Chapter 3 Small Business Purchase Price

Entrepreneurial Finance: Fundamentals of Financial Planning and Management for Small Business, First Edition. M. J. Alhabeeb.

AN EXISTING BUSINESS can be valued based on many factors related to the business itself and the way it stands on its own, such as the status of its assets, cash flow, earnings, profits, and the like. The value of a business can also be based on factors related to the market in which the business operates, and to how that specific business fares against its major competitors in its own industry. The estimated value, regardless of its source and the valuation approach would serve as a base to determine the price that the buyer is willing to pay. There are many methods by which a business value can be calculated. All of those methods can only give an approximate value from one perspective or another. It would be wise for the prospective buyer to look at more than one method of valuation to have a better sense of where the candidate business stands. The following are briefly the major methods to estimate the core value of an existing business from the perspective of a potential buyer. Later on, in Chapter 11, we will discuss in more detail the general valuation process and its connection to harvesting a business.

3.1 Asset-Based Value

In this method, it is assumed that the value of a business can be estimated based on the value of its assets after deducting all of the liabilities. This is basically to say that a business is valued as equal to its own net worth or equity. However, although the value of all assets is not easy to estimate, the tangible assets are more practical to be dealt with than the intangible assets. Since there is no book value for the intangible assets such as the brand name, stature, and goodwill of the business, they are excluded in this method despite the fact that they, in some cases, may weigh a great deal as valuable assets. There are several ways to determine the approximate worth of tangible assets, the most common of which are as follows.

- **Market value**: It is for how much a certain asset would sell in the current market.
- **Book value**: It is for how much was paid for a certain asset at the time of purchase minus the accumulated depreciation.

- **Replacement value**: It is how much it would cost to buy a certain asset today. This means that it is the value of a new asset that would be acquired at the time of estimation which usually carries an inflation adjustment.
- **Liquidation value**: It is for how much a certain asset would sell if the business is liquidated today.

Logically, you can realize that those methods would give different estimations for the same asset. The book value may not capture the right depreciation and may miss considering any appreciation of the value since some assets appreciate over time instead of depreciating. Market value would naturally follow the ups and downs of the market, and the replacement value is not realistic or fair, as it reflects the current cost of a new asset. However, contrary to the replacement value, which tends to overestimate the value, liquidation value would tend to underestimate the value of that asset for the fact that a mere liquidation news would drop the value of assets to much less than they are actually worth.

Example

Suppose we want to estimate the value of a dump truck that was purchased for $30,000 5 years ago, given that it depreciates 5% a year and the inflation has been 2.5% a year on average since the purchase of the truck. How different would the value of this truck be in consideration of all of these four methods?

Based on the information given, we can calculate the book value and replacement value, and then we can only speculate about the market and liquidation values.

- Calculating the book value:
  The 5-year depreciation would be:
  $$30{,}000 \times .05 \times 5 = \$7{,}500$$
  which is to be discounted from the purchase price
  $$30{,}000 - 7{,}500 = \$22{,}500$$
  Generally, we can apply the following book value formula:
  $$BV = P[1 - dt]$$
  where P is the original purchase price, d is the annual depreciation rate, and t is the time or number of years since the purchase of asset.

$$
\begin{aligned}
BV &= P[1 - dt] \\
&= 30{,}000[1 - (.05)(5)] \\
&= 30{,}000[1 - .25] \\
&= 30{,}000[.75] \\
&= 22{,}500 \text{ The truck book value at the time of selling the business.}
\end{aligned}
$$

dt is the accumulated depreciation or what has been consumed of the value of the truck, which is equal to 25% of its value since the day of purchase, while [1−dt] is the remaining life of the truck, which is 75% of its value from the current time to the end of its estimated life span, and that is what constitutes the current book value of the truck ($22,500).

37
38

- Calculating the replacement value:

  The 5-year appreciation (measured by inflation) would be:

  $$30{,}000 \times .025 \times 5 = \$3{,}750$$

  which would be added to the purchase price:

  $$30{,}000 + 3{,}750 = \$33{,}750$$

  and that is what constitute the replacement value or how much it would cost to buy a similar truck now.

  Generally, we can also apply the replacement value formula:

  $$RV = P[1 + ft]$$

  where f is the annual inflation rate, and t is the time (number of years since the day of purchase):

  $$\begin{aligned} RV &= 30{,}000[1 + (.025)(5)] \\ &= 30{,}000[1 + .125] \\ &= 33{,}750 \text{ The truck replacement value at the time of selling the business.} \end{aligned}$$

ft is the accumulated effect of inflation for 5 years. Now, assume that this truck can be sold in the market for $25,000 and would only bring $18,000 in case the business is liquidated. Here you would have four different values. Probably the wisest estimation is the average of all. That is, $24,812.

When all assets have been valued, the balance sheet of the business would be adjusted accordingly. Tables 3.1 and 3.2 show two balance sheets, where the value of business as calculated before and after several adjustments to the current and fixed assets such as supplies, inventory, accounts receivable, land, building and equipment.

Notice the assets that got adjusted, as they are marked by asterisks on the second balance sheet (Table 3.2).

Table 3.1 Balance Sheet Before Value Adjustment

Assets	Liabilities
Current assets:	**Current liabilities:**
Cash 12,700	Mortgage 8550
Prepaids 6250	Salaries 25,750
Supplies 5420	Acct. payable 18,180
Inventory 45,000	
Ac. receivable 9500	
Total c. assets 78,870	**Total c. liabilities 52,480**
Fixed assets:	**Long-term liabilities:**
Land 70,000	Mortgage 94,050
Buildings 220,000	Loan 35,000
Equipment 180,750	
Total f. assets 470,750	**Total liabilities 129,050**
Total assets 549,620	**Total liabilities 181,530**
Business value: $368,090	

Table 3.2 Balance Sheet After Value Adjustment

Assets	Liabilities
Current assets:	**Current liabilities:**
Cash 12,700	Mortgage 8550
Prepaids 6250	Salaries 25,750
Supplies 3903 *	Acct. payable 18,180
Inventory 37,350 *	
Ac. receivable 6175 *	
Total c. assets 66,378	**Total c. liabilities 52,480**
Fixed assets:	**Long-term liabilities:**
Land 70,000	Mortgage 94,050
Buildings 161,700 *	Loan 35,000
Equipment 97,605 *	
Total f. assets 329,305	**Total liabilities 129,050**
Total assets 395,683	**Total liabilities 181,530**
Business value: $214,153	

- Supplies: The original cost of supplies in the first balance sheet ($6250) was adjusted to $3903. It meant that 28% of the supplies were consumed by the time of estimation.
- Inventory: The value was discounted by 17% as an allowance for damaged, stolen, and unusable items in the inventory.
- Accounts receivable: The amount that is expected to be collectible is only 65% of what is recorded in the books.
- Buildings are depreciated by 26.5%.
- Equipment is depreciated by 46%.

The adjusted business value was $214,153, which is less than the original book value by $153,937. It would reflect the status of business more accurately, and make a good saving for the buyer.

3.2 Cash Flow–Based Value

In this method the value of an existing business would be equal to the present value of the projected future cash inflows (CIF) as they are discounted by the firm's cost of capital and after the deduction of all cash outflows (COF). Suppose that based on the past performance

and some other factors, we can project a firm's CIF, say for the next 5 years, and we can also estimate all the COF or what the buyer is

expected to pay, and if we know the firm's cost of capital (r), then the value would be determined by:

$$V = PV(CIFi) - COF$$

$$= \sum_{i=1}^{t} \left[\frac{CIF}{(1+r)^n}\right] - COF$$

$$= \left[\frac{CIF_1}{(1+r)} + \frac{CIF_2}{(1+r)^2} + \frac{CIF_3}{(1+r)^3} + \frac{CIF_4}{(1+r)^4} + \frac{CIF_5}{(1+r)^5}\right] - COF$$

This is similar to the concept of the net present value on which most of the decisions on project investment are based.

3.3 Market-Based Value

This method relies heavily on previous sales of similar businesses in recent past in a comparable location. The most common way to assess the value of a business is to take an average of the selling prices of its comparable businesses after some adjustments in order to increase the similarity and counts for the major differences. This method can also be taken a step further by finding out the relationship between the selling price and the annual earning for each of the similar businesses that have been sold recently. From that we can calculate what is called an **earnings multiple** (M_i) per business which is obtained by dividing the selling price (SP_i) by the annual earnings (E_i) for each business.

$$M_i = \frac{SP_i}{E_i} i = 1, 2, 3, \ldots n$$

which would reveal how many earnings would constitute the value of each of those businesses. An average of those earnings multiples can be applied to the business in question by multiplying the average earnings multiple (AM) by our business annual earnings (E) to get the approximate value (V) of the business:

$$\boxed{V = AM.E}$$

Example

Table 3.3 shows the selling price and the annual earnings for three comparable businesses to a tire company that is up for sale. How much would the

approximate value (V) of this business be? Given that its average earnings has been around $85,000 per year?

Table 3.3

Company	Selling Price (SP)	Annual Earning (E)	Multiple Earnings (M)
A	533,000	82,000	6.75
B	703,250	97,000	7.25
C	952,000	112,000	8.5
	Average multiple earnings (AM) = 7.5		

After calculating the individual earnings multiples and taking their average, we can estimate the company's value by:

$$\begin{aligned} V &= AM\,E \\ &= (7.5)(85{,}000) \\ &= 637{,}500 \end{aligned}$$

So, based on a comparison of the three similar businesses that have been sold, this tire company can be fairly purchased for seven and a half times its annual earnings. This method is much easier said than done, simply because it is not easy to find more than one closely similar company that has been sold recently.

3.4 Capitalized Earnings–Based Value

Instead of being concerned with the value of the business assets and the weight of its liabilities, this method puts the focus on the possibilities to earn future earnings, which is in fact, the major concern for any business buyer. The value of business would be estimated by dividing projected earnings (PE) by a selected **capitalized rate of return** (cr).

$$V = \frac{PE}{cr}$$

The projected earnings would be calculated using a weighted average forecast using the business actual earnings for a certain past time, most commonly the last 5 years. The weights to these actual earnings would be assigned so that the most recent past would be given the most weight and the earlier past be given the least weight. This is to assure the

forecasting principle that the recent period is more predictive of the future estimate than the prior period. If we choose 5 years forecast, we suggest that the highest weight (5) would be given to the earnings of last year, going in a descending order so that the least weight (1) would be given to the earnings of 5 years ago, as shown in Table 3.4.

The 5-year weighted average of earnings as projected (PE) would be:

$$PE = \frac{w_1E_{t-1} + w_2E_{t-2} + w_3E_{t-3} + w_4E_{t-4} + w_5E_{t-5}}{\sum wi}$$

Table 3.4

	← Back in Time →				
Current Time (t)	Year 1 (last year) t – 1	Year 2 (year before the last) t – 2	Year 3 t – 3	Year 4 t – 4	Year 5 t – 5
Weights (w_i)	$w_1 = 5$	$w_2 = 4$	$w_3 = 3$	$w_4 = 2$	$w_5 = 1$

41
42

Table 3.5

Year	Earnings
2014	125,000
2013	130,000
2012	120,000
2011	115,000
2010	88,000

We start from the earnings of last year (E_{t-1}), assuming that the data for the current year is not available yet. If the current year (t) is 2015, the earnings in the numerator would start from 2014 and go back to 2010. The denominator would be the total of all weights, that is:

$$\begin{aligned}\sum \text{Wi} &= w_1 + w_2 + w_3 + w_4 + w_5 \\ &= 5 + 4 + 3 + 2 + 1 \\ &= 15\end{aligned}$$

The capitalized rate (cr) is selected to yield a fair compensation for the buyer's investment, given certain influencing factors, most important of which is the risk level associated with that specific business, so that the higher the risk, the less the assurance and confidence of the buyer in the business. Such an expected risk can be compensated by assigning a higher rate of return. This is to say that if a buyer detects more potential risk surrounding the candidate business for purchase, he would better use a higher capitalized rate in the estimating of that business value. The common capitalized rate of return used for an average level of business risk has been between 20% and 25%.

Example

Company X has published the records of its earnings for the last 5 years, as shown in Table 3.5. How much would this company be worth for a potential buyer who would like to consider a capitalized rate of 21.5%?

First, we have to calculate the projected earnings:

$$PE = \frac{5(125{,}000) + 4(130{,}000) + 3(120{,}000)2(115{,}000) + 1(88{,}000)}{15}$$

$$PE = 121{,}533$$

Then, we divide PE by the capitalized rate, as given, to get the firm's value.

$$V = \frac{PE}{cr}$$

$$= \frac{121{,}533}{0.215}$$

$$= 565{,}271$$

One of the important factors to consider is the opportunity cost. Specifically, the buyer should consider a certain income that he would earn somewhere else if he would not buy this business. This buyer's current salary would be a good consideration. It should be deducted from the value to keep it more real. Suppose that the buyer currently earns $60,000, the adjusted business value would be:

$$565{,}271 - 60{,}000 = 505{,}271$$

If the buyer can rely on information to lead him that this business is more risky than he thought, he may consider raising the capitalized rate, and if he is assured that the business is stable and can be characterized as low risk, he may lower the rate. In both cases, the value would be adjusted accordingly.

For a capitalized rate of 24, for example, the value would be:

$$V = \frac{121{,}533}{.24} = 506{,}387$$

So he would pay $58,884 less to account for more risk.

On the other hand, for a low-risk business with a capitalized rate of 18%, for example, the value would be:

$$V = \frac{121{,}533}{.18} = 675{,}183$$

He would be willing to pay $109,912 more to compete with other buyers and get that prized low-risk business.

3.5 Financial Ratios–Based Value

An example of a common financial ratio used in estimating the value of a business is the pricing–earnings ratio or P/E, which is obtained by dividing the market price of a stock by the earnings per share. A business value can be approximated by multiplying the business annual earnings by an average P/E ratio of selected similar businesses in the same industry. So, this would require, first, obtaining data on similar businesses and calculating an average P/E.

Example

Table 3.6 shows the price–earnings ratios (P/E) of five closely similar companies to a printing company with annual earnings of $218,000. Calculate this company's value for a potential buyer.

First, we have to calculate the average P/E and then multiply it by the printing company's annual earnings to get the company's value.

$$\begin{aligned} V &= \text{Av P/E} \cdot [E] \\ &= 5.8 \times 218{,}000 \\ &= 1{,}264{,}400 \end{aligned}$$

Table 3.6

Company	P/E
I	5.2
II	5.5
III	6.1
IV	6.3
V	5.9
Average	5.8

This method is only for companies with publicly traded stocks, which may be considered one of the disadvantages of the valuation method. Also, like any method of comparison, it is hard to find a number of closely similar companies for the purpose of estimation.

3.6 Summary

This chapter was on estimating the reasonable price of a small business, if an entrepreneur would go for the option of buying an existing business. The proper price that would be accepted by a buyer would be based on estimating the value of that business. We went over two types of approaches to estimate the value of a business. One approach was based on factors within the business. We described the asset-based method, and the cash flow–based method. The asset-based method calculates the value of all tangible assets and deducts all liabilities. In other words, this method targets the value of the business net worth. The value of assets can be obtained by four different estimations: the book value, replacement value, market value, and liquidation value. We took some numerical examples to illustrate those estimations. The cash flow–based method is like calculating the present value of the company through discounting its expected CIF and subtracting the COF from it. The other approach of estimating the business value is to depend on factors outside the business such as the market and the rate of return. The market value is based on a comparison with some similar companies which has been sold in the recent past. An index called the average earnings multiple would be multiplied by the business annual earning to obtain the business value. The average earnings multiple is obtained after getting all the individual

earnings multiples of all compared business. It is obtained by dividing the selling price of each firm that has been sold by its annual earnings. The value obtained in this method tells us how many annual earnings would constitute the business value.

Another method in this approach is the capitalized earning–based method, which obtain the value by dividing the firm's projected earnings by a capitalized rate of return that is chosen based on the expected business risk. The projected earnings value is calculated by the weighted average forecast method. Last was the financial ratios–based method. Here the average price/earnings ratio (P/E) is obtained among the similar firms, then this average (AvP/E) is multiplied by the annual earnings of the company to be purchased to estimate its value.