Merrimack: Relatively Safe Pharma Play with Significant Upside

Expected Value vs. $5.61 Market Price (as of 7/16/19) = $9.81/share

75% Upside To Expected Value; Investors Get Potential of $375MM Ipsen CVR For <$1.50/Share

Payout of Special Dividend of $1.27 to 1.42 Expected in Q3 2019

(See Section I.C herein for calculations)

Merrimack Pharmaceuticals (ticker MACK) is an interesting pharmaceutical play for the enterprising small cap stock investor. Following a long history of drug trial failures and the 2017 sale of its main commercial drug assets to drugmaker Ipsen S.A., the stock now effectively trades as a low-priced contingent value right (or CVR) regarding the future approval by the FDA of the cancer drug Onivyde for several indications. Ipsen is running two Onivyde drug trials currently, one for first-line treatment of pancreatic cancer (or FLPC) and the other for small cell lung cancer (or SSLC). MACK would receive from Ipsen $225 million for approval for the former and $150 million for approval for the latter, or $375 million if treatment for both indications is approved. In addition, MACK would receive $75 million for FDA approval of Onivyde for any other indication (although no trials are currently active).

Conservatively assuming (1) FDA decisions on the two active Ipsen drug trials are received within four years and (2) just a 20% chance of FDA approval of Onivyde for either FLPC or SSLC, we reach an expected value for MACK's Ipsen CVR revenue stream by 2023 of $75 million, or $5.62/share. MACK has other assets (mainly cash and investments) which we currently value at $4.19/share, bringing our total valuation for MACK's equity to $9.81/share, or 75% above the current market price[1]. Importantly, the de-risked nature of these other assets puts a solid floor under the stock and means that investors are receiving, for under $1.50 ($5.61 minus $4.19), two CVRs that could be worth up to $28/share. To top things off, MACK has also announced that it will pay a special dividend to shareholders of between $1.27 and 1.42 per share, which should further de-risk the investment proposition.

While most pharma stocks fall firmly into the speculative category (at best), we believe that MACK right now represents an old-fashioned value play with major (>75%) potential upside. Smart investors would be wise to "take their medicine" and put some MACK in their portfolios.

[1] MACK stock price = $5.61 as of July 16, 2019.

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I. Investment Overview

A. Company Background and History

Merrimack Pharmaceuticals (MACK) (see SEC filings here), a cancer drug developer, has been a dreadful dog of a stock over the past few years, falling >95% from its April 2015 top of over $120 to the recent $5.68, mainly due to drug trial and commercial failures (note that MACK effected a 1-for-10 reverse split in August 2017, reducing the number of shares of MACK common stock outstanding from approximately 132.8 million shares to approximately 13.28 million shares post-split [source]):

Back in 2015, investors were high on the company after the FDA approved its drug Onivyde for the second-line treatment of advanced pancreatic cancer [source]:

FDA Approves Onivyde for Advanced Pancreatic Cancer

Oct 22, 2015

The US Food and Drug Administration (FDA) today approved Onivyde (irinotecan liposome) to treat pancreatic cancer that has spread (metastasized) to other parts of the body. It's for people who have previously been treated with the chemotherapy drug Gemzar (gemcitabine) and is to be given in combination with two other chemotherapy drugs – fluorouracil and leucovorin.

Pancreatic cancer often does not cause signs or symptoms in the early stages, and therefore is often not found until it has already spread. Treatment options for advanced pancreatic cancer are often limited. But the new combination of drugs has shown to help patients live longer.

Unfortunately, Onivyde can cause serious side effects in patients (including diarrhea, vomiting, bone marrow suppression, hair loss, shortness of breath, fever, blood clots, colon inflammation, and allergic reactions [source]). This resulted in the drug receiving a dreaded black box warning from the FDA (the full warning can be found in the Onivyde dosing guide here). Despite some investors downplaying the effect of the boxed warning (for example, see here), it turned out to be a major negative for the drug's sales, as MACK generated Onivyde revenue of just $37 million over the first 9 months of 2016 [source]. As a consequence, in October 2016 the company fired its then CEO, Robert Mulroy, appointing Gary Crocker, MACK's board chairman, as interim president and CEO [source].

More bad news for MACK investors arrived shortly thereafter, when the company terminated its Phase 2 study, HERMIONE, assessing MM-302 in patients with HER2-positive metastatic breast cancer, causing its stock to drop 30% intraday [source]. Then, in early 2017, the company abandoned most of its commercial assets, selling them to Ipsen S.A. (ticker IPSEY) for $1.04 billion, resulting in MACK paying down debt, as well as downsizing its employee base by 80% and its drug pipeline to just three molecules (MM-121, MM-141 and MM-310) [source]. Ipsen also granted MACK the right to receive the following contingent payments with respect to Onivyde (the Ipsen CVRs):

- $225 million for U.S. Food and Drug Administration ("FDA") approval in first-line pancreatic cancer;
- $150 million for FDA approval in small cell lung cancer; and
- $75 million for FDA approval in any third indication.

Since then, further drug trial failures [see here and here] and further asset divestitures and restructuring actions [see here] have slimmed MACK down considerably to just a bare-bones operation (recently even the CEO was let go, although his services were retained on a month-to-month consulting basis). Nevertheless, the company is now cash rich, debt free and has considerable other assets in the form of CVRs and deferred tax assets. Investors should note that, along with the Ipsen CVRs, MACK is eligible to receive the following, in each case from 14ner Oncology, Inc. with respect to MACK's anti-Her3 monoclonal antibody programs, MM-121 and MM-111:

- $3.0 million for achievement of the primary endpoint in the first registrational clinical study of either of the transferred products;
- $16.5 million in total payments for the achievement of various regulatory and reimbursement-based milestones in the United States, Europe and Japan; and
- $35.0 million in total payments for achieving various cumulative worldwide net sales targets between $100 million and $300 million for the transferred products.

In addition, as of the end of calendar 2018, MACK had $248 million in deferred tax assets (mainly net operating loss and credit carry-forwards), which were fully offset by a valuation allowance (see page F-28 of MACK's 2018 Form 10-K filing). The bulk of these tax assets do not begin to expire until 2031. If these were utilized at the 21% corporate tax rate, they could be worth up to $31 million for MACK shareholders.

B. MACK Gets An Activist

Fortunately, one of the positive aspects of a >95% top to bottom stock price decline is that following such a drawdown a company is much more susceptible to shareholder pressure via activist investors. Such has been the case with MACK. In early November 2018, a Form 13D was filed by JFL Capital Management (SECs here), reporting ownership of 941,502 MACK shares (about 7.1% of the company's outstanding stock) [source]. This number has since increased to 1,199,540 shares, or 9% of the outstanding stock [source]. Judging by its SEC filings, JFL Capital appears to be a small (and relatively new) hedge fund, founded by Dr. Joseph Lawler, who has the following bio [source]:

> Dr. Joseph F. Lawler, Jr., M.D., Ph.D serves as a Director of Clinilabs, Inc. Dr. Lawler served as a Member of Advisory Board at Clinilabs, Inc. Dr. Lawler joined the faculty of the Brady Urological Institute at Johns Hopkins Hospital . Dr. Lawler left Johns Hopkins to join the venture capital team at JP Morgan Partners where he gained extensive experience investing in, and working closely with, both public and private biotechnology companies. Dr. Lawler was also responsible for hedging JP Morgan Partner's public biotechnology portfolio. More recently, Dr. Lawler joined Sagamore Hill Capital Management, a large, multi-strategy hedge fund where he makes invests in equity and debt securities of public biotechnology companies. Dr. Lawler's research on DNA-Based Computers was recognized with the Paul Ehrlich award and he holds his Doctor of Medicine and Ph.D. degrees from The Johns Hopkins University School of Medicine.

JFL's initial MACK 13D filing stated that "[JFL Capital] have engaged, and intend to continue to engage, in communications with [MACK]'s management team and Board of Directors (the "Board") regarding means to enhance stockholder value." Interestingly, shortly after this 13D filing, MACK's board and management suddenly "got religion" and decided to drastically reduce company spending, as well as pursue a strategic alternatives process (although the latter subsequently concluded without any transaction). In March 2019, JFL Capital delivered a letter to the Issuer nominating Jason M. Aryeh, Aron R. English, Joseph F. Lawler, M.D., Ph.D., and Kenneth Lin, M.D. for election to the Board of Directors of the Issuer at the 2019 annual meeting of stockholders. As of this writing, MACK has yet to schedule the 2019 annual meeting, despite scheduling the 2018 annual meeting at the end of April of that year (meaning they are over two and a half months late). We interpret this as a sign that JFL is having a clear impact on decision-making in the MACK C-suite and that insiders are fearful that they will lose the proxy contest (hence their delaying the meeting).

C. MACK Valuation Analysis

Both of the larger Ipsen CVRs (totaling $375 million) depend on the success of drug trials involving Onivyde, which are currently in Phase 2 (see full Ipsen pipeline here). Thus it will likely be several years before either come up for FDA approval. Two months ago, Ipsen updated the market on these ongoing drug trials as follows [source]:

> Regarding Onivyde®, the interim analysis of the Phase 2 combination trial for the treatment of first-line metastatic pancreatic cancer indicates encouraging results on the disease control rate and has been accepted as an oral presentation by the ESMO World Congress on Gastrointestinal Cancer in July 2019. There is also an ongoing Phase 2 trial for second-line small cell lung cancer with top-line results expected in the second half of 2019.

Earlier this month, Ipsen further updated investors on the status of the first-line metastatic pancreatic cancer trial [see full PR here]:

Ipsen and Servier Announce Initial Phase 1/2 Clinical Data Evaluating Liposomal Irinotecan (ONIVYDE®) as an Investigational First-line Treatment for Metastatic Pancreatic Cancer at ESMO 21st World Congress on Gastrointestinal Cancer

– Treatment emergent adverse events Grade 3 or higher were reported by 20 of 32 patients from the 50/60 dose pooled patient analysis; no patient reported Grade 3 or higher fatigue or peripheral neuropathy (primary endpoint) –

– Approximately three quarters of patients (71.9%) achieved disease control at week 16, while 34% had a response (secondary endpoint) –

Per the press release, 4 of 32 patients (12.5%) in this study taking Onivyde had to discontinue treatment due to the drug's side effects, although efficacy appears fairly robust (over two-thirds of study patients achieve disease control at 16 weeks):

Safety Results:

- No reported Grade 3 or higher fatigue or peripheral neuropathy.
- One study participant in the Part 1A–cohort B dose exploration phase reported a DLT (febrile neutropenia).
- Treatment emergent adverse events (TEAEs) Grade 3 or higher were reported by 20 of 32 study patients in the 50/60 PP and included: neutropenia (n=9); febrile neutropenia (n=4); hypokalemia (n=4); diarrhea (n=3); nausea (n=3); anemia (n=2); vomiting (n=2).
- Four study patients in the 50/60 PP reported TEAEs leading to discontinuation (n=4/32), with 23 study patients requiring dose adjustment due to AEs.
- At data cut-off, 15/32 study patients in the 50/60 PP remained on treatment.

Efficacy Results:

- BOR (Best Overall Response) was: one complete response (CR; study participant diagnosed with locally advanced Stage III disease), 10 partial responses (PR) in 31.3% (10/32) and 15 stable diseases (SD) in 46.9% (15/32) (sum of CR+PR+SD = 81.3%).
- 71.9% (23/32) of study patients in the 50/60 PP achieved disease control at 16 weeks.
- Overall, 34% of study patients had a response.

With MACK's market capitalization now sitting at an anemic $75MM (based on 13.34MM shares outstanding, as of the most recent Form 10-Q filing) and an enterprise value of a minuscule $26MM ($75MM less $49MM of net cash on the balance sheet (estimated) as of this writing), the company is clearly valued by the market at far less than the sum of its parts. Assuming just a 20% likelihood of

obtaining the two main Ipsen milestone payments (our base case) yields $75MM in expected value for these assets alone, ***nearly three times the current enterprise value***. Assuming just a 10% likelihood of obtaining the two main Ipsen milestone payments (our downside case) yields $37.5MM in expected value, still ~40% above the current enterprise value.

Moreover, less than two months ago the company stated its current financial position (specifically excluding future milestone payments, but including further possible cost saving measures) could allow it to continue operations without additional equity dilution to 2027 [source]. We believe that the two principal Ipsen CVRs, plus the value of MACK's other assets, are worth approximately $137.5 million, or $9.81/share (75% above the recent market price), per the following calculations:

Ipsen CVR Assets	***Value***	***Notes***
Pancreatic cancer and small cell lung cancer drug trials	75,000,000	SCC Estimate; 20% chance of realization (base case)
Other potential approvals for Onyvide	7,500,000	SCC Estimate; 10% chance of realization
TOTAL VALUE OF IPSEN ASSETS	***82,500,000***	
Other Assets	***Value***	***Notes***
Cash/CE @ 3/31/19	58,466,000	March 31, 2019 balance sheet
Cash received from 14ner Oncology (sale of MM-121 and MM-111)	3,500,000	Received 7/12/19 (per Form 8-K filed as of same date)
Value of 14ner Oncology CVRs	5,450,000	10% chance of realization
Sale of equity position in Silver Creek + auctioned laboratory equipment	9,100,000	Completed in May 2019; see Note 13 to Q1 2019 10-Q filing
Other current assets @ 3/31/19	4,644,000	March 31, 2019 balance sheet
LESS Liabilities		
Prepayment of Hercules Loan Agreement	16,000,000	See Note 13 to Q1 2019 10-Q filing
One-time termination benefits for employee severance, benefits and related costs	3,450,000	Midpoint of 3.3MM to 3.6MM estimate (per 7/1/19 Form 8-K)
Other current liabilities @ 3/31/19	10,339,000	March 31, 2019 balance sheet
Estimated other operating costs for Q2 2019	3,000,000	SCC Estimate
NET VALUE OF OTHER ASSETS	***48,371,000***	
TOTAL VALUE OF ALL MACK ASSETS AS OF 7/14/19	***130,871,000***	
Net Cash as of 7/14/19	***48,616,000***	
TOTAL VALUE PER SHARE OF ALL MACK ASSETS AS OF 7/14/19	***9.81***	
Upside Potential	75%	

Interestingly, if all three Ipsen milestones were achieved, MACK would receive $33.60/share in payments; it also stands to receive up to ~$4/share in milestone payments from 14ner Oncology for the assets just sold to that entity.

We view an investment in MACK as de-risked versus other typical small cap pharma plays for the following four reasons: (1) the net cash on MACK's balance sheet is substantial, providing significant downside protection for the stock (our estimate of $48.6 million of current net cash equals ~60% of the current market cap); (2) MACK's recent restructuring actions have significantly reduced the company's cash burn rate to approximately $6 million per year ($48.6 million net cash divided by 8 years of cash runway, which timeframe the company recently guided to), (3) for future revenues, MACK mainly relies on milestone payments tied to the success of ongoing drug trials, thus IP expiries / patent cliffs present minimal issues, and (4) Ipsen, with a >$10B market cap, should easily be able to see the two principal Onivyde drug trials through to completion (note that Ipsen has agreed to use "commercially reasonable efforts to develop ONIVYDE in connection with obtaining the regulatory approval by the FDA of ONIVYDE for certain indications"[2]).

[2] See page 8 of MACK 2018 Form 10-K filing.

D. Short Interest

In an interesting side note, the most recent figures show that MACK's short interest more than doubled from 270K shares short as of 6/14/19 to 573K shares short as of 6/28/19. With a concurrent drop in trading volume, the "days to cover" figure jumped from just 3 to over 19, much higher than the single-digit range seen for most of 2019 [source]:

Settlement Date	Short Interest	Avg Daily Share Volume	Days To Cover
6/28/2019	572,833	29,531	19.397684
6/14/2019	269,923	86,089	3.135395
5/31/2019	257,550	40,487	6.361301
5/15/2019	256,491	26,438	9.701604
4/30/2019	281,054	52,460	5.357491
4/15/2019	317,041	139,529	2.272223
3/29/2019	304,402	45,055	6.756231
3/15/2019	306,619	48,056	6.380452
2/28/2019	334,154	29,414	11.360373
2/15/2019	362,825	127,172	2.853026
1/31/2019	439,836	56,820	7.740866
1/15/2019	425,333	98,081	4.336548
12/31/2018	471,243	156,438	3.012331

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Perhaps MACK shorts are expecting good (or bad, depending on one's perspective) news for the company, but we fail to see any on the horizon, since it appears most of the negatives have already occurred (other than obviously a Ipsen/Onivyde trial failure).

II. Risk Factors

Ipsen Onivyde Trial Failures – Clearly, the most important risk factor in owning MACK would be the failure of either or both of the Onivyde trials currently being run by Ipsen. Drug trials are highly speculative. By one estimate, only 14% of drugs in clinical trial eventually receive FDA approval. We have chosen 20% as our base case for the two key Ipsen Onivyde trials (constituting the vast bulk of the possible CVR payments) since Onivyde previously received FDA approval for one cancer indication. However, the reality could be that a 20% likelihood is too optimistic.

Tax Leakage – Another important risk factor for MACK is tax leakage that might occur upon the receipt of future milestone payments. As noted above, as of December 31, 2018 MACK had almost $250 million in deferred tax assets. MACK must structure its operations to insure that these tax assets continue to be available to offset any taxable gains attributable to any milestone payments.

Principal / Agent Problem – A third risk factor to consider with MACK is the principal/agent problem. For example, management could dilute the shareholders by selling MACK's undervalued stock in order to raise capital to pursue self-interested empire-building ambitions (which results in increased prestige and higher compensation for them, although it usually destroys value for shareholders). This issue is currently mitigated by the fact that JFL Capital is a large, engaged shareholder that appears to intend to hold MACK management fully accountable to the actual owners of the company (the shareholders) for results, including by running a proxy contest. Proxy contests have an unerring tendency to light fires under previously slothful or failing management teams.

III. Conclusion

Generally speaking, trading 50 cents for a dollar on a consistent basis is a good way to achieve wealth. In the stock market, however, such propositions a few and far between (usually one finds the opposite). With MACK, though, we find just this situation, with a stock price of just over half of the company's per share intrinsic value (57%, to be exact). Conservatively assigning just a 20% expected value to the two key Ipsen CVRs in our base case and much lower expected values for the company's other CVRs, we think MACK combines good upside potential with solid downside protection (the former attributable to the CVRs, the latter to the company's significant net cash position and low cash burn rate, along with the presence of an activist investor willing to hold management's feet to the fire).

IV. Disclaimer

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