

Valuation of early-stage firms implied by SAFEs and convertible notes

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Early-stage firms in the United States often raise capital using financial instruments that are different in some respects from the instruments commonly used by more established firms. For example, while established firms may issue common stock, early-stage companies often rely on Simple Agreements for Future Equity (SAFEs) and convertible (promissory) notes.

SAFEs and convertible notes are financing instruments that can convert into equity conditional upon some predetermined events, such as the issuing companies raising additional equity or being acquired. The conversion into equity is governed by the terms of the instrument, including any discount (the “conversion discount”) and/or cap (the “valuation cap”) relative to the price at which the company is raising financing or is being acquired.

The value of early-stage companies may not be reliably estimated through standard valuation techniques.

Even though SAFEs were used for the first time a little more than ten years ago, they have recently become a popular instrument for early-stage high-growth companies raising external funding for the first time. As noted by *Forbes*, “the SAFE has become incredibly popular within the startup world due to its founder-friendly nature, simplicity and efficiency.”¹

Carta, a company providing equity management and valuation software and services to privately-owned companies, reports that “[t]oday, the SAFE is the dominant fundraising mechanism” for very early-stage companies, representing 89% of all pre-seed deals in the third quarter of 2024.²

While most early-stage companies eventually fail, there have been many instances of commercial disputes where a company’s valuation around the time that a convertible note or a SAFE was issued is of interest.³ However, the value of early-stage companies may not be reliably estimated through standard valuation techniques such as discounted cash flow or the method of comparables, leading to a need for alternative approaches to determine value.

This article discusses how the value of a company implied by the terms of a convertible note or a SAFE — and specifically implied by the terms of the valuation discount and/or the valuation cap — can be estimated, under certain assumptions, using standard methodologies in financial economics.

While it is sometimes claimed that convertible notes and SAFEs allow the investors to “punt” on the question of how much the company is worth because they do not specify a fixed share price, this can be a misconception because, as discussed in this article, an implied valuation of an early-stage company can often be obtained from the contractual terms of these instruments.⁴

Convertible notes and SAFEs

Once a very popular form of financing for early-stage companies, **convertible notes** are a type of debt instrument. As such, they have a maturity date, pay interest, and are subject to typical debt default provisions.⁵ Convertible notes typically convert into equity upon a “qualified” equity financing round, that is, a subsequent equity financing round that meets certain predetermined size requirements.⁶

The terms of convertible notes are usually negotiated between noteholders and the issuing company and may contain other conversion options, such as an automatic conversion upon maturity.

Convertible notes often also feature a discount and/or a valuation cap. The discount allows the noteholders to convert at a price below that paid by investors in the qualified round while the valuation cap imposes a ceiling on the price at which the conversion happens, thereby giving the investors an exposure to the upside of the firm (i.e., when the valuation of the company increases, the investors can convert at a lower, more favorable price).⁷

SAFEs were developed circa 2012 as a more straightforward and standardized financing alternative to convertible notes.⁸ Unlike convertible note investors, SAFE holders do not receive interest. SAFEs typically only convert when the company is sold or when it raises additional equity financing; if the company is never sold or never raises additional financing, SAFE investors would typically not recover their original investment.

Importantly, while sharing many similarities with preferred stock and convertible notes, SAFEs are neither strictly equity nor debt.⁹

SAFEs frequently stipulate a valuation cap and a conversion discount, which function analogously to those of convertible notes.

Valuation of early-stage companies implied by the terms of financing rounds

An issue that can arise in commercial disputes involving early-stage companies (or companies that were once early-stage) is estimating the value of the company at a certain point in time.

An early-stage company's value may be estimated based on the terms of its outstanding equity claims, including convertible notes and SAFEs.

Traditional valuation methodologies used to value larger, public companies, such as discounted cash flow valuation or the method of multiples, may be inapplicable if, for example, reliable data to implement these methodologies are not available.

Instead, an early-stage company's value may be estimated based on ("backed out" from) the terms of its outstanding equity claims, including convertible notes and SAFEs; that is, under certain conditions, one can obtain an "implied valuation" of the company.

This is because, while convertible notes and SAFEs are not equity securities *per se*, they include an equity component. Therefore, the pricing of these securities derives in part from the company's equity value, even if this value is not explicitly specified.

Despite the importance of reliable company valuations, particularly in commercial disputes, improper methodologies have at times been used. For example, practitioners sometimes rely on an apparent "shortcut" by equating the company's *implied valuation* with the *valuation cap* of convertible notes and SAFEs.^{10, 11}

However, the valuation cap is in general *not* a reliable measure of the value of the company at the time the security is issued. Instead, the valuation cap is a contractual provision that allows investors to benefit from a discounted price at which equity is acquired at the time of a qualified financing round, if such round takes place at a sufficiently high valuation.

In other words, the valuation cap is the valuation level at which SAFE or convertible note investors begin to profit from the cap (not accounting for the impact of interest and valuation discounts, if any).

However, the valuation cap can be substantially different from the expected value of the company when the instrument was originally issued. Valuation discounts function similarly to caps, except that they typically apply regardless of whether a prespecified valuation cap has been reached in a financing round.

In addition, because SAFEs and convertible notes can be customized by investors and the issuing firm, there can be different combinations of terms, including different valuation caps, that are consistent with the same valuation. This is because there are other contractual terms that can impact the value of these instruments.

For example, a higher valuation cap (in dollars per share, which increases the level at which the cap is binding and all else equal decreases the value of the SAFE to the investor) may be negotiated in exchange for a higher discount (which, all else equal, increases value to the investor).

Use of option-pricing methodologies to estimate the implied value of the company based on the terms of convertible notes and SAFEs

Methodologies originated in the option pricing literature have been developed to determine the implied value of a company based on the pricing and terms of the securities the company issued, including those of convertible notes and SAFEs.

For example, option pricing models (such as the well-known Black-Scholes model) may be employed to determine the implied value of an early-stage company based on the terms and pricing of the financial instruments in its capital structure.¹² The intuition behind this methodology is that the primary features of these securities can be replicated by a portfolio of options (or of options and common stock).¹³

Careful consideration should be given to the different features of SAFEs and convertible notes to ensure that these features are appropriately incorporated by the chosen valuation methodology.

Identifying the appropriate replicating portfolio of options, including which types of options and their strike prices, is important to ensure that the methodology yields reliable results.

Gornall and Strebulaev (2020) build on these models to develop an implied valuation methodology that estimates the expected payoff of an equity security in a variety of scenarios, such as acquisitions or IPOs.¹⁴

Compared to the approach of modeling a portfolio of options, this approach can more easily incorporate features that may arise in pricing of convertible notes or SAFEs, such as incorporating an estimate of the likelihood that the maturity of a convertible note will be extended, as is often observed in practice.

Overall, a key advantage of option-based methodologies, and particularly of the methodology developed by Gornall and Strebulaev, is their high flexibility, which allows for the incorporation of the various and diverse terms typically present in securities issued by early-stage companies.

While these methodologies were developed with equity securities in mind, their framework can be employed to "back out" the implied value of an early-stage company from the pricing of other types of securities that have an equity component, such as convertible notes or SAFEs.

However, careful consideration should be given to the different features of SAFEs and convertible notes to ensure that these features are appropriately incorporated by the chosen valuation methodology.

For example, both types of securities typically convert upon the company having an additional round of financing. Determining the likelihood of such event can therefore be a relevant consideration.

Further, applying an option-based methodology typically requires a variety of assumptions and inputs. Therefore, it is important to ensure that these methodological choices are appropriate given the specific circumstances of the instruments and company at issue.

In summary, while option-based methodologies can offer an alternative to standard valuation methodologies, a careful and measured implementation is necessary to account for the complexity in valuing early-stage companies.

Conclusion

Many commercial disputes involve estimating the value of early-stage companies. However, the typically limited information available about the future prospects of these companies and the complex features of the financing instruments they issue introduce unique challenges to valuation.

Methodologies based on option pricing techniques may allow for an implied valuation to be estimated based on the terms of financial instruments that are commonly used by early-stage companies, such as SAFEs and convertible notes. These methodologies can therefore help overcome the limitations of standard valuation approaches in the context of early-stage companies.

The views expressed herein are solely those of the authors, who are responsible for the content, and do not necessarily represent the views of Cornerstone Research.

Notes:

¹ Kyle Westaway, *Understanding SAFE Agreements: Benefits and Risks for Startups*, Forbes, January 6, 2023, <https://bit.ly/4093Zli>.

² Kevin Dowd & Ashley Neville, *State of Pre-Seed: Q3 2024*, Carta, November 4, 2024, <https://bit.ly/429v6vQ>. The authors have analyzed data from more than 17,000 individual funding events tracked on Carta since the start of 2024.

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³ For example, in the *Rev Tech Labs LLC et al. v. Cirrus Secure Inc. et al.* matter, a North Carolina tech accelerator and a venture capital fund recently sued the issuer of a SAFE, alleging damages equal to a share of the issuer's valuation at the time the SAFE was issued. See *Rev Tech Labs LLC et al. v. Cirrus Secure Inc. et al.*, Casetext, December 2, 2024, <https://bit.ly/422Reii>.

⁴ For the terms of a financing round to be expected to reflect the value of a company, there are typically several factors that financial economists expect to see. For example, among other factors, economists often assess whether the parties to the transaction are independent, sophisticated, and have access to the relevant information.

⁵ John F. Coyle & Joseph M. Green, *Contractual Innovation in Venture Capital*, 66 *Hastings L. J.* 133 (2014).

⁶ Will Gornall & Ilya A. Strebulaev, "The Contracting and Valuation of Venture Capital-Backed Companies," in *Handbook of the Economics of Corporate Finance*, Vol. 1: Private Equity and Entrepreneurial Finance 29 (2023). Convertible notes usually can also convert into equity if the company is acquired.

⁷ *What Is a Discount in a Convertible Note*, FundersClub, <https://bit.ly/4h7JtVL>; Gornall & Strebulaev, *supra* note 6, at 30.

⁸ Gornall & Strebulaev, *supra* note 6, at 32; Coyle & Green, *supra* note 5, at 166.

⁹ Brian J. Novell & Daniel I. DeWolf, *SAFEs: The (Not So) Simple Agreement for (Potential) Future Equity*, Mintz, September 7, 2017, <https://bit.ly/42domNH>.

¹⁰ Strebulaev and Vasconcelos provide another common example of improper valuation estimates in the context of companies that issued several classes of stock. As they explain, using post-money valuation in this context may result in unreliable estimates when, for example, the share price of convertible preferred stock is employed to perform such valuation. The reason is that the convertible preferred stock can carry valuable optionality that the common stock does not. See Ilya A. Strebulaev & Manuel Vasconcelos, *Why Private VC-Backed Cos. Need a New Valuation Method*, Cornerstone Research, July 6, 2022, <https://bit.ly/4g9fA6J>.

¹¹ See, e.g., Gornall & Strebulaev, *supra* note 6, at 29; *Valuation Cap*, NfX, May 2021, <https://bit.ly/40rwJnr> ("VCs defacto assume that the valuation cap will be their post-money valuation, so the cap is determining their entry price (along with the amount raised).").

¹² Later-stage companies often raise equity financing through convertible preferred stock, particularly if they are raising capital from venture capital firms. For a discussion of valuation implied by the pricing of convertible preferred stock, see Strebulaev and Vasconcelos (2022).

¹³ See, e.g., Andrew Metrick & Ayako Yasuda, *Venture Capital and the Finance of Innovation* (2d ed. 2011), Chapter 17.

¹⁴ Will Gornall & Ilya A. Strebulaev, *Squaring Venture Capital Valuations with Reality*, 135 *J. Fin. Econ.* 120 (2020). In a contingent-claim framework, the payoff ("claim") of a security depends on ("is contingent on") the payoff of another security and on potentially other variables. In this framework, the relationship between the payoffs of the two securities implies a relationship between their prices. See also Gornall & Strebulaev, *supra* note 6, at 68–72.

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