

Early Stage Enterprises and the Venture Capital Market

Early stage enterprises (ESEs) consist of private companies that are in the early years of their life cycles and have yet to reach profitability. ESEs include a broad range of entities, from companies that have an initial concept, design, or business plan but not necessarily an actual product, to multibillion-dollar enterprises with significant revenue and operations. Most recently, a surge of capital from investors and strategic partners has enabled some ESEs to reach unprecedented sizes and access the public markets while still in the process of developing sustainable commercial operations. The range of players in the venture capital (VC) markets has expanded to include a variety of institutional investors, high net worth individuals, foreign investors, and corporate players. According to a recent study, global VC assets under management (AUM) have passed the \$850 billion mark, representing an estimated 14% of the global private capital industry.¹ The VC market involves a global community of players, with the United States leading the way in terms of investment activity (7 out of 10 VC investment firms are U.S.-based) and other regions expanding quickly, most notably China.² In a scenario of low interest rates, and with substantial cash at their disposal, investors are competing to enter into the high growth opportunities that ESEs can provide, pushing down the cost of capital and enhancing liquidity. In spite of their diversity, ESEs have unique characteristics as a group that warrant special consideration in valuation. In this chapter, we consider some of the characteristics that distinguish ESEs from other types of companies. We provide an overview of the VC market and ESE exit strategies, and we highlight some recent market trends that are of special relevance in ESE valuation.

¹Preqin and Vertex, “Global Venture Capital Perspectives: A Preqin & Vertex Study,” September 2019.

²On the growth of venture capital in China, see Alex Frederick and Jordan Beck, “Venture Capital in China,” *PitchBook 1Q 2019 Analyst Note*, PitchBook Data Inc., March 18, 2019.

CHARACTERISTICS OF EARLY STAGE ENTERPRISES

Stage of Development

The early years in a company's life cycle are often broken out in three stages of development:

1. **Seed stage/angel stage:** Commercial operations are being established, there is little or no product revenue and little expense history. Seed capital is typically provided by friends and family or “angel” investors. Financing consists of relatively small investments (often less than \$100,000) summing up to rounds that are generally in the \$0.2 million–\$3 million range.
2. **Early VC stage/start-up stage:** The company has started operations and is building up its management team. The ESE has revenues, but operating expenses are significantly higher than revenues. Losses are driven by research and development expenses and by product development costs. The company has its early VC rounds of Series A and Series B financing. It may also attract the attention of strategic investors that are interested in the synergies that the company may bring to their own operations. As the company develops, it may become a suitable candidate for a merger and acquisition (M&A) or buyout exit transaction.
3. **Later VC stage:** The company has high revenue growth and may have substantial revenue but continues to generate losses and has negative cash flows from operations. The investment in research and development is substantial; marketing expenses may also be significant and offset any incoming operating cash flows. The company engages in new rounds of financing (Series C, D, E, etc.). As it continues to grow, it may start looking at an IPO or M&A exit. As the company develops, revenue growth subsides, operating margins improve, and the company approaches self-sustaining operations.

As a company proceeds through its early-stage development, the risks associated to its future cash flow stream decrease, its likelihood of survival increases, and its valuation increases.³ In the software sector, for instance, the median valuation of companies backed by VC investment was \$8 million in the angel/seed stage, \$29 million in the early VC stage, and \$88 million in the later VC, respectively as of December 31, 2019.⁴ Median valuations for software companies in the United States have increased over the past decade in all three stages, especially in the later VC stage.

Life science companies also represent a significant share of the VC market and have special operational features that need to be taken into account in developing an appropriate valuation approach.⁵ In most countries, the development path of life science companies is

³Our definition of “early stage” includes companies that are in Stages 1 through 4 in the classification of stages of enterprise development of the American Institute of Certified Public Accountants (AICPA) as it applies to a generic company held as a portfolio investment (a “portfolio company”), as presented in the AICPA PE/VC Valuation Guide, I.15 Table 1.1.

⁴Exhibit 1.1, as all other exhibits with dollar references in this chapter, reflect nominal dollar amounts and are not adjusted for inflation. On U.S. VC median premoney valuations by stage for software companies as of December 31, 2019, see PitchBook Data Inc. and National Venture Capital Association, Q4 2019 PitchBook NVCA Venture Monitor Summary.

⁵The AICPA has published a separate classification for companies in the life science industry (e.g. biotech, pharma, medical devices) by stages of development, as illustrated in the AICPA PE/VC Valuation Guide I.15 Table 1.2.

strongly influenced by government regulation. In the United States, pharmaceutical and medical device companies must test their products through clinical trials under the supervision of the U.S. Food and Drug Administration (FDA). During clinical trials, medical devices or drugs are tested in four Phases to ensure that the product is safe and is working the way it was intended and designed.⁶

A comprehensive study of clinical drug development in the United States over the period 2006–2015 by the Biotechnology Innovation Organization has indicated that only 9.6% of the drugs that start the clinical trial actually obtain FDA approval to enter the postclinical marketing phase.⁷

As we further discuss in the next chapter, the stage of development has a significant impact on the methodologies that can be used in ESE valuation.

Expectation of High Growth in Revenue

The expectation of revenue growth significantly above industry average is a common feature of ESEs. In many cases, ESEs have ideas for innovative products and services that require research and development efforts as well as marketing support to become commercially viable. It is critical for the valuation analyst to consider the subject company's competitive environment and assess whether the company's products and competitive advantage are sustainable over time. Even if a company succeeds in developing a product that is commercially viable, the ability of the company to command significant revenue growth and eventually maintain market share may be limited if other companies are able to step into the same market with low barriers to entry.

Net Losses and Negative Cash Flows from Operations

By definition, ESEs have not yet reached profitability. ESE losses are typically driven by substantial investments in research and development, product development, sales and marketing, which flow through as expenses in the income statement. No income taxes are charged in the early years of an ESE's life and a potential tax benefit may have to be factored into the valuation to the extent early losses can be used to offset future taxable income in some jurisdictions. For a company that is incurring operating losses and negative cash flows from operations, an

⁶Critical trials are normally managed outside the organization by a contract research organization (CRO). The cost of CRO services can be substantial and extend over a long period of time. On the cost of new drug development, see especially Joseph A. Di Masi, Henry G. Grabowski, and Ronald W. Hansen, "Innovation in the Pharmaceutical Industry: New Estimates of R&D Costs," *Journal of Health Economics* 47 (2016): 20–33. The estimated average out-of-pocket cost per approved new drug compound is \$1,395 million (2013 dollars). Capitalizing out-of-pocket costs to the point of marketing approval at a real discount rate of 10.5% yields a total preapproval cost estimate of \$2,558 million (2013 dollars). Adding an estimate of post-approval R&D costs increases the cost estimate to \$2,870 million (2013 dollars).

⁷Biotechnology Innovation Organization, Clinical Development Success Rate 2006–2015, BIO:2016. This study has indicated that the transition success rates in the FDA approval process of clinical testing are 63.2% from Phase 1 to Phase 2, 30.7% from Phase II to Phase III, 59.1% from Phase III to submission of the official New Drug Application (NDA) or Biologic License Application (BLA), and 85.3% for the final NDA/BLA approval.

assessment of working capital provides critical insight into the company's financial strength. The percentage of the company's cash balance that is consumed in one month of operations (the monthly "cash burn rate") is an important metric to assess the company's risk of failure. A company with a monthly cash burn rate of 5%, for instance, can only survive for 20 months without additional funding, asset sales, or an improvement in operating cash flows.

Risk of Failure

Many ESEs will never reach profitable operations. A company may end up being acquired while still in the process of product development. In other cases, a company may end up exhausting its cash resources and liquidate with little or no residual value for its investors. Exhibit 1.1 presents the survival statistics of new companies in the United States for the period 2000–2015. Based on data from the Bureau of Labor Statistics, of the companies founded in the year 2010, only 51.4% were still in operation as of YE 2015.⁸ The survival rate is especially low for companies in the first three years of operations.

A study of Cambridge Associates that includes an analysis of 36,286 venture capital fund investments over the period 1990–2016 estimates that 51.1% of portfolio company investments turned into a full or partial loss for the funds and that investment losses were 32.7% of invested capital.⁹ A recent study conducted by PitchBook on exits from VC-backed companies from January 1, 2013, through August 8, 2019, indicates that only 25% of deals return more than 1× and only one in every eight reaches a 5× return.¹⁰ The PitchBook study points out that for companies that reach an exit, the earlier stage deals (Series A and B) provide significantly higher returns (27.7% on an annualized basis for Series A versus 7.5% for Series F). On the other hand, once failure rates are taken into account, the Series return ranking changes significantly, with Series A–C investments generating negative returns, and Series F returns posting the more favorable annualized returns. We look forward to more research that can help assess the risk of failure at various stages in an ESE development.

Intangible Assets and Off-Balance-Sheet Liabilities

In most ESEs, intangible assets represent a significant driver of value. The International Glossary of Business Valuation Terms (IGBVT) defines intangible assets as "non-physical assets such as franchises, trademarks, patents, copyrights, goodwill, equities, mineral rights,

⁸Frequently referenced studies by Amy Knaup and M.C. Piazza for the period 1998–2005 concluded that only 44% of all companies were still extant at the end of the seven-year period. See Amy E. Knaup, "Survival and Longevity in the Business Employment Dynamics Data," *Monthly Labor Review*, May 2005, pp. 50–56; Amy E. Knaup and M.C. Piazza, "Business Employment Dynamics Data: Survival and Longevity," *Monthly Labor Review*, September 2007, pp. 3–10. These studies are based on data from the Bureau of Labor Statistics Quarterly Census of Employment and Wages.

⁹Cambridge Associates LLC, "Growth Equity: Turns Out, It's All About the Growth," January 2019. The capital loss ratio is defined as the percentage of capital in deals realized below cost, net of any recovered proceeds, over total invested capital.

¹⁰Cameron Stanfill and Bryan Hanson, VC Returns by Series: Part I, *PitchBook 3Q 2019 Analyst Notes*, PitchBook Data Inc., September 27, 2019. The population of deals considered by PitchBook may also include companies that have already reached profitability. We thank Cameron Stanfill at PitchBook Data Inc. for providing some color on the deal dates covered by the report.

Number of years since starting																
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	78.4	75.7	78.4	79.3	78.9	80.1	78.3	77.3	75.2	76.7	78.6	79.4	79.2	79.6	79.9	-
3	66	64.7	67.4	68.4	69.1	68.7	66.3	64	63.3	66.4	68.6	69.3	68.7	69.3	-	-
4	58.2	57.6	60	61.4	61.2	60.2	56.7	55.5	56.5	59.9	61.6	61.9	61.5	-	-	-
5	52.8	52.3	54.8	55.3	54.5	52.6	49.8	50.2	51.7	54.8	56	56.3	-	-	-	-
6	48.2	48.1	50.1	50	48.4	46.8	45.4	46.4	47.8	50.1	51.4	-	-	-	-	-
7	44.7	44.2	45.9	44.8	43.7	43.2	42.3	43.1	44.2	46.3	-	-	-	-	-	-
8	41.6	40.9	41.8	40.9	40.5	40.5	39.6	40.1	41.1	-	-	-	-	-	-	-
9	38.6	37.4	38.4	38.1	38.2	38.2	37.1	37.5	-	-	-	-	-	-	-	-
10	35.5	34.5	36.1	36	36.1	35.9	34.9	-	-	-	-	-	-	-	-	-
11	32.9	32.4	34.2	34.2	34	33.8	-	-	-	-	-	-	-	-	-	-
12	31.2	30.9	32.5	32.3	32.1	-	-	-	-	-	-	-	-	-	-	-
13	29.8	29.5	30.8	30.8	-	-	-	-	-	-	-	-	-	-	-	-
14	28.6	28.1	29.4	-	-	-	-	-	-	-	-	-	-	-	-	-
15	27.3	26.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	26.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Dashes indicate not applicable.

Source: Bureau of Labor Statistics.

EXHIBIT 1.1 U.S. Bureau of Labor Statistics: Survival Rate of New Companies Founded 2000–2015

securities and contracts (as distinguished from physical rights) that grant rights and privileges and have value for the owner.”¹¹ U.S. GAAP defines them as assets (not including financial assets) that lack physical substance. Most intangible assets do not appear in the balance sheet, and the related costs are expensed as incurred. For many ESEs, intangible assets need to be identified and considered as part of the ESE valuation process.

A company may have off-balance-sheet liabilities that increase its risk of failure. Also, a company may have a high risk of patent infringement litigation that is not captured in the balance sheet. The risk of off-balance-sheet liabilities is not exclusive to ESEs, but is especially significant in an ESE context where a company may not have adequate funding to defend itself in litigation and be able to survive an unfavorable litigation outcome.

Size

For an ESE, it is common to define size in terms of its equity value based on the latest round of financing. The size of an ESE will typically vary significantly depending on the stage in the ESE life cycle. One of the most striking developments in ESE financing in recent years has been the increasing number of venture-backed companies in the private markets that have passed \$1 billion in valuation. In November 2013, Aileen Lee, seed-stage investor and founder of Cowboy Ventures, coined the term “unicorn” to indicate these large ESEs, noting that unicorns were once an extremely rare occurrence.¹²

As of June 30, 2019, there were more than 300 unicorns in the world, including more than 60% in the United States, and a growing number in China, the EU, India, Singapore, Israel, Canada, Japan, with an aggregate valuation of approximately \$602 billion, from \$27.3 billion in 2009.¹³ The year 2019 has also seen a record for unicorn exits in numbers and value in M&A and IPO transactions. The U.S. list of unicorns that have chosen the route of public listing includes high profile enterprises such as Lyft, Uber, Zoom, Slack, and Pinterest. The unicorn phenomenon is an attestation to the fact that more of the value is currently generated in the private markets, and that companies can develop to a very large size and stay private for a longer period of time before seeking public funding. In spite of their size and high valuations, many unicorns are ESEs that are still incurring net operating losses and negative cash flows from operations.¹⁴

Capital Structure

The capital structure of an early stage company typically consists of multiple classes and series of shares with different rights and privileges. Founders are typically granted common stock. The company’s employees may also receive common stock or options on common stock as part of employee compensation. As the company enters into the early VC stage, it will start raising capital from VC investors in the form of preferred stock or bridge loans convertible

¹¹International Glossary of Business Valuation Terms: Intangible Assets.

¹²Aileen Lee, “Welcome to the Unicorn Club: Learning from Billion Dollar Start-Ups,” *TechCrunch*, November 2, 2013. We now also have decacorns (\$10+ billion) and hectacorns (\$100+ billion) galloping in the world markets.

¹³PitchBook 2019 Unicorn Report, PitchBook Data Inc., 2019.

¹⁴On the valuation of Unicorn IPOs, see also Antonella Puca, “Investing for Retirement: Beware the Unicorn IPO Stampede,” *Enterprising Investor*, CFA Institute, March 26, 2019.

into preferred stock. In its later VC stage, the ESE will typically have built a complex capital structure with common stock, multiple series of preferred stock, and related instruments. We discuss the capital structure of ESEs in greater detail in Chapter 3.

Governance

In many ESEs, the founders have a controlling interest in the company and are actively involved in the company's management. As VC investors enter into the company's capital structure, they often demand a strategic role and one or more seats on the company's board of directors. Building a board, and managing it effectively, is a key task for an ESE CEO and a VC team. The board can provide guidance that may be critical for the company's survival and growth. Some of the most successful cases of VC investors/ESE founder partnerships involve a strategic collaboration where the VC investors combine financial expertise with a deep knowledge and experience in the area of the company's operations and provide assistance in areas such as:

- Strategic insight and advice on the company's market prospects
- Introductions for business development, financing, and recruitment
- Exit planning: identification of exit market and potential buyers, IPO assistance, adviser introduction and selection, advice on timing and type of exit.

In a market with significant amounts of liquidity available for investment, a board that has solid financial expertise may be able to negotiate a favorable exit deal even if there is still significant uncertainty concerning the company's prospects and business strategy.

Availability and Quality of Financial Information

For ESEs that are in the seed and early VC stage of financing, the availability of financial information is a primary challenge in most valuations. At the seed stage, the company may not yet have generated a full set of financial projections or may have projections for a single year. By the time the company engages in its first round of VC capital financing (a round of Series A preferred stock issuance, for instance), it will typically be asked to provide at least three to five years of projections to its prospective VC investors. At this stage, the company still has a very limited history of operations, and management's projections will be subject to high projection risk. As we move toward the later VC stage (Series C and above), the quality of the company's financial information is likely to improve. The analyst will be able to compare prior projections to actual results and get a better sense of the company's forecasting process.

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For companies that are not yet profitable, it is critical to ensure that a consistent flow of capital can be accessed to sustain operations. Even if technical or economic product feasibility is achieved, it may still take years before an ESE achieves profitability. The company's ability to access the capital needed to support its growth and meet its expense obligations is a key factor for its survival and ultimate success.

Market Overview

ESEs have generally not been able to rely on bank lending as a primary source of financing. ESE bank lending often requires the guarantee of the founders or other related parties. Some companies obtain bank lending to finance an M&A transaction (leveraged buyout), with the expectations that the ESE will repay its loans once it becomes part of a larger profitable entity. Without the backing of the founder, the acquirer, or another party with tangible assets, banking institutions have been reluctant to loan funds to ESEs.¹⁵

The primary source of funding for ESEs has come from VC investors that buy shares of an ESE with the expectation of reselling them at a profit at a later stage. The VC market has grown significantly over the past decade. The number of VC-backed deals and the total VC deal value in the United States have increased at an annualized rate of 15.8% and 7.1%, respectively, over the period 2010–2019.¹⁶

Exhibit 1.2 shows the allocation of U.S. deals between the three stages of VC investing in terms of number of deals over the period 2010–2019. A striking feature of Exhibit 1.2 is the significant increase in the number of seed deals as a percentage of total (from 31.7% in 2010 to 42.3% in 2019). In terms of dollar value, companies in the later VC stage continue to attract the vast majority of capital (62.4% of total deal value versus 60.4% in 2010), with

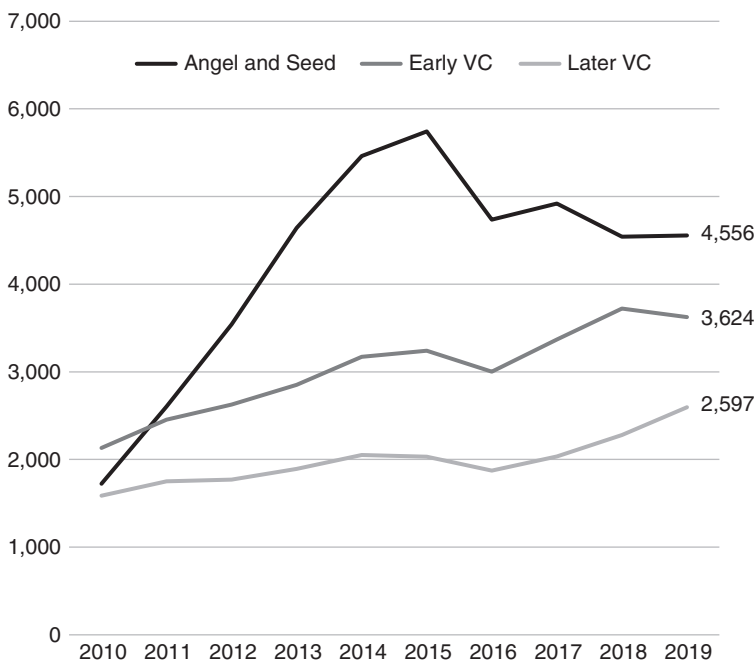


EXHIBIT 1.2 U.S. Number of VC Deals by Stage, by Year, 2010–2019

¹⁵Kyle Stanford and Darren Klees, “Venture Debt Overview,” *PitchBook 4Q 2019 Analyst Note*, PitchBook Data Inc., October 11, 2019.

¹⁶PitchBook Data Inc. and National Venture Capital Association, Q4 2019 PitchBook NVCA Venture Monitor Summary. Data as of December 31, 2019.

fewer, but significantly larger deals are taking place in the later VC stage segment. The median deal size has also increased, reaching a peak of \$1.1 million and \$6.5 million for the seed and early VC stage, respectively, in 2019, and down slightly to \$10.4 million in 2019 from a peak of \$11.5 in 2018 for the later VC stage.¹⁷

Over the past decade, the average age that it takes for a company to reach Series A through D+ rounds of financing has also increased. With the exception of the late rounds (Series D+), which have remained at about 8.0 years from inception, the average time it takes to reach a financing round has increased for all rounds over the past decade. Most companies will take about four years to reach their Series A round.¹⁸

Financial Investors and the Mechanics of Financial Performance The most significant share of capital provided to ESEs comes from financial investors, a category that includes VC funds, institutions, and individuals that have been willing to take on the risk of investing in new businesses with the expectation of obtaining enhanced financial returns, primarily in the form of capital gains upon the sale of their investments.

Most of the capital flowing into ESEs has traditionally come through the intermediation of VC funds.¹⁹ In the United States, VC funds are closed-end private funds that typically have a term life of 8 to 12 years. The investors in a VC fund do not disburse their entire contribution at inception. Rather, they commit to a certain amount of capital (the “committed capital”) and disburse a portion of it each time the fund manager issues a “capital call” or “draw down” to cover for the fund’s expenses or to make a portfolio company investment. The fund manager is responsible for determining when it is appropriate to call capital and has no obligation to call the full amount of committed capital over the life of the fund. In fact, there is a growing amount of “dry powder” in markets, which is committed, but uncalled capital. The fund manager’s decision affects the amount of time the investors’ capital is effectively deployed and may have a significant effect on the investor’s ultimate return over the time horizon of the investment. Once contributed, capital is locked into the fund until the fund’s investments are liquidated and the proceeds from liquidation are distributed to the investors, generally starting four to six years after the initial contribution date.

The number of VC funds has increased consistently after reaching a bottom in 2011 in the aftermath of the 2007–2009 crisis. As of July 30, 2019, Preqin counts 1,004 U.S. funds that are actively raising capital in the United States, a growth of more than sixfold from the bottom in 2011.²⁰

According to a recent PitchBook report, the median and the average VC fund size in the United States as of December 31, 2019, were \$78 million and \$182 million, respectively.²¹

¹⁷PitchBook Data Inc. and National Venture Capital Association, Q4 2019 PitchBook NVCA Venture Monitor Summary. Data as of December 31, 2019.

¹⁸PitchBook Data Inc. and National Venture Capital Association, Q3 2019 PitchBook NVCA Venture Monitor Summary. Data as of September 30, 2019.

¹⁹For an introduction to closed-end private funds, see Donald R. Chambers, Keith H. Black, and Nelson Lacey, *Alternative Investments: A Primer for Investment Professionals*, Chapter 9: “Private Equity,” CFA Institute and CAIA Association, 2018. The considerations in this chapter in terms of fund structures, fees, and returns apply also to Venture Capital funds.

²⁰Preqin, Preqin and First Republic Update: U.S. Venture Capital in 1H 2019.

²¹PitchBook Data Inc. and National Venture Capital Association, Q4 2019 PitchBook NVCA Venture Monitor. Data as of December 31, 2019.

VC funds typically invest in multiple deals, which helps to spread the risk of failure across a variety of ESEs and increases the probability that one or more of the portfolio investments will succeed. In some cases, investors prefer to have access to a single investment opportunity or to a subset of opportunities within a VC portfolio. A VC fund manager may allow its investors to participate in a single deal parallel to the fund (“co-investment”). Typically, the manager will do so by setting up an investment vehicle that is separate from the fund and that invests exclusively in a specified deal. Co-investment opportunities give investors the ability to control risk on a deal-by-deal basis and reduce investment management fees. They also reduce portfolio diversification as compared to a fund investment and may involve additional direct administrative costs for the investors.

Venture capital funds report to the investors their net asset value (NAV) at least on a quarterly basis. In addition, they report their total assets under management (AUM) as the sum of their NAV and the committed capital that has not yet been called by the fund manager (the “uncalled capital” or “dry powder”). For instance, a fund with a NAV of \$200 million, and uncalled capital that has not yet contributed to the fund of \$50 million, would report a total AUM of \$250 million.

Institutions such as sovereign wealth funds, pension funds, endowments, foundations, insurance companies, and individuals with substantial assets have also been investing in ESEs directly by acquiring shares or convertible notes in an ESE round of financing. Some of the largest and most sophisticated players in the VC space have dedicated significant assets to develop internally managed programs of direct ESE investments, alongside their investments in VC funds.²²

Investors may also be able to access VC investments in the secondary market, by purchasing VC fund shares or shares of an ESE from preexistent investors.²³ Secondary market transactions generally represent a small share of ESE transactions, but have increased in frequency in recent years, and often take place in proximity of an exit event. They may provide an important value indication especially ahead of IPO events.

The return expectations of VC fund investors have a significant influence on the cost of capital of an ESE. The historical returns of VC fund investors (net of fees and direct costs of management) may provide a framework to estimate the return that VC market participants would like to target in an ESE investment, and the cost of capital that an ESE is likely to incur in order to access VC financing. Most VC investors have now the option of investing in an ESE portfolio directly or through a VC fund vehicle. In our analysis, we assume that an investor will choose the alternative that maximizes its expected return, net of fees, and direct costs of management, for a given level of risk and over a specified time horizon.

The measurement of the performance of a VC fund presents some complexities that reflect the irregular nature of its cash flows and the illiquid character of its investments. There is no single metric that takes into account simultaneously the three key variables in investment

²²See for instance the Alaska Permanent Fund, which takes direct positions in joint ventures with smaller to middle market VC managers. For an overview of the role of Sovereign Wealth Funds, see Wylie Fernyhough, *Sovereign Wealth Funds Overview*, 3Q 2019 *PitchBook Analyst Note*, PitchBook Data Inc., August 9, 2019.

²³For a perspective on secondary market investments of a leading private equity firm in this space, see the interview with Brett Hickey from Star Mountain Capital in Antonella Puca, “Growing Trends in Private Equity: Secondary Market Investing,” *Enterprising Investor*, CFA Institute, May 10, 2018.

performance of time, value, and risk. To assess fund performance, we need to look at a variety of metrics and take into consideration the vintage year of the fund, which is the year in which the fund initiated its investment activity or effected its first capital call.

An important performance metric for VC funds is the total value to paid in capital (TVPI) or MOIC (multiple of invested capital), which is the ratio of (1) the total amount distributed to the investors plus the value of the investments that are still in the VC fund's portfolio (numerator) and (2) the total amount of invested capital (denominator). The TVPI can be calculated with reference to a single investment as well as with reference to the fund as a whole. For instance, a fund that received contributions from its investors of \$100 million, made \$30 million in distributions, and has a portfolio value of \$80 million, has a TVPI of $(80 + 30)/100 = 110/100 = 1.1$. A TVPI that is greater than 1 indicates that the sum of the distributions to investors and the value of the investments that are still in the portfolio is in excess of the originally invested capital and that the fund has therefore generated capital gains for its investors. A TVPI of less than 1 indicates that the fund is in a cumulative loss position.

Exhibit 1.3 presents the TVPI of VC funds by vintage year for funds that started operations (vintage year) between 1994 and 2016 based on data as of September 30, 2019.²⁴ The average TVPI is 2.30× for funds with a vintage year between 1994 and 2016 and 2.02× for funds that launched in the period 2008–2016.²⁵



EXHIBIT 1.3 TVPI of Venture Capital Funds by Vintage Year, 1994–2016

²⁴On the TVPI of VC funds by vintage year, see the series of Cambridge Associates LLC, US Venture Capital Index and Selected Benchmark Statistics.

²⁵As we discuss in greater detail later in this chapter, the most recent vintages are not meaningful in terms of ultimate performance as the fund has not yet had a chance to fully deploy its capital, and the

The TVPI measures the value generated by a particular fund or investment, including the unrealized gains that are still embedded in the fund's current holdings. A limitation of the TVPI is that it does not take into account the time horizon of the investment or the risk component. For instance, a TVPI of 1.3 indicates that, based on the current value of the portfolio, the fund has generated 30 cents of gains on each invested dollar. We don't know when the investor contributed funding, how long the investment was outstanding and what was the investment's risk profile. To address the time component of performance, VC funds report also the fund's internal rate of return (IRR), a money-weighted rate that reflects the return of the fund over the period from the inception of the fund's activity through the current measurement date and that is typically presented on an annualized basis. An annualized IRR of 15%, for example, indicates that the investor has earned 15 cents on each dollar invested at the beginning of each annual period over the time horizon of the fund's life.

Exhibit 1.4 illustrates the relationship between the TVPI, the exit year of an investment and the IRR. For example, assuming an investment of \$1 million and a TVPI of 2× (\$2 million of distributions at exit, for a net gain of \$1 million), the IRR will be 26% if the exit event occurs at the end of Year 3, but will drop to 15% if the distribution of \$2 million is received at the end of year 5. The table in the exhibit is based on the assumption that all investments get liquidated at the same time at the end of the exit year and that proceeds are immediately distributed. Another way of looking at the Exit Year is to consider it as the weighted average year of exit of all the cash distributions made to the investors in the fund. Exhibit 1.4 points to the critical effect of extending the time horizon of an investment on the return metrics.

The annualized IRR of a fund is likely to change significantly over the life of the fund, and will only stabilize in most cases in six to eight years from the fund's inception date.

In a typical fund, the IRR declines in the first two to three years of the fund's life, as the fund gradually builds its investment portfolio while it incurs management fees, administrative costs, and transaction expenses to execute its investment deals. At first, the investments are

		Exit Year									
		1	2	3	4	5	6	7	8	9	10
Multiple on Invested Capital (TVPI)	1.0×	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	2.0×	100%	41%	26%	19%	15%	12%	10%	9%	8%	7%
	3.0×	200%	73%	44%	32%	25%	20%	17%	15%	13%	12%
	4.0×	300%	100%	59%	41%	32%	26%	22%	19%	17%	15%
	5.0×	400%	124%	71%	50%	38%	31%	26%	22%	20%	17%
	6.0×	500%	145%	82%	57%	43%	35%	29%	25%	22%	20%
	7.0×	600%	165%	91%	63%	48%	38%	32%	28%	24%	21%
	8.0×	700%	183%	100%	68%	52%	41%	35%	30%	26%	23%
	9.0×	800%	200%	108%	73%	55%	44%	37%	32%	28%	25%
	10.0×	900%	216%	105%	78%	58%	47%	39%	33%	29%	26%

EXHIBIT 1.4 IRR Based on TVPI (MOIC) and Exit Year

investments have not yet realized their full potential. On the dynamics of VC fund returns, see especially Cambridge Associates, "Portfolio Benchmarking: Best Practices for Private Investments," Cambridge Associates, 2018.

likely to be valued at or close to the transaction price, no sales or write-offs have occurred, and the fund is experiencing negative cash flows related to its investment purchases and operational costs. As the fund moves forward in its active “investment” phase, net cash flows and IRR will turn positive. The fund will start recording gains and losses on its investments and liquidate some of its investment position. Eventually, the proceeds from investment sales will exceed the cash outflows related to the fund’s expenses and new investment purchases, and the residual will be distributed to the fund’s investors. Typically within four to six years from inception, the fund ceases to make new investments and enters into the “liquidation” phase. At this stage, the fund will focus exclusively on exiting from its current investment positions. The manager may still make add-on investments in existing portfolio companies, but overall, the active pursuit of new investment opportunities has effectively come to a halt. The liquidation phase may last several years for a VC fund, depending on market conditions and on the ability of the fund manager to identify suitable exit opportunities. It is not unusual for a VC fund to have a total life of more than 12 years, as the gains (or losses) that have accrued in the fund’s portfolio are realized in an exit transaction. As the IRR of the fund stabilizes (six to eight years into the life of the fund), also the fund’s risk/return profile becomes stable. Overall, the trajectory of the fund’s IRR over the course of the fund’s life is expected to follow a “J Curve”: an initial decline (Years 1–2) followed by a steep increase as investments increase in value and distributions to investors take place (Years 3–6), and eventually a flattening toward the IRR limit (Years 6 to 12+).²⁶

The IRR profile of a fund may be significantly affected by the extent to which the fund is using subscription lines of credit instead of capital calls from investors to finance its investment activity, which is becoming increasingly common.²⁷ A subscription line of credit is a revolving credit facility (a form of financing or “leverage”) that is provided to a fund by one or more lenders and that is collateralized by a pledge of the right to call and receive capital contributions from the fund’s investors. Subscription lines of credit have traditionally been used in VC funds as a form of short-term bridge financing to facilitate payments of expenses and make the capital call process more efficient. In recent years, subscription lines of credit have evolved beyond a short-term bridging function to serve as a broader tool used to manage the overall cash of the fund, with repayment terms often extending well beyond 90 days. These lines can be used with the intent to improve the fund’s stated IRR due to the mechanics of the IRR calculation and offset the negative pressure on the IRR associated with the “J curve” effect.

Exhibit 1.5 shows an example of how a line of credit can impact the IRR of a fund. The first column presents the scenario of no line of credit (Scenario 1). The manager calls \$100,000 in cash from investors in Year 1, pays annual management fees of 2% over six years, and then realizes a gross value of \$170,000 at the end of Year 6, generating an annualized IRR of 7.51% for the fund over the period. TVPI in this case is 1.52×, calculated as the realized value of \$170,000 divided by \$112,000, the capital called from investors to cover purchases

²⁶Antonella Puca, “Private Equity Funds: Leverage and Performance Evaluation,” *Enterprising Investor*, CFA Institute, July 16, 2018.

²⁷The Institutional Limited Partners Association (ILPA) has released a report to provide guidance on best practices in the use and reporting of subscription lines of credit, which highlights their effect on IRR calculations. See ILPA, *Subscription Lines of Credit and Alignment of Interest*, ILPA, June 2017.

Year	Transaction	Scenario 1	Scenario 2	Scenario 3
		Cash flows with no line of credit	Cash flows with one-year line of credit	Cash flows with two-year line of credit
1/1/2020	Investment	\$ (100,000)		
1/1/2020	Management Fees	\$ (2,000)	\$ (2,000)	\$ (2,000)
1/1/2021	Investment		\$ (100,000)	
1/1/2021	Management Fees	\$ (2,000)	\$ (2,000)	\$ (2,000)
1/1/2021	Interest		\$ (4,000)	\$ (4,000)
1/1/2022	Investment			\$ (100,000)
1/1/2022	Management Fees	\$ (2,000)	\$ (2,000)	\$ (2,000)
1/1/2022	Interest			\$ (4,000)
1/1/2023	Management Fees	\$ (2,000)	\$ (2,000)	\$ (2,000)
1/1/2024	Management Fees	\$ (2,000)	\$ (2,000)	\$ (2,000)
1/1/2025	Management Fees	\$ (2,000)	\$ (2,000)	\$ (2,000)
12/31/2025	Realization Event	\$ 170,000	\$ 170,000	\$ 170,000
	IRR	7.51%	8.18%	9.10%
	TVPI	1.52	1.47	1.42

EXHIBIT 1.5 Effect of Subscription Line of Credit on IRR and TVPI – Example

of investments and management fees charged to the account.²⁸ The second column presents the scenario of a one-year line of credit at an interest rate of 4% per annum (Scenario 2). In this scenario, there is an improvement in the IRR since now the investors have to disburse \$100,000 in cash at the beginning of year 2, but the TVPI is actually lower by the amount of the interest expense. Similarly, in the third column the IRR increases again while the TVPI decreases (Scenario 3). The IRR/TVPI effect for the non-managing investors is amplified in practice by the effect of performance-based compensation to the manager. Assuming a hurdle rate of 8%, the manager would not receive any performance-based compensation in Scenario 1, where no line of credit is used. However, the manager would receive performance-based compensation in Scenario 2 and Scenario 3, since the fund performance as measured by the IRR with the line of credit is above the hurdle rate of 8%.

Subscription lines of credit provide the advantage for investors of significantly improving the overall cash flow profile of the fund and allowing for investments without having to go through the negative IRR associated with the J curve effect in the early years. In some cases, investors may be able to redeploy some of the committed cash in other, more profitable ways, and enjoy the increase in reported return figures. The existence of longer-term subscription lines of credit, however, does create issues in performance comparability among managers that may be using such lines and managers that do not. It has become common practice for many investors, particularly on the institutional side, to ask for return figures both with and without the effect of the line of credit, or to ask for detailed cash flow information that can

²⁸Cash disbursements by investors to cover investment purchases and management fees can also take place in response to a single capital call, rather than in multiple calls as in Scenario 1 in the example of Exhibit 1.13.

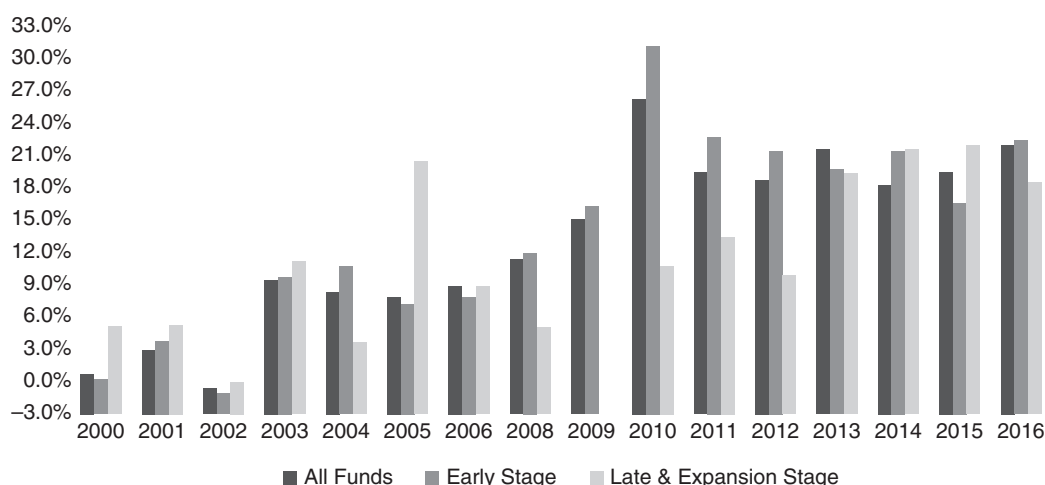


EXHIBIT 1.6 US Venture Capital Funds: Annualized IRR by Vintage Year, 2000–2016

be used to recalculate the returns. The risk of investors not responding to their capital call obligations should also be considered.

Exhibit 1.6 presents the annualized IRR for VC funds with an inception date between 2000 and 2016, by vintage year, as of September 30, 2019. The “All Funds” column represents the IRR for funds in different VC stages with all assets pooled together as if they were a single fund. The Early Stage and the Later & Expansion Stage columns represent only the subset of funds that invest exclusively in companies in the respective stages of development. A striking feature of the IRR by Vintage Year is the difference in results over time. In 1999–2002, the burst of the internet bubble has significantly affected VC returns, particularly for funds that had a focus on the early VC stage. Starting from 2003 vintages, returns have become positive again, and have stayed in the single digit realm through 2006. It is only at the inception of the financial crisis that we can find again funds that are able to generate double-digit growth over time. The period from 2010 onward has been characterized by IRRs of 15% or above. If we exclude the 2010 outlier, a net required return in the range 15–20% for VC investors is consistent with the industry benchmark returns of the past decade.

Exhibit 1.7 presents the pooled horizon IRRs for Indices of U.S. VC funds developed by Cambridge Associates LLC (“CA”) as compared to representative equity market indices such as the Nasdaq Composite Index, the Russell 2000, and the S&P500, based on data for the periods ended September 30, 2019.²⁹ The horizon returns are calculated by pooling together the fund cash flows independently of vintage year and treating them as if they were taking place in a single pooled fund. Returns have generally been higher over the 5-year and 10-year time horizons than over the 15-year and 20-year horizons, which include the effect of the 2008 financial crisis. On the other hand, returns over the 5-year horizon have been lower than those over the 10-year horizon and, for the early stage index, substantially below the long-term 25-year horizon return. The lower returns in recent years may be an indication of

²⁹The data in Exhibit 1.13 is compiled from 1,858 funds, including fully liquidated funds, formed between 1981 and 2018.

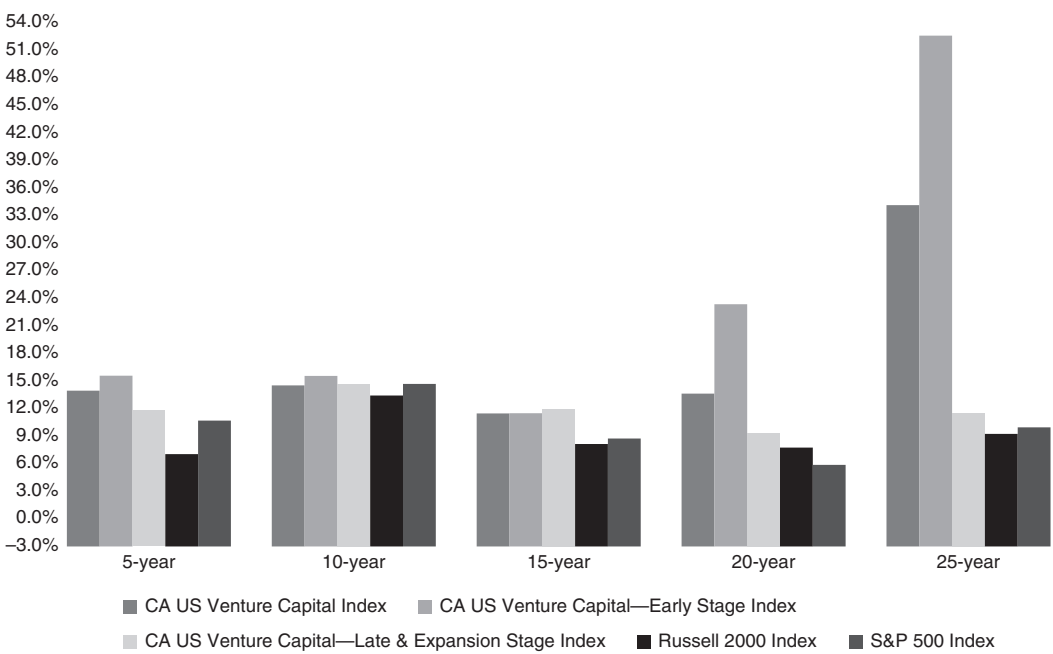


EXHIBIT 1.7 Fund Index Summary: Horizon Pooled Return, Net to Limited Partners – Periods ended September 30, 2019

greater “efficiency” in the VC market as of the end of 2019 and of a decade of economic growth, fostered by easier access to capital and private company information, and greater competition for deals. They also reflect a general decline in the level of real and nominal interest rates, which has contributed to lower the cost of capital for ESEs.

From another perspective, investors may want to consider the performance of a fund manager in comparison to the manager’s peer group. For instance, an institutional investor may have received a mandate from its board of directors to allocate a certain percentage of assets to VC funds. The investor will strive to select managers that at a minimum can outperform their peer group, and possibly perform in the top quartile. The investor will review the performance of multiple managers and make comparisons between them to identify its preferred solution. The manager selection process will typically include a review of the historical series of the peer group quartile IRR returns. Most likely, the investor will focus on the 5- to 10-year performance of managers that have active funds and that are currently looking to raise capital, and that may provide suitable investment alternatives. As part of the process, the investor will develop expectations about a required rate of return based on the historical performance of the top quartile of managers, as well as by the investor’s expectations on the future market environment for the peer group.

Exhibit 1.8 presents the top quartile net IRR boundary and the median net IRR for VC funds that started operations (vintage year) in the period 2006–2016 for the period from the inception of the life of the fund through September 30, 2019.

In reviewing the quartile returns of Exhibit 1.8, it is important to keep in mind that, similarly to the IRR, a fund position in the return quartiles will also change significantly over the course of the fund’s life, depending on the stage of its life cycle (start-up, investment, or

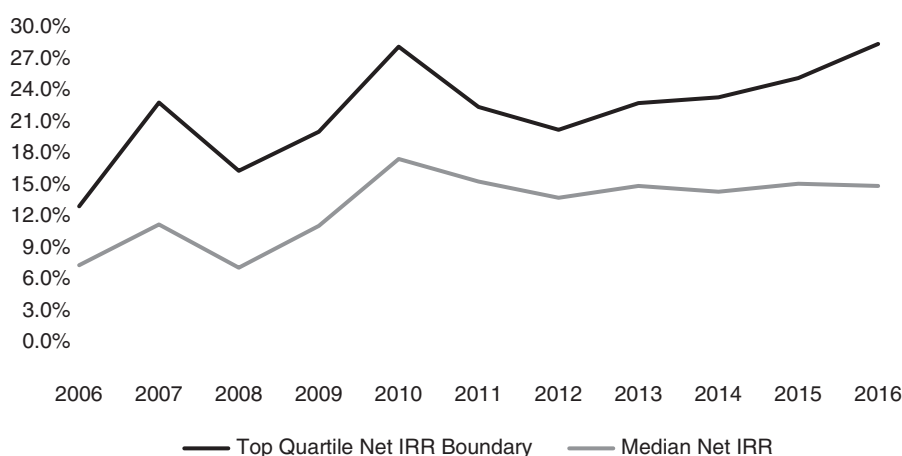


EXHIBIT 1.8 U.S.-Based Venture Capital Funds, Median Net IRR and Quartile Boundaries by Vintage Year

liquidation phase). A fund will typically find a stable spot in the return quartile within six to eight years from inception, as the IRR also settles toward its limit.

In Exhibit 1.8, the fund performance metrics for 2016 is likely to still be skewed by a combination of the J curve effect and the more frequent use of subscription lines of credit, which somewhat impair their use as an indicator of portfolio investment performance over time. For the 2006–2015 series, and if we exclude the 2006 and 2008 outliers, the net IRR for the top quartile falls in the 20.1–28.2% range (11.1–17.5% if the median net IRR is used).

Overall, from the earlier analysis, a required portfolio IRR in the 15–25% range for VC investors would be consistent with the VC performance record of the past 10–15 years and in the current low interest rate scenario. It is important to note that the 15–25% range is based on the performance of an investment after taking into account the effect of the probability of failure that some of the portfolio investment will experience over time.³⁰ In other words, the 15–25% range applies to investments that are included in a diversified portfolio (a fund with a diversified portfolio or a portfolio of direct deals). The risk of failure associated with individual ESE investments is significantly reduced at the portfolio level by portfolio diversification and, in our view, should be modeled separately from the discount rate used in the valuation of an individual ESE investment. As we discuss in greater detail in Chapter 4, assuming that an investor expects to write off 30% of its invested capital in nonperforming deals, and given a time horizon of five years, the investor will have to target a return at a minimum in the 24–34% range for individual deals in order to achieve its overall 15–25% portfolio return objective. Within these ranges for target and required returns, respectively, we would expect VC investments in seed and ESE to gravitate toward the high end of the range, and investments in later stage enterprises to gravitate toward the low end.

Also, neither the TVPI (value) nor the IRR (value and time) provide information on the risk component of investment performance. In a VC fund's performance report, the risk aspect

³⁰The dilution effect from subsequent rounds of financing on the fund's equity interest in a portfolio company will also affect realized returns. See Chapter 4 for further discussion.

is typically addressed with qualitative disclosures that identify the fund's vintage year and its strategy (stage of portfolio companies, industry, leverage, etc.) and quantitative metrics that represent the variability of fund returns (the capital loss ratio, the since-inception annualized standard deviation of fund returns, or a metric that tracks the fund's performance relative to a benchmark).

In terms of benchmarks, VC funds present special challenges as well. Investors may want to compare the performance of VC funds to that of a public equity index as an investment alternative. The return of public equity indices is typically calculated by assuming that the invested capital is deployed in one spot at the beginning of the measurement period. Cash flows in VC funds, however, are irregular, which makes comparison to public equity indices difficult to implement in practice and requiring some adjustments to get to a "Public-market equivalent" (PME) return metric. Also, performance comparisons need to take into account the vintage year of the fund.

Strategic Investors

Strategic investors are typically larger operating companies or competitors that target an ESE primarily in view of the synergies that the ESE can provide to their own core operations and strategy. Strategic investors are a primary driver in M&A exit transactions, where control of the ESE is transferred to the acquirer. Companies that engage in significant VC activity, such as Intel, SoftBank, and Google, often find it suitable to establish a corporate venture capital (CVC) arm to invest in ESE minority positions, alongside their M&A transactions. In some cases, large ESEs have also engaged in CVC investing by setting up their own private VC fund.³¹ CVC arms typically operate through investment funds that are similar to independent VC funds in terms of legal structure. A strategic CVC fund, however, will significantly differ from an independent VC fund in view of its objectives, which are tied to the mission of the parent company. For instance, a parent company may want to acquire an interest in an ESE to have access to a new geographical market or a new customer segment, or to access a new technology or a drug that an ESE has successfully developed and that it may take years for the parent to develop independently. The investment may be a first step toward the acquisition of the ESE at a later stage, or a step to access business intelligence that would otherwise not be available to the parent.

Over time, some CVCs have evolved to resemble VC funds more closely in targeting returns that are more financial than strategic in nature. The compensation structure of management in a CVC often provides a key to the true nature of these entities and on whether there is truly an incentive for management to execute on the parent's objective at a strategic level. For instance, for a parent company that has the expansion in a new geographical market as a strategic objective, a compensation structure that rewards CVC management based on the increase in revenue in that market as a result of CVC investing is likely to result in greater

³¹For instance, Slack Inc. has established the Slack Fund, a private investment fund run by Slack. The Slack Fund is similar to a traditional VC fund, with a 10-year lifespan and capital from outside the company's balance sheet (only existing company investors in this case). The fund focuses on investments in enterprise software companies that have potential for substantial contribution to the Slack's ecosystem. For an overview of CVC arms based in the United States investing in deals globally, see Brendan Burke and Darren Klees, "The Golden Mean of Corporate Venture Capital," *PitchBook 2Q 2019 Analyst Note*, PitchBook Data Inc., May 16, 2019.

strategic alignment between the CVC and the parent than a bonus structure based purely on the CVC portfolio's IRR. Other factors that are indicative of a CVC's strategic focus may include:

- Investment staff includes a significant component of former parent employees.
- Base salary is a higher percentage of total compensation.
- Financial performance is not the main driver of compensation.
- The CVC has to report to the parent on the achievement of predefined objectives, expressed in terms of the parent's strategic goals and key performance indicators.
- The CVC has contributed to the parent company's M&A pipeline, by identifying and investing in companies that were eventually acquired by the parent.
- The CVC invests in sectors that are consistent with the parent company's operations and strategic goals.

Rather than using TVPI and IRR as primary measures of performance, a CVC fund may focus on key performance indicators such as the number of new products introduced to market, the amount of new revenue generated, the number of deals sourced and evaluated in a given sector, commercial pilot projects implemented, patents acquired, new users, clients or customers.

In 2018 and 2019, corporate investors participated in rounds contributing more than 50% of the total deal value for U.S.-based companies and have been especially active in the larger size deals.³² CVC investors may be willing to pay higher valuations than a pure financial player and are often able to exercise an influence on the company's operations, even as a minority investor that may have a significant impact on the company's valuation. The presence and objectives of strategic investors may affect the price-setting mechanism of a transaction and result in transaction prices that include entity-specific synergies and that may need adjustments to reach a fair value conclusion.

Mission Investors

By "mission investors" we identify a class of investors that target an ESE primarily in view of the contribution that the ESE can provide in reaching their program objectives, above and beyond the expected financial return from the investment (and sometimes aside from them). Mission investors may include individuals, foundations, and other nonprofit organizations that have environmental, social, and governance (ESG) objectives in their mission statement, government-sponsored entities that are looking to have an impact on their local communities, infrastructure funds, and corporations that dedicate funding specifically for ESG and other "impact" investments. These investors typically fall under the "financial investor" label in commonly used databases, and most of them indeed operate under the assumption that it is possible to pursue a strategy with a primary program objective while maximizing financial returns.³³ Having said that, mission investors do have special characteristics that may affect their approach to valuation.³⁴ In some cases, these investors may be available to provide

³²PitchBook Data Inc. and National Venture Capital Association, 4Q 2018 and 4Q 2019 PitchBook NVCA Venture Capital Monitor Summary.

³³See, for instance, Andreas Dal Santo, Antonella Puca, and Greg Siegel, "Effective ESG Investing: An Interview with Andrew Parry," *Enterprising Investor*, CFA Institute, June 15, 2018.

³⁴I thank Paolo Siniscalco for highlighting the relevance of mission investors as a separate category of investors with their own set of objectives in the VC market.

funding to ESEs at a significantly lower cost of capital than otherwise available in the market, particularly if they are backed by community or governmental funding specifically dedicated to support their program objectives.

According to Milton Friedman in a 1970 article for the *New York Times Magazine*, the doctrine of “social responsibility” involves the acceptance of the view that “political mechanisms, not market mechanisms, are the appropriate way to determine the allocation of scarce resources to alternative uses.”³⁵ The reconciliation of social responsibility with the principles of market economy on which the fair value standard is based is a challenge in our economy.

Cross-Border Investing

The past decade has seen an increase in cross-border investment transactions, with investors exploring opportunities outside of their home market, and additional funding from foreign investors, especially to companies in China and the U.S. market. SoftBank, a Japanese telecoms conglomerate, is a good example of this trend. In addition to making direct venture investments, SoftBank has served as the principal manager and the second-largest shareholder of the SoftBank Vision Fund, an investment vehicle with more than \$100 billion in AUM that is administered by London-based SoftBank Investment Advisors. The Vision Fund has focused on ESEs in the later rounds of financing, generally seeking between 20% and 40% of ownership, including unicorns such as Uber, WeWork, Fanatics, and Flexport.³⁶

Along similar lines, Temasek Fund, a Singapore-based investment company with \$200-plus billion in AUM, has grown from a local fund investing mostly in Singapore-based companies to a large international player in Asia, Europe, and America. Temasek has established a number of U.S. offices that focus on investments in technology ESEs. Qatar, United Arab Emirates, and Saudi Arabia have each opened offices in Silicon Valley to facilitate U.S. investments.³⁷

In the United States, foreign investment in U.S. companies and operations is subject to screening by the Committee of Foreign Investment in the United States (CFIUS), an interagency committee of the U.S. government, which was established in 1975 for national security purposes. In August 2018 the *Foreign Investment Risk Review Modernization Act* (FIRRMA) delivered enhanced power to the CFIUS. Under the FIRRMA, CFIUS has been moving from a world in which it mostly looked at situations where a foreign entity was buying an entire company to a new world that also includes minority, noncontrolling investments. In response to the new legislation of FIRRMA, NVCA updated its model VC Term Sheet to include several provisions regarding CFIUS review.³⁸

³⁵Milton Friedman, “The Social Responsibility of Business Is to Increase Its Profits,” *New York Times Magazine*, September 13, 1970.

³⁶On the Vision Fund, see Kyle Stanford and Van Le, “The Vision Fund’s Only Competitor is Itself”, *PitchBook Q2 2020 Analyst Note*, PitchBook Data Inc., April 6, 2020.

³⁷On the role of non-U.S. investors in the U.S. venture capital industry, see also Kyle Stanford and Van Le, “Nontraditional Investors in VC Are Here to Stay,” *PitchBook 4Q 2019 Analyst Note*, PitchBook Data Inc., December 6, 2019.

³⁸For an overview of the NVCA changes to its term sheet related to CFIUS terms, see Dorsey & Withney LLC, “NVCA Includes Detailed CFIUS Terms in Its Model VC Term Sheet,” April 29, 2019, <https://www.dorsey.com/newsresources/publications/articles/2019/04/nvca-includes-detailed-cfius-terms>.

EXIT STRATEGY

For many investors in ESEs, one of the conditions for entering into a new deal is to be able to envision a profitable path to exit. For a financial investor, identifying a potential exit strategy is part of the initial investment due diligence process that leads to the decision of whether to execute an investment transaction. From the point of view of the ESE, an exit event represents a change in ownership structure and typically results from one of the following:

- Going out of business
- Change of control: Buyout transaction
- Change of control: M&A transaction
- Initial public offering/direct listing

Going Out of Business – Dissolution

As previously noted, dissolution events are a frequent occurrence for ESEs. An ESE dissolution results in the partial or full write-off of the ESE investment. For an ESE investor, the valuation of the enterprise in a dissolution scenario depends on the proceeds that are expected to be available for distribution, the timing of the distribution, and how the proceeds will be allocated among different classes and series of shares in a complex capital structure. The investor in an enterprise that is going out of business may still be able to recover at least some proceeds from the sale of its assets. The liquidation preferences of preferred stockholders and other seniority rights are most valuable in a distressed scenario. Preferred stockholders may also benefit from an adverse redemption feature, which may grant them the right to demand a redemption of preferred stock at a purchase price equal to the original purchase price plus any declared and unpaid dividends. In the most severe cases, a full write-off will be necessary for all equity investors, independently of seniority rights.

Buyout Transaction

Buyout sales (or “trade sales”) consist of sales of a control position in a business to a financial investor (another VC or private equity investor). The enterprise being sold will generally continue to operate as an independent entity under this scenario. GAAP metrics that reflect the company’s operations and projects as a stand-alone entity are likely to drive a buyout valuation. Exhibit 1.9 illustrates the trend in the value and number of buyout transactions for U.S. VC-backed companies in the period 2010–2019.³⁹ Buyout transactions represented 19.8% of VC exits in 2019 (in number, excluding write-offs), a significant increase from the period 2006–2011 where they had been below 10%.

NVCA’s legal agreements, including the Model VC Term Sheet, are available at <https://nvca.org/model-legal-documents/>.

³⁹On buyout transaction activity for U.S. VC-backed companies, see PitchBook Data Inc and National Venture Capital Association 4Q 2019 PitchBook NVCA Venture Capital Monitory Summary as of December 31, 2019.

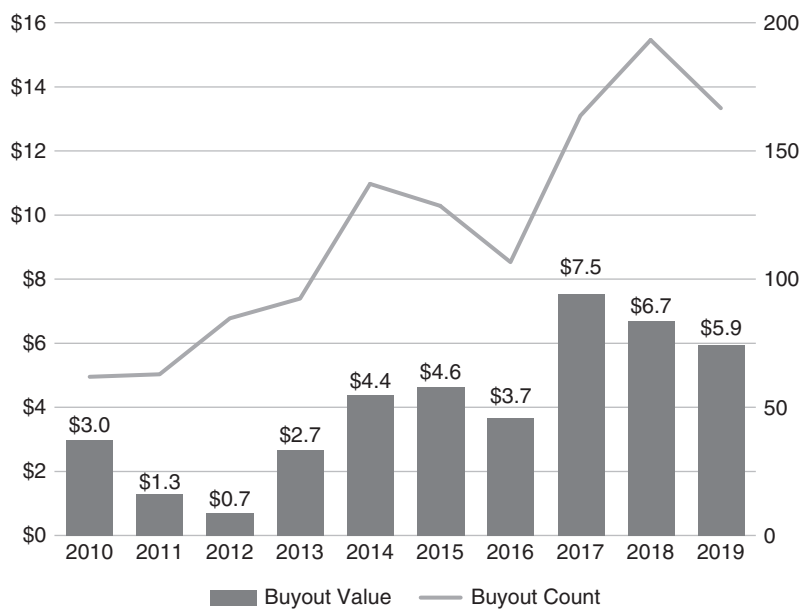


EXHIBIT 1.9 U.S. VC Buyout Exits, Years 2010–2019 (Value in \$billion)

M&A Transactions

M&A transactions consist of sales that transfer the control of a company to a strategic buyer that is attracted by the contribution that the target can make to the combined entity. In order to be a successful target for an acquisition, an ESE does not necessarily have to demonstrate the capacity to generate revenue as a stand-alone entity. Rather, a strategic buyer will look at how the company can enhance the revenue potential and growth for the combined entity and help the acquirer meet its own corporate objectives.

The AICPA PE/VC Valuation Guide recommends that when evaluating an exit with a strategic buyer, the valuation analyst consider among others:

- The number of larger companies for which the portfolio company’s products or services would be complementary to their existing business.
- The extent that the portfolio company’s products or services are a “need to have” or a “nice to have” either to the end user or to the potential acquirer, to round out their product portfolio.
- The strategic positioning of potential buyers and their perception of the need to diversify in one direction or another.
- The regulatory impediments to a strategic buyer’s ability to acquire portfolio company (e.g. antitrust/anticompetition concerns).
- The strategic buyer’s financial condition and its ability to finance an acquisition of the portfolio company.⁴⁰

⁴⁰AICPA PE/VC Valuation Guide 1.50.

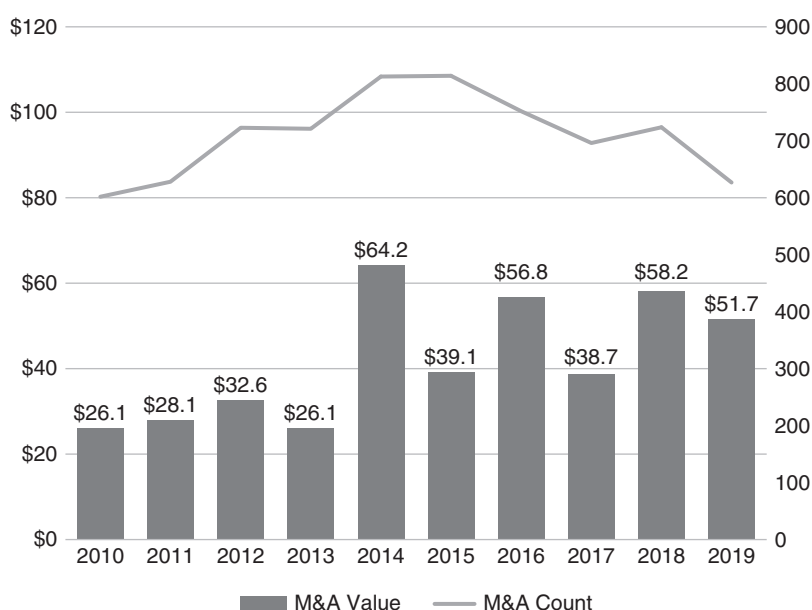


EXHIBIT 1.10 U.S. VC M&A Exits – Years 2010–2019 (Value in \$billion)

M&A transactions represent the most common VC exit type. Exhibit 1.10 shows the data related to U.S. M&A transactions for VC-backed enterprises in terms of value and number of deals over the period 2010–2019.⁴¹ In 2019, there were 627 VC M&A transactions, aggregating to \$51.7 billion and representing approximately 71% of the total number of VC exit transactions (excluding write-offs). The percentage of total exits represented by M&A transactions has declined recently from a high of 85% in 2010.

A change of control in an M&A transaction will typically trigger a number of special provisions included in the company's certificate of incorporation and securities agreements. For instance, a convertible bond outstanding at the time of the acquisition may have to mandatorily convert into preferred stock of the acquiring company. Alternatively, the acquiring company may have to pay off the target company's convertible bonds, sometimes at a multiple of invested capital.

It is also common for the target company's warrants to expire in a merger, unless they are exercised just prior to the transaction. Also, the vesting of options granted under a target company stock option plan is often accelerated in the event of an M&A transaction. A single-trigger acceleration refers to an automatic acceleration of vesting upon the occurrence of the merger event. A double-trigger acceleration refers to an accelerated vesting that takes place upon the occurrence of two events, typically the acquisition of the target company combined with an employee being dismissed by the acquiring company. Acceleration on change of control is often a contentious point of negotiation between founders and VC investors.

⁴¹On acquisition activity for U.S. VC-backed companies, see PitchBook Data Inc. and National Venture Capital Association 4Q 2019 PitchBook NVCA Venture Monitor Summary as of December 31, 2019.

A question that may arise ahead of an M&A transaction as well as in a financial sale is how much relevance to place on a nonbinding offer of intent in an estimate of the company's fair value. The AICPA PE/VC Valuation Guide recommends considering whether the offer is realistic, and if indeed it is likely that it will result in an actual transaction at the stated price.⁴² The offer price has to be weighted alongside the value that is expected to be realized if the transaction does not take place.

There are many circumstances in which a transaction that involves a change of control for the target company may indeed fall through. The closing of an M&A transaction may be subject to regulatory approval, which eventually is not obtained. Also, the buyer may conclude, at the end of the due diligence process, that the target company does not satisfy its due diligence requirements. Market conditions may change, which may make the transaction no longer appealing to either or both parties. The valuation analyst may want to be especially weary of nonbinding offers at a price that is significantly higher than the price of the target company's latest round. The adjustments and weighting applied to a nonbinding offer price should be a function of financing contingencies, and the timing of the due diligence and regulatory approval process, among other factors.

Initial Public Offering

In an IPO, a company goes through the process of offering its shares to the general public for the first time, typically by listing them on an established stock exchange such as the New York Stock Exchange or the NASDAQ in the United States. An IPO represents a financing event for the company, as new shares are issued as part of the public offering process.

IPOs help establish a trading market for a company's shares and generally result in the highest valuation multiples for early investors in an exit scenario. The IPO price is supported by the underwriting syndicate, a team of investment banks that may engage in price stabilization activities in order to decrease volatility and support the price of the stock. Underwriters typically have Greenshoe options that allow them to purchase up to an additional 15% of shares from the company if demand exceeds supply. Alternatively, underwriters can repurchase shares on the market if supply exceeds demand. Both actions help decrease the volatility of the stock price in the days and weeks after the IPO.

IPOs come with high implementation costs due to extensive regulatory and compliance requirements. Under the federal securities laws of the United States, a company may not lawfully offer or sell shares unless the transaction has been registered with the SEC or an exemption applies. To register an offering, a company files a registration statement with the SEC (Form S-1). Any planned exchange listing will be disclosed in the prospectus for the IPO. Once the company has been listed, it will also be required on a going-forward basis to disclose certain information to the public, including its quarterly and annual financial statements on Forms 10-Q and 10-K. These regulatory and compliance requirements result in significant fees. An IPO may also expose the company's management to significant pressure to meet investors' expectations in the public market and pursue short-term financial objectives, which may distract management from the company's strategic objectives.

⁴² AICPE PE/VC Valuation Guide Q&A 14.42 Offers to Purchase, Q: "Does an offer or a nonbinding letter of intent constitute fair value?"

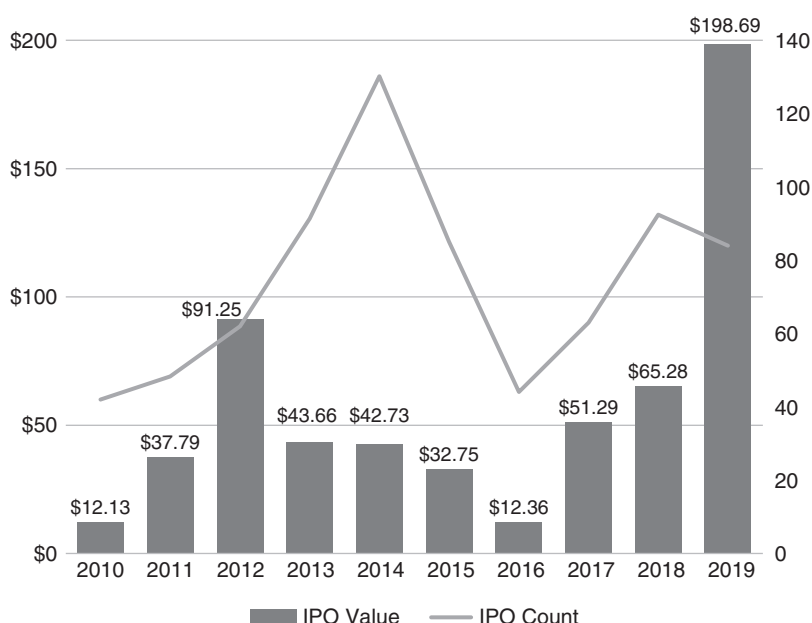


EXHIBIT 1.11 U.S. VC-backed IPO Deals 2010–2019 (Value in \$billion)

The year 2019 has been a record year in IPO activity for VC-backed companies in the United States, with very large unicorn deals that have pushed volumes to a record high, as shown in Exhibit 1.11.⁴³

Historically, the number of IPOs has been highly dependent on general market conditions. In the period 2017–2019 IPOs have represented less than 10% of total exits in number of deals in a given year (excluding write-offs), but more than 50% of total exits in dollar value.

The IPO market has evolved significantly over the past two decades, as technology companies have come to represent an increasing share of the overall listed markets. In the late 1990s, a company with \$30–\$60 million in revenue, recent profitability, and a sound management team could look at the opportunity of an IPO as a realistic exit target. After the internet bubble crash of 2000–2001, and through most of the following decade, the IPO venue was accessible primarily to the largest and most profitable VC-backed enterprises, typically mature companies with revenue in excess of \$150 million. Starting in 2011, the IPO market has witnessed an increase in the number of unicorns. Many of these companies are ESEs in that they are still experiencing losses at the time of the IPO. Still, they have been able to command valuations at multiples of invested capital. Over the decade 2010–2019, the median valuation of VC-backed companies at the time of the IPO ranged between a low of \$178.3 million in 2016 and a high of \$377.6 million in 2019. Median trailing enterprise

⁴³On IPO activity of U.S. VC-backed companies, see PitchBook Data Inc. and National Venture Capital Association 4Q 2019 PitchBook NVCA Venture Monitor Summary as of December 31, 2019.

value/revenue multiples have shown a strong upward trend, from a low of 3.6× in 2009 to multiples in excess of 10× in 2018–2019.⁴⁴

Although VC investors consider an IPO of a portfolio company as an “exit,” it is perhaps more appropriate to view it as a financing event for the company, which may provide little, if any, proceeds to the VC fund itself. Typically, upon completion of the IPO, all of the existing equity capital of the portfolio company is converted into a single class of common equity (mandatory conversion). The IPO is also typically subject to a minimum price per share (for instance, no less than two times the original issue price as of the latest round of preferred stock, adjusted for stock splits, dividends) and needs to generate a minimum amount of proceeds from the offering to be finalized (a “Qualified IPO”). In some cases, the IPO may result in a dual share system, with control rights assigned only to one class. Dual-class structures have become more frequent in recent years, particularly in the technology sector following the example of Alphabet Inc. (Google’s parent), Facebook, Alibaba, and others. The dual-class structure may help founders preserve control of a company after the IPO, but may also lead to a misalignment of interest between the controlling shareholders that are making decisions for the firm and shareholders that have limited voting rights which are most exposed to the risk of the company’s strategy. In modeling an IPO scenario as an ESE potential exit event, the valuation analyst will typically adjust the company’s capitalization structure to reflect the risks associated with the single- or dual-class post-IPO structure.

After the company has become public, the shares held by the pre-IPO shareholders are typically subject to a lock-up period, whereby shares cannot be sold in the public markets for a period of up to 12 months from the IPO date. A valuation analyst will generally reflect the lock-up provision by adjusting the traded stock price with a discount that takes into account the period remaining from the measurement date through the lock-up expiration date.

Even after the portfolio company has gone public, a shareholder may still find challenges in liquidating its position, particularly if the shares are thinly traded and if the shareholder has a significant position to sell. To the extent a market price is available coming from orderly transactions on a public exchange, the market price will not be subject to any illiquidity discount that reflects the size of the shareholder’s holding. The valuation analyst may want to consider in its ESE valuation the significant costs that are involved in an IPO transaction, and any additional pre-IPO financing that may be needed to cover such costs.

Most recently, some companies have elected to pursue a direct listing as an alternative path to access the public markets for their shares, in the attempt to control costs and also avoid the dilution of ownership that an IPO typically involves.⁴⁵ In a direct listing, a company is granted access to a public offering for its securities without issuing additional stock. The company’s shareholders are able to offer their shares for sale on a public exchange while the capital structure of the company remains substantially intact. The company forgoes the

⁴⁴Data on median valuation and EV/revenue of VC-backed technology companies is from Asad Hussain and Jordan Beck, “Ridesharing Gears Up to Go Public”, *PitchBook 1Q 2019 Analyst Note*, PitchBook Data Inc., February 25, 2019.

⁴⁵In April 2018, Spotify Inc. started trading its shares on the New York Stock Exchange in a high-profile direct listing. Prior to Spotify, direct listings had been a rare occurrence in the venture capital world. In June 2019, Slack, an ESE unicorn, followed suit with an offering where the direct listing price was established by the New York Stock Exchange without underwriters. For an analysis of Slack’s direct listing, see Cameron Stanfill, “The Only Time Slacking Off Could Pay Off,” *PitchBook 2Q 2019 Analyst Note*, PitchBook Data Inc., April 30, 2019.

assistance of the investment banks, which can help stabilize the price of the security in the aftermath of the offering. The post-listing price is exposed to the ordinary market dynamics of the exchange in which the securities are listed and may be subject to considerable volatility. Unlike the IPO, a direct listing is not a fundraising event as only preexistent stock can be sold on the exchange.

A direct listing is generally significantly less expensive than a traditional IPO and subject to a lighter regulatory regime. It can be executed more quickly and allows preexistent shareholders to immediately sell their shares without the restriction of an IPO lock-up period. A direct listing provides a way to access the public markets and obtain liquidity for investors without having a dilution effect on those shareholders that elect to hold on to their shares. This can be a very attractive proposition for founders and shareholders that don't want radical changes in the company's ownership structure.

From a valuation perspective, the IPO price and the direct listing price are likely to represent a significant step-up in valuation versus the pre-IPO value of the company's equity. Access to the public markets has generally the immediate benefit of increasing the value of the enterprise and reducing its cost of capital. The long-term effect of an IPO on the equity value of the enterprise is more controversial.⁴⁶

Exits in Summary Exhibit 1.12 summarizes the U.S. VC exit activity over the period 2010–2019.⁴⁷ Since 2015, the U.S. VC market has experienced a decline in the number of

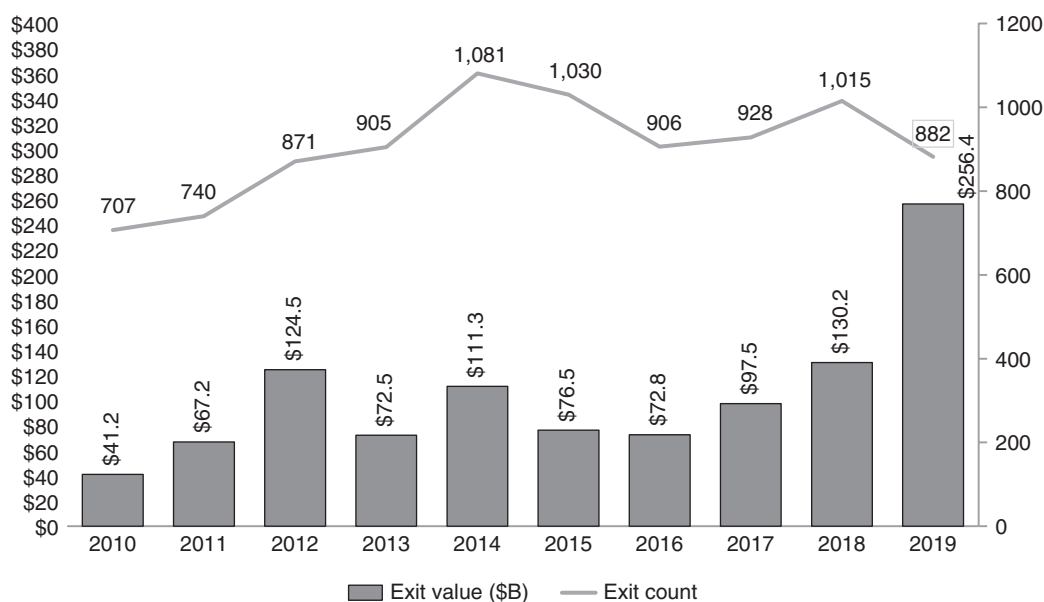


EXHIBIT 1.12 U.S. VC Exit Activity, Years 2010–2019

⁴⁶For an analysis of valuation performance for VC-backed unicorn exits, see Cameron Stanfill and Jordan Beck, “Searching for Validation,” *PitchBook 1Q 2019 Analyst Note*, PitchBook Data Inc., March 21, 2019.

⁴⁷On U.S. exit activity, see PitchBook Data Inc. and National Venture Capital Association, 4Q 2019 PitchBook NVCA Venture Monitor Summary.

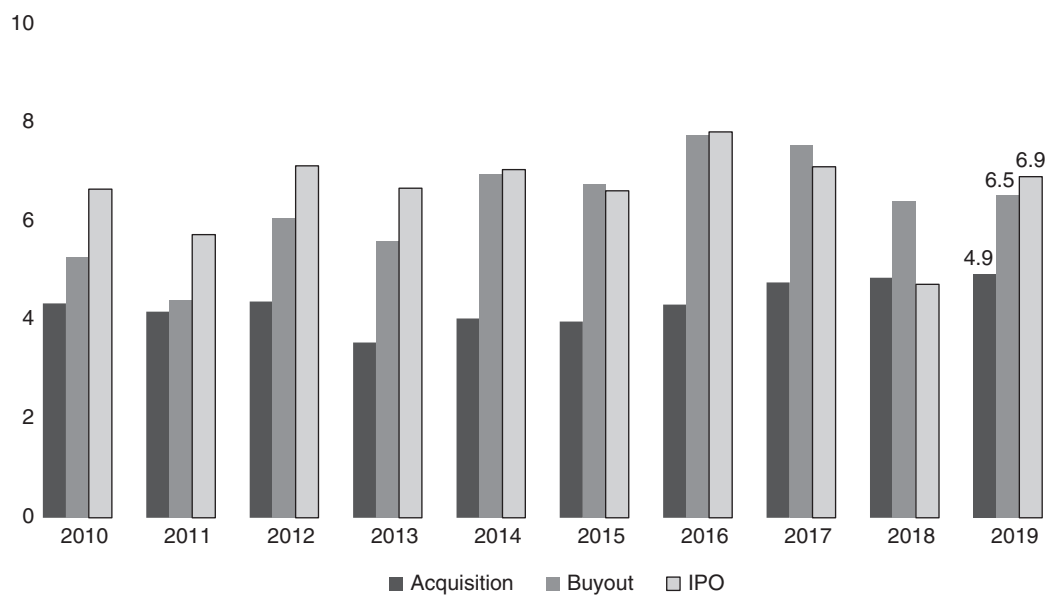


EXHIBIT 1.13 Median Time to Exit (in Years) by Exit Type, 2010–2019

deals, but has significantly increased in dollar value. The average size of an exit increased significantly for all exit types.

Exhibit 1.13 shows the median time to exit in years by type of exit. Based on a given value at exit, the time to exit has a significant impact on the ultimate return earned by a VC investor.⁴⁸ For acquisitions, the median time to exit has increased from a low of 3.6 years in 2013, to 4.9 years in 2019. Acquisitions tend to occur earlier in the life of a company than buyouts and IPOs, with IPOs having the longest time to exit (in a range of 4.7 to 7.8 years over the period).

CONCLUSION

Early stage enterprises include a broad range of entities that, in some cases, have been able to command multibillion-dollar valuations in the VC market. ESEs share the expectation of high growth, lack of current profitability, reliance on external financing for survival, and a number of other characteristics. A fair value perspective on ESE valuation brings forth the key role that investors in the VC markets play for their survival and ultimate success. The return expectation of VC investors, their risk preferences, time horizon, available capital, behavioral biases, and nonfinancial objectives, are all part of the framework that a valuation analyst needs to consider to establish suitable financial projections for an ESE, estimate the company’s cost of capital, identify and assign probabilities of occurrence to exit scenarios,

⁴⁸On median time to exit for U.S. VC-backed companies, see PitchBook Data Inc. and National Venture Capital Association, 4Q 2019 PitchBook NVCA Venture Monitor Summary.

and ultimately come to a valuation conclusion that is realistic and consistent with fair value principles. The analysis in this chapter indicates that:

- Companies tend to be further along in their business operations at each round of financing than under the traditional AICPA classification. Most companies that are raising Series A funding already need to have revenue in order to be able to attract VC investors. While there is a significant amount of capital available for new deals, the total number of VC deals has actually been falling for the past several years and companies are taking longer to achieve each round of funding than in the pre-2009 decade. ESEs that had developed in the private markets to reach a multibillion-dollar valuation used to be a rare occurrence (hence the “unicorn” name) and have now significantly grown in number across the world.
- The VC markets have expanded to include categories of investors that have strategic or mission-oriented goals and that are willing in some cases to provide capital at a lower cost of capital than otherwise available in the market. Together with historically low interest rates, this increased availability of capital has contributed to push down the cost of capital and increase valuations at all stages in ESE development.
- The valuation of ESEs needs to take into account the risk of failure. Many ESEs will never reach an exit transaction or profitable operations. More research in this area is desirable to help assess these probabilities with reasonable accuracy. ESE investors need to target returns for individual deals that are significantly higher than the return they ultimately expect to realize to reflect the reality that only a few of their deals are likely to turn out to be successful. Overall, the target returns that investors would like to see in a deal negotiation have declined over the past decade relative to long-term historical averages.
- In evaluating investment returns, it is important to be aware of the interaction of the three key factors of value, risk, and time. The performance evaluation of an ESE investment needs to take into account, in addition to return metrics, also a multiple of invested capital (TVPI), the time to exit and of risk considerations to provide an adequate picture of an investment's results.
- The IPO environment for ESE exits is highly dependent on general market conditions. The 2018–2019 period has seen very high IPO volumes in historical terms. The valuation of a pre-IPO company should take into account the possibility of a post-IPO dual share class and the additional risk that such structure may involve for ordinary shareholders. Also, the potential effect on market prices of the expiration of the lockout periods for owners and underwriters should be considered.

