

## Capitalization Table– SGI Engineering<sup>1</sup> Solution Set<sup>2</sup>

SGI Engineering is a closely held firm in tech development and manufacturing, currently owned by its four founders: Sam, Gus and Ike Ashby (brothers). Each of the Ashby brothers made equity contributions of \$100,000 in exchange for 100,000 common shares when the firm was founded in 2020. At the same time the firm borrowed another \$200,000 in a 4%, 10-year, interest only SBA<sup>3</sup>.

The firm has performed well with 2022 revenues of \$2,500,000 but suffers from sufficient capital allowing it to take on larger, more profitable projects.

Kendall Sudweeks, an experienced Angel investor, has agreed to provide an equity investment of \$500,000, based on a 20% annual return on a 4-year investment. SGI carries no excess cash on the balance sheet. The firm posted 2022 Revenues and Free Cash Flow of \$2,500,000 and \$44,000, respectively, and projects the following Revenue and Forecast Ratios to calculate its various cash flow components for 2023-2026:

<b>Forecast Ratios</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
<b>Revenue</b>	13.00%	25.00%	30.00%	15.00%	2.50%
<b>COGS</b>	40.00%	37.00%	36.00%	35.00%	35.00%
<b>OP-EX w/o D&amp;A</b>	57.00%	54.00%	50.00%	50.00%	50.00%
<b>Dep</b>	1.80%	1.80%	1.80%	1.80%	1.80%

Gross Fixed Assets<sup>4</sup> and Net Working Capital for 2022 are \$140,000 and \$85,000 respectively and can be expected to change at the same rate as revenue growth.

Sudweeks and the Ashby brothers have agreed on a pre-money valuation as of the end of 2022 based on the following:

- .46x on 2026 sales (20% weighting)
- 3.25x on 2026 EBITDA (25% weighting)
- Gordon Growth style DCF<sup>5</sup> valuation based on 2026 cash flow (25% weighting)
- FCF Model Discounted Cash Flow Analysis (30% weighting)

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<sup>1</sup> This problem and solution set is intended to present an abbreviated discussion of the included finance concepts and is not intended to be a full or complete representation of them or the underlying foundations from which they are built.

<sup>2</sup> This problem set was developed by Richard Haskell, PhD ([rhaskell@westminstercollege.edu](mailto:rhaskell@westminstercollege.edu)), Associate Professor of Finance, Bill & Vieve Gore School of Business, Westminster College, Salt Lake City, Utah (2023).

<sup>3</sup> The 4%, 10-year, interest-only SBA loan has a balloon payment due of \$100,000 at maturity

<sup>4</sup> Gross Fixed Assets are the book value of the firm's fixed operating asset before accounting for possible depreciation.

<sup>5</sup> A Gordon Growth Style DCF ignores cash flows other than that identified for the subject year

## Questions

- A. Construct a table of values representing 2022 Income Statement & Free Cash Flow values and 2023-2026 proforma values.

	2022	2023	2024	2025	2026
Revenue	2,500,000	3,125,000	4,062,500	4,671,875	4,788,672
COGS	(1,000,000)	(1,156,250)	(1,462,500)	(1,635,156)	(1,676,035)
Gross Profit	1,500,000	1,968,750	2,600,000	3,036,719	3,112,637
OP-EX w/o D&A	(1,425,000)	(1,687,500)	(2,031,250)	(2,335,938)	(2,394,336)
Dep	(45,000)	(56,250)	(73,125)	(84,094)	(86,196)
EBIT	30,000	225,000	495,625	616,688	632,105
EBITDA	75,000	281,250	568,750	700,781	718,301
Cash Flow	44,000	166,500	355,513	485,599	543,442
Gross Fixed Assets	140,000	175,000	227,500	261,625	268,166
NWC	85,000	106,250	138,125	158,844	162,815
Forecast Ratios					
Revenue	13.00%	25.00%	30.00%	15.00%	2.50%
COGS	40.00%	37.00%	36.00%	35.00%	35.00%
OP-EX w/o D&A	57.00%	54.00%	50.00%	50.00%	50.00%
Dep	1.80%	1.80%	1.80%	1.80%	1.80%
Discount Rate	20%				
Long-Run Growth	2.5%				
Tax Rate	26%				
Explicit Period	4				
	<b>Multiples</b>	<b>Weights</b>			
Revenue Multiple	0.46	20%			
EBITDA Multiple	3.25	25%			
Gordon Growth Style DCF		25%			
FCF Model		30%			



- C. Prepare a cap table including the Initial Condition of the Ashby brother's ownership of the firm at book value and Ashby's and Sudweeks' values based on the 1<sup>st</sup> Round transaction. Include each of the relevant elements expected for a credible Cap Table (per-investor and aggregate pre and post-money values for equity, debt and total value as well as resultant shares outstanding, percentage ownership, etc.).

		Initial Condition				1 <sup>st</sup> Round						
Pre-Money	Valuation	0.00				1,682,311						
	Debt Value	0.00				200,000						
	Equity Value	0.00				1,482,311						
	Shares Outstanding	0.00				300,000						
	Price Per Share	0.00				\$4.94						
Post-Money	New Equity Investment	300,000				500,000						
	New Equity Percentage	100%				25%						
	New Debt Investment	200,000				0.00						
	Valuation	500,000				2,182,311						
	Debt Value	200,000.00				200,000						
	Equity Value	300,000.00				1,982,311						
	Option Pool	0.00				0.00						
	Shares Outstanding	300,000				401,193						
		Initial Condition				Pre-Money			Post-Money			
Equity		Shares	Equity Value	Per Share Value	Ownership Stake	Shares	Per Share Cost Basis	Ownership Stake	Shares	Equity Value	Per Share Value	Ownership Stake
	Sam Ashby	100,000	100,000	1.00	33%	100,000	1.00	33%	100,000	494,104	4.94	25%
	Gus Ashby	100,000	100,000	1.00	33%	100,000	1.00	33%	100,000	494,104	4.94	25%
	Ike Ashby	100,000	100,000	1.00	33%	100,000	1.00	33%	100,000	494,104	4.94	25%
	Kendall Sudweeks				0%	-	-	-	101,193	500,000	4.94	25%
	HakFam Ventures				0%	-	-	-	-	-	-	-
	Totals	300,000	300,000		100%	300,000		100%	401,193	1,982,311		100%
Debt		Debt	Rate	Term (yrs)	Debt	Rate	Term (yrs)	Debt	Rate	Term (yrs)		
	SBA	200,000	4.00%	10	200,000	4.00%	10	200,000	4.00%	10		
	HakFam Ventures											
	Totals	200,000			200,000			200,000				

### Additional Narrative

Two years after Sudweeks' initial investment (2025) the firm has continued to perform well and has developed a sufficiently strong reputation to be awarded a US Department of Defense contract requiring it to expand its staff, invest in specialized pipeline testing equipment. The Ashby brothers and Sudweeks agree the firm is in need of an additional investment and is prepared to accept an offer from Hakfam Ventures based on a negotiated, pre-money value \$8,000,000. The investment includes \$1,500,000 in new equity and \$1,000,000 of debt at 9%, interest only expected to be refinanced, paid off, or converted to common shares at the end of year 2035 at then fair market value. HakFam is seeking an expected return of 25%.

- D. Extend the Capitalization Table you prepared for the Initial Condition and 1<sup>st</sup> Round to include HakFam Ventures investment as a 2<sup>nd</sup> Round.

2 <sup>nd</sup> Round						
8,000,000						
200,000						
7,800,000						
401,193						
\$19.44						
1,500,000						
16%						
1,000,000						
10,500,000						
1,200,000						
9,300,000						
0.00						
478,346						
Pre-Money			Post-Money			
Shares	Per Share Cost Basis	Ownership Stake	Shares	Equity Value	Per Share Value	Ownership Stake
100,000	1.00	25%	100,000	1,944,200	19.44	21%
100,000	1.00	25%	100,000	1,944,200	19.44	21%
100,000	1.00	25%	100,000	1,944,200	19.44	21%
101,193	4.94	25%	101,193	1,967,401	19.44	21%
-	-	-	77,153	1,500,000	19.44	16%
401,193		100%	478,346	9,300,000		100%
Debt	Rate	Term (yrs)	Debt	Rate	Term (yrs)	
200,000	4.00%	10	200,000	4.00%	10	
			1,000,000	9.00%	10	
			1,200,000			

- E. Explain what has happened to the Ashby brother's and Sudweeks' percentage ownership and why they may be motivated to accept the resultant outcomes.

While Ashby's and Sudweeks' equity ownership percentages have certainly decreased as a result of taking on additional equity and/or debt investment, their per-share and overall values have increased substantially, but not directly as a result of the receipt of the added investment. The increases have been more the result of what the firm has done with the investment capital and the resultant change in its enterprise value.

**F. Explain under what conditions HakFam may be prepared to convert its debt stake to common equity at the end of the 10-year period and what this might represent for Ashbys and Sudweeks.**

HakFam will only convert the venture debt into equity shares in the event that the firm's value has increased sufficiently to result in a converted equity value greater than the value of its debt stake. It may be necessary to consider the market value of that debt in 2035 rather than the face value of the debt if the firm is in a position to pay off the debt before or after than time. Note that HakFam is not in a control position given its 16% equity stake and unless the debt instrument negotiated between SGI and HakFam gives HakFam the ability to refuse payment of the debt prior to the conversion date, the other equity stakeholders may be in a position to pay off the debt and keep from having further shareholder dilution.