

### Moderna Inc. (MRNA) DCF Valuation (Individual Homework)

It is February 2022 and you are an equity analyst at a premier hedge fund. You cover the biotech and pharmaceutical industries and you are considering pitching MRNA to your portfolio manager as a 'buy' recommendation. After following the stock for some time and watching the share price decline from its peak of \$484.47 in August of last year (see stock chart below), you are making the case the stock is undervalued at its current price of \$153.31 (as of February 8, 2022).



To support your investment thesis, you decide to perform a DCF valuation to assess its true intrinsic value. You have forecasted revenues from 2022 through 2035 based on three vaccines (assuming patent extensions) and grant revenue, and are now ready forecast the free cash flows.

#### **Instructions:**

Perform a DCF valuation to support your thesis that MRNA is undervalued. Attach your DCF to a simple memo that summarizes your intrinsic value of MRNA compared to the market price as of February 8<sup>th</sup>.

- A DCF template has been provided; included in the template is a revenue build that forecasts revenues from 2022 through 2025.
- Build your DCF by first forecasting the income statement from 2022 through 2035 to EBIT.
- Forecast unlevered free cash flows as well as a terminal value based on the Gordon Growth method.
- Cost of goods sold will be 15% of revenue from 2022 to 2024, 13% of revenue from 2025 to 2027, 11% of revenue from 2028 to 2031, and 10% thereafter; the company will improve its margins through operational efficiencies.

- Research and Development (R&D) expense will be 10% of revenues from 2022 to 2024, 9% of revenues from 2025 to 2028, 8% of revenues from 2029 to 2032, and 7% of revenues thereafter.
- Selling, General, and Administrative (SG&A) expense will be 15% of revenue from 2022 to 2028, 12% of revenue from 2029 to 2032, and 10% of revenue thereafter.
- Capital expenditures will be .6% of sales in all years.
- Depreciation & Amortization will be 80% of capex from 2022 – 2025, 85% of capex from 2026 – 2028, 90% of capex from 2029 – 2031, 95% from 2032 – 2034, and 100% in 2035.
- The company will make investments in NWC equal to .1% of sales in each year.
- Use the statutory tax rate of 26% in all years.
- The company's WACC is 10%.
- Assume a 3% growth rate in perpetuity; use the Gordon Growth method for terminal value.

The company has not yet released its earnings for December 31, 2021. As such, you are relying on its balance sheet as of September 31<sup>st</sup> (see balance sheet in the Appendix).

- Assume that Cash and Equivalents are required cash (part of NWC).
- Assume that Short Term Investments and Long Term Investments are excess cash.
- Do not worry about making any adjustments for operating leases – the amounts are immaterial
- Do not worry about forecasting unearned revenue (long-term). Assume the balance will remain the same in all future years (thus there will be no impact to free cash flows).
- There are 473 million shares of stock outstanding.

### ***Case Submissions:***

**The assignment is due at the beginning of class on Tuesday, October 1<sup>st</sup>.** Please submit a very short memo that lists your intrinsic value and attach your DCF template. Please upload a PDF to Blackboard (do not submit your model). Please use the following format:

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Date: October 1, 2024  
From: Student 1  
To: Scott Abrams  
Re: Moderna Inc. (MRNA) DCF Valuation

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*\*Note: If you inadvertently submit a wrong file to Blackboard, you can resubmit the correct file before the deadline.*

<b>Balance Sheet</b>		
<b>Balance Sheet as of:</b>		
<b>Currency</b>	<b>Dec-31-2020</b>	<b>Sep-30-2021</b>
	<b>USD</b>	<b>USD</b>
<b>ASSETS</b>		
Cash And Equivalents	2,623.9	5,550.0
Short Term Investments	1,983.8	3,356.0
<b>Total Cash &amp; ST Investments</b>	<b>4,607.6</b>	<b>8,906.0</b>
Accounts Receivable	1,390.6	3,142.0
Other Receivables	20.0	57.0
<b>Total Receivables</b>	<b>1,410.5</b>	<b>3,199.0</b>
Inventory	46.5	965.0
Prepaid Exp.	15.6	105.0
Restricted Cash	1.0	-
Other Current Assets	216.5	250.0
<b>Total Current Assets</b>	<b>6,297.9</b>	<b>13,425.0</b>
Gross Property, Plant & Equipment	506.8	1,234.0
Accumulated Depreciation	(119.7)	(274.0)
<b>Net Property, Plant &amp; Equipment</b>	<b>387.1</b>	<b>960.0</b>
Long-term Investments	638.8	6,442.0
Deferred Tax Assets, LT	-	81.0
Other Long-Term Assets	12.9	15.0
<b>Total Assets</b>	<b>7,336.8</b>	<b>20,923.0</b>
<b>LIABILITIES</b>		
Accounts Payable	18.4	87.0
Accrued Exp.	452.0	1,076.0
Curr. Port. of Leases	30.3	240.0
Curr. Income Taxes Payable	-	565.0
Unearned Revenue, Current	3,867.2	7,977.0
Other Current Liabilities	20.9	12.0
<b>Total Current Liabilities</b>	<b>4,388.8</b>	<b>9,957.0</b>
Long-Term Leases	207.3	343.0
Unearned Revenue, Non-Current	177.4	498.0
Other Non-Current Liabilities	1.9	1.0
<b>Total Liabilities</b>	<b>4,775.4</b>	<b>10,799.0</b>
Common Stock	0.0	-
Additional Paid In Capital	4,801.8	5,003.0
Retained Earnings	(2,243.5)	5,090.0
Treasury Stock	-	-
Comprehensive Inc. and Other	3.0	31.0
<b>Total Common Equity</b>	<b>2,561.4</b>	<b>10,124.0</b>
<b>Total Equity</b>	<b>2,561.4</b>	<b>10,124.0</b>
<b>Total Liabilities And Equity</b>	<b>7,336.8</b>	<b>20,923.0</b>

Source: Capital IQ

***Company Description:***

Moderna, Inc., a biotechnology company, develops therapeutics and vaccines based on messenger RNA for the treatment of infectious diseases, immuno-oncology, rare diseases, cardiovascular diseases, and auto-immune diseases. As of March 9, 2021, the company had 13 programs in clinical trials and a total of 24 development programs in six modalities comprising prophylactic vaccines, cancer vaccines, intratumoral immuno-oncology, localized regenerative therapeutics, systemic secreted and cell surface therapeutics, and systemic intracellular therapeutics. The company has strategic alliances with AstraZeneca PLC, Merck & Co., Inc., Vertex Pharmaceuticals Incorporated, Vertex Pharmaceuticals (Europe) Limited, the Biomedical Advanced Research and Development Authority, the Defense Advanced Research Projects Agency, the National Institute of Allergy and Infectious Diseases, the National Institutes of Health, the Coalition for Epidemic Preparedness Innovations, Metagenomi, Inc., and Bill & Melinda Gates Foundation. Moderna, Inc. also has collaborations with Lonza Ltd.; Catalent Inc., Laboratorios Farmacéuticos Rovi, S.A., Recipharm, and Lonza Group; Aldevron, LLC; Institute for Life Changing Medicines; and AbCellera Biologics Inc. The company was formerly known as Moderna Therapeutics, Inc. and changed its name to Moderna, Inc. in August 2018. Moderna, Inc. was founded in 2010 and is headquartered in Cambridge, Massachusetts.

*Source: Capital IQ*