Chapter 2
Private Equity

2.1 Introduction

> A rather broad definition of private equity might sounds like this: "a professionally managed pool of money raised for the sole purpose of making actively-managed direct equity investments in private companies and with a well defined exit strategy (sale or IPO)" (Megginson 2004).

One may wonder why a book about investment banking includes a chapter on private equity.

I can provide two different answers. First, private equity funds are increasingly important clients of investment banks. Fruhan (2006) reports that private equity firms account for about 25% of total revenues for major investment banks. In 2005 about 20% of total US M&As volume was related to private equity. In Germany the percentage was even higher (about 35%). In the 2001–2006 period out of the 701 US IPOs about 70% were private equity backed.[1] Second, investment banks are increasingly important players of the private equity industry. Virtually all major investment banks manage some private equity funds. For example, Morrison and Wilhelm (2007) reports that Goldman Sachs has more capital invested in private equity than any other private equity player. These two reasons also explain the increasing mobility of human resources from investment banks to the private equity industry.

This chapter aims at analyzing the main technical aspects of the private equity business. The chapter proceeds as follows. Section 2.2 provides a classification of the private equity activity. Section 2.3 analyzes the agreement between the investors, who put the money, and the professionals who manage that money. Section 2.4 describes how to measure the performance of private equity funds. Section 2.5 summarizes the main features of the term sheet that regulate private equity investments. Sections 2.6 and 2.7 illustrate the valuation methods used by private equity professionals to decide about their investments. Section 2.8 concludes.

[1]The data are from Jay Ritter's web page at http://bear.cba.ufl.edu/ritter/ipodata.htm.

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2.2 Definitions

Within the private equity industry it is possible to classify two main areas: (a) venture capital (VC) and (b) buy-out.

The key feature defining VC is expected rapid "internal growth" of the backed companies: that is proceeds are used to build new business, not to acquire existing business. The VC industry can be further broken down into: (a) early-stage, (b) expansion-stage, and (c) late-stage.

Early-stage investments include everything through the initial commercialization of a product. A company might not even be existent yet. Within the early stage two kinds of investments are usually identified: (a) seed investments through which a small amount of capital is provided to prove a concept and to qualify for start-up financing; (b) start-up investments, aimed at completing the product development, market studies, assembling key management, developing a business plan. Truly early stage investments are generally financed by "angels" rather than venture capitalist. Angels are wealthy individuals who, differently from venture capitalists, use their own money and are not formally organized. Megginson (2004) reports that less than 2% of VC investments are truly early-stage. Expansion investments finance fixed and working capital. The company may or may not be showing a profit. Finally, at late stage, fairly stable growth should be reached. Again, it may or may not be profitable, but the likelihood of profit is higher than in previous stages. Moreover, at this stage a plausible exit should be visible on the horizon.

Buy-out investing is the largest category of private equity in term of funds under management. Buy-out investors pursue a variety of strategies, but the key feature is that they almost always take the majority of their companies. In contrast VCs usually take minority stakes. In large buy-outs of public companies investors usually put up an equity stake and borrow the rest from banks and public markets, hence the term leveraged buyout (LBO). Most buy-outs firms are engaged in purchasing "middle-market" firms. Usually buy-out firms have stable cash flows and limited potential for internal growth, although this is not always true. Some buy-out funds focus on distressed companies.

Notice that there is a definitional difference between Europe and the US. In the US the term venture capital refers to all kind of professionally-managed equity investments in growth firms. In Europe the term venture capital tends to indicate just early and expansion investments.

Also note that the private equity activity is often overlapping with hedge fund activity. Hedge funds are flexible investing vehicles that share many characteristics of private equity funds. The main difference is that hedge funds tend to invest in public securities. Moreover, in contrast to other pooled investment vehicles, hedge funds make extensive use of short-selling, leverage, and derivatives. The greatest overlap with private equity is on the buy-out area, in particular distress investments. However, while private equity funds tend to gain control of the distressed company, restructure it and resell, hedge funds usually trade securities of distressed companies with the intention of making a profit by quickly reselling these securities.

Nonetheless, the difference between hedge funds and private equity funds is increasingly blurred. For now, hedge funds are not still involved in VC investing.

2.3 The Agreement

Most private equity funds are organized as limited partnership sponsored by a private equity firm. Private equity firms are small organizations (averaging ten professionals) who serve as the general partners (GPs) for the private equity fund. A fund is a limited partnership with a finite lifetime (usually 10 years). The limited partners (LPs) of the fund are the investors (pension funds, banks, endowments, high-net-worth-individuals, etc.).[2] When a fund is raised the LPs promise to provide a given capital, either on a set schedule or at the discretion of the GP: the capital infusions are known as *capital call*, *drawdown*, *or takedown*. The total amount of promised capital is called *committed capital*: once the committed capital is raised, the fund is *closed*. The typical fund will draw down capital over its first five years (the investment period or commitment period). A successful private equity firm will raise a new fund every few years and number its successive funds.

The compensation of the GP is usually divided into: (a) *management fee* and (b) *carried interest* (or just *carry*).

2.3.1 Management Fee

The typical arrangement is for LPs to pay a given percentage of committed capital every year, most commonly 2%. Sometimes the fee is constant over time, sometimes it drops after the first five years. *Lifetime fees* are the sum of the annual management fees for the life of the fund. The *investment capital* is the committed capital less the lifetime fees. An example might be of help. Consider a fund with committed capital equal to €100 ml and 2% management fee for all the 10 year life of the fund. The lifetime fees are €20 ml and the investment capital is €80 ml.

[2]The limited partnership form is the standard organizational form in the US (and the UK). In other European countries investment companies manage close-end funds. In other words it is the same organizational form of mutual funds. It is important to notice that the agreement (especially in term of compensation) that ties the GPs/Investment companies to the LPs/Investors is pretty much the same. I will refer to the limited partnership model henceforth. Beside the organizational form, there other three differences between the US and European private equity industry. First, the source of funds. In the US the most important investor category (LPs) is represented by pension funds, whereas in Europe banks play the key role. Second, the investment stage. Both in the US and Europe, buyout investments represent the largest part of the private equity investment value. Though, in the US venture capital investments play an important role, whereas they are limited in Europe. Finally, the exit strategy. The typical exit strategy in the US is an IPO, whereas in Europe it tends to be a trade sale, i.e., the sale of the company to a competitor.

Therefore, the fund needs to earn at least a 25% of lifetime return on its investment just to offset the management fee.

The industry-standard practice is to compute the management fee on committed capital,[3] but there is also another method. First, let's define the difference between *realized* and *unrealized investments*: the former are those investments that have been exited (or those in companies that have been shut down), while the latter are those investments that have not yet been exited in companies that still exist. The *cost basis* of an investment is the value of the original investment. The *invested capital* is the cost basis for the investment capital that as has been deployed. The *net invested capital* is the invested capital minus the cost basis of realized investments. Sometimes the management fee base changes from committed to net investment capital after the five-year investment period is over. Since funds tend to realize investments (i.e., to cash in) in the second part of their life, the net invested capital is typically decreasing in this period. Consider this simple example. Suppose a €100 ml fund has management fee of 2% per year. This fee is paid on committed capital in the first 5 years and on net invested capital in the remaining 5 years. Assume that at year-end 5 the fund is fully invested. Given this structure, management fees will be equal to €2 ml for each of the first 5 years. At year-end 5 the invested capital would then be €90 ml. Suppose that the fund realizes 20% of its invested capital in each of the remaining 5 years, i.e. €18 ml per year. Hence, at year-end 6 the net invested capital is €72 ml and the corresponding management fee is €1.44 ml. At year-end seven, investment capital and management fee are €54 ml and €1.08 ml, respectively, and so on. In other words, the management fee is constant in the first 5 years and decreasing in the following 5 years.

Notice that the management fee usually does not cover all operating expenses. Moreover contracts allow reinvestment rights, subject to given requirements (e.g., the original investment has been exited within 1 year). When reinvestment does occur, the sum of investment capital and lifetime fees would be greater than committed capital.

2.3.2 Carried Interest (Carry)

The basic idea is simple: if the committed capital is €100 ml and total exit proceeds are €200 ml, the total profit is €100 ml. A 20% carried interest would produce €20 ml. The standard carried interest is indeed 20%. There are many variations of the basic story.

Carried interest basis: It is the threshold that must be exceeded before the GPs can claim a profits: the majority of funds use the committed capital, but sometimes

[3]Notice that, differently from the "traditional" asset management industry, in private equity the management fee is not computed on the market value of the portfolio. This is because is quite difficult to compute the market value of private equity firms.

the investment capital is used. Consider two different carried interest structures for a €100 ml. fund. Both structures have management fee of 2% per year (on commitment capital) for all ten years. Under structure I, the fund would receive a 20% carry with a basis of all committed capital. Under structure II, the GPs would receive a 18% carry with a basis of all investment capital. Suppose the total exit proceeds from all investments are €200 ml over the entire life of the fund. Under structure I carried interest would be 20%·(200 – 100) = €20 ml. Under structure II, lifetime fees are 2%·€100 ml·10 years = €20 ml. The investment capital is therefore €80 ml. The carry is hence 18%·(200 – 80) = €21.6 ml. For what amount of exit proceeds would these two structures yield the same amount of carried interest? The answer is €280 ml (carry equal to €36 ml).

Timing: The portion of committed capital that has already been transferred from the LPs to the GPs is called *contributed capital*. Many funds require the return of (at least a portion of) the contributed before any carried interest can be returned. Clearly, this timing is more GP-friendly than requiring the return of the whole basis.

Hurdle return: Sometimes a given rate of return is promised to the LPs before the GPs can get the carried interest. This rate is called *hurdle return* (or *priority return*). Most hurdle return also have a *catch up provision*, which provides the GPs with a greater share of the profits once the priority return has been paid and until the preset carry percentage has been reached. Consider a €100 ml fund with a 20% carry on commitment capital, a priority return of 8%, and a 100% catch-up. Imagine that all committed capital is drawn down on the first day and that there are total exit proceeds of €200 ml, with €108 ml of these proceeds coming one year after the first investment, €2 ml. coming one year later, and €90 ml. coming the year after that.

Under this rule all €108 ml would go to the LPs, satisfying the 8% priority return. On year later the catch up provision implies that the whole €2 ml would go the GPs, thus receiving the 20% of the profits. The final distribution would be split €72 ml for the LPs and €18 ml for the GPs. The presence of a priority return and a catch-up provision affect the timing of the carry, but not the amount. In contrast, the absence of catch up provision would have meant that the GP would have received only 20%·(200 – 108) = €18.4 ml.

Clawback: The early payment of carried interest can cause complications if the fund begins well, but performs poorly afterwards. The refund of carried interest is accomplished with a contractual provision known as *clawback*. This provision is complicated by many factors: e.g., the GPs do not have the money (usually there is a guarantee by individual GPs), or specification of whether clawback will be net or gross of taxes already paid by the GPs. Suppose that a €100 ml fund has a 20% carry with a basis of all committed capital, but allows carried interest to be paid as long as contributed capital has been returned to LPs. Imagine that at the third year, contributed capital is €50 ml and the first exit produces €60 ml. Given the carry rules, the fund would return the first €50 ml. to its LPs, and the remaining €10 ml would be split as €8 ml for the LPs and €2 ml for the GPs. Now, suppose that at the end of the fund (seven year later) there is no more exit. Contributed capital is now €100 ml, but the LPs have only received back the €58 ml from the first and only exit. With a clawback provision they will get back the carry already paid.

2.4 Fund Returns

The standard measure in private equity performance reporting is the internal rate of return (IRR). However, IRR can be problematic. Standard IRR reporting does not make a distinction between realized and unrealized investments. Unrealized investments are usually considered as a positive cash flow equal to their cost basis. Of course, this is a strong assumption, as unrealized investment could produce a great return as well as no return at all. The IRR is then particularly misleading in first few years of a fund. Even for a fund that eventually has a good IRR, a plot of the IRR will be negative for the first few years, and then increasing rapidly in later years. This typical pattern is called *J-curve* or *hockey stick*.

The IRR is a mathematically-formal measure of performance. However, most investors want just an easy answer to the following easy question: "How much money did you make?". The answer is the *cash multiple*. The cash multiple is the sum of the realized cash multiple and unrealized cash multiple.

Consider the following example. A €100 ml fund is 8 years into its ten-year life. The management fee is 2% per year and carry is 20% payable only after all committed capital is paid back to LPs. The pattern of investments, portfolio value, fees and distribution are reported in Table 2.1.

Notice that there is no distribution of carry to the GPs because distributions to LPs equal the committed capital only at year-end 8: the carry will hence be distributed only in the last two years.

To compute the IRR at year-end 8 we need to determine the amount of money that goes out and in LPs' pockets. The cash flow to LPs is equal to distributions to LPs less the investments and management fees. The cash multiple is a ratio: the

Table 2.1 Fees and distribution

Year	1	2	3	4	5	6	7	8	Total
Investments	16	16	16	16	16	0	0	0	80.0
Portfolio value	16	40	80	120	150	160	170	180	
Total distributions	0	0	0	20	20	20	20	20	
Carried interest	0	0	0	0	0	0	0	0	
Distribution to LPs	0	0	0	20	20	20	20	20	100.0
Cumulative distributions to LPs	0	0	0	20	40	60	80	100	
Portfolio value after distributions	16	40	80	100	130	140	150	160	
Management fee	2	2	2	2	2	2	2	2	16.0
Cash flow to LPs	−18	−18	−18	2	2	18	18	18	
							IRR	1%	
							Cash multiple	2.71	
							Realized cash multiple	1.04	
							Unrealized cash multiple	1.67	

numerator is the value of total distributions to LPs (100) plus unrealized investments (160). The denominator is invested capital plus management fees. The cash multiple ate year-end 8 is 2.89. Notice that unrealized investments are considered as a positive cash flow. To understand how much of the cash multiple is depends on liquidated investments, we can compute the realized cash multiple (1.04), considering only realized investments, i.e. total distributions to LPs (100). The unrealized cash multiple (1.67) considers only unrealized investments.

Generally, cash multiples are computed considering the net cash flow to LPs plus unrealized investments. It is also possible to compute a *gross cash multiple*, where the carry is also included. In other words the numerator of the gross cash multiple is equal to total distributions plus unrealized investments.[4] Not considering carry distribution the gross cash multiple represents a measure of pure performance.

2.5 The Term Sheet

Buy-out funds usually make a single investment in a target firm taking the majority stake. In contrast VC funds make lumpy investments organized into sequential round. A first-round investment is designated as Series A, a second-round of investment as Series B, and so on. In some cases the investment is spread across multiple payments, knows as *tranches*, which may be contingent on achieving some milestones (e.g., a patent or a prototype). Tranching is much more frequent in first rounds (Series A). Moreover, VC funds usually take a minority stake. As such, an important aspect of VC investments is the corporate governance of the target firm. The *term sheet* regulates the relationship between the VC fund and the controlling shareholder who is almost invariantly the founder/entrepreneur.

In a nutshell, the term sheet describes the basic structure of a transaction and provides a set of protections against expropriation. The purpose of a term sheet is illustrated by this example.[5] Mario Web has a tremendous business idea and goes to a VC, Frank Fund. Web and Fund agree that €3 ml will fund the project and they further agree to a 2/3–1/3 split, with Web holding the majority stake. Suppose that Fund agrees to an all common stock structure. Immediately after the closing, the company has an implied value of €9 ml (Fund is paying €3 ml for 1/3 of the company). It is important to know the difference between *pre-money* and *post-money* valuation (also known as pre-financing and post-financing). The post-money valuation is simply that value of the company once the initial investment has been made. Subtracting the amount invested in this round from the post-money valuation yields to the pre-money valuation. Hence the post-money valuation is €9 ml, whereas the pre-money valuation is €6 ml. The pre-money valuation at the first

[4]In this example total distributions and distributions to LPs coincide. This is because in the first 8 years there is no distribution In out example of carry to GPs.

[5]This example is based on that reported in Lerner et al. (2005).

round is sometime referred to as *sweat equity*, because it reflects the hard work of the founder.

The following day, Web receives a €3.6 ml offer for his company (which basically consists in cash and Mario Web's idea). What is the result? Web and Fund get €2.4 ml and €1.2 ml, respectively. Web's wealth rises from €0 to €2.4 ml, whereas Fund's wealth drops from €3 ml to €1.2 ml. And all this happens in just one day. Moreover, someone else can buy Web and his tremendous idea for €0.6 ml: indeed the company has €3 ml cash, hence the net price is just €0.6 ml. How could Fund have avoided this disaster? The answer is threefold: (a) *preferred stock*, (b) *vesting of founder's shares*, and (c) *shareholders' agreement*.

2.5.1 Preferred Stock

Preferred stock (PS) has a *liquidation preference* over common stock: that is, in the event of sale or liquidation of the company, PS gets paid prior than common stock. Generally the face value of PS is the cost basis the VC fund pays for the stock. In the example, if Fund had invested in the form of PS, then he would have been returned €3 ml. But how would have the remainder €0.6 ml been divided? The answer depends on the type of PS and on the resulting *exit diagram*.

2.5.1.1 Convertible Preferred Stock (CPS)

CPS can be converted at the shareholder's option into common stock. Shareholders are then forced to choose whether they will get money through the liquidation feature (redemption) or through the underlying common equity position. Figure 2.1 shows the exit diagram of CPS. Clearly, if the value being offered for the company (W) exceeds the implied total value at the time of the investment, then shareholders will convert the preferred stock to common stock. In the example the conversion value of CPS is equal to 1/3 W. The redemption value of CPS is min [3, W]. Hence, the condition for shareholders to convert (conversion condition) is 1/3 W $>$ 3 or W $>$ 9.

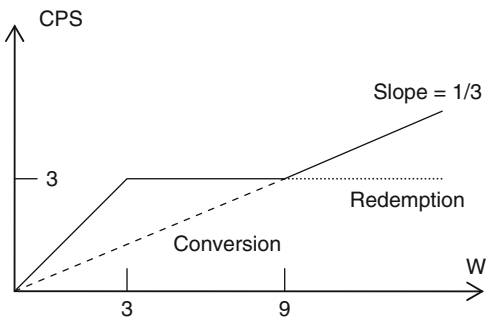

Fig. 2.1 Exit diagram for CPS

In our example, Fund would have left his CPS unconverted and Web would have got the residual €0.6 ml. CPS allows the entrepreneur to "catch up" to the investor after the investor's initial investment is secured.

2.5.1.2 Redeemable Preferred Stock (RPS)

RPS is preferred stock with no convertibility into equity. Although a VC fund would never accept RPS by itself, some transactions combine RPS with common stock or CPS. Suppose for example Fund agreed with Web to the same 2/3–1/3 split, but in the form of RPS plus common stock. Figure 2.2 reports the exit diagram of Fund's position. Fund would have received €3 ml for its RPS and 1/3 of the remainder €0.6 ml. In other words, he would get his money back and keep the investment in the firm. Of course this double gain penalizes Mario Web.

2.5.1.3 Participating Convertible Preferred Stock (PCPS)

Basically PCPS mimicks a position in RPS plus common stock. In other words, PCPS gets the redemption value and receives any additional proceeds that would have been generated by a conversion into common stock. It is important to remember that this liquidation preference only applies if the company is sold or liquidated. In contrast, if PCPS is converted it becomes like common stock. PCPS tend to penalize entrepreneurs. This is why they often try to include in the term sheet one of the following two provisions: (a) mandatory conversion (contingent on a given event) and (b) cap on liquidation preference.

Suppose for example that the sale of the company for more than €24 ml triggers a mandatory conversion. See Fig. 2.3 for the exit diagram. In our example, Fund would have received the same amount of money as a CPS. In recent years, it has become common for VC fund to ask for liquidation preferences in excess of their original investment. For example, a 2x or 3x liquidation preference requires that the

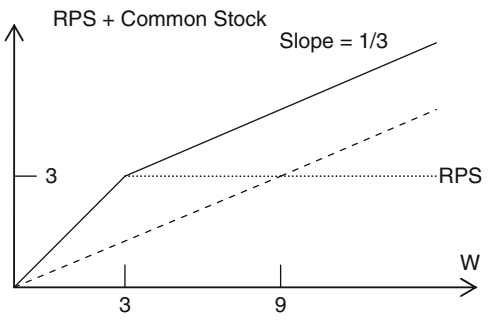

Fig. 2.2 Exit diagram for RPS + Common Stock

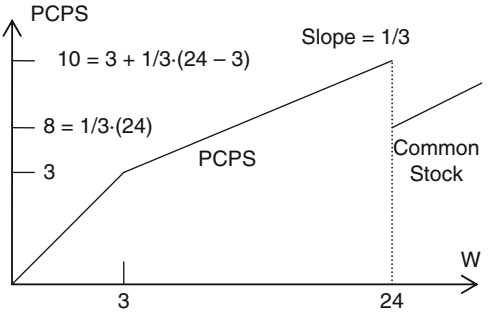

Fig. 2.3 PCPS with mandatory conversion

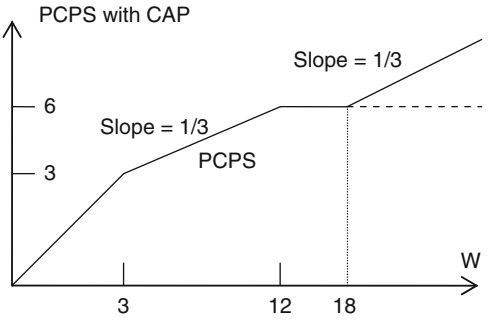

Fig. 2.4 PCPS with cap

VC be paid back double or triple, respectively, of their original investment before any of the other equity claims are paid.

An alternative mechanism to limit the fund's gain with PCPS is a *cap* on liquidation preference of PCPS. Suppose that Fund accepts to be capped at 2 times its initial investment. With a PCPS, Fund would receive €3 ml plus 1/3 of any remaining proceeds, until this total reaches €6 ml (2·€3 ml).

The cap point is then: $1/3 \cdot (W - 3) + 3 = 6$ or $W = €12$ ml. Figure 2.4 reports the exit diagram for this case. Given this cap, Fund will choose to convert the PCPS for a lower value than the one which triggers the mandatory conversion (24).

Indeed, Fund will voluntarily convert when $1/3\ W > €6$ ml or $W > €18$ ml (that is before the mandatory conversion at €24 ml).

Notice that listed companies usually issue preferred stock with a minimum cash dividend, but this is not the case in VC. Portfolio companies are usually cash poor and dividends may further limit the ability to raise capital. Nonetheless, in some term sheets you may find something about dividends. In general dividends may be either paid cash or through the issuance of new stock (*payment-in-kind, PIK*). In general it is common to find a *dividend preference* to PS (that is, dividends to common stock can be only paid after PS). Dividends rights may be cumulative or non-cumulative, the difference being that cumulative dividends accrue even if

not paid. Non-cumulative dividends in turn can accrue by simple interest or by compound interest.[6]

2.5.2 Anti-Dilution Protection

Many CPS and PCPS contain anti-dilution provisions that automatically adjust the conversion price down if the company issues stock below the share price that VC fund originally paid. This condition is known as *down round*, indicating that the company has been performing poorly. The share price of the VC investment is known as *original purchase price* (*OPP*). By having an automatic adjustment, the VC is less likely to oppose a dilutive financing (when it is most needed).

The adjustment mechanism is a negotiated term and can range from complete adjustment (*full ratchet*) to one based on the size of the round and the size of the price decrease (*weighted-average*). In this latter case we further distinguish between *broad-base* and *narrow-base*.

With a *full ratchet* adjustment the adjusted conversion price (CP_2) is set to the lowest conversion price of any later stock issue. If a *weighted-average* adjustment is negotiated the formula would be:

$$CP_2 = CP_1 \cdot \frac{(A+B)}{(A+C)}$$

where CP_2 is the adjusted conversion price, CP_1 is the conversion price in effect before the new issue, A is the number of shares of common stock (fully diluted), B is the value of the new issue divided by CP_1, and C is the number of new shares issued. With a weighted average adjustment the price is "more" adjusted the larger the round size and the price decrease. In *broad-base* adjustment A includes all shares of outstanding common and PS (as it was converted). In *narrow-base* A includes just PS as it was converted: in other words, it considers just the Series A investment, but not the common stock outstanding. An example might help. Suppose that Frank Fund makes a €3 ml Series A investment in Newco for 1 ml shares at €3 per share (the OPP). Newco underperforms and after a while receives a €3 ml Series B financing from another VC fund (Desperate Inv.) for €3 ml shares at €1 per share. The founder (and the employee) holds 2 ml shares of common stock.[7] Now consider the following cases.

[6]For details about PS valuation see Metrick (2007).

[7]Usually the founder and employees has stock option as an incentive compensation. The computation is done on a fully diluted basis, which assumes that all PS is converted and options are exercised.

2.5.2.1 Series A Has No Anti-Dilution Protection

Fund has 1 ml shares out of a fully diluted count of 1 ml (Fund) plus 3 ml (Series B) + 2 ml (Founder) or 6 ml shares. Hence Fund controls 16.67% (1/6) of the company. Series B investors pay €1 per share, hence the post-money valuation is €6 ml (6 ml·€1), and the pre-money valuation is €3 ml (€6 ml – €3 ml).

2.5.2.2 Series A Has Full-Ratchet Anti-Dilution Protection

The adjusted conversion price (CP_2) for Series A investors would be €1 (the price of Series B), and Fund would control 3 ml shares out of a fully diluted count of 3 ml (Fund) + 3 ml (Series B) + 2 ml (Founder) or 8 ml shares. Fund would then controls 37.5% of the company. The post-money valuation is €8 ml (8 ml·€1), and the pre-money valuation would be €5 ml (€8 ml – €3 ml).

2.5.2.3 Series A Has a Weighted-Average Anti-Dilution Protection (Broad-Base)

The inputs of weighted-average formula are the following:A = 3 ml, that is 1 ml (Fund) plus 2 ml (Founder), B = €3 ml/€3 = 1 ml, and C = 3 ml. These inputs result in:

$$CP_2 = €3 \cdot \frac{(3+1)}{(3+3)} = €2$$

Fund would then control €3 ml/€2 = 1.5 ml shares of a total of 1.5 ml (Fund) plus 3 ml (Series B) + 2 ml (Founder) = 6.5 ml. Fund would hence be controlling 23.08%. The post-money valuation would be €6.5 ml (6.5 ml·€1), and the pre-money valuation would be €3.5 ml (€6.5 ml – €3 ml).

2.5.2.4 Series A Has a Weighted-Average Anti-Dilution Protection (Narrow-Base)

The inputs of weighted-average formula are the following:A = 1 ml (Fund), B = €3 ml/€3 = 1 ml, and C = 3 ml. These inputs result in:

$$CP_2 = €3 \cdot \frac{(1+1)}{(1+3)} = €1.5$$

Fund would control €3 ml/€1.5 = 2 ml shares of a total of 2 ml (Fund) plus 3 ml (Series B) + 2 ml (Founder) = 7 ml. Fund ownership would then be 28.57%.

Table 2.2 Anti-dilution protection

	No protection	Full-ratchet	Weighted average	
			Broad-base	Narrow-base
Adjusted conversion price (CP_2)	€3	€1	€2	€1.5
Fund's ownership	16.67%	37.5%	23.08%	25%
Post-money value	6	8	6.5	7
Pre-money value	3	5	3.5	4

The post-money valuation would be €7 ml (7 ml·€1), and the pre-money valuation would be €4 ml (€7 ml – €3 ml).

Table 2.2 summarizes the results.

Clearly, a full-ratchet adjustment is the best protection against dilution. The weighted-average adjustment takes into account the impact of the down round on pre-existent price and ownership structure. Hence, the higher the number of new shares and the lower the issue price, the greater the price adjustment. Differently from the broad-base approach, the narrow-base does not consider all the pre-existent shares, but only those of Series A. As such, the effect of the dilutive round is amplified and so is the adjustment.

2.5.3 Vesting and Shareholders' Agreement

The idea of vesting is simple. The entrepreneur does not really own his stock until a given date or a pre-identified event (e.g., the sale of the company). Typically vesting is implemented over a time period (*step vesting*); alternatively, it takes place all at one time (*cliff vesting*). Vesting prevents the entrepreneurs (or key employees) from leaving before a certain time. Consider again the example about Mario Web and Frank Fund. With vesting Web would not be able to sell his shares to the bidder until a certain period of time, during which Fund is protected. Vesting is sometimes also used for founders' shares owned before the first VC investment. In other words, the founder is asked to "suspend" his ownership stake for a while.

The most basic way VCs protect their investments is through a shareholders' agreement. Usually VCs are concerned about changes in control. The term sheet may state that the founder cannot sell his stake without the approval (or supermajority voting rule for shareholders or board) of the VC fund. In other words the VC fund has a veto power. Alternatively, a supermajority voting rule might be established for a change in control, meaning that a percentage higher than 51% is needed. Other common covenants state that the founder cannot sell his shares without offering them to the VC fund before anyone else (*right of first offer*) or without offering the VC fund to buy at the price offered by third parties (*right of first refusal*). The right of first refusal is often confused with the right of first offer. The right of first refusal is the right to make an offer *after* other offers are considered. In contrast, the right of first offer is the right to make an offer *before* offers from others

are considered. An example might clarify. Suppose you are the entrepreneur and you are looking to sell your shares. The VC fund has a right of first refusal on them. If a third party now comes along and offers €100 for the shares, you have to reveal that price to the VC fund. If the fund chooses to execute his right, it can pay €101 and walk away with the shares. Now suppose that you are looking to sell your shares and the VC fund has right of first offer. The first step is to make an offer to the fund to buy the shares for say €100. If the fund refuses, then you can go to the market and sell your shares for €100. If you do not find any buyer, you cannot just sell the shares for a lower price. You have to re-run the process and offer the shares to the VC fund first.

The term sheet may also allow the VC fund to sell together with the founder (*take-me-along* or *tag-along right*) or to force the founder to sell his stake at the same price (*drag-along right*), the latter being particularly useful to funds that need to force a sale of the whole firm.

2.6 The Venture Capital Method

The VC method is a valuation tool commonly applied in the private equity industry. The company value is projected for some years (say 5 years from the present), based on a "success scenario". Usually the relative approach is used (i.e., multiples of comparable companies). This terminal value is then converted to a present value by applying a very high discount rate, typically between 35 and 80% per year. The resulting figure is the estimated current total value. Given the investment requested to the VC fund, it is easy to compute the percentage of ownership it will ask. To sum up, three variables are needed: (a) the terminal value, (b) the discount rate, and (c) the investment size. If a company is expected to issue additional shares in the future, thus diluting the ownership of original investors, the VC method becomes more complex. We will see this extension of the VC method in the second part of this section.

2.6.1 The Basic VC Method (No Dilution)

Consider a VC fund evaluating a €1 ml investment in a company that expects to require no further capital through 5 years. The company is expected to earn €2 ml in year 5 and P/E for comparable companies is 10. The VC fund requires a 50% rate of return. The stake of the VC fund at year-end 5 must be large enough to realize 50% annual return on the investment: at that time the final stake must be worth $(1 + 50\%)^5 \cdot$€1 ml, or €7.6 ml. At that point the whole company will be worth €20 ml (10·€2 ml). The required percent ownership is then 7.6/20 or 37.97%.

When a VC fund invests in a company additional shares are issued, diluting the ownership of previous investors, e.g., the founder. The required percent ownership

refers to the portion of total stocks after the new shares are issued (i.e., post-money). Suppose there are 1 ml shares outstanding pre-money. The final percent ownership (38.0%) should then be equal to:

$$38\% = \frac{New - Shares}{New - Shares + 1\,\text{ml}}, \text{hence}$$
$$New - Shares = 1\text{ ml} \cdot \frac{37.97\%}{(1 - 37.97\%)} = 612,091$$

The share price is the price paid (€1 ml) divided by the number of shares purchased (612,091), i.e. €1.6. It is now quite easy to infer the implicit value of the whole company. The fund gets 37.97% investing €1 ml. The whole company is therefore valued €2.6 ml (or €1 ml/37.97%). This is the post-money valuation. An alternative approach to determine the post-money valuation is to discount the projected terminal value:

$$\frac{\neg 20\text{ ml}}{(1 + 50\%\ )^5} = \neg 2.6\text{ ml}$$

The computation of the VC method is usually done on a fully diluted basis, i.e., assuming that all convertibles are converted and all options are exercised.

To wrap it up, the key elements of the VC method are the terminal value, the discount rate, and the proposed investment. The valuation method used by VC funds is usually the relative approach. Of course the challenging task is to predict the future net income of the company. The investment size is the most certain variable. The total amount of funding to be raised depends on the company's needs. However, what fraction of that amount the VC fund will invest depend on the specific funds' needs. For example, for diversification purposes VC funds set a maximum investment level. They also have a minimum level for any investment, determined either by the size of the investment (e.g., no less than €1 ml in any given investment) or by the expected return (e.g., the expected exit must exceed €5 ml, regardless the investment size).

The question is how the discount rate is determined. It clearly depends on the stage of financing: an early-stage investment is riskier relative to a late-stage investment and will thus require a much higher discount rate. Moreover, the lack of liquidity of private equity investments needs to be compensated. However, a 50% like in the previous example seems far too large. In fact, there is another explanation for such a high discount rate. Suppose that the VC fund expects a lower terminal value than the projected one. A high discount rate would simply incorporate this expectation. Indeed, the projected terminal value is not the expected terminal value, but the terminal value in case of success. In other words, if the fund expects the terminal value to be lower than the projected one, by increasing the discount rate it takes into account this expectation (without arguing with the entrepreneur about the "real" terminal value). A higher discount rate simply adjusts

Table 2.3 Adjustment factors

Discount rate (%)	Required return (%)					
	15	20	25	30	35	40
20	1.24	1.00	0.82	0.67	0.55	0.46
30	1.85	1.49	1.22	1.00	0.83	0.69
40	2.67	2.16	1.76	1.45	1.20	1.00
50	3.78	3.05	2.49	***2.05***	1.69	1.41
60	5.21	4.21	3.44	2.82	2.34	1.95
70	7.06	5.71	4.65	3.82	3.17	2.64

the estimation about the terminal value. Table 2.3 reports the "adjustment factors" for different combinations of required return and discount rate. Suppose for example the VC fund requires a 30% return. A 50% discount rate would adjust the projected terminal value by halving it. Indeed, $(1 + 50\%)^5 = 2.05 \cdot (1 + 30\%)^5$.

As an alternative approach, it is possible to consider three (or more) possible scenarios about the terminal value, with each scenario weighted according to the expected probability. In this case an expected terminal value would be estimated, rather than a projected one. It would be therefore possible to use a lower discount rate.[8]

2.6.2 The VC Method Assuming Dilution

As new stock is issued to investors in later rounds, Series A investors suffer dilution, i.e., a loss of ownership due to the issuing of additional shares. As such, Series A investors will have to buy a higher ownership percentage in order to achieve a given final ownership. However, if more stocks are issued to Series A investors, future investors will have to get more stock to have a given percent ownership. Thus, to determine the necessary current ownership, the Series A fund must estimate the amount of new stocks that will be issued in the future, but this amount depends in part on the amount of stocks that are issued now. This is a circularity problem that can be solved through a two-step approach. Consider again the example of €1 ml investment in a company that expects to earn €2 ml at year-end 5. The P/E ratio for comparables is 10. The projected terminal value is therefore €20 ml. How much will be available to investors and management? The first step is to calculate the terminal value. The company is expected to earn €2 ml in year 5 and P/E for comparables is 10. At that point the whole company will be worth 10·€2 ml = €20 ml.

[8]This approach was first developed at First Chicago Corp.'s venture capital group and this is why is also known as the "First Chicago" method.

The second step consists in projecting the timing and amount of future equity issues. Suppose that a total of two rounds are expected: €1 ml, the Series A investment and another €1 ml at year 2 (Series B). A 50% rate is appropriate for the first round, whereas 40% is the fair rate for the second round. As such, Series A investors will need a final ownership of 37.97% (7.6/20). At year-end 5, Series B investors will need of value of $(1 + 40\%)^3 \cdot$€1 ml, or 13.72%.

These are the final ownership fractions that investors require. The sum of the two final percent ownerships is far from 100%. If the sum of required ownerships is higher than 100%, it indicates that there is no enough value to justify the planned investments.

Given the ownership levels, one can get the current ownerships, the number of new shares, and the share prices for each round. The ratio of the final percent ownership to the current percent ownership is called *retention ratio*. For example, an investor's retention ratio will be 75%, if a later investor purchases 25% of the company. The retention ratio can be thought of as the portion of the final ownership available to the current investor. Thus, because the second-round investors will hold 13.72%, the first-round investors will only retain 1 – (13.72%) = 86.28% of their original holding. Second-round investors will retain 100% of their original stake, since there will be no further dilution through years 3, 4, and 5. The current percent ownership is equal the ratio of the final percent ownership to the retention ratio. Therefore, Series A investors should ask 44.01% (37.97/86.28%). Series B investors has a retention ratio of 100%, hence the current ownership of 13.72% will not be diluted. Using the formula presented earlier we can compute the number of shares investors must purchase (assuming 1 ml shares outstanding before the first round) and the corresponding price. For Series A, it will be:

$$New - Shares = 1 \text{ ml} \cdot \frac{44.01\%}{(1 - 44.01\%)} = 785,919$$

corresponding to a per share price of €1.3 (€1 ml/785,919). For Series B the number of shares is

$$New - Shares = 1.785 \text{ ml} \cdot \frac{13.72\%}{(1 - 13.72\%)} = 283,992$$

corresponding to a per share price of €3.5 (€1 ml/283,992).

Notice that for Series B the number of shares outstanding pre-money is the sum of 1 ml of founder's shares and 0.785 ml of Series A investors.

The final year there will be 2,069,911 (1,785,919 + 283,992) shares outstanding. If the market value is equal to that projected (€20 ml), the price per share will be €9.6 (€20 ml/2,069,911).

2.7 Leveraged Buy-Out (LBO)

In a LBO a group of *sponsors* undertakes the acquisition of a company (or its assets) mainly by borrowing against the target's assets or future cash flows. Beside the buy-out fund, a management team (incumbent, external, or both) is usually involved as sponsor. The sponsors create a Newco (i.e., a company created *ad hoc*), which purchases all of the target's shares. Target is then merged into the Newco. This is known as the *KKR method*, after the US private equity firm that first introduced this approach. It is also possible that Newco acquires just the Target's assets. This approach is also known as the *Oppenheimer method*, after the investment bank that first introduced it. Newco is usually financed through 25–50% equity and 75–50% debt. Buy-out funds tend to acquire private companies, but this is not always true. When a listed company is acquired and subsequently delisted, the transaction is referred to as a public-to-private or going-private transaction. These kinds of transactions (which make extensive use of debt) were originally called "bootstrap" acquisition and then LBO. As a matter of fact LBOs comprise both private and listed firms. Moreover sponsors do not necessarily include a private equity fund: a strategic bidder (i.e., a competitor of the target company) is not unusual. However, management-led deals backed by a buy-out fund represent the majority of LBOs. When the incumbent management team takes over the firm, the LBO is called management-buy-out (MBO). When an external management team acquires the firm, it is management-buy-in (MBI). When the sponsor group includes both members of the incumbent management and external managers it is a buy-in-management-buy-out (BIMBO). Finally, when the sponsor group includes only private equity funds (i.e. "institutions") the LBO is termed institutional buy-out (IBO).

A common exit strategy for buy-out funds is an IPO. Such a "secondary" IPO is usually called *reverse* LBO, referring to the public-to-private transactions.

2.7.1 The Financing Structure

The total amount to be financed is the enterprise value (EV) of the target company. The financing structure is usually not related to the outstanding debt of the target company, which is refinanced once the transaction is closed. LBO financing is generally expressed in terms of debt-to-EBITDA ratio. The typical financing structure is reported in Fig. 2.5: for a purchase price of 6.5 times EBITDA, about 5 times EBITDA is debt and about 1.5 times EBITDA is equity. Moreover the debt is usually structured in senior debt (supplied by banks) for about 4 times EBITDA and high-yield bonds for about 1 times EBITDA. Notice that the feasible debt structure changes over time depending on the market.

When high-yield debt is not available (either because of the small transaction size or due to the scarce liquidity of the market) the gap is filled by so-called

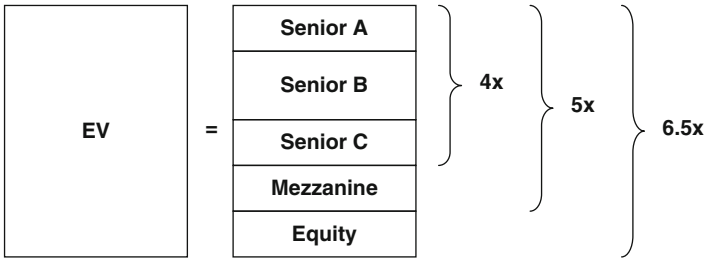

Fig. 2.5 LBO financing structure

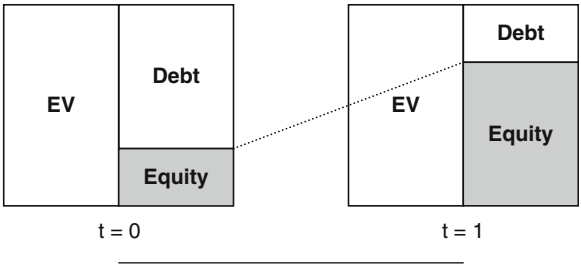

Fig. 2.6 LBO candidate: The "stable-cash-flow" firm

mezzanine financing, provided by specialized investors, the mezzanine funds. These funds demand higher compensation, which involves warrants or other equity-linked instruments (known as the *equity kicker*) in addition to interest (usually below market) on subordinated debt, which is repaid only after all senior debt is reimbursed. Notice that LBO financing contracts typically provide that any excess cash generated by the business shall be used to repay (senior) debt. This provision is known as *cash sweep*.

2.7.2 Candidates and Motives

There are two possible candidates for a LBO: the "stable-cash-flow" firm and the "high-growth" firm.

2.7.2.1 Stable Cash Flow

The idea is simple: stable cash generation reimburses debt. There is no growth in the EV, which at exit is unchanged. The equity value increases juts because of the reduced debt (Fig. 2.6). It is generally a long term LBO (5 years) with high leverage.

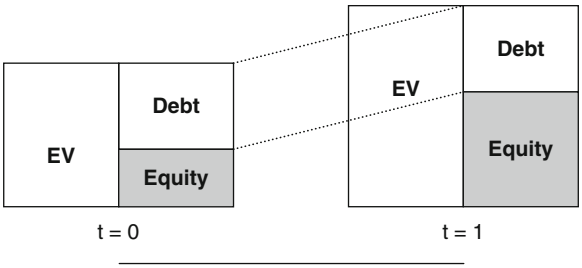

Fig. 2.7 LBO candidate: The "high-growth" firm

2.7.2.2 High Growth

The gains result from the company's growth, i.e. the EV increases over time. The EV increase can be due to improved profitability, growth, etc. or simply to change in the market price. At exit the debt is unchanged. It is generally a shorter term LBO (3 years) with lower leverage. Since the outstanding debt is not reimbursed in the first years, it is more difficult to convince banks to finance this kind of LBO (Fig. 2.7).

A similar result is obtained through "cycle" investments, where the strategy simply consists in buying the target firm at a low price (i.e., a low EV/EBITDA multiple) and sell it few years later at a higher price.

Regardless the candidate, there are several sources of wealth gains that may motivate a LBO. The most commonly cited are:[9]

Tax benefit: The increased leverage increases the tax shield. However, the question is whether target company can obtain the tax benefit without a LBO.

Agency cost: According to this motive, wealth gains derive from reunification of ownership and control in an "owner-manager". This would produce a more competitive firm, whose performance would be further fostered by the pressure of the buy-out fund and by the discipline function of debt.

Undervaluation: In this case the wealth gains result from developing an alternative higher-valued use for the firm's assets.

2.7.3 Valuation

The price of a LBO depends on three factors: (a) the terminal value of the target firm, (b) the debt capacity of the target firm, and (c) the return required by the sponsors (primarily the buy-out fund). Debt capacity determines how much is left to sponsors (equity holders) at exit time. The present value of exit equity plus debt capacity is the affordable price for the LBO. Debt capacity is the maximum amount

[9]For a careful review of LBO theoretical motivations see Renneboog and Simmons (2005) and Wright and Renneboog (2006).

of debt the company can borrow, being able to pay debt service and interest expenses of subordinated debt. Debt capacity is measured as a multiple of EBITDA.

Since a cash sweep provision is usually in effect, shareholders do not get any cash until full senior debt repayment. Indeed, buy-out funds are capital gain oriented. They get their gain by selling their stake either through an IPO or a trade sale. To compute the affordable LBO price, funds compute the projected EV of the target firm at exit time by using EV/EBITDA or EV/EBIT multiples. Using the debt capacity and the terminal EV, funds estimate the equity value at the exit year. Given the return (i.e., the discount rate) required by the buy-out fund, it is easy to compute the present value of exit equity. The present value of exit equity plus debt capacity is the affordable price for the LBO.

An example might help. Consider a target firm with debt capacity equal to 4 times EBITDA and current EBITDA equal to €100 ml. In other words, the LBO can borrow €400 ml. Suppose also that senior debt represents 25% (€100 ml) of total debt and can be amortized at the end of year 5. By construction, at that time only the subordinated debt will be left (€300 ml): this is because the debt capacity multiple is computed assuming full senior debt repayment at exit time.

The fund expects to exit the investment in 5 years at 5 times EBITDA. The projected EBITDA for the 5th year is €120.00 ml; the exit EV is therefore €600 ml. This implies an exit equity value equal to €300 ml. Assume that the sponsor requires 30% return on its investment. Equity cannot exceed €80.8 ml, i.e., the present value of €300 ml discounted at 30% for 5 years. The affordable price is then the sum of debt capacity and present value of exit equity,[10] i.e., €480.8 ml (400 + 80.8), or 4.8 times EBITDA. Notice that the calculation implies an exit multiple close to the purchase multiple. It is actually a conservative assumption, since it implies that value creation stems from improved profitability and not on an increasing multiple.

It is not difficult to compute the exit multiple equal to the affordable entry multiple. Let q be the debt capacity multiple with respect to first-year EBITDA. Assuming that cash is negligible, the value of equity when senior debt has been fully repaid is equal to:

$$Exit\ Equity = M_X \cdot EBITDA \cdot (1+g)^n - Exit\ Debt,$$

where: M_X is the exit multiple

$$Exit\ Debt = (1-f) \cdot q \cdot EBITDA$$

Let M_E be the entry multiple. For a required IRR it will be:

[10]The actual affordable price should also consider fee and expenses to mount the transaction (here assumed to be null).

$$M_E = \frac{EV}{EBITDA} = \frac{\frac{Exit\ Equity}{(1+IRR)^n} + q \cdot EBITDA}{EBITDA} = \frac{M_X \cdot (1+g)^n - (1-f) \cdot q}{(1+IRR)^n} + q$$

Let $M_E = M_X = M$ and solve for it:

$$M = \frac{[(1+IRR)^n - (1-f)] \cdot q}{(1+IRR)^n - (1+g)^n}$$

Given the data of the previous example, the exit multiple that equates the affordable entry multiple is:

$$M = \frac{\left[(1+30\%)^5 - (1-25\%)\right] \cdot 4}{(1+30\%)^5 - (1+3.7\%)^5} = 4.716$$

Given an expected EBITDA at year-end 5 equal to €120 ml and a multiple equal to 4.716 the expected EV is equal to €566.0 ml, implying an exit equity value of €266.0 ml. Thus the entry equity value is €71.6 ml. The affordable price is therefore €471.6 ml, or 4.716 times EBITDA.

2.7.4 Debt Capacity

To compute a firm's debt capacity a cash flow projection is needed. Given the cash flow projection, it is easy to determine how long it will take to pay back all senior debt: if it takes longer than banks require, the debt capacity of the firm is lower than initially assumed. With a spreadsheet the problem simply consists in finding the maximum amount of debt that would result in zero senior debt at the given year. Tables 2.4 and 2.5 report the solution of this problem for company ABC. Table 2.4 reports the assumption about revenues, costs, capital expenditure, etc. Table 2.5 shows the cash flow projections. With total debt is €439.27 ml, of which 35% of senior debt (€153.75) and 65% of subordinated debt (285.53), senior debt is equal to zero at year-end 5. Debt capacity is therefore equal to €439.27 ml, or 4.39 times EBITDA. Of course this debt capacity depends on the assumptions. Assume for example the growth rate of revenues to be 1% (rather than 5%). All else being equal, a lower debt capacity is expected. Indeed, debt capacity would be 4.07 times EBITDA. Also the financing conditions affect debt capacity. Suppose the growth rate is again 5%, but senior debt needs to be reimbursed at year 3 (rather than 5): debt capacity drops to 3 times EBITDA.

Arzac (2005) reports an analytical solution for the debt capacity problem. When a cash sweep equal to 100% is assumed, debt capacity (q) is equal to (symbols are reported in Table 2.4):

Table 2.4 Company ABC: Assumptions

Growth of sales (g)	5.0%
EBITDA margin (m)	10.0%
Depreciation/sales (Dep)	1.5%
Other non-cash/sales (Onc)	0.2%
(CAPEX+DWC)/sales (Inv)	2.0%
Cash balance/sales (Cash)	0.2%
Interest on cash balance (R_{Cash})	4.5%
Tax rate (t)	40.0%
Debt financing:	
(f) Senior @8.5% (R_{Sen})	35%
(1-f) Subordinated @10% (R_{Sub})	65%
Amortization of senior by year (n)	5
Net cash to senior amortization (Sweep)	100%
First year sales	1,000
First year EBITDA	100

$$Debt\ capacity = \frac{x_2 \cdot m^{-1} \cdot \left[x_1^n - (1+g)^n\right]/(x_1 - 1 - g)}{x_1^n \cdot f + (1-t) \cdot R_{sub} \cdot (1-f) \cdot (1-x_1^n)/(1-x_1)}$$

with

$$x_1 = 1 + (1-t) \cdot R_{sen}$$

$$x_2 = (1-t) \cdot m + t \cdot dep + onc - inv + (1-t) \cdot R_{cash} \cdot cash/ (1+g) - cash \cdot g/(1+g)$$

2.8 Conclusion

In this chapter I have analyzed the main technical aspects of the private equity business. The reason for including private equity in a book dedicated to investment banking is twofold: (a) a remarkable fraction of investment banking revenues comes from private equity firms and (b) investment banks are important players of the private equity industry. The private equity industry can be classified into two main segments: (a) venture capital and (b) buyout. Buyout funds usually make a single investment in a target firm taking the majority stake. In contrast VC funds make lumpy investments organized into sequential rounds and usually take a minority stake. The organizational form (limited partnership), the agreement between LPs and GPs and the way performance is measured are equal in both segments. However, VC and buyout investments have different specificities. Of particular relevance in venture capital is the term sheet, which protect the fund investments via the use of (a) preferred stock, (b) vesting, and (c) shareholders'

Table 2.5 Cash flow projections for company ABC

	Year										
	0	1	2	3	4	5	6	7	8	9	10
Sales		1,000.00	1,050.00	1,102.50	1,157.63	1,215.51	1,276.28	1,340.10	1,407.10	1,477.46	1,551.33
EBITDA		100.00	105.00	110.25	115.76	121.55	127.63	134.01	140.71	147.75	155.13
Depreciation		15.00	15.75	16.54	17.36	18.23	19.14	20.10	21.11	22.16	23.27
Interest income		0.09	0.09	0.09	0.10	0.10	0.11	2.10	4.28	6.66	9.26
Senior interest expense		13.07	11.11	8.86	6.27	3.33	0.00	0.00	0.00	0.00	0.00
Subordinated interest expense		28.55	28.55	28.55	28.55	28.55	28.55	28.55	28.55	28.55	28.55
Income before tax		43.46	49.67	56.40	63.67	71.54	80.04	87.45	95.33	103.69	112.57
Provision for tax		17.39	19.87	22.56	25.47	28.62	32.02	34.98	38.13	41.48	45.03
Net income after tax		26.08	29.80	33.84	38.20	42.92	48.02	52.47	57.20	62.22	67.54
Depreciation and oth. non-cash		17.00	17.85	18.74	19.68	20.66	21.70	22.78	23.92	25.12	26.37
(CAPEX+DWC)/sales		20.10	21.10	22.16	23.26	24.43	25.65	−17.14	−64.12	−115.55	−171.71
Cash flow before debt amort.		22.98	26.55	30.43	34.62	39.16	44.07	92.40	145.24	202.88	265.63
Debt amortization:											
Senior		22.98	26.55	30.43	34.62	39.16	0.00	0.00	0.00	0.00	0.00
Subordinated		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cash balance:	1.90	2.00	2.10	2.21	2.32	2.43	46.63	95.08	148.06	205.84	268.73
Senior debt	153.75	130.76	104.21	73.78	39.16	0.00	0.00	0.00	0.00	0.00	0.00
Subordinated debt	285.53	285.53	285.53	285.53	285.53	285.53	285.53	285.53	285.53	285.53	285.53
Total debt	439.27	416.29	389.74	359.31	324.69	285.53	285.53	285.53	285.53	285.53	285.53
EBITDA/Net interest expense		2.41	2.65	2.95	3.33	3.83	4.49	5.07	5.80	6.75	8.04

agreement. Also relevant is the VC method, i.e., the valuation approach used by venture capital professionals to determine the structure of a given investment. Buyout investments are extensively financed by debt. As such a crucial step in evaluating a buyout transaction is to determine the debt capacity of the target firm.

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