

Valuing High Growth Firms: Almaden Technologies¹

Case Study²

The subject firm for the problems represented in this case is Almaden Technologies, a fictional firm for which hypothetical values have been presented. The Income Statement, Balance Sheet, and Other Financial Information used herein are also used in support of building a body of Corporate Finance In-Class Problems and Case Studies.

Almaden Technologies (AT), a Utah County start up with an innovative drone technology, has approached your private equity firm with a proposal to partner and fund its capital needs as it goes through its growth phases from corporate infancy to relative maturity.

The firm has developed iLenz, a “GoPro” style camera system coupled with a GPS pointer with sufficient accuracy to make it a highly desirable platform for numerous expected disruptive technologies envisioned in the expanding drone space. It also boasts the longest battery life in the industry and has the highest flight-time to weight ratio of any drone in its market segment.

In 2018 the firm’s founders invested \$2.5 million of their own funds, now held on the firm’s books as 250,000 shares of common stock and received another \$2 million in funding from an angel investor in exchange for a 30% equity stake in the form of preferred stock for 5 years that can either be converted one-for-two to non-voting preferred at a 15% dividend rate, or converted one-for-one into common stock based on a \$35 per share valuation.

The firm had \$3.345 million in sales last year (2020) and is projecting \$5.978 million in sales for the current year with an operating income of \$491,180. Though the overall domestic and global economy gyrated violently in 2020, Almaden Tech had an excellent year and felt little of the effect of the pandemic.

The firm is committed to keeping its non-R&D operating expenses (including depreciation & amortization) at the same percentage of revenue in the foreseeable future as can be calculated for the most recent year. This suggests that as the firm’s cost of goods sold (variable costs) and fixed costs of administration as a percentage of revenues decline the firm will invest more heavily in support of sales, marketing and human capital. It’s currently reinvesting all of its pretax income into R&D and expects to do so up to a maximum annual R&D budget of \$10,000,000. The firm is projecting Free Cash Flow for each of the next 6 years (including 2021-2016), currently accounts for R&D as an expense to limit its tax liability and has yet to capitalize the innovations and patents resulting from the expenditures.

In 2020 the firm’s flagship drone, Mercury 1.0, retailed for \$2,100 based on a markup of 300% over cost of goods sold, has a landed cost to the firm of \$600 per unit for the hardware and packaging, \$75 per unit for the software, and another \$17 in shipping. The product development and marketing teams are confident they can sustain a 35% growth rate for the next 3 years and 20% for the following 3 years, after which time they expect sales to grow at 10% annually based on continually integrating technological innovations into the product to keep it fresh and relevant.

¹ 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.

² This problem set was developed by Richard Haskell, PhD, Associate Professor of Finance, Gore School of Business, Westminster College, Salt Lake City, Utah (2021).

The firm's VP of Operation is confident that as the scale of output increases the hardware and packaging, and software costs can be reduced from \$600 and \$75 per unit, respectively, to \$475 and \$35... as long as the firm can sustain annual production orders of no less than 5,000.

These projections are, in part, the result of contracts recently signed with the USGS and NPS. Additionally, significant interest has been shown by the National Board of Realtors, National Cattleman's Beef Association, American Sheep Industry Association and numerous residential and commercial real estate builders and developers. Though the firm has no plans to enter into the weaponized drone space it's plausible the firm may elect to license some of its technology to US Department of Defense.

The firm is seeking a Venture Capital equity investment of \$2 million based on a post-money valuation of \$15 million, plus another \$3 million in venture debt line at 8% to fund inventory purchases. Currently the firm outsources production to Leland Technologies, a domestic contract manufacturer in the technology space. The firm is expected to only use as much of the equity line as necessary to buy inventory for a given year, so the equity line is used, all or in part, at the beginning of the year and paid off at the end of the year.

With the \$5 million equity investment the firm plans to launch Quick Silver 1.0 (QS 1), an industrial drone with a payload capacity of 20 pounds using the iLenz technology. It expects to sell 1,000 QS 1.0 units in the year following FAA approval, expected in 2022, for which it is ready to begin production upon receipt of funding. It expects sales of QS 1.0 to increase by 75% for the following 3 years before declining to a 40% growth rate for 2 years. QS sales growth is based on a current development contract with Amazon and interest expressed by FedEx, UPS, and EBay. The firm expects long-run sales growth for the QS line to be in line with that expected for its Mercury line and is committed to integrating new technology into the product to allow it to increase payload while keeping costs from rising. The firm plans to sell each QS 1.0 for \$10,000.00 direct to corporate customers and expects a landed cost to the firm for hardware and packaging of \$5,000, plus \$75 for software based on 1,000 units, and is confident it can reduce its costs to a total of \$3,500 per unit with annual volume of greater than 3000 units.

| Assumptions | | | | | | | | | | |
|---|--------|------|------|------|-----------|-----------|-----------|-----------|-----------|--|
| | Price | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | |
| Revenues (units) | | | | | | | | | | |
| Mercury Sales | 2,100 | | | | 2,740 | 3,700 | 5,000 | 6,000 | 7,200 | |
| Quick Silver Sales | 10,000 | | | | - | 1,000 | 1,750 | 3,063 | 5,360 | |
| Royalties | | | | | 15.00% | 15.00% | 15.00% | 15.00% | 15.00% | |
| COGS (cost per unit) | | | | | | | | | | |
| Mercury (landed) | | | | | 600 | 600 | 475 | 475 | 475 | |
| Quick Silver (landed) | | | | | - | 5,000 | 5,000 | 3,500 | 3,500 | |
| Software | | | | | 75 | 75 | 75 | 35 | 35 | |
| Shipping | | | | | 17.00 | 17.00 | 17.00 | 17.00 | 17.00 | |
| Operating Expenses | | | | | | | | | | |
| General & Administrative (fixed) | | | | | 472,500 | 472,500 | 472,500 | 472,500 | 472,500 | |
| General & Administrative (variable % revenue) | | | | | 5.00% | 5.00% | 5.00% | 5.00% | 5.00% | |
| Marketing & Sales | | | | | 10.00% | 10.00% | 10.00% | 10.00% | 10.00% | |
| Utilities & Equip Expense | | | | | 8.00% | 8.00% | 7.00% | 7.00% | 6.00% | |
| Management Salaries & Benefits (fixed) | | | | | 567,000 | 567,000 | 567,000 | 567,000 | 567,000 | |
| Management Salaries & Benefits (variable % revenue) | | | | | 5.00% | 5.00% | 5.00% | 5.00% | 5.00% | |
| Depreciation & Amortization | | | | | 14.00% | 14.00% | 14.00% | 14.00% | 14.00% | |
| Research & Development (fixed) | | | | | 3,000,000 | 3,000,000 | 3,000,000 | 3,000,000 | 3,000,000 | |
| Research & Development (variable % revenue) | | | | | 0.00% | 5.00% | 10.00% | 10.00% | 10.00% | |
| Other Operating Expense (% revenue) | | | | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| Non-Operating Expense (Income) | | | | | | | | | | |
| Net Interest (% Credit Cards + LTD) | | | | | 8.00% | 8.00% | 8.00% | 8.00% | 8.00% | |
| Other Non-Operating Items (% revenue) | | | | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| Tax Rate | | | | | | | | | | |
| | | | | | 25.95% | 25.95% | 25.95% | 25.95% | 25.95% | |
| Balance Sheet | | | | | | | | | | |
| Receivables (% revenue) | | | | | 6.00% | 6.00% | 6.00% | 6.00% | 6.00% | |
| Inventory (% revenue) | | | | | 10.00% | 10.00% | 10.00% | 10.00% | 10.00% | |
| Other Current Assets (% revenue) | | | | | 1.65% | 1.65% | 1.65% | 1.65% | 1.65% | |
| Addition to Property, Plant & Equipment | | | | | 150,000 | 1,000,000 | 300,000 | 300,000 | 300,000 | |
| Addition to Other Investments | | | | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | |
| Accounts Payable (% COGS) | | | | | 7.00% | 7.00% | 7.00% | 7.00% | 7.00% | |
| Credit Cards (% COGS + OpEx) | | | | | 2.00% | 2.00% | 2.00% | 2.00% | 2.00% | |
| Wages Payable (% COGS + OpEx) | | | | | 0.70% | 0.70% | 0.70% | 0.70% | 0.70% | |
| Other Current Liabilities (% OpEx) | | | | | 0.50% | 0.50% | 0.50% | 0.50% | 0.50% | |
| Additions (reductions) to Equity | | | | | 2,000,000 | - | - | - | - | |
| Shareholder Receipts (Dividends & Distributions) | | | | | - | - | - | - | - | |
| Additions (reductions) to Long-Term-Debt | | | | | 3,000,000 | - | - | - | - | |
| Additions (reductions) to Other Credit Lines & Debt | | | | | - | - | - | - | - | |

Income Statement

| | Actual | | Projected | Forecast | | | | |
|--|-----------|-------------|-----------|-------------|------------|------------|------------|------------|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
| Revenues | | | | | | | | |
| Mercury Sales | - | 1,575,000 | 3,150,000 | 5,754,000 | 7,770,000 | 10,500,000 | 12,600,000 | 15,120,000 |
| Quick Silver Sales | - | - | - | - | 10,000,000 | 17,500,000 | 30,630,000 | 53,600,000 |
| Royalties | - | 74,800 | 194,517 | 223,695 | 257,249 | 295,836 | 340,211 | 391,243 |
| Total Revenue | - | 1,649,800 | 3,344,517 | 5,977,695 | 18,027,249 | 28,295,836 | 43,570,211 | 69,111,243 |
| Cost of Goods Sold | | | | | | | | |
| Mercury (landed) | - | 450,000 | 899,500 | 1,644,000 | 2,220,000 | 2,375,000 | 2,850,000 | 3,420,000 |
| Quick Silver (landed) | - | - | - | - | 5,000,000 | 8,750,000 | 10,720,500 | 18,760,000 |
| Software | - | 56,250 | 112,437 | 205,500 | 352,500 | 506,250 | 317,205 | 439,600 |
| Shipping | - | 12,750 | 25,500 | 10,200 | 95,200 | 93,075 | 67,575 | 67,575 |
| Total Cost of Goods Sold | - | 519,000 | 1,037,437 | 1,859,700 | 7,667,700 | 11,724,325 | 13,955,280 | 22,687,175 |
| Gross Profit | - | 1,130,800 | 2,307,080 | 4,117,995 | 10,359,549 | 16,571,511 | 29,614,931 | 46,424,068 |
| Operating Expenses | | | | | | | | |
| General & Administrative | 64,250 | 234,000 | 472,500 | 771,385 | 1,373,862 | 1,887,292 | 2,651,011 | 3,928,062 |
| Marketing & Sales | 85,000 | 350,000 | 350,000 | 298,885 | 901,362 | 1,414,792 | 2,178,511 | 3,455,562 |
| Utilities & Equip Expense | - | 42,560 | 86,767 | 597,769 | 1,802,725 | 2,829,584 | 4,357,021 | 6,911,124 |
| Management Salaries & Benefits (fixed) | - | 567,000 | 567,000 | 865,885 | 1,468,362 | 1,981,792 | 2,745,511 | 4,022,562 |
| Depreciation & Amortization | 25,000 | 11,861 | 20,472 | 280,694 | 420,694 | 462,694 | 504,694 | 546,694 |
| Research & Development (fixed) | 750,000 | 1,000,000 | 1,000,000 | 3,000,000 | 3,901,362 | 5,829,584 | 7,357,021 | 9,911,124 |
| Other Operating Expense (% revenue) | - | - | - | - | - | - | - | - |
| Total Operating Expenses | 924,250 | 2,205,421 | 2,496,739 | 5,814,618 | 9,868,369 | 14,405,737 | 19,793,768 | 28,775,129 |
| Operating Income (EBIT) | (924,250) | (1,074,621) | (189,659) | (1,696,623) | 491,180 | 2,165,774 | 9,821,163 | 17,648,939 |
| Non-Operating Expenses | | | | | | | | |
| Net Interest (% Credit Cards + LTD) | - | - | - | 252,279 | 252,268 | 258,759 | 262,328 | 276,299 |
| Other Non-Operating Items (% revenue) | - | - | - | - | - | - | - | - |
| Total Non-Operating Expense | - | - | - | 252,279 | 252,268 | 258,759 | 262,328 | 276,299 |
| Taxable Income (EBT) | (924,250) | (1,074,621) | (189,659) | (1,948,902) | 238,912 | 1,907,015 | 9,558,835 | 17,372,640 |
| Taxes | - | - | - | - | 12,399 | 98,974 | 1,753,152 | 4,508,200 |
| Net Income | (924,250) | (1,074,621) | (189,659) | (1,948,902) | 226,512 | 1,808,041 | 7,805,683 | 12,864,440 |

| Balance Sheet | | | | | | | | | | |
|---|-----------|-----------|-------------|----------------|-------------|-------------------|-------------|----------------------------|-------------|--|
| | | Initial | 2018 | Actual 2019 | 2020 | Projected 2021 | 2022 | Forecast 2023 2024 2025 | | |
| Assets | | | | | | | | | | |
| Current Assets | | | | | | | | | | |
| Cash | 4,500,000 | 3,522,830 | 2,209,054 | 243,808 | 2,953,313 | 889,466 | 1,433,175 | 6,959,566 | 16,392,237 | |
| Receivables | | - | 23,467 | 199,166 | 358,662 | 1,081,635 | 1,697,750 | 2,614,213 | 4,146,675 | |
| Inventories | | - | 150,000 | 137,835 | 597,769 | 1,802,725 | 2,829,584 | 4,357,021 | 6,911,124 | |
| Other Current Assets | | - | - | 56,223 | 98,632 | 297,450 | 466,881 | 718,908 | 1,140,336 | |
| Total Current Assets | | 3,522,830 | 2,382,521 | 637,033 | 4,008,376 | 4,071,276 | 6,427,390 | 14,649,708 | 28,590,372 | |
| Fixed Assets | | | | | | | | | | |
| Property, Plant & Equipment | | 175,000 | 295,000 | 1,854,957 | 2,004,957 | 3,004,957 | 3,304,957 | 3,604,957 | 3,904,957 | |
| Other Investments | | - | - | - | - | - | - | - | - | |
| Accumulated Depreciation | | (25,000) | (36,861) | (57,333) | (338,028) | (758,722) | (1,221,416) | (1,726,110) | (2,272,804) | |
| Total Net Fixed Assets | - | 150,000 | 258,139 | 1,797,624 | 1,666,930 | 2,246,236 | 2,083,542 | 1,878,848 | 1,632,154 | |
| Total Assets | | 3,672,830 | 2,640,659 | 2,434,657 | 5,675,306 | 6,317,511 | 8,510,932 | 16,528,556 | 30,222,525 | |
| Liabilities & Shareholder's Equity | | | | | | | | | | |
| Current Liabilities | | | | | | | | | | |
| Accounts Payable | | 78,540 | 96,797 | 98,841 | 130,179 | 536,739 | 820,703 | 976,870 | 1,588,102 | |
| Credit Cards | | 18,540 | 24,237 | 16,434 | 153,486 | 153,354 | 234,487 | 279,106 | 453,744 | |
| Wages Payable | | - | 17,012 | 5,455 | - | - | - | - | - | |
| Other Current Liabilities | | - | 1,484 | 2,458 | 29,073 | 38,339 | 58,622 | 69,776 | 113,436 | |
| Total Current Liabilities | | 97,080 | 139,531 | 123,188 | 312,738 | 728,432 | 1,113,811 | 1,325,752 | 2,155,282 | |
| Long-Term Debt | | | | | | | | | | |
| Long-Term Debt | - | - | - | - | 3,000,000 | 3,000,000 | 3,000,000 | 3,000,000 | 3,000,000 | |
| Other Credit Lines & Debt | - | - | - | - | - | - | - | - | - | |
| Total Long-Term Debt | | - | - | - | 3,000,000 | 3,000,000 | 3,000,000 | 3,000,000 | 3,000,000 | |
| Total Liabilities | | 97,080 | 139,531 | 123,188 | 3,312,738 | 3,728,432 | 4,113,811 | 4,325,752 | 5,155,282 | |
| Shareholder's Equity | | | | | | | | | | |
| Preferred Equity | 4,500,000 | 4,500,000 | 4,500,000 | 4,500,000 | 6,500,000 | 6,500,000 | 6,500,000 | 6,500,000 | 6,500,000 | |
| Common Stock | | - | - | - | - | - | - | - | - | |
| Dividends & Distributions | | - | - | - | - | - | - | - | - | |
| Accumulated Retained Earnings | | (924,250) | (1,998,871) | (2,188,530) | (4,137,432) | (3,910,920) | (2,102,879) | 5,702,804 | 18,567,244 | |
| Total Shareholder's Equity | | 3,575,750 | 2,501,129 | 2,311,470 | 2,362,568 | 2,589,080 | 4,397,121 | 12,202,804 | 25,067,244 | |
| Total Liabilities and Shareholder's Equity | | 3,672,830 | 2,640,659 | 2,434,657 | 5,675,306 | 6,317,511 | 8,510,932 | 16,528,556 | 30,222,525 | |

Cash Flow Statement

| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|------------------|--------------------|--------------------|--------------------|--------------------|------------------|------------------|-------------------|
| Cash Provided (used) by Operations | | | | | | | | |
| Net Income | (924,250) | (1,074,621) | (189,659) | (1,948,902) | 226,512 | 1,808,041 | 7,805,683 | 12,864,440 |
| Plus Depreciation | 25,000 | 11,861 | 20,472 | 280,694 | 420,694 | 462,694 | 504,694 | 546,694 |
| Change in Working Capital | | | | | | | | |
| Decrease (increase) in Receivables | - | (23,467) | (175,699) | (159,495) | (722,973) | (616,115) | (916,463) | (1,532,462) |
| Decrease (increase) in Inventories | - | (150,000) | 12,165 | (459,934) | (1,204,955) | (1,026,859) | (1,527,438) | (2,554,103) |
| Decrease (increase) Other Current Assets | - | - | (56,223) | (42,409) | (198,818) | (169,432) | (252,027) | (421,427) |
| Increase (decrease) in Accts Payable | 78,540 | 18,257 | 2,044 | 31,338 | 406,560 | 283,964 | 156,167 | 611,233 |
| Increase (decrease) Credit Cards | 18,540 | 5,697 | (7,803) | 137,052 | (132) | 81,133 | 44,619 | 174,638 |
| Increase (decrease) Wages Payable | - | 17,012 | (11,557) | (5,455) | - | - | - | - |
| Increase (decrease) Other Current Liabilities | - | 1,484 | 974 | 26,615 | 9,265 | 20,283 | 11,155 | 43,659 |
| Cash Provided (used) by Operations | (802,170) | (1,193,776) | (405,288) | (2,140,495) | (1,063,847) | 843,709 | 5,826,390 | 9,732,672 |
| Cash Provided (used) by Investments | | | | | | | | |
| Additions to PP&E | (175,000) | (120,000) | (1,559,957) | (150,000) | (1,000,000) | (300,000) | (300,000) | (300,000) |
| Other Investments | - | - | - | - | - | - | - | - |
| Cash Provided (used) by Investments | (175,000) | (120,000) | (1,559,957) | (150,000) | (1,000,000) | (300,000) | (300,000) | (300,000) |
| Cash Provided (used) by Financing Activities | | | | | | | | |
| Additions (reductions) to Debt | - | - | - | 3,000,000 | - | - | - | - |
| Net Issues (repurchases) of Stock | - | - | - | 2,000,000 | - | - | - | - |
| Dividends & Distributions | - | - | - | - | - | - | - | - |
| Cash Provided (used) by Fin. Activities | - | - | - | 5,000,000 | - | - | - | - |
| Net increase (decrease) in cash | (977,170) | (1,313,776) | (1,965,245) | 2,709,505 | (2,063,847) | 543,709 | 5,526,390 | 9,432,672 |
| Beginning Cash Balance | 4,500,000 | 3,522,830 | 2,209,054 | 243,808 | 2,953,313 | 889,466 | 1,433,175 | 6,959,566 |
| Ending Cash Balance | 3,522,830 | 2,209,054 | 243,808 | 2,953,313 | 889,466 | 1,433,175 | 6,959,566 | 16,392,237 |
| Adjusted Taxable Income & Tax Loss Carry Forward | | | | | | | | |
| Addition to Taxable Loss Carry Forward | (924,250) | (1,074,621) | (189,659) | (1,948,902) | - | - | - | - |
| Tax Loss Used | - | - | - | - | (191,130) | (1,525,612) | (2,802,950) | - |
| Tax Loss Carry Forward | (924,250) | (1,998,871) | (2,188,530) | (4,137,432) | (4,328,562) | (2,802,950) | - | - |
| Adjusted Taxable Income | - | - | - | - | 47,782 | 381,403 | 6,755,884 | 17,372,640 |

