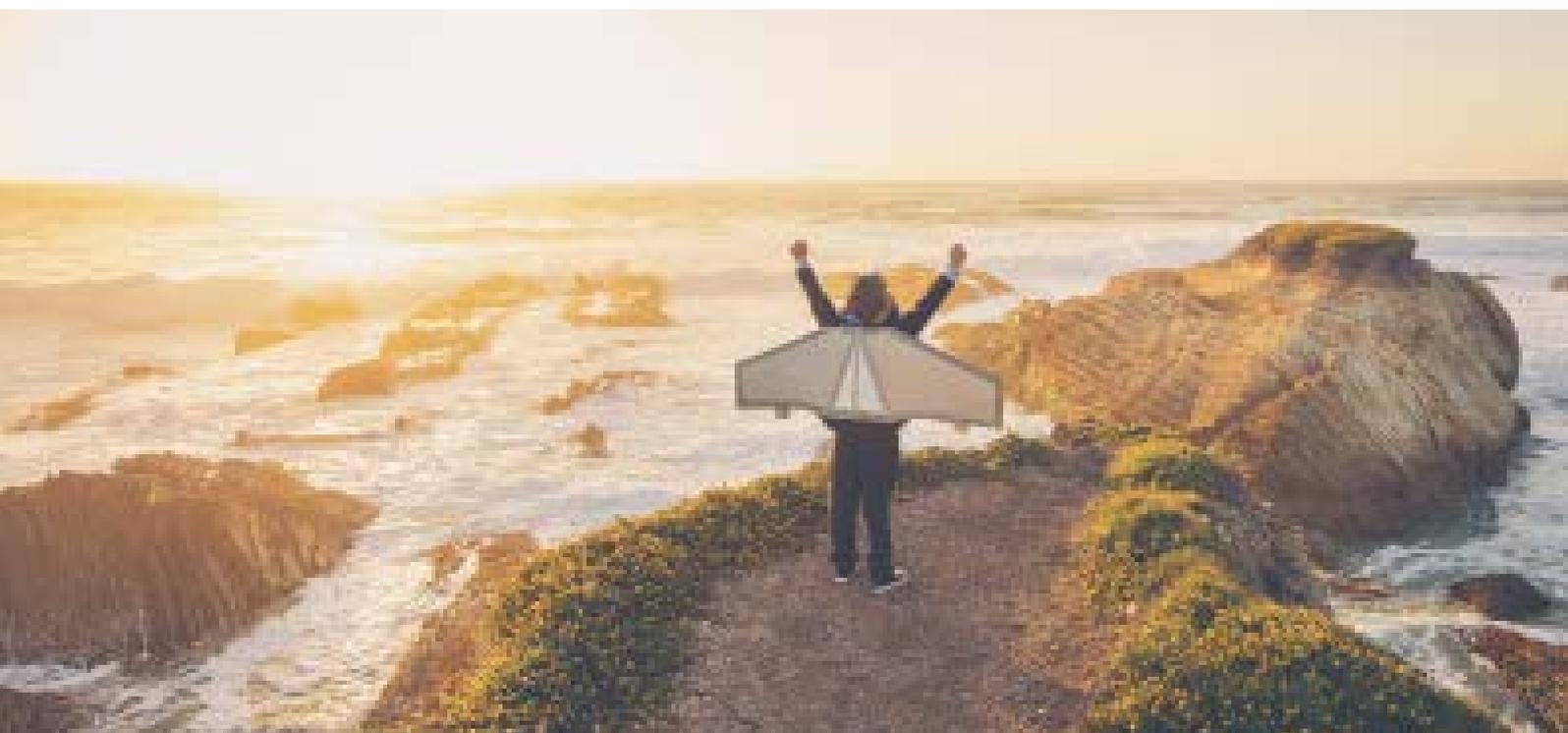
The disadvantage of missing or insufficient financial information for start-ups is often put into perspective, since the initial focus on the operational value drivers requires a thorough assessment of the business and operating model. Every sound valuation assessment should consider the operational value drivers of the business model and not only on the resulting financial KPIs. This is often neglected when valuing established companies or is justified by the (implicit) assumption that established business models can be reflected in a consistent future financial performance. Since financial KPIs are merely the result of a transformation process from operational value drivers into financial figures, unsupported financial KPIs should not be considered as isolated value drivers. Only a transparent transformation of the operational value drivers into forecasts of the operational

performance and, then, forecasts of the financial KPIs provide a solid basis for a valuation analysis. This method results in more transparency and trust than a simple multiple-based approach. It also paves the way for a robust DCF valuation.

Finally, the question of a “pre-money” and “post-money” valuation, which considers the value before and after the injection of new funds, can only be disclosed consistently by performing a future cashflow-based analysis – and not with a multiple-based pricing estimate.

[Transparency on return and risk](#)

The addressee of a valuation should always be aware of the purpose of the valuation and the level of scrutiny it is intended to withstand. To speak for the development of a specific early-stage company's business and operating model – and the associated value development – it is essential to show the transformation of the expected operational value drivers into financial models. This is initially simple but gradually becomes more complex. Transparent transformation also



enables consistent communication regarding the expected development of the company's performance and risks.

While performance can generally be measured by financial KPIs, the question arises – especially for start-ups – of how to measure risks appropriately. Not doing so makes it difficult to allocate risks appropriately to all stakeholders.

This brings us back to the special feature of early-stage company valuation described above: views can diverge greatly when it comes to determining the contribution of founders versus investors, and the entitlement of individual stakeholders to shares in the early-stage company. Missing, insufficient or inadequately transparent information not only makes it difficult to form the right expectations regarding future performance, it also hinders any fundamental assessment of assumed risk. This is precisely where the multiple-based valuation method fails. For start-ups, this is critical as the financial contribution of an investor often represents the urgently needed financing of the business. If the founders cannot transparently demonstrate the risks of their business, investors may only be willing to invest if they can pay less than the fair price (given the difficulty to assess risks) or are promised more than the fair future return for the amount invested.

If one group of stakeholders receives more return than they should considering their risk position, this is inevitably at the expense of the other stakeholders: founders in the case of start-ups. They pay the price for the risks such that, due to lack of risk transparency, they must assume more of the overall risk than would be allocated to them in relation to their expected return. This often comes down to a lack of transparency and consistency, not only with regard to how the start-up's performance will develop, but also its risk profile. For a



start-up valuation to be a reliable basis for an appropriate distribution of stakeholder shares, it must answer the two key questions clearly and coherently: What's in for me? What risks am I taking? These questions reflect the risk/return profile underlying every investment decision. With the right approach, this can be fully depicted using established valuation methods, even for start-ups.

The venture capital (VC) approach

Due to limited history and significant change in cash flow generation over time, a start-up valuation requires a clear link between the expected business model, operating model and financial KPIs. This can be achieved through proper business plan modeling, complemented by a robust commercial due diligence on the assumptions used (market share acquired, pricing, cost structure, etc.). The translation of expected operational performance into financial KPIs is then

only a technicality, in the form of building forecasts of integrated financial statements.

Considering the business and operating model transformed into an estimate of the future financial performance provides insights into the "What's in for me?", but what about the risk a founder or investor is taking? Academic research and empirical evidence from polls on expected rates of return by venture capitalists investing in early-stage companies are a valuable resource for assessing relevant discount rates. Depending on the development stage, rates range from 70% or higher in the seed stage, falling to 20% in the late stage. While these discount rates appear high, it is important to bear in mind the high failure rates of early-stage companies. The table below provides a high-level summary of selected studies and briefly describes the characteristics of each development stage.

Overview of expected rates of return by venture capitalists

Stage of development	Plummer / QED median ⁽⁷⁾	Scherlis and Sahlman ⁽⁸⁾	Sahlman, Stevenson and Bhide ⁽⁹⁾	Damodaran ⁽¹⁰⁾
Seed stage	50% - 70%	50% - 70%	50% - 100%	50% - 70%
First stage	40% - 60%	40% - 60%	40% - 60%	40% - 60%
Second stage	35% - 50%	30% - 50%	30% - 40%	35% - 50%
Bridge/Initial Public Offering ("IPO")	25% - 35%	20% - 35%	20% - 30%	25% - 35%

Seed stage

The seed stage corresponds to companies that are less than a year old, have completed or are completing research and development of their product and have a business plan. The venture funding provided in this stage is to be used toward product development, prototype testing and marketing.

First stage

Sometimes also called the "emerging stage", enterprises in the first stage have developed prototypes that appear viable and for which further technical risk is deemed minimal. However, the commercial risk associated with the product may be significant.

Second stage

Also commonly referred to as the "expansion stage", enterprises in the second stage have usually shipped some products to consumers (including beta versions) and received feedback.

Bridge/IPO

The final stage of venture capital financing, the bridge stage is when financing is required for activities such as pilot plant construction, production design and production testing, as well as bridge financing in anticipation of a later IPO.

the target company. Appreciating the current stage of development of the company being valued as described above is critical in order to identify the corresponding discount rate, i.e. risk expectation, from VC investors.

Like the multiple-based approach, the expected rates of return from VC investors depend on the comparability of the risk profile within a given stage. It is certainly arguable that a first stage company in the financial services sector that has already received an operating license from a regulator might be less risky than a first stage company in the biotech sector where final approval from a drug administration agency is outstanding. The observable ranges within each stage are nevertheless broad and require additional assessment. That being said, the applied discount rate is a risk measure that provides more transparency than a multiple.

The probability-weighted DCF approach

In order to reflect the risks and uncertainties specific to the early-stage company being valued, various business plan scenarios can be developed. Typically, these scenarios are structured around a "base case", which reflects the most likely expected scenario for the start-up (usually, by their founders). Variations then reflect additional upside potential ("best case") or specific risks such as delayed market entry, change in pricing assumptions, etc. ("worst case"). In

The specific elements of an early-stage business plan such as the addressable markets, volume and pricing assumptions, the operating model, investment and funding

requirements, etc. should be considered in the cash flow projections. However, those cash flow projections do not reflect any particular risk associated with the early stage of

practice, as many as four or five different scenarios could be established – each with a consistent set of correlating assumptions – including a scenario where the company fails. Given the very high growth rates typically expected at first for early-stage companies, forecasting periods for each of the scenarios may be extended to include a slow-down phase. From this point onwards, cash flow growth decelerates progressively to reach a steady state where cash flow increase in line with market growth and currency inflation. All

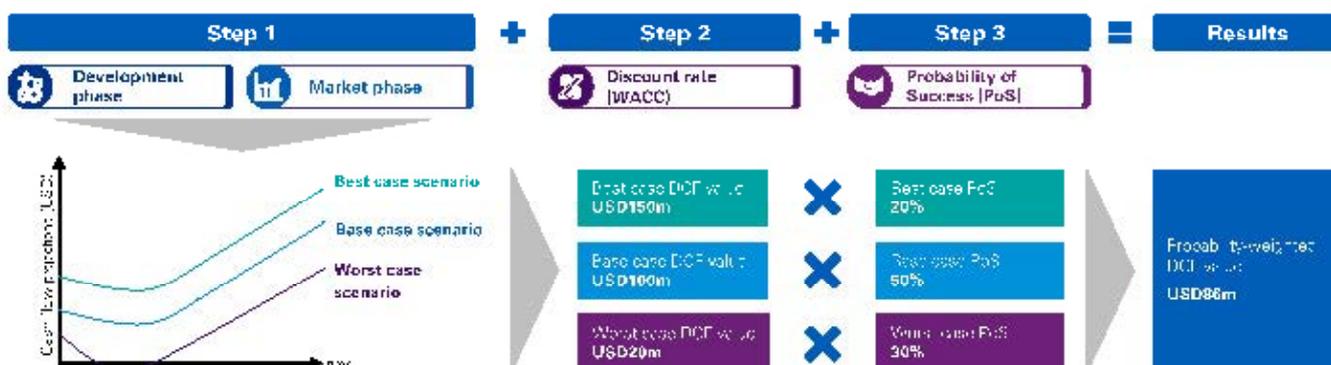
scenarios provide different possible outcomes to the “What’s in for me?” question.

Once the various scenarios have been developed, a DCF valuation can be applied separately for each one. The traditional Capital Asset Pricing Model (CAPM) can be used to determine the discount rate. This involves identifying listed companies in a similar (sub-) sector to the early-stage company being valued. As listed companies tend to be more mature and less risky than companies still in their early

stage, the CAPM alone will not reflect the risk associated with the target company.

As the DCF method can now be implemented for the different scenarios, the probability of occurrence – also referred to as the probability of success (PoS) – can be defined. Each scenario should be weighted such that they total 100%. The final value concluded for the early-stage company is the aggregate of the DCF values for each scenario weighted by the PoS.

Reflecting risks with transparency: Probability-weighted DCF approach



While in the VC approach the risk of the early stage is fully reflected in the high discount rate, the same risk is reflected in the probability-weighting of the different scenarios, and the applied CAPM-based lower discount rate is neutral with respect to the early-stage risk. While there is some element of personal preference, we clearly favor the probability-weighted approach as it is much more reasonable to discuss assumptions for the various scenarios and the likelihood of each scenario than to argue over an abstract early-stage risk premium in the discount rate. By transparently presenting the expected performance (return) and risk, the probability-weighted DCF method makes a valuable contribution to the reduction of any expectation gaps among stakeholders and supports fair allocation of value between founders and investors.

The estimate of the PoS is subjective, with founders typically putting more weight on the base case and potential upside scenarios, whereas VC investors may be more skeptical. In that respect, the use of the expected rates of return of VC investors in the probability-weighted DCF approach may be appropriate, i.e. a combination of both approaches. This requires a sensible and pragmatic assessment of the various key inputs. Parties should also observe the common valuation principle of not accounting twice for the same risk – here, in the cash flows and in the discount rate. A triangulation of different sets of probabilities and discount rates might be used to support convergence on a central value through this multi-scenario, probability-weighted DCF result. This all increases transparency of the

underlying thought process and acceptance of all stakeholders.

Last but not least, it should be noted that – as everywhere in competitive markets – transparency from the perspective of an individual stakeholder is always helpful if it supports a better negotiating position. Prices in real markets are not formed in theory, but on the basis of negotiations. Negotiating advantages come from information or any other factors that improve the lack of transparency so often cited as justification for price reductions.

Value increase over time based on an evolving risk profile

Early-stage companies typically have in common an extremely high speed of development. As the company evolves, the business model becomes more

robust and operational milestones are reached, reducing the risk of the venture. The figure above showing expected VC rates of return illustrates how risk clearly declines from one stage to the next.

A value conclusion is a statement at a single point in time. It is of enormous interest to all stakeholders, and new investors in particular, to understand how the value of an early-stage company is likely to increase over time.

To address this need, the probability-weighted DCF method is once again especially relevant: the scenarios – and the PoS attached to them – can also be related to future milestones. These can include operational (successful prototyping), regulatory (administrative approval approval) and commercial (securing key client contract) aspects. At the point of the valuation analysis, assumptions relating to financial performance will remain the same. Except for the different time value of money (which is usually immaterial in the context of high-growth cases), the overall value

conclusion for a future date – in six- or twelve-months' time, for example – would not change. The probability assessment of the different scenarios may vary, however, and the risk (i.e. the discount rate) will be lower. These two factors do have a material impact on value and could be quantified applying these three steps:

1. Define key milestones over the business plan period
2. For each key milestone achievement, review the probability-weighting (PoS) of the already developed cash flow scenario
3. Reassess the applied discount rate under the assumption that the key milestones have been met

Adapting these inputs in a dynamic, probability-weighted DCF analysis enables future value developments over time to be anticipated based on expected business achievements and risk development. The result is a healthy basis for discussion between founders and investors in an approach which transparently lays down not

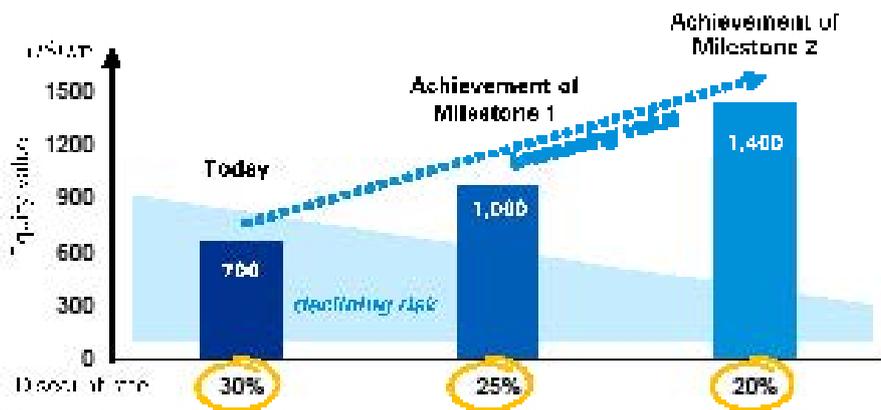
only the expected performance and risk, but also the value upside.

[Engaging the right experts to deal with the complexity of early-stage company valuations](#)

KPMG Valuation Services regularly assists founders, VC investors as well as corporates investing in start-ups at various scales, from high-level value indications to deep dive analyses. Our valuation experts have profound sector knowledge in technology, fintech, biotech, pharma, health science equipment and other common start-up businesses.

Many clients have benefited from our approach combining commercial due diligence, financial modeling and state-of-the-art valuation concepts as described above. They appreciate the value our methodology adds beyond any immediate need for a value indication for events such as an upcoming financing round or investments. We help our clients to better understand the opportunities and risks associated with a venture – and we help them make better-informed decisions.

Value development over time



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Your contacts

KPMG in Kuwait

Al Hamra Tower, 25th Floor
P.O BOX 24, Safat Kuwait
13001

Ankul Aggarwal

Partner, Deal Advisory
KPMG in Kuwait
+965 5044 4964
ankulaggarwal@kpmg.com

Nitin Bahl

Associate Director, Deal Advisory
KPMG in Kuwait
+965 9000 7510
nitinbahl@kpmg.com

Our Global contacts

Johannes Post

Partner, Deal Advisory
Global Head of Valuation Services
+41 58 249 35 92
jpost@kpmg.com

Rolf Langenegger

Director, Deal Advisory
Valuation / Financial Modelling
+41 58 249 42 71
rlangenegger@kpmg.com

[kpmg.com/kw](https://www.kpmg.com/kw)

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