

How to Estimate the Exit Values of Equity: A Demonstration for Entrepreneurs

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ABSTRACT

Values of equity are key information when it is the time for a private enterprise to plan its exit strategy or to engage a possible transaction involving selling a portion of ownership of a company. Two sets of equity values, book values and intrinsic values, not only are essential information to optimize in both value and timing when executing such an exit, but also serve as a starting point for a negotiation between buyers and sellers. Unfortunately, most entrepreneurs lack the essential financial skills to project these values. To demonstrate these skills, this case utilizes a five-step approach and applies a percent-of-sales method to project a company's financial statements for the coming five years in order to drive the book values of equity accordingly. Furthermore, the intrinsic values of equity for these years are also estimated by applying three different models to the income approach of business valuation. The first model is to project surplus cash flows. The second model is to employ the projected information on the company's statements of cash flows. And the third model is to utilize a formula that is popular among valuation practitioners. All these three models are demonstrated to produce the same outcome. Thus the correctness of these estimates is confirmed in this case. The contents of this case display the essential skills that upper-level finance majors or MBA students should possess in the field of entrepreneurial or corporate finance.

Keywords: exit value, book value of equity, intrinsic value of equity, business valuation, entrepreneurial finance

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INTRODUCTION: CONCEPTS AND STEPS

A successful startup company should always plan its exit strategy even when it is just starting its operation. According to Leach and Melicher (2021, p. 48), the best practice for financial planning at this early stage, requires an annual projection for at least three years ahead, in order to gain the key information of the company's equity values. These equity values, including the company's book and intrinsic values for the near future, are the essential references for the decisions to exit regarding the optimal timing and the transaction amount for sellers. Furthermore, they are the key information for many rounds of bargains between buyers and sellers. As these negotiations could take place over a period of time to complete, current and future values of these two sets of equity values are both required to be estimated. However, many entrepreneurs lack such skills to project these values. As a result, these companies run the risk of either under-selling their ownership of companies or pricing them too high and lose deals. Either scenario is not optimal and creates problems for any exit strategy.

Given the income statement, balance sheet, and statement of cash flows for the current year, the sales forecasts for the coming five years, and some operational assumptions which applying a "percentage of sales" rule to many line items of balance sheets and income statements, this case demonstrates a five-step approach to project these equity values. In the first step, income statements for the next five years are projected. In step two, balance sheets, surplus cash flows, and the book values of equity are derived. Cash on the balance sheet is divided into required cash (for operations) and surplus cash. The surplus cash flows, which are defined as the different amounts of surplus cash from the previous year to the current year, are derived and treated as a potential dividend each year. These cash flows are labeled in this paper as the cash flows from Model 1. In addition, after the balance sheet for each year is completely projected for this period, the book values of equity are then obtained for the next five years. The third step is to derive the statement of cash flows each year and utilize the content of this statement to proxy the amount of dividend by summing the following three line items: – (1) Cash Flows from Operating Activities (CFO), (2) Cash Flows of Investing Activities (CFI), and (3) the change of debt balances from last year to this year (ΔDebt), then deducting the required cash flows (ΔRC), which is the changed amount of required cash on the balance sheets from last year to this year, from this sum. By repeating this procedure for the remaining years, the alternative cash flows to proxy annual dividends for these periods are then projected and labeled as the cash flows from Model 2.

For the fourth step, the formula popular among practitioners in the business valuation community formula ($\text{Net Income (NI)} + \text{Depreciation/Amortization} - \text{Capital Expenditure (CAPEXP)} - \text{Change in Net Operating Working Capital } (\Delta\text{NOWC}) + \Delta\text{Debt}$) will be applied on the projected financial statements each year in order to derive the potential annual dividend for this period. These dividends are labeled as the cash flows from Model 3. With the derived dividend values shown to be the same from all three different models, the correctness and consistency of these dividend values are thus confirmed.

In the last step, the intrinsic value of equity each year is estimated. The company is assumed to enter its maturity stage with the characteristic of a constant rate of growth regarding its sales and dividends. This stage will start at the beginning of the fifth year. Thus, the terminal value, which is also the estimate of the intrinsic value (P_4) of equity at the end of the fourth year, is derived. This terminal value, in the business valuation literature, represents the sum of all future dividends thereafter – from D_5 to D_n . Summing up the present values of the dividends

from years one to four (D1 to D4) and the terminal value (P4), the current intrinsic value of equity (P0) is then projected.

Expected Return (ER) is equal to the sum of Dividend Yield (DY) and Capital Gain Yield (CGY). Applying the equilibrium condition “Required Return (RR) = Expected Return (ER)”, the expected Capital Gain Yield ($CGY1 = (P1 - P0)/P0$) is derived after the required return from the company’s equity holders is given and the expected Dividend Yield (DY1) is estimated. Since this CGY1 also amounts to the expected percentage change of price from the current year to the next year, the price next year (P1), could then be projected as ($P1 = P0 \cdot (1 + CGY1)$). Repeating the same procedure, the intrinsic values of equity for the rest of the years P2 to P5 are then determined.

The questions listed in this case are designed to follow the above five steps to derive this crucial financial information and comprehend the final results. In order to enhance students’ understanding of the materials discussed in the case, utilizing at least three hours of class instruction time is recommended.

BODY OF THIS CASE

BetterSkin, a Denver-based private corporation specializing in facial and body hydration creams, has experienced strong growth in its online sales due to its competitive pricing and high quality. BetterSkin is expecting this success to continue and has received interest from a potential buyer for a possible acquisition deal. Since this potential deal could be BetterSkin’s exit strategy, its CFO, Ann White, requested you, her assistant, to project the company’s book and intrinsic values of equity for the next five years as her reference to start the bargaining process with this buyer.

The following is the financial information of the company. CFO White requires you to incorporate it into your projection:

1. The last day of the company’s fiscal year is December 31. It is December 31, 2022 today. The current income statement, balance sheet, and statement of cash flows are highlighted in yellow and listed in Tables 1, 2, and 3, respectively.
2. Sales are projected to be \$1,600,000 in Year 1 and are expected to grow 25% in Year 2, 40% in Year 3, and 6% in Year 4. For both dividends and sales, the constant annual growth rate of 6% is assumed to start at the beginning of Year 5 and thereafter, to satisfy the assumption regarding the business-valuation technique.
3. For each year, the ratios of sales to many line items on the company’s income statement and balance sheet are fixed and given. They are listed on the green cells in Table 1 and Table 2.
4. Annual depreciation is 10% of the net fixed assets on the balance sheet of the previous year.
5. Interest expenses is 12% of the outstanding debt on the balance sheet of the previous year.
6. Long-term debt in Year 4 is expected to be \$226,000 and \$240,000 in Year 5.
7. Current Assets (CA), Surplus Cash (SC), and Debt-Free Current Liabilities (DFCL = accounts payable + accruals) of last year, amount to \$105,660, \$0, and \$48,415, respectively. They are listed as green cells on Table 4.
8. Cash on the current balance sheet is \$29,487: \$23,000 as Required Cash (RC) for operations and the remaining \$6487 termed as Surplus Cash (SC). The current surplus

cash flow (the difference of surplus cash from last year to this year) is \$6,487 since there was no surplus cash left last year.

9. Average tax rate is 30%.
10. No dividend is issued for the five-year period of this case.
11. No additional stocks are issued during this five-year period.
12. Required rate of return demanded by the equity holders and potential investors of BetterSkin is 25%. It is therefore the rate used to discount the future cash flows into today's dollars for the company.

To help you accomplish this task, your boss, Ann White, has identified the following questions that need to be addressed in order to aid you in projecting these equity values.

QUESTIONS 1 TO 6

You are required to follow the order in which the questions are presented and provide your recommended solutions.

1. Given the percentages of sales listed in the green cells on the income statements (Table 1) and balance sheets (Table 2), project the following line items on these two financial statements for the next five years:
 - (1) Cost of Goods Sold (= 70% of sales, income statement item)
 - (2) Wages and Commissions (= 18% of sales, income statement item)
 - (3) Rent, Miscellaneous and Insurances (= 8%, income statement item)
 - (4) Required Cash (= 1.5% of sales, balance sheet item)
 - (5) Accounts Receivable (= 3% of sales, balance sheet item)
 - (6) Inventories (= 5% of sales, balance sheet item)
 - (7) Prepaid Insurances (= 0.1% of sales, balance sheet item)
 - (8) Net Fixed Assets (= 3.4% of sales, balance sheet item)
 - (9) Accounts Payable (= 2.5% of sales, balance sheet item)
 - (10) Accrued Wages and Commissions Payable (= 0.5% of sales, balance sheet item)

After the above line items are projected, construct the annual income statement for this five-year period (Step 1: projecting income statements).

2. Construct the annual balance sheets for this five-year period. What are the amounts of surplus cash flows (= the difference of surplus cash from the previous year to the current year) for the company to proxy its annual dividends during this period? In addition, what are the book values of equity for the years one to five? (Step 2: project balance sheets, Model 1's surplus cash flows and book values of equity).
3. Based on the income statements and balance sheets derived from Questions 1 and 2, develop the corresponding annual statements of cash flows for this period. From these statements, figure out the amounts of (1) Cash Flows from Operating Activities (CFO), (2) Cash Flows of Investing Activities (CFI), and (3) the change of debt balances from the previous year to this year (ΔDebt). In addition, go to projected balance sheets and calculate (4) required cash flows (ΔRC) for the years one to five. Required cash flows (ΔRC) are defined as the changed amount of required cash (RC) from the previous year to the current year. Apply the above numbers to the formula of (1) CFO + (2) CFI + (3) ΔDebt - (4) ΔRC , as required by Model 2 to proxy BetterSkin's annual dividends for this

- five-year period. Are these cash flow amounts the same as those of surplus cash flows? (Step 3: Project statements of cash flows and Model 2's alternative cash flows)
4. Net operating working capital is defined as (1) Current Assets (CA) – (2) Surplus Cash (SC) – (3) Debt-Free Current Liabilities (DFCL), where DFCL is the sum of accounts payable and accruals. With the given information of the company, calculate the amounts of net operating working capital from last year to Year five. Next, take related numbers from the previously projected financial statements in Answer 1 to Answer 3 and apply these numbers to the following formula:

$$\text{Net income} + \text{Depreciation and Amortization} - \text{Capital Expenditure} - \text{Change in Net Operating Working Capital} + \text{Change in Debt Issues}$$

- The above is a popular formula among business-valuation professionals to proxy dividends. What are the projected cash flows based on this formula for this five-year period? Are these cash flow amounts the same as those projected by Model 1 and Model 2? (Step 4: Use practitioners' formula in projecting cash flows for Model 3).
5. To utilize the basic technique of business valuation to estimate the intrinsic value of equity today (P0), the terminal value (P4) is required to be estimated first, since BetterSkin is expected to enter a stage with constant growth of 6% for its dividends at the beginning of year five. This point in time is treated as the same point as the end of year four on the timeline used for business valuation. In addition, this terminal value (P4) represents the sum of the future dividends (D5 to Dn) discounted into the dollars valued at the end of year four. What is the estimated amount of this terminal value (P4) for BetterSkin? In addition, what are the amounts of a series of cash flows required to be discounted in projecting BetterSkin's intrinsic values of equity for the current year (P0)? Furthermore, what are those intrinsic values for the years one to five? Apply the equilibrium condition of "required rate of return equal to the expected rate of return" to determine these estimates.

INSTRUCTOR'S NOTES

Answer 1:

Given the forecasted sales of \$1,600,000 for the next year (Year 1), and the growth rates for Years 2 to 5 assumed to be 25%, 40%, 6% and 6% respectively, the forecasted sales are projected as \$1,600,000, \$2,000,000, \$2,800,000, \$2,968,000 and \$3,146,080, respectively, for Years 2 to 5. These sales figures are listed on the first line item of income statements in Table 1.

By multiplying these sales numbers by the ratios of "percentages of sales" given in the green cells in Table 1 and Table 2, the amount of various line items on income statements and balance sheets for the next five years can then be projected. Additionally, after the estimates of net fixed assets are obtained, the amount of depreciation each year can then be determined. They are equal to 10% of the depreciation rate multiplied by the net fixed assets of the previous year. For example, the depreciation for Year 1, amounts to \$5,800 (= 10% * \$58,000 (Net Fixed Assets on the balance sheet of Year 0)). Following the same calculation, the rest of the depreciations for this period are then estimated: \$5,800, \$5,440, \$6,800, \$9,520 and \$10,091 for Years 1 to 5, respectively. For the line item of interest expenses, its amount is equal to 12% multiplied by the

previous year's long-term debt on the balance sheet. For example, the interest expense of Year 1 is \$0 ($= 12\% * \0 (which is the amount of long-term debt for Year 0)). Repeating the same procedure, the rest of the interest expenses are projected as \$0, \$0, \$0 and \$27,120 for Years 2 to 5, respectively. After all the above numbers are projected, based on the standard accounting principle of income statements, gross profit, total operating expenses, operating income, earning before tax (EBT) can all be derived. Multiplying the amount of EBT by 30%, the tax expenses for each of these five years are then derived. Deducting tax expenses from EBTs then results in net incomes. With dividends each year for this case-study period assumed to be zero, net incomes and addition to retained earnings are the same amounts every year. The complete projection of the income statements for these five years are thus obtained and presented in Table 1.

Answer 2:

Based on the assumptions given in this case, the line items on the right hand side of the balance sheets are available from the solutions of Answer 1. Summing up all these items, the amounts of "total liabilities and equity" are obtained. This amount is then put into "total assets" to force balance sheets to be balanced. With total assets and the rest of line items on the left hand side of the balance sheets now known, the hidden amount of the line item for surplus cash can be revealed. Thus, the projection of these balances sheets is completed. As an example, the following demonstrates how to project surplus cash and construct the balance sheet for Year 1.

Accounts Payable (\$40,000) = (1)
 Plus: Accrued Wages and Commissions Payable (\$8,000) = (2)
 Total Current Liabilities (\$48,000) = (3) = (1) + (2)
 Plus: Long-term Debt (\$0) = (4)
 Plus: Owners' Equity (= Retained Earnings = Previous Balance + Addition to Retained Earnings = (\$228,697 = \$187, 957+ \$40,740) = (5)
 Total Liabilities and Equity (\$276,697= \$48,000 + \$0 +\$228,697) = (6) = (3) + (4) + (5)
 Equal to: Total Assets (\$276,697) = (7)
 Minus: Net Fixed Assets (\$54,400) = (8)
 Equal to: Total Current Assets (\$222,297 = \$276,697 – \$54,400) = (9) = (7) – (8)
 Minus: Required Cash (\$24,000) = (10)
 Minus: Accounts Receivable (\$48,000) = (11)
 Minus: Inventories (\$80,000) = (12)
 Minus: Prepaid Expenses (\$1,600) = (13)
 Equal to: Surplus Cash (\$68,697= \$222,297 - \$24,000 - \$48,000 - \$80,000 - \$1,600 = (14)
 = (9) – (10) – (11) – (12) – (13)

Repeating the same calculation process, the surplus cash for the remaining years can be derived: \$68,697, \$80,889, \$74,529, \$360,169 and \$418,403, respectively, for Years 1 to 5. Given that surplus cash prior to today is equal to zero, the surplus cash flows, defined as the changed amount of surplus cash from the previous year to the current year, are projected as \$6,487, \$62,210, \$12,192, -\$6,360, \$285,640 and \$58,234, respectively, for Years 0 to 5. In addition, the book values of equity are also revealed after the projection of the annual balance sheets for this five-year period is completed. They are \$228,697, \$280,889, \$354,529, \$430,969

and \$493,011, respectively, for Years 1 to 5. All solutions of Question 2 are presented in Table 2.

Answer 3:

Following the basic accounting framework for statements of cash flows, each line item of this statement is calculated based on the numbers on the income statements and balance sheets in Answer 1 and 2. For numbers taken from income statements like net incomes, depreciation expenses, and dividends, these numbers will be input into the statements of cash flows directly without modification. But when entering the numbers on the balance sheets into the statements of cash flows, the difference between the amounts from the previous year to the current year will be used to correctly reflect the amount of change during the year, since the balance sheets, by their nature, are snapshots of the company's financial standing at the end of its fiscal year. To explain the construction of these statements, the statement of cash flows for Year 1 is organized below as an example.

Operating Activities:

Net Income [= NI = \$40,740] (1)

Plus: Depreciation Expenses [= DeptExp1 = \$5,800] (2)

Less: Change in Accounts Receivable (AR) [= - (AR1- AR0) = - (\$48,000 - \$46,000) = - \$2,000] (3)

Less: Change in Inventories [= - (INV1- INV0) = - (\$80,000 - \$95,000) = \$15,000] (4)

Less: Change in Prepaid Expenses [= - (PrepExp1- PrepExp0) = - (\$1,600 - \$2,300) = \$700] (5)

Plus: Change in Accounts Payable (AP) [= AP1-AP0 = (\$40,000 - \$33,810) = \$6,190 =] (6)

Plus: Change in Accrued Liabilities [= (Accrual1 - Accrual0) = (\$8,000 - \$9,020) = - \$1,020] (7)

Net Cash Flows from Operating Activities (A) – CFO

[= (1) + (2) + (3) + (4) + (5) + (6) + (7)] = \$65,410]

Investing Activities:

Less: Capital Expenditure, where capital expenditure = (change in net fixed assets + depreciation expenses of the current year)

{ = - [(NFA1- NFA0) + DeptExp1] = - [(\$54,400 - \$58,000) + \$5,800] = - \$2,200 } (8)

Net Cash Flows from Investing Activities (B) – CFI [= (8) = - \$2,200]

Financing Activities:

Plus: Change in Equity Issues [= \$0, no additional issue of stocks - assumption given in this case] (9)

Less: Dividends [= Div1= \$0, no issue of dividends - assumption given in this case] (10)

Plus: Change in Debt Issues

[= Long-term Debt1- Long-term Debt0 = (\$0 - \$0) = \$0] (11)

Net Cash Flows from Financing Activities (C) – CFF [= (9) + (10) + (11) = \$0]

Summary:

Net change in cash = CFO (A) + CFI (B) + CFF (C) [= \$65,410 + (-\$2,000) + \$0]

= \$63,210] (12)

Beginning cash balance [= Cash₀ = \$29,487] (13)

Ending cash balance [= (12) + (13) = \$63,210 + \$29,487 = \$92,697]

Additional item:

Required Cash Flows (14)

[= change in required cash = $\Delta RC = RC_1 - RC_0 = \$24,000 - \$23,000 = \$1,000$]

Model 2: Alternative Cash Flows to Proxy Dividends [= CFO + CFI + change in debt issues – change in required cash = (A) + (B) + (11) - (14) = \$65,410 + (-\$2,200) + \$0 – \$1,000 = \$62,210]

Applying the basic structure of line items for a statement of cash flows, the five statements for Years 1 to 5 are then constructed and presented in Table 3. Furthermore, the components of the formula given in Question 3 are identified and highlighted in blue. These alternative cash flows resulting from this formula are then calculated and presented in the last row of Table 3. These numbers are shown to be the exact numbers of surplus cash flows found in Table 1.

Answer 4:

Based on (1) the definition of net operating working capital, (2) numbers from the projected financial statements each year for this period, and (3) the given information in this case regarding the current assets, surplus cash, and debt-free current liabilities of last year (in green cells on Table 4), the amount of the net operating working capital from last year to Year 5 are calculated respectively and presented in Table 4.

Following the practitioners' formula given in Question 4, the line items of net income and depreciation and amortization are taken from the first and second line items of the statement of cash flows. The third item, capital expenditure, when carrying a negative sign, becomes the amount of Cash Flows from Investing (CFI), which is the main category of cash flows in the statements of cash flow. The fourth line item, the change of the net operating working capital, is the changed amount from the previous year to the current year. For example, for Year 1, net operating working capital was \$57,245 last year and \$123,470 for the current year, the changed amount is then \$66,225. When carrying a negative sign in the formula, it then becomes a negative amount of \$66,225 (= - \$66,225 = - (\$123,470 - \$57,245)). The fifth line, change in debt issues, is directly taken from the statements of cash flows and carries a positive sign. Summing up all these line items as demonstrated on Table 5, these cash flows are obtained: \$6,487, \$62,210, \$12,192, -\$6,360, \$285,640 and \$58,234, respectively, from Years 0 to 5. As shown on the bottom part of Table 5, these cash flows are the same amounts as those projected from either Model 1 or Model 2. This demonstrates the consistency and correctness of these cash-flow estimates.

Answer 5:

Based on the business valuation literature, terminal value in this case is calculated as follows:

$$\text{Terminal value (P4)} = D5 / (RR - CG) = \$58,234 / (25\% - 6\%) = \$306,497$$

The cash flow of Year 5, \$58,234, is a proxy for the dividends (D5) for Year 5. RR here stands for the required rate of return and CG is to be the constant growth rate of dividends. These numbers are given in this case as 25% and 6%, respectively.

Since there are two numbers, D4 (\$285,640) and P4 (\$306,497), and both numbers are projected to be realized at the end of Year 4, these two numbers are then summed together as \$592,137 (= \$285,640 + \$306,497) for the ease of their expression within a series of cash flows. There is a series of cash flows, D1, D2, D3, D4 + P4, required to be discounted into today's dollars in order to project the intrinsic value of equity for the current year (P0). These cash flows amount to \$62,210, \$12,192, -\$6,360, and \$592,137, respectively, for Years 1 to 4. These numbers are shown on Table 6 and highlighted in blue.

Discounting these four cash flows into today's dollars and adding these present values together, the intrinsic value of equity for the current year (P0) is obtained. All these steps could be automatically executed if the formula of net present value of the Excel software is used. See below:

$$P0 = NPV (25\%, D1, D2, D3, D4+P4) = \$296,854$$

To confirm the correctness of this number, each step is demonstrated below and the estimate of P0 is shown to be the same.

$$\begin{aligned} PV(D1) &= PV(\$62,210) = \$62,210 / (1+25\%)^1 = \$49,768 \\ PV(D2) &= PV(\$12,192) = \$12,192 / (1+25\%)^2 = \$7,803 \\ PV(D3) &= PV(-\$6,360) = -\$6,360 / (1+25\%)^3 = -\$3,256 \\ PV(D4 + P4) &= PV(\$592,137) = \$592,137 / (1+25\%)^4 = \$242,539 \\ P0 &= PV(D1) + PV(D2) + PV(D3) + PV(D4+P4) = \$296,854 \end{aligned}$$

Expected Return (ER) is equal to Dividend Yield (DY) plus Capital Gain Yield (CGY). As an example, if an investor purchased a stock at today's price of \$100 and expects to receive a dividend of \$3 in the coming year, then the dividend yield for this investment is 3% as it is the return from the dividend for this investment. That is why it is termed as Dividend Yield (DY) and its mathematical expression is D_{t+1}/P_t . In this example, it is $\$3/\$100 = 3\%$. Regarding Capital Gain Yield (CGY), its mathematical expression is $(P_{t+1} - P_t)/P_t$. This represents the expected percentage change of price one year from now. If the price is expected to be increased from \$100 today to \$105 next year, then the expected return from the price change of this investment is 5% ($= (\$105 - \$100)/\$100$). Since the stock is the typical representation for the asset class of capital, this gain from the price change of stocks is then termed as Capital Gain Yield (CGY). Summing Dividend Yield (DY) together with Capital Gain Yield (CGY), the expression of the Expected Return (ER) is then completed. It is "Expected Return (ER) = Dividend Yield (DY) + Capital Gain Yield (CGY)".

To estimate P1, the price next year, the expected percentage of price change from now to the next year, which is CGY1, is required to be projected. In order to estimate CGY1, the equilibrium condition of "Required Return (RR) to be equal to Expected Return (ER)" is called upon. After P0 is estimated, the DY1 is then obtained by using $D1/P0$ ($= \$62,210/\$296,854 = 21\%$). Since Required Return (RR) is given in this case as 25%, the rate for the Expected Return (ER) is thus set to be 25% as well. The CGY1 is then estimated to be 4% ($= 25\% (ER) - 21\%$

(DY1)). Multiplying P0 by (1 + CGY1), P1 is then projected as $\$308,857 = P0 * (1 + CGY1) = \$296,854 * (1 + 4\%)$. Repeating the same procedure for Years 2 to 5, P2 to P5 are then projected. The calculation of these equity values are listed on the bottom part of Table 6.

With the book values obtained from the projected balance sheets in Answer 2 and P0 to P5 estimated from the above method, two sets of equity values, book values and intrinsic values, are then projected and ready for BetterSkin to start its negotiations with its buyers for the deals taking place in the next five years.

REFERENCE:

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APPENDIX

Table 1: Income Statements from Year 0 to Year 5

		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	% of Sales:	12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027
		Today					growth starts at the beginning of Year 5
Growth Rates for Sales:				25%	40%	6%	6%
Sales		652,000	1,600,000	2,000,000	2,800,000	2,968,000	3,146,080
Cost of Goods Sold	70%	386,400	1,120,000	1,400,000	1,960,000	2,077,600	2,202,256
Gross Profit		265,600	480,000	600,000	840,000	890,400	943,824
Operating Expenses:							
Wages and Commissions	18%	105,000	288,000	360,000	504,000	534,240	566,294
rent, miscellaneous and							
Insurances	8%	47,840	128,000	160,000	224,000	237,440	251,686
Depreciation (=10% of net							
Fixed Assets" from BS of							
Previous Year)	10%	4,600	5,800	5,440	6,800	9,520	10,091
Total Operating Expenses		157,440	421,800	525,440	734,800	781,200	828,072
Operating Income = EBIT		108,160	58,200	74,560	105,200	109,200	115,752
Interest Expense (=12% of							
"Long-term Debt" on BS of							
Previous year)	12%	1,000	0	0	0	0	27,120
EBT		107,160	58,200	74,560	105,200	109,200	88,632
Tax Expenses (=30% of							
EBT)	30%	32,148	17,460	22,368	31,560	32,760	26,590
Net Income		75,012	40,740	52,192	73,640	76,440	62,042
Dividend		0	0	0	0	0	0
Addition to Retained Earnings		75,012	40,740	52,192	73,640	76,440	62,042

Table 2: Balance Sheets, Surplus Cash Flows and Book Values of Equity from Year 0 to Year 5

		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	% of Sales:	12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027
		Today					growth starts at the beginning of Year 5
Current Assets:							
Required Cash	1.5%	23,000	24,000	30,000	42,000	44,520	47,191
Surplus Cash (treated as a "Plug" or "Question to Solve")		6,487	68,697	80,889	74,529	360,169	418,403
Accounts Receivable (AR)	3%	46,000	48,000	60,000	84,000	89,040	94,382
Inventories	5%	95,000	80,000	100,000	140,000	148,400	157,304
Prepaid Expenses	0.1%	2,300	1,600	2,000	2,800	2,968	3,146
Total Current Assets		172,787	222,297	272,889	343,329	645,097	720,427
Net Fixed Assets	3.4%	58,000	54,400	68,000	95,200	100,912	106,967
Total Assets		230,787	276,697	340,889	438,529	746,009	827,394
Current Liabilities							
Accounts Payables (AP)	2.5%	33,810	40,000	50,000	70,000	74,200	78,652
Accrued wages and Commissions Payable	0.5%	9,020	8,000	10,000	14,000	14,840	15,730
Total Current Liabilities		42,830	48,000	60,000	84,000	89,040	94,382
Long-term Debt (Given in this case)		0	0	0	0	226,000	240,000
Owners' Equity (= Retained Earnings) = Previous Balance + Addition to Retained Earnings		187,957	228,697	280,889	354,529	430,969	493,011
Total Liabilities and Equity		230,787	276,697	340,889	438,529	746,009	827,394
Surplus Cash Flows (= ΔSurplus Cash)		6,487	62,210	12,192	(6,360)	285,640	58,234

Table 3: Statements of Cash Flows from Year 0 to Year 5

	Year 0 12/31/2022	Year 1 12/31/2023	Year 2 12/31/2024	Year 3 12/31/2025	Year 4 12/31/2026	Year 5 12/31/2027
Projected Statements of Cash Flows:	Today					Constant growth starts at the beginning of Year 5
Operating Activities:						
Net Income	6,372	40,740	52,192	73,640	76,440	62,042
Plus: Depreciation Expenses	4,600	5,800	5,440	6,800	9,520	10,091
Less: Change in Accounts Receivable (AR)	9,200	(2,000)	(12,000)	(24,000)	(5,040)	(5,342)
Less: Change in Inventories	(12,880)	15,000	(20,000)	(40,000)	(8,400)	(8,904)
Less: Change in Prepaid Expenses	(1,840)	700	(400)	(800)	(168)	(178)
Plus: Change in Accounts Payable (AP)	(4,830)	6,190	10,000	20,000	4,200	4,452
Plus: Change in Accrued Liabilities	1,725	(1,020)	2,000	4,000	840	890
Net Cash Flows from Operating Activities (A) - CFO:	13,387	65,410	37,232	39,640	77,392	63,052
Investing Activities:	(6,900)	(2,200)	(19,040)	(34,000)	(15,232)	(16,146)
Where Capital Expenditure = (Change in Net Fixed Assets + Depreciation Expenses of Current Year))	(6,900)	(2,200)	(19,040)	(34,000)	(15,232)	(16,146)
Net Cash Flows from Investing Activities (B) - CFI:	(6,900)	(2,200)	(19,040)	(34,000)	(15,232)	(16,146)
Financing Activities:						
Plus: Change in Equity issues	0	0	0	0	0	0
Less: Dividends	0	0	0	0	0	0
Plus: Change in Debt Issues (= Change in Long-term Debt) (I)	0	0	0	0	226,000	14,000
Net Cash Flows from Financing Activities - CFF:	0	0	0	0	226,000	14,000
Summary:						
Net Change in cash = CFO + CFI + CFF	6,487	63,210	18,192	5,640	288,160	60,906
Beginning Cash Balance	23,000	29,487	92,697	110,889	116,529	404,689
Ending Cash Balance	29,487	92,697	110,889	116,529	404,689	465,595
Required Cash Flows (I4) (= Change in Required Cash = ΔRC)	0	1,000	6,000	12,000	2,520	2,671
Model 2: Alternative Cash Flow to Proxy Dividends (=	6487	62210	12192	-6360	285640	58234

Table 4: Net Operating Working Capital from Last Year to Year 5

	Last year 12/31/2022	Year 0 12/31/2022 Today	Year 1 12/31/2023	Year 2 12/31/2024	Year 3 12/31/2025	Year 4 12/31/2026	Year 5 12/31/2027
Net Operating Working Capital:							
Current Asset	105,660	172,787	222,297	272,889	343,329	645,097	720,427
- Surplus cash	0	6,487	68,697	80,889	74,529	360,169	418,403
- DFCL	48,415	42,830	48,000	60,000	84,000	89,040	94,382
Net Operating Working Capital:	57,245	123,470	105,600	132,000	184,800	195,888	207,641

Notes:

1. DFCL stands for Debt-Free Current Liabilities. It is equal to the sum of accounts payable and accruals.
2. Constant growth rate of 6% for sales and dividends is assumed to start at the beginning of Year 5

Table 5: Cash Flows to Proxy Dividends Based on the Practitioners' Formula: Year 0 to Year 5

	Year 0 12/31/2022	Year 1 12/31/2023	Year 2 12/31/2024	Year 3 12/31/2025	Year 4 12/31/2026	Year 5 12/31/2027
Net income	75,012	40,740	52,192	73,640	76,440	62,042
Plus Depreciation and Amortization	4,600	5,800	5,440	6,800	9,520	10,091
Less: Capital Expenditure	(6,900)	(2,200)	(19,040)	(34,000)	(15,232)	(16,146)
Less: Change in Net Operating WC	(66,225)	17,870	(26,400)	(52,800)	(11,088)	(11,753)
Plus: Change in Debt Issues	0	0	0	0	226,000	14,000
Model 3: Cash Flows Based on the Practitioners' Formula	6,487	62,210	12,192	(6,360)	285,640	58,234
Model 1: Surplus Cash Flows:	6,487	62,210	12,192	(6,360)	285,640	58,234
Model 2: Alternative Cash Flows from Statements of Cash Flows:	6,487	62,210	12,192	(6,360)	285,640	58,234

Table 6: Intrinsic Values of Equity from Year 0 to Year 5

Valuation Dates:	Year 0 12/31/2022	Year 1 12/31/2023	Year 2 12/31/2024	Year 3 12/31/2025	Year 4 12/31/2026	Year 5 12/31/2027
	Today					growth rate of 6% for dividends will start at the beginning of Year 5
Cash Flows to Proxy Dividends (Dt):		62,210	12,192	(6,360)	285,640	58,234
Terminal Value ($P_4 = D_5 / (RR - CG) = 58,234 / (25\% - 6\%)$):					306,497	
Cash Flows for Discounting:		62,210	12,192	(6,360)	592,137	
Required Returns:	25%	25%	25%	25%	25%	25%
Dividend Yield ($DY_t = (D_t + 1/P_t)$)		21%	4%	-2%	60%	19%
Capital Gain Yield ($CGY_t = 25\% - DY_t$)		4%	21%	27%	-35%	6%
Intrinsic Values of Equity (Pt):	\$ 296,854	\$ 308,857	\$ 373,880	\$ 473,709	\$ 306,497	\$ 324,887
Notes:						
$P(0) = NPV(25\%, D1, D2, D3, D4+P4) = \$296,854$ $= PV(D1) + PV(D2) + PV(D3) + PV(D4+P4)$ $PV(D1) = PV(\$62,210) = \$62,210 / (1+25\%)^1 = \$49,768$ $PV(D2) = PV(\$12,192) = \$12,192 / (1+25\%)^2 = \$7,803$ $PV(D3) = PV(-\$6,360) = -\$6,360 / (1+25\%)^3 = -\$3,256$ $PV(D4 + P4) = PV(\$592,137) = \$592,137 / (1+25\%)^4 = \$242,539$ $P(0) = PV(D1) + PV(D2) + PV(D3) + PV(D4+P4) = \$296,854$ $P1 = P0 * (1 + CGY1) = \$296,854 * (1 + 4\%) = \$308,857$ $P2 = P1 * (1 + CGY2) = \$308,857 * (1 + 21\%) = \$373,880$ $P3 = P2 * (1 + CGY3) = \$373,880 * (1 + 27\%) = \$473,709$ $P4 = P3 * (1 + CGY4) = \$473,709 * [1 + (-35\%)] = \$306,497$ $P5 = P4 * (1 + CGY5) = \$306,497 * (1 + 6\%) = \$324,887$						