Financial Forecast and Valuation

Capstone Public Project Summary

I prepared a financial forecast and valuation of a potential portfolio company for a venture capital firm. The two primary objectives of the model were to make implicit assumptions explicit and to forecast the various financial characteristics of a company with two revenue models. Assumptions were made explicit through the use of supporting accounting schedules and assumptions and drivers, which were neatly consolidated into a single section for both transparency and manipulability. The soundness of these assumptions was then tested by means of common-size, ratio, scenario, and sensitivity analyses. Because the potential portfolio company had two revenue models, a per order commission model and a SaaS subscription model, it was necessary to decompose the revenues, the expenses, and the drivers thereof of each model. The separate revenue models required the use of separate peer groups in a trading comparable company analysis and the construction of separate bottom up betas in a discounted cash flow analysis. This model may be used in the future because many venture capital backed companies have more than one revenue model, and this model both resolves some of the problems of many pro forma models and facilitates additional financial research and analysis.

Assumptions were made explicit through the use of supporting schedules and a section for material assumptions and drivers. Historical financial statements were decomposed into logically connected supporting schedules such as revenue and cost of sales, working capital, PP&E, intangible assets, debt, and equity. Within these schedules accounting adjustments were made to normalize financial results such as the exclusion of extraordinary items and the consolidation of similar items, which were not necessary to model independently. For each material financial item, a line time was created in a section for assumptions and drivers. Line items in the assumptions and drivers section calculated the growth rates of financial variables in the supporting schedules as year-over-year growth or as a percentage of another financial item that

would drive growth. For example, operating leases grew predictably year-over-year, but cost of sales grew as a percentage of revenue. Additionally, some financial variables such as new equity capital issuance did not grow at a predictable rate and were modeled by using nominal amounts. The assumptions and drivers section was separated into three scenarios: bull, base, and bear. The modeler had the flexibility to adjust any assumption or driver by making an assumption about the appropriate growth rate or nominal amount. Using a drop down box to select a scenario, the assumptions and drivers of the selected scenario would forecast values in each supporting schedule, which would flow into the three statement model. Values in the three statement model were analyzed using ratio analysis and sensitized using sensitivity analysis. These values were linked to the trading comparable company and discounted cash flow analyses.

Because the prospective portfolio company had two revenue models, the revenue forecast, the trading comparable company analysis, and the discounted cash flow analysis were constructed to account for these separate models. Revenue forecasts were constructed as a function of active users and orders per active user for the commission revenue model and as a function of gross merchandise value for the SaaS subscription model. The trading comparable company analysis included peer groups for both revenue models. Each peer was evaluated for comparability based on its cash conversion cycle and its return on equity decomposition in a DuPont analysis. Enterprise multiples from both peer groups were used to estimate an enterprise value for the prospective portfolio company with weights equal to each revenue model's actual trailing twelve month revenue. In the discounted cash flow analysis, a bottom up beta was constructed for each revenue model and the weighting was measured by their enterprise value calculated from the enterprise value multiples from the trading comparable company analysis.

The financial model would be appropriate as a template for future research and analysis because it resolved many of problems associated with pro forma financial models. The primary benefits of the model were that it made assumptions explicit and separated the forecast and the valuation analysis of both revenue models. Additionally, the application of supporting schedules enabled the modeler to ensure that consistent accounting standards were applied. Furthermore, the creation of multiple scenarios enabled the modeler to test assumptions that were less optimistic than those assumed by the prospective portfolio company. The combination of scenario and sensitivity analyses helped to identify which assumptions were most meaningful to revenue and profitability growth, which supported the venture capital firm's due diligence of the prospective portfolio company. Finally, by quantitatively analyzing trading comparable companies, the firm gained valuable information about financial variables such as asset intensity and financial leverage to understand internally and to communicate externally the competitive landscape and the investment thesis.

Financial modeling is an iterative process; the model should be improved over time by identifying the optimal variables to sensitize, examining alternative ratios to improve comparability within given industries, and to standardize the decomposition of revenue to promote consistency, comparability, and efficiency.