

COMPANY VALUATION METHODS THE MOST COMMON ERRORS IN VALUATIONS

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Abstract

In this paper, we describe the four main groups comprising the most widely used company valuation methods: balance sheet-based methods, income statement-based methods, mixed methods, and cash flow discounting-based methods. The methods that are conceptually “correct” are those based on cash flow discounting. We will briefly comment on other methods since - even though they are conceptually “incorrect” - they continue to be used frequently.

We also present a real-life example to illustrate the valuation of a company as the sum of the value of different businesses, which is usually called the *break-up value*.

We conclude the paper with the most common errors in valuations: a list that contains the most common errors that the author has detected in more than one thousand valuations he has had access to in his capacity as business consultant or teacher.

1.Introduction- COMPANY VALUATION METHODS. THE MOST COMMON ERRORS IN VALUATIONS

For anyone involved in the field of corporate finance, understanding the mechanisms of company valuation is an indispensable requisite. This is not only because of the importance of valuation in acquisitions and mergers but also because the process of valuing the company and its business units helps identify sources of economic value creation and destruction within the company.

The methods for valuing companies can be classified in six groups:

BALANCE	INCOME	MIXED	CASH FLOW	VALUE	OPTIONS
SHEET	STATEMENT	(GOODWILL)	DISCOUNTING	CREATION	
Book value Adjusted book value Liquidation value Substantial value	Multiples PER Sales P/EBITDA Other multiples	Classic Union of European Accounting Experts Abbreviated income Others	Equity cash flow Dividends Free cash flow Capital cash flow APV	EVA Economic profit Cash value added CFROI	Black and Scholes Investment option Expand the project Delay the investment Alternative uses

MAIN VALUATION METHODS

In this paper, we will briefly describe the four main groups comprising the most widely used company valuation methods. Each of these groups is discussed in a separate section: balance sheet-based methods (Section 2), income statement-based methods (Section 3), mixed methods (Section 4), and cash flow discounting-based methods (Section 5).¹

Section 7 uses a real-life example to illustrate the valuation of a company as the sum of the value of different businesses, which is usually called the *break-up value*. Section 8 shows the methods most widely used by analysts for different types of industry..

1.1 Value and Price. What Purpose Does a Valuation Serve?

Generally speaking, a company's value is different for different buyers and it may also be different for the buyer and the seller.

Value should not be confused with price, which is the quantity agreed between the seller and the buyer in the sale of a company. This difference in a specific company's value may be due to a multitude of reasons. For example, a large and technologically highly advanced foreign company wishes to buy a well-known national company in order to gain entry into the local market, using the reputation of the local brand. In this case, the foreign buyer will only value the brand but not the plant, machinery, etc. as it has more advanced assets of its own. However, the seller will give a very high value to its material resources, as they are able to continue producing. From the buyer's viewpoint, the basic aim is to determine the maximum value it should be prepared to pay for what the company it wishes to buy is able to contribute. From the seller's viewpoint, the aim is to ascertain what should be the minimum value at which it should accept the operation. These are the two figures that face each other across the table in a negotiation until a price is finally agreed on, which is usually somewhere between the two extremes.² A company may also have different values for different buyers due to economies of scale, economies of scope, or different perceptions about the industry and the company.

A valuation may be used for a wide range of purposes:

1. In company buying and selling operations:
 - For the buyer, the valuation will tell him the highest price he should pay.
 - For the seller, the valuation will tell him the lowest price at which he should be prepared to sell.

2. Valuations of listed companies:

- The valuation is used to compare the value obtained with the share's price on the stock market and to decide whether to sell, buy or hold the shares.
- The valuation of several companies is used to decide the securities that the portfolio should concentrate on: those that seem to it to be undervalued by the market.

2. Balance Sheet-Based Methods (Shareholders' Equity)

These methods seek to determine the company's value by estimating the value of its assets. These are traditionally used methods that consider that a company's value lies basically in its balance sheet. They determine the value from a static viewpoint, which, therefore, does not take into account the company's possible future evolution or money's temporary value. Neither do they take into account other factors that also affect the value such as: the industry's current situation, human resources or organizational problems, contracts, etc. that do not appear in the accounting statements.

Some of these methods are the following: book value, adjusted book value, liquidation value, and substantial value.

2.1. Book Value

A company's book value, or net worth, is the value of the shareholders' equity stated in the balance sheet (capital and reserves). This quantity is also the difference between total assets and liabilities, that is, the surplus of the company's total goods and rights over its total debts with third parties.

Let us take the case of a hypothetical company whose balance sheet is that shown in Table 1. The shares' book value (capital plus reserves) is 80 million dollars. It can also be calculated as the difference between total assets (160) and liabilities (40 + 10 + 30), that is, 80 million dollars.

Table 1
Alfa Inc. Official Balance Sheet (Million Dollars)

ASSETS		LIABILITIES	
Cash	5	Accounts payable	40
Accounts receivable	10	Bank debt	10
Inventories	45	Long-term debt	30
Fixed assets	<u>100</u>	Shareholders' equity	<u>80</u>
Total assets	160	Total liabilities	160

This value suffers from the shortcoming of its own definition criterion: accounting criteria are subject to a certain degree of subjectivity and differ from “market” criteria, with the result that the book value almost never matches the “market” value.

2.2. Adjusted Book Value

This method seeks to overcome the shortcomings that appear when purely accounting criteria are applied in the valuation.

When the values of assets and liabilities match their market value, the adjusted net worth is obtained. Continuing with the example of Table 1, we will analyze a number of balance sheet items individually in order to adjust them to their approximate market value. For example, if we consider that:

- Accounts receivable includes 2 million dollars of bad debt, this item should have a value of 8 million dollars.
- Stock, after discounting obsolete, worthless items and revaluing the remaining items at their market value, has a value of 52 million dollars.
- Fixed assets (land, buildings, and machinery) have a value of 150 million dollars, according to an expert.
- The book value of accounts payable, bank debt and long-term debt is equal to their market value.

The adjusted balance sheet would be that shown in Table 2.

Table 2

Alfa Inc. Adjusted Balance Sheet (Million Dollars)

ASSETS		LIABILITIES	
Cash	5	Accounts payable	40
Accounts receivable	8	Bank debt	10
Inventories	52	Long-term debt	30
Fixed assets	150	Capital and reserves	135
Total assets	215	Total liabilities	215

The adjusted book value is 135 million dollars: total assets (215) less liabilities (80). In this case, the adjusted book value exceeds the book value by 55 million dollars.

2.3. Liquidation Value

This is the company’s value if it is liquidated, that is, its assets are sold and its debts are paid off. This value is calculated by deducting the business’s liquidation expenses (redundancy payments to employees, tax expenses and other typical liquidation expenses) from the adjusted net worth.

Taking the example given in Table 2, if the redundancy payments and other expenses associated with the liquidation of the company Alfa Inc. were to amount to 60 million dollars, the shares' liquidation value would be 75 million dollars (135-60).

Obviously, this method's usefulness is limited to a highly specific situation, namely, when the company is bought with the purpose of liquidating it at a later date. However, it always represents the company's minimum value as a company's value, assuming it continues to operate, is greater than its liquidation value.

2.4. Substantial Value

The substantial value represents the investment that must be made to form a company having identical conditions as those of the company being valued.

It can also be defined as the assets' replacement value, assuming the company continues to operate, as opposed to their liquidation value. Normally, the substantial value does not include those assets that are not used for the company's operations (unused land, holdings in other companies, etc.).

Three types of substantial value are usually defined:

- Gross substantial value: this is the assets' value at market price (in the example of Table 2: 215).
- Net substantial value or corrected net assets: this is the gross substantial value less liabilities. It is also known as adjusted net worth, which we have already seen in the previous section (in the example of Table 2: 135).
- Reduced gross substantial value: this is the gross substantial value reduced only by the value of the cost-free debt (in the example of Table 2: $175 = 215 - 40$). The remaining 40 million dollars correspond to accounts payable.

2.5. Book Value and Market Value

In general, the equity's book value has little bearing to its market value. This can be seen in Table 3, which shows the price/book value (P/BV) ratio of several international stock markets in September 1992, August 2000 and February 2007.

Table 3

Market Value/Book Value (P/BV), PER and Dividend Yield (Div./P) of Different National Stock Markets

	September 1992			August 2000			February 2007		
	P/BV	PER	Div./P (%)	P/BV	PER	Div./P (%)	P/BV	PER	Div./P (%)
Spain	0,89	7,5	6,3	3,38	22,7	1,5	3,8	20,0	2,9
Canada	1,35	57,1	3,2	3,29	31,7	0,9	3,2	15,8	2,2
France	1,40	14,0	3,7	4,60	37,9	1,7	2,6	16,4	2,5
Germany	1,57	13,9	4,1	3,57	28,0	2,0	2,4	14,0	1,9
Hong Kong	1,69	14,1	3,9	1,96	8,4	2,3	2,5	15,2	2,4

Ireland	1,13	10,0	3,2	2,55	15,2	2,1	2,2	17,4	1,6
Italy	0,78	16,2	4,1	3,84	23,8	2,0	2,4	17,9	3,2
Japan	1,82	36,2	1,0	2,22	87,6	0,6	2,3	28,2	1,1
Switzerland	1,52	15,0	2,2	4,40	22,1	1,4	3,3	17,5	1,5
UK	1,88	16,3	5,2	2,90	24,4	2,1	3,0	14,4	2,9
US	2,26	23,3	3,1	5,29	29,4	1,1	3,2	18,0	1,7

P/BV is the share's price (P) divided by its book value (BV). PER is the share's price divided by the earnings per share. Div/P is the dividend per share divided by the price.

Source: Morgan Stanley Capital International Perspective and Datastream.

Figure 1 shows the evolution of the price/book value ratio of the British, German and United States stock markets. It can be seen that the book value, in the 90's, has lagged considerably below the shares' market price.

Figure 1

Evolution of the Price/Book Value Ratio on the British, German and United States Stock Markets



Source: Morgan Stanley and Datastream.

3. Which is the Best Method to Use?

Table 8 shows the value of the equity of the company Alfa Inc. obtained by different methods based on shareholders' equity, earnings and goodwill. The fundamental problem with these methods is that some are based solely on the balance sheet, others are based on the income statement, but none of them consider anything but historic data. We could imagine two companies with identical balance sheets and income statements but different prospects: one with high sales, earnings and margin potential, and the other in a stabilized situation with fierce competition. We would all concur in giving a higher value to the former company than to the latter, in spite of their historic balance sheets and income statements being equal.

The most suitable method for valuing a company is to discount the expected future cash flows, as the value of a company's equity - assuming it continues to operate - arises from the company's capacity to generate cash (flows) for the equity's owners.

Table 8

Alfa Inc.
Value of the Equity According to Different Methods (Million Dollars)

Book value	80
Adjusted book value	135
Liquidation value	75
PER	173
Classic valuation method	213
Simplified UEC method	177
UEC method	167
Indirect method	197
Direct or Anglo-Saxon method	218
Annual profit purchase method	197
Risk-bearing and risk-free rate method	185

4. The Company as the Sum of the values of Different Divisions. Break-up Value

On many occasions, the company's value is calculated as the sum of the values of its different divisions or business units.¹⁸

The best way to explain this method is with an example. Table 9 shows the valuation of a North American company performed in early 1980. The company in question had three separate divisions: household products, shipbuilding, and car accessories.

A financial group launched a takeover bid on this company at 38 dollars per share and a well-known investment bank was commissioned to value the company. This valuation, which is included in Table 9, would serve as a basis for assessing the offer.

Table 9 shows that the investment bank valued the company's equity between 430 and 479 million dollars (or, to put it another way, between 35 and 39 dollars per share). But let us see how it arrived at that value. First of all, it projected each division's net income and then allocated a (maximum and minimum) PER to each one. Using a simple multiplication (earnings x PER), it calculated the value of each division. The company's value is simply the sum of the three divisions' values.

We can call this value (between 387 and 436 million dollars) the value of the earnings generated by the company. We must now add to this figure the company's cash surplus, which the investment bank estimated at 77.5 million dollars. However, the company's pension plan was not fully funded (it was short by 34.5 million dollars), and consequently, this quantity had to be subtracted from the company's value.

After performing these operations, the conclusion reached is that each share is worth between 35 and 39 dollars, which is very close to the offer made of 38 dollars per share.

Table 9

Valuation of a Company as the Sum of the Value of its
Divisions Individual Valuation of Each Business Using the PER
Criterion

(Million dollars)	Household products		Shipbuilding		Car accessories		TOTAL COMPANY	
Expected net income	28.6		14.4		5.8		48.8	
	minimum	maximum	minimum	maximum	minimum	maximum	minimum	maximum
PER for each business (minimum and maximum)	9	10	5	6	10	11		
Value (million dollars)	257.4	286.0	72.0	86.4	58.0	63.8	387.4	436.2
Plus: estimated net cash surplus at year-end*							77.5	77.5
Less: non-funded retirement pensions at year-end							34.5	34.5
Value of equity (million dollars)							430.4	479.2
Value per share (based on 12,201,000 shares)							35.3	39.3

*Cash surplus: 103.1 million dollars in cash, less 10 million dollars for operations and less 15.6 million dollars of financial debt.

5. Valuation Methods Used Depending on the Nature of the Company

Holding companies are basically valued by their liquidation value, which is corrected to take into account taxes payable and managerial quality.

The growth of utility companies is usually fairly stable. In developed countries, the rates charged for their services are usually indexed to the CPI, or they are calculated in accordance with a legal framework. Therefore, it is simpler to extrapolate their operating statement and then discount the cash flows. In these cases, particular attention must be paid to regulatory changes, which may introduce uncertainties. In the case of banks, the focus of attention is the operating profit (financial margin less commissions less operating expenses), adjusting basically for bad debts. Their industry portfolio is also analyzed. Valuations such as the PER are used, or the net worth method (shareholders' equity adjusted for provision surpluses/deficits, and capital gains or losses on assets such as the industry portfolio).

Industrial and commercial companies. In these cases, the most commonly used valuations - apart from restated cash flows - are those based on financial ratios (PER, price/sales, price/cash flow).

These issues are discussed in greater detail in Fernández (2002, chapters 3 and 4).

6. Key Factors Affecting Value: Growth, Return, Risk and Interest Rates

The equity's value depends on expected future flows and the required return to equity. In turn, the growth of future flows depends on the return on investments and the company's growth. However, the required return to equity depends on a variable over which the company has no control, the risk-free interest rate, and on the equity's risk which, in turn, we can divide into operating risk and financial risk.

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Factors Influencing the Equity's Value (*Value Drivers*)

VALUE OF EQUITY																			
Expectations of future cash flows										Required return to equity									
Expected return on investment					Expected company growth					Risk -free interest rate		Market risk premium		Operating risk		Financial risk			
Competitive advantage period					Assets in place					Profit margin		Regulatory environment		Taxes		Managers, People, Corporate culture			
Actual business, Barriers to					Acquisitions / disposals					Industry, Competitive structure		New businesses / products		Technology		Real options			
Industry, countries, laws					Control of operations					Buyer / target		Risk perceived by the market		Financing		Liquidity			
Size					Risk management														
Market communication																			

Table 10 shows that the equity's value depends on three primary factors (*value drivers*):

- Expectations of future flows.
- Required return to equity.
- Communication with the market.¹⁹

These factors can be subdivided in turn into return on the investment, company growth, risk-free interest rate, market risk premium, operating risk and financial risk. However, these factors are still very general. It is very important that a company identify the fundamental parameters that have most influence on the value of its shares and on value creation. Obviously, each factor's importance will vary for the different business units.

7. Speculative Bubbles on the Stock Market

The advocates of fundamental analysis argue that share prices reflect future expectations updated by rational investors. Thus, a share's price is equal to the net present value of all the expected future dividends. This is the so-called fundamental value. In other words, the share price reflects current earnings generation plus growth expectations. The adjective

fundamental refers to the parameters that influence the share price: interest rates, growth expectations, investment's risk...

Another group of theories is based on psychological or sociological behaviors, such as Keynes' "animal spirits". According to these theories, share price formation does not follow any rational valuation rule but rather depends on the states of euphoria, pessimism... predominating at any given time in the financial community and in society in general. It is these psychological phenomena that give hope to the chartists: if moods do not change too often and investors value equity taking into account the share prices' past evolution, one can expect that successive share prices will be correlated or will repeat in similar cycles.

The speculative bubble theory can be derived from fundamental analysis and occupies a middle ground between the above two theories, which seek to account for the behavior and evolution of share prices. The MIT professor Olivier Blanchard developed the algebraic expression of the speculative bubble, and it can be obtained from the same equation that gives the formula normally used by the fundamentalists. It simply makes use of the fact that the equation has several solutions, one of which is the fundamental solution and another is the fundamental solution with a speculative bubble tacked onto it. By virtue of the latter solution, a share's price can be greater than its fundamental value (Net Present Value of all future dividends) if a bubble develops simultaneously, which at any given time may: a) continue to grow, or b) burst and vanish. To avoid tiring ourselves with equations, we can imagine the bubble as an equity overvaluation: an investor will pay today for a share a quantity that is greater than its fundamental value if he hopes to sell it tomorrow for a higher price, that is, if he hopes that the bubble will continue growing. This process can continue so long as there are investors who trust that the speculative bubble will continue to grow, that is, investors who expect to find in the future other trusting investors to whom they can sell the bubble (share) for a price that is greater than the price they have paid. Bubbles tend to grow during periods of euphoria, when it seems that the market's only possible trend is upwards. However, there comes a day when there are no more trusting investors left and the bubble bursts and vanishes: shares return to their fundamental value.

This theory is attractive because it enables fundamental theory to be synthesized with the existence of anomalous behaviors (for the fundamentalists) in the evolution of share prices. Many analysts have used this theory to account for the tremendous drop in share prices on the New York stock market and on the other world markets on 19 October 1987. According to this explanation, the bursting of a bubble that had been growing over the previous months caused the stock market crash. A recent study performed by the Yale professor Shiller provides further evidence in support of this theory. Shiller interviewed 1000 institutional and private investors. The investors who sold before the Black Monday said that they sold because they thought that the stocks were already overvalued. However, the most surprising finding is that more than 90% of the institutional investors who did not sell said that they too believed that the market was overvalued, but hoped that they would be able to sell before the inevitable downturn. In other words, it seems that more than 90% of the institutional investors were aware that a speculative bubble was being formed - the stock was being sold for more than its fundamental value -, but

trusted that they would be able to sell before the bubble burst. Among the private investors who did not sell before 19 October, more than 60% stated that they also believed that the stocks were overvalued.

Figure 5

The 1929 American Stock Market Crisis

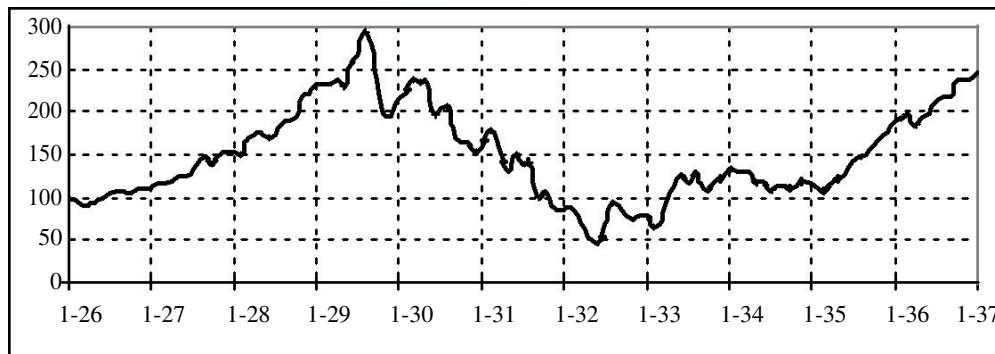
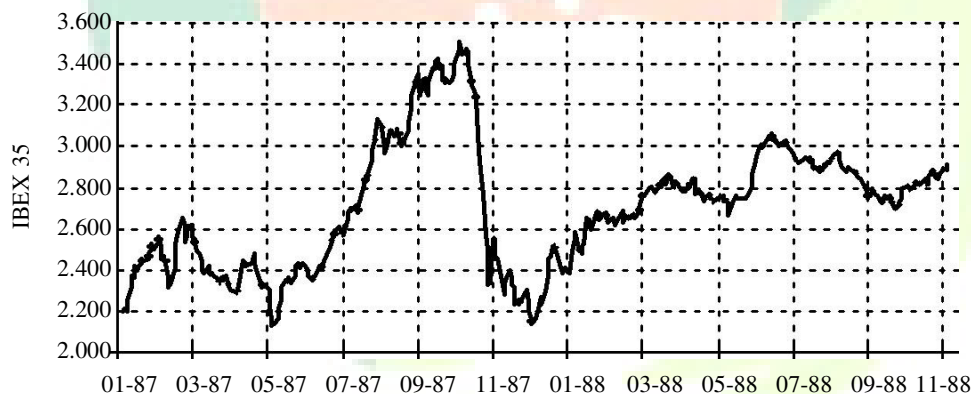


Figure 6

The Spanish Stock Market Crisis of October 1987



This bursting of a speculative bubble is not a new phenomenon in history. We can find recent examples in Spain in 1974 and in the USA: electronic and high-tech companies in 1962, "good concept" companies in 1970, and household name companies throughout the 70's. In the electronic companies' bubble, many companies' shares in 1962 were worth less than 20% what they were worth in 1961. IBM's share price fell from \$600+ in 1961 to \$300 in 1962; and Texas Instruments' share price fell from \$200+ to \$50. Even larger was the bubble that grew in 1970 around the "good concept" companies: several of them lost 99% of their value in the space of just one year. Household name companies also suffered severe drops in their share prices during the 70's: McDonald's PER fell from 83 to 9, Sony's from 92 to 17, and Polaroid's from 90 to 16, to give just a few examples.

Speculative bubbles can also develop outside of the stock market. One often-quoted example is that of the Dutch tulips in the 17th Century. An unusual strain of tulips began to become increasingly sought after and its price rose continuously... In the end, the tulips' price returned to normal levels and many people were ruined. There have also

been many speculative bubbles in the real estate business. The story is always the same: prices temporarily rocket upwards and then return to “normal” levels. In the process, many investors who trust that the price will continue to rise lose a lot of money. The problem with this theory, as with many of the economic interpretations, is that it provides an ingenious explanation to account for events a posteriori but it is not very useful for providing forecasts about the course that share prices will follow in the future. For this, we would need to know how to detect the bubble and predict its future course. This means being able to separate the share price into two components (the fundamental value and the bubble) and knowing the number of investors who trust that the bubble will continue to grow (here many chartists can be included). What the theory does remind us is that the bubble can burst at any time. History shows that, so far, all the bubbles have eventually burst.

The only sure recipe to avoid being trapped in a speculative bubble is to not enter it: to never buy what seems to be expensive, even if advised to do so by certain “experts”, who appeal to esoteric tendencies and the foolishness or rashness of other investors.

8. Most Common Errors in Valuations

The following list contains the most common errors that the author has detected in the more than one thousand valuations he has had access to in his capacity as business consultant or professor (see Fernández and Carabias, 2006):

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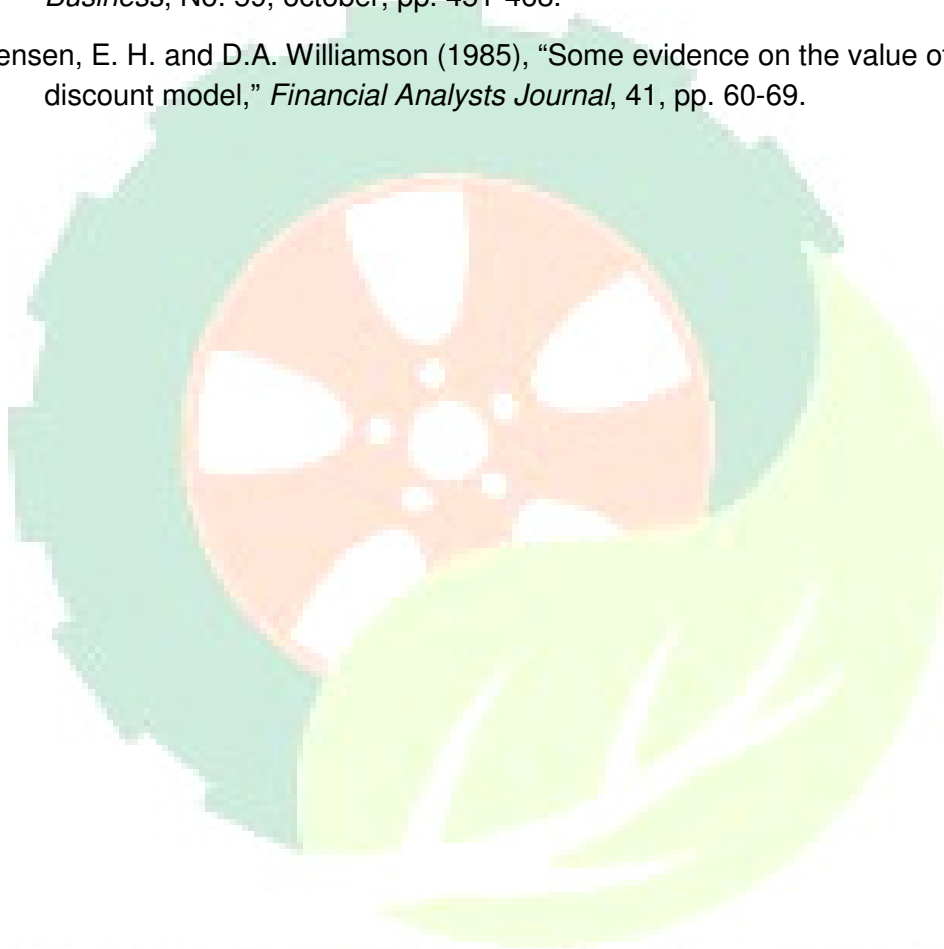
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