## Snap, Inc. – Cash Flow Forecasting

Snap, Inc. is a social networking venture that calls itself a "Camera Company." The company has completed its 2016 fiscal year and is planning to go public in early 2017. Recently, the company announced its plan to raise around $3 billion through an IPO with an indicated filing range of $14 to $16 per share.

As a fund manager of an actively managed mutual fund that seeks to invest in high-tech companies that have recently gone public, you must decide whether it would be a good idea to invest in Snap either by participating in the IPO or by purchasing shares in the aftermarket.

As a first step in the determination, you would like to assess how the company might be expected to perform over the next few years and how far the proceeds from a $3 billion IPO would be able to carry the company. You have a number of expert analysts at your disposal and have asked them each to make optimistic, likely, and pessimistic revenue forecasts through the end of 2021. The analysts used a variety of different approaches to develop their forecasts and some of the analysts were quite a bit more optimistic than others. Their responses to your request are summarized in Exhibit 1.

As the next step of your assessment, you need to use the analysts' forecasts and other information about the company to develop pro forma financial statement forecasts of net income and free cash flow. Information available from the company is quite limited. You have eight historical quarters of income statements and new investment totals, as well as two years of year-end balance sheets. This information is summarized in Exhibit 2.

The challenge you now face is to use this information and other sources that you may find useful to project the quarterly Snap cash flows. The ultimate goal is to estimate the ending cash balance over time. To the extent that this balance is negative but less than $3 billion, it would appear that the projected IPO would provide enough financing up to that point, but there may be scenarios where the company would run out of cash quickly and others where it would not. Eventually, you will need to better understand how the risks of the business will affect cash needs, but to start you need to build an integrated financial forecast of a base case that you can use for sensitivity analysis and into which you can later model uncertainty with simulation.

In building your projections, you recognize that it will be important to "integrate" the financial statements. For example, if the statements are integrated then if you were to change the revenue growth assumptions, the full set of projections would update. That way, you will be able to use sensitivity analysis and simulation to analyze the financial projections. Your staff has prepared a template based on Exhibits 1 and 2, and extending to 2021 (tab "Free Cash Flow Forecast" in the "Snap Financial Forecast" Excel file). The template is based on the existing financial statements, but makes a few simplifying assumptions that are mentioned in Exhibit 2. Among them, you note that some historical expenses that would normally be paid in cash are instead compensated with Snap stock. Since this is unlikely to be an important practice going forward, the historical EBITDA calculations are stated as if those expenses had been paid in cash. Second, while the company reports some historical interest income and interest expense, as well as some non-operating income, these are expected to be of little importance going forward. Accordingly, in the template, those accounts are projected to be zero. Also, while the company has

substantial cash balances and marketable securities, those are considered to be artifacts of prior financing rounds so that, going forward, it will not be necessary for Snap to maintain large positive cash balances. Last, one technical detail is that the company has an accumulated deficit that may grow over time if losses continue. That balance can be used in the future to offset positive net income. To the extent that it does, the company will not need to pay income tax. Once the accumulated balance reaches zero, the corporate tax rate on income would be about 40%. The template already builds in the loss carry forward provision and applies the tax rate only to the extent that income is positive and the loss carry forward is exhausted.

To begin the analysis, you need to decide how to use the expert revenue projections (tab "Summary of Revenue Forecasts"). For example, is it a good idea to assume that they should be averaged with equal weighting as shown in Exhibit 1 or would it be better to weight the forecasts in some way? The other elements of the template also need to be completed in integrated ways. For example, it might make sense to assume that Cost of Revenue would be some percentage of Revenue. In that case, it would be important to specify Cost of Revenue as a formula. Ultimately, you will need to enter formulas into all the cells in the template that are indicated by "xx" and will have to replace the word "Total" with the appropriate summation calculation. The assumptions for the formulas should be linked to an assumption section of the spreadsheet or on a separate tab.


Note: Eventually, but not now, you also need to decide how to reflect the uncertainty about revenue in the pro forma financial statements. For example, you might try to incorporate a standard deviation, a standard deviation based on a weighted average, or a sampling approach based on weighting the 24 different projections. In any case, the projection needs to go into the template as an @Risk distribution function. It might be important to incorporate an @Risk distribution functions to some of the expenses or other items that would allow for the formula parameters to be higher or lower than the expected percentage. You will want to be careful in building the integrated forecast that you keep in mind the eventual need to add simulation.

# Exhibit 1

## Summary of Snap Inc. Revenue Forecasts (000)

| Analyst | 31-Mar-17 | 30-Jun-17 | 30-Sep-17 | 31-Dec-17 | 31-Mar-18 | 30-Jun-18 | 30-Sep-18 | 31-Dec-18 | 31-Mar-19 | 30-Jun-19 | 30-Sep-19 | 31-Dec-19 | 31-Mar-20 | 30-Jun-20 | 30-Sep-20 | 31-Dec-20 | 31-Mar-21 | 30-Jun-21 | 30-Sep-21 | 31-Dec-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Optimistic Forecasts** | | | | | | | | | | | | | | | | | | | | |
| A | 212,927 | 275,746 | 360,344 | 475,240 | 631,444 | 841,969 | 1,120,258 | 1,477,290 | 1,917,116 | 2,461,800 | 3,128,231 | 3,933,615 | 4,894,629 | 6,026,289 | 7,340,527 | 8,844,476 | 10,538,517 | 12,414,204 | 14,452,227 | 16,620,654 |
| B | 446,096 | 530,295 | 617,015 | 718,319 | 824,432 | 946,419 | 1,086,684 | 1,247,996 | 1,422,061 | 1,621,122 | 1,848,876 | 2,109,585 | 2,378,269 | 2,682,026 | 3,025,544 | 3,414,157 | 3,834,913 | 4,309,392 | 4,844,700 | 5,448,912 |
| C | 152,407 | 189,515 | 210,735 | 270,318 | 261,537 | 304,186 | 334,814 | 402,550 | 370,354 | 422,515 | 470,495 | 610,567 | 594,889 | 638,307 | 666,070 | 735,587 | 726,142 | 752,642 | 769,010 | 809,140 |
| D | 442,549 | 585,511 | 759,250 | 982,370 | 1,175,371 | 1,394,624 | 1,640,859 | 1,913,993 | 2,212,923 | 2,536,792 | 2,883,623 | 3,247,600 | 3,623,584 | 4,007,161 | 4,391,732 | 4,768,577 | 5,132,319 | 5,472,762 | 5,782,989 | 6,050,689 |
| E | 327,320 | 590,974 | 990,914 | 1,535,920 | 2,189,085 | 2,851,320 | 3,369,612 | 3,744,565 | 4,122,672 | 4,496,494 | 4,857,899 | 5,198,316 | 5,509,044 | 5,838,347 | 6,187,333 | 6,557,179 | 6,949,134 | 7,364,517 | 7,804,730 | 8,271,256 |
| F | 174,555 | 310,267 | 534,681 | 666,205 | 632,904 | 1,083,147 | 1,791,075 | 2,138,286 | 1,837,513 | 3,004,884 | 4,730,393 | 5,363,941 | 4,104,047 | 6,343,120 | 9,395,377 | 9,985,593 | 6,659,993 | 9,562,139 | 13,071,207 | 12,731,539 |
| G | 172,123 | 203,088 | 229,114 | 289,302 | 272,479 | 321,498 | 362,698 | 457,979 | 431,347 | 508,947 | 574,168 | 725,002 | 682,843 | 805,687 | 908,936 | 1,147,713 | 1,080,973 | 1,275,441 | 1,438,888 | 1,816,884 |
| H | 130,258 | 173,118 | 225,390 | 283,789 | 258,033 | 323,263 | 399,176 | 464,978 | 422,682 | 510,345 | 618,417 | 701,543 | 654,436 | 777,473 | 909,938 | 1,005,645 | 1,013,261 | 1,184,423 | 1,338,883 | 1,441,569 |
| **Base Forecasts** | | | | | | | | | | | | | | | | | | | | |
| A | 206,551 | 257,261 | 320,326 | 398,859 | 496,541 | 617,455 | 765,706 | 944,781 | 1,155,288 | 1,399,595 | 1,678,858 | 1,992,633 | 2,338,336 | 2,710,738 | 3,101,594 | 3,499,476 | 3,889,948 | 4,256,118 | 4,579,617 | 4,841,973 |
| B | 439,178 | 505,489 | 577,909 | 660,743 | 746,856 | 840,163 | 940,596 | 1,050,523 | 1,168,541 | 1,299,961 | 1,446,321 | 1,609,339 | 1,779,834 | 1,968,540 | 2,177,420 | 2,408,648 | 2,657,733 | 2,932,876 | 3,236,837 | 3,572,670 |
| C | 161,707 | 201,308 | 228,408 | 297,933 | 279,662 | 323,797 | 361,624 | 443,090 | 389,200 | 419,063 | 447,695 | 551,154 | 535,947 | 570,207 | 594,518 | 654,823 | 645,789 | 666,430 | 680,637 | 715,157 |
| D | 255,351 | 337,840 | 438,087 | 566,827 | 678,189 | 804,698 | 946,776 | 1,104,374 | 1,276,857 | 1,463,729 | 1,663,851 | 1,873,865 | 2,090,808 | 2,312,132 | 2,534,030 | 2,751,469 | 2,961,348 | 3,157,784 | 3,336,784 | 3,491,248 |
| E | 309,316 | 475,156 | 592,791 | 664,859 | 738,841 | 813,446 | 887,205 | 958,514 | 1,025,681 | 1,086,991 | 1,151,966 | 1,220,824 | 1,293,799 | 1,371,136 | 1,453,095 | 1,539,954 | 1,632,004 | 1,729,557 | 1,832,941 | 1,942,504 |
| F | 145,045 | 255,888 | 437,708 | 540,774 | 439,834 | 739,749 | 1,201,421 | 1,405,074 | 1,027,252 | 1,627,470 | 2,476,771 | 2,701,686 | 1,748,717 | 2,559,145 | 2,827,093 | 2,948,156 | 2,530,892 | 2,869,942 | 2,980,203 | 3,107,112 |
| G | 137,698 | 162,470 | 183,291 | 231,442 | 217,983 | 257,198 | 290,158 | 366,383 | 345,078 | 407,157 | 459,335 | 580,002 | 546,275 | 644,549 | 727,148 | 918,170 | 864,779 | 1,020,352 | 1,151,111 | 1,453,507 |
| H | 109,025 | 144,899 | 188,650 | 237,530 | 185,403 | 232,273 | 286,818 | 334,098 | 268,987 | 324,774 | 393,549 | 446,449 | 373,388 | 443,586 | 519,164 | 573,769 | 518,310 | 605,863 | 684,874 | 737,400 |
| **Pessimistic Forecasters** | | | | | | | | | | | | | | | | | | | | |
| A | 195,576 | 230,852 | 272,400 | 321,019 | 377,220 | 440,992 | 511,580 | 587,396 | 666,128 | 751,752 | 844,207 | 943,300 | 1,048,695 | 1,159,903 | 1,276,277 | 1,397,014 | 1,521,155 | 1,647,600 | 1,775,121 | 1,902,380 |
| B | 432,307 | 488,571 | 550,556 | 620,464 | 690,170 | 760,255 | 829,246 | 900,021 | 976,837 | 1,060,210 | 1,150,698 | 1,248,911 | 1,355,506 | 1,471,201 | 1,596,770 | 1,733,058 | 1,880,979 | 2,041,526 | 2,215,777 | 2,404,903 |
| C | 171,007 | 213,127 | 246,646 | 327,063 | 297,572 | 342,969 | 388,571 | 485,031 | 405,842 | 410,962 | 420,451 | 489,605 | 475,159 | 501,228 | 522,167 | 573,602 | 565,139 | 580,642 | 592,771 | 621,965 |
| D | 126,127 | 166,871 | 216,386 | 279,975 | 334,981 | 397,468 | 467,645 | 545,488 | 630,683 | 722,986 | 821,833 | 925,566 | 1,032,721 | 1,142,041 | 1,251,644 | 1,359,044 | 1,462,711 | 1,559,737 | 1,648,152 | 1,724,446 |
| E | 235,990 | 276,796 | 296,348 | 314,229 | 333,189 | 353,293 | 374,610 | 397,213 | 421,179 | 446,592 | 473,539 | 502,111 | 532,407 | 564,531 | 598,593 | 634,711 | 673,007 | 713,615 | 756,673 | 802,328 |
| F | 145,045 | 255,888 | 437,708 | 540,774 | 384,362 | 614,207 | 932,273 | 1,078,204 | 662,947 | 982,926 | 1,373,765 | 1,453,877 | 741,304 | 1,007,707 | 1,320,421 | 1,397,378 | 702,955 | 973,363 | 1,238,826 | 1,356,227 |
| G | 103,274 | 121,853 | 137,468 | 173,581 | 163,487 | 192,899 | 217,619 | 274,787 | 258,808 | 305,368 | 344,501 | 435,001 | 409,706 | 483,412 | 545,361 | 688,628 | 648,584 | 765,264 | 863,333 | 1,090,131 |
| H | 87,793 | 116,680 | 151,911 | 191,271 | 124,680 | 156,199 | 192,880 | 224,675 | 157,539 | 190,213 | 230,493 | 261,475 | 193,452 | 229,822 | 268,978 | 297,269 | 237,551 | 277,678 | 313,890 | 337,964 |
| | | | | | | | | | | | | | | | | | | | | |
| **Annual** Equal-weighted Average | | | | 1,382,564 | | | | 2,972,289 | | | | 5,235,503 | | | | 8,298,746 | | | | 12,006,031 |
| **Average** | 221,634 | 294,561 | 383,501 | 482,867 | 530,594 | 664,729 | 820,829 | 956,137 | 982,230 | 1,185,944 | 1,437,081 | 1,630,249 | 1,622,408 | 1,927,429 | 2,255,822 | 2,493,087 | 2,472,006 | 2,838,911 | 3,224,591 | 3,470,523 |
| **% for Qtr.** | 16.0% | 21.3% | 27.7% | 34.9% | 17.9% | 22.4% | 27.6% | 32.2% | 18.8% | 22.7% | 27.4% | 31.1% | 19.6% | 23.2% | 27.2% | 30.0% | 20.6% | 23.6% | 26.9% | 28.9% |

Note:

Averages shown are equally weighted over all 24 forecasts.

Quarterly percentages are percentages of average quarterly revenue to average annual revenue.

Exhibit 2

# Snap Inc. Free Cash Flow Forecast (000)

| | 31-Mar-15 | 30-Jun-15 | 30-Sep-15 | 31-Dec-15 | 31-Mar-16 | 30-Jun-16 | 30-Sep-16 | 31-Dec-16 |
|---|---|---|---|---|---|---|---|---|
| **Income Statement** | | | | | | | | |
| Revenue (000) | 3,920 | 5,300 | 16,725 | 32,718 | 38,798 | 71,798 | 128,204 | 165,682 |
| Expenses | | | | | | | | |
| Cost of Revenue | 20749 | 40598 | 56227 | 64767 | 75773 | 94757 | 127780 | 153350 |
| Research and Dev. | 16587 | 17259 | 18989 | 29400 | 28098 | 36052 | 54562 | 64964 |
| Sales and Mktg. | 3453 | 5872 | 8206 | 9685 | 14737 | 24587 | 34658 | 50389 |
| General and Admin. | 61977 | 29392 | 30205 | 27026 | 24011 | 32261 | 43172 | 66716 |
| Total Expenses | 102766 | 93121 | 113627 | 130878 | 142619 | 187657 | 260172 | 335419 |
| Operating Income | -98,846 | -87,821 | -96,902 | -98,160 | -103,821 | -115,859 | -131,968 | -169,737 |
| Non-operating Inc. | 40 | -46 | -229 | 83 | -993 | -939 | -1421 | -1215 |
| Net Interest Exp. | -194 | -332 | -475 | -398 | -359 | -871 | -1290 | -710 |
| Income Before Tax | -98,612 | -87,535 | -96,656 | -97,679 | -104,455 | -115,927 | -132,099 | -170,242 |
| Income Tax Expense | 0 | -7700 | 0 | 111 | 121 | -33 | -6871 | -297 |
| Net Income | -98,612 | -79,835 | -96,656 | -97,790 | -104,576 | -115,894 | -125,228 | -169,945 |
| **Cash Flow** | | | | | | | | |
| Net Income | -98,612 | -79,835 | -96,656 | -97,790 | -104,576 | -115,894 | -125,228 | -169,945 |
| Depreciation Exp. | 3198 | 3882 | 4118 | 4109 | 5049 | 5996 | 7437 | 10633 |
| EBITDA | -95,414 | -75,953 | -92,538 | -93,681 | -99,527 | -109,898 | -117,791 | -159,312 |
| Beginning Cash Balance | | | | | | | | |
| Ending Cash Balance | | | | | | | | 987368 |
| **Memo** | | | | | | | | |
| Accumulated Deficit | | | | | | | | -1207862 |

## Assumptions:

1.) During these years some expenses are paid with stock. This is assumed to become unimportant in the future so no adjustment to cash flow is made in these statements.

2.) The small amounts of Net interest Expense and Other Income are ignored in the computation of EBITDA

3.) Although Snap has positive cash and marketable securities balances, these are assumed to be unnecessary and are simply reflections of financing activity to date.

4.) Snap starts 2017 with a cash balance of $987 thousand (including marketable securities). So the ending cash balance over time is an indicator of financing need.

5.) Ending Cash is calculated as Beginning Cash plus Free Cash Flow.

6.) At the end of 2016, Snap has an accumulated deficit of about $1.208 million (shown below). Once this is offset by earnings, earnings after that point will be fully taxed.

7.) The financial information from the balance sheet (below) is used to construct the following financial ratios.

Exhibit 2 (Continued)

**Background Information**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AR/Qtr. Revenue | | | | 1.35 | | | | 0.98 |
| Prepaid Exp/Qtr. Revenue | | | | 0.23 | | | | 0.18 |
| AP/Qtr. Expenses | | | | 0.01 | | | | 0.03 |
| Accrd. Exp./Qtr. Expenses | | | | 1.19 | | | | 0.44 |
| Investment/Ann. Revenue | | | | 0.33 | | | | 0.16 |

**Balance Sheet**

**Assets**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Current Assets | | | | | | | | |
| Cash and Equivalents | | | | 640810 | | | | 150121 |
| Marketable Securities | | | | 0 | | | | 837247 |
| Accounts Receivable | | | | 44325 | | | | 162659 |
| Prepaid Expenses | | | | 7429 | | | | 29958 |
| Total Current Assets | | | | 692564 | | | | 1179985 |
| Property and Equipment | | | | 44079 | | | | 162659 |
| Intangible Assets | | | | 43230 | | | | 75982 |
| Goodwill | | | | 133944 | | | | 319137 |
| Other Assets | | | | 25119 | | | | 47103 |
| Total Assets | | | | 938936 | | | | 1784866 |

**Liabilities and Equity**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Current Liabilities | | | | | | | | |
| Accounts Payable | | | | 702 | | | | 8419 |
| Accrued Expenses | | | | 155,556 | | | | 148325 |
| Total Current Liab. | | | | 156258 | | | | 156744 |
| Other Liabilities | | | | 174791 | | | | 203878 |
| Stockholder Equity | | | | | | | | |
| Paid in Capital | | | | 1457364 | | | | 2726776 |
| Accumulated Deficit | | | | -693219 | | | | -1207862 |
| Total Equity | | | | 764145 | | | | 1518914 |
| Total Liab. and Equity | | | | 938936 | | | | 1784866 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Investments** | 1568 | 8473 | 4352 | 4812 | 12452 | 16421 | 17192 | 20376 |
| Total Investments | | | | 19205 | | | | 66441 |