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ALPHAWISE α
Evidence-based research

AMAG Pharmaceuticals, Inc.

Bullish on Intrarosa as the Next AMAG Value Driver Following Survey; Initiate OW, $26 PT

Stock Rat ng	Industry V ew	Pr ce Target
Overweight	In-Line	$26.00

We are bullish on AMAG, a stock that has been pressured from concerns about the impact of Makena generics, an overhang that may be overstated. Further, our AlphaWise OB/GYN survey sees a differentiated profile for newly launched Intrarosa that appears underappreciated at current levels.

Initiating coverage on AMAG with Overweight rating, $26 PT. AMAG Pharmaceut cals s a b opharmaceut cal company that spec al zes n women's health prescr pt on drugs and serv ces as well as hematology products. nvestors have focused ntently on the company's largest current revenue dr ver Makena wh ch faces the loss of orphan drug exclus v ty and the potent al for gener c compet t on n ebruary 2018. We bel eve the bear case for Makena s largely pr ced n at these levels and look toward the underapprec ated aspects of AMAG's future growth nclud ng ntrarosa for dyspareun a (pa n dur ng sex) related to menopause n women label expans on for V ron eraheme and durable revenue and valuat on support from the Cord Blood Reg stry (CBR) serv ce.

Winter is coming for Makena, but AlphaWise survey and proprietary scenario analysis suggest the bear case is largely priced in. Orphan drug exclus v ty for ntramuscular Makena a progesterone nject on used to reduce the r sk of recurrent preterm b rth exp res on ebruary 3 2018. We ant c pate at least one gener c entrant nto the market follow ng exclus v ty exp rat on as does the company. Our d l gence supported by our propr etary AlphaW se survey of 108 US OB/GYNs suggests that phys c ans would prefer AMAG's subcutaneous auto- njector should t ga n approval and that there s some sense of loyalty to branded ntramuscular Makena suggest ng there w ll l kely be durab l ty for AMAG n th s segment of the market. urther our propr etary scenar o analys s suggests that the bear case s largely pr ced n w th a base case NPV for the Makena franch se of ~$10 per share a best-case scenar o (2 year delay for gener c Makena) value of $26 per share and a worst-case scenar o (subcutaneous Makena not approvable mult ple gener cs n 2018) of $5 per share.

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AMAG Pharmaceuticals, Inc. (AMAG.O, AMAG US)

Biotechnology / **United States of America**

Stock Rating	**Overweight**
Industry View	**In Line**
Price target	**$26.00**
Shr price, close (Sep 7, 20 7)	$ 8 70
Mkt cap, curr (mm)	$65
52 Week Range	$36 83 6 00

Fiscal Year Ending	12/16	12/17e	12/18e	12/19e
ModelWare EPS ($)	**5.24**	**4.61**	**0.66**	**0.64**
Prior ModelWare EPS ($)				
P/E	**6.6**	**4.1**	**28.3**	**29.4**
Consensus EPS ($)§	**6.00**	**(1.38)**	**(1.59)**	**(0.35)**
Div yld (%)				

Unless otherwise noted, all metrics are based on Morgan Stanley ModelWare framework
§ = Consensus data is provided by Thomson Reuters Estimates
e = Morgan Stanley Research estimates

QUARTERLY MODELWARE EPS ($)

Quarter	2016	2017e Prior	2017e Current	2018e Prior	2018e Current
Q	0 76		2 56a		
Q2	30		20a		
Q3	62		0 34		
Q4	59		0 53		

e = Morgan Stanley Research estimates, a = Actual Company reported data

to use among OB/GYNs, suggesting launch dynamics likely to improve. n our August 2017 AlphaW se survey of 108 OB/GYNs phys c ans nd cated that they v ew AMAG's ntrarosa as a pos t vely d fferent ated opt on to treat dyspareun a (pa n dur ng sex) a market that s currently served by legacy branded ntravag nal estrogen products that accounted for >$1bn n 2016 sales. As has become the new normal for most drug launches we ant c pate a gradual launch for ntrarosa w th phys c an awareness payor dec s ons and formulary access l kely to be early gat ng factors. However our AlphaW se survey prov des conf dence that ntrarosa wh ch does not conta n a black box warn ng unl ke alternat ve therap es s po sed for long-term success. Over 80% of phys c ans n our survey v ew the drug as pos t vely d fferent ated and ant c pate prescr b ng to ~25% of the r pat ents w th dyspareun a at peak. W th th s prof le we bel eve ntrarosa s l kely to take share wh le grow ng the market. We see sales of ~$178mn by 2022 over 40% above current consensus peak of ~$125mn w th sales n our model grow ng to $330mn peak n 2030. ntrarosa s the largest p ece of our AMAG valuat on account ng for NPV of ~$12 per share n our model.

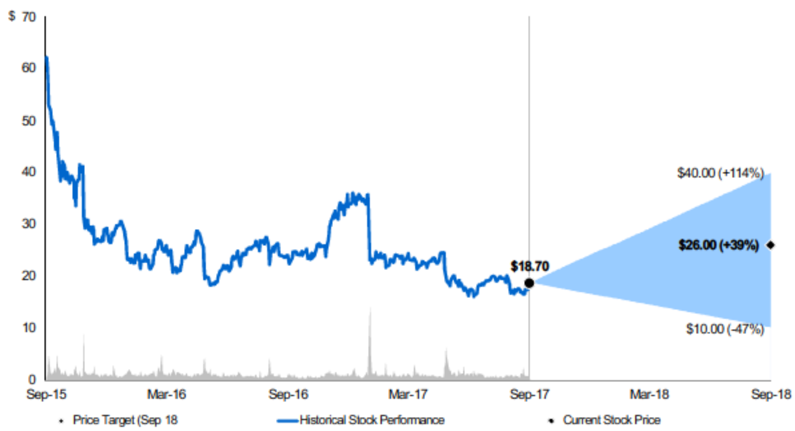
Shares also appear to be discounting label expansion for IV iron product Feraheme. eraheme has prov ded a steady backbone of revenue growth for AMAG s nce ts n t al approval n 2009. Wh le the drug has recently faced strong compet t on from V for's njectafer wh ch s approved w th a broad label and no black box warn ng pos t ve Phase 3 data reported n May 2017 show that eraheme safety and eff cacy n the broader ron def c ency anem a (DA) populat on s s m lar to njectafer w th some potent al d fferent at on vs. njectafer's h gher rate of hypophosphatem a. We model 15% YoY growth n 2018 wh le consensus mpl es 12.5% attr but ng m n mal growth to an expanded label that could double the addressable market opportun ty w th an DA dec s on expected n ebruary 2018 potent ally doubl ng the addressable market opportun ty. We see 2018 sales of $126mn vs $119mn consensus.

Cord Blood Registry business provides important durable revenue stream and NPV backbone. CBR s the world's largest newborn stem cell collect on and storage company stor ng over 600k preserved umb l cal cord blood and t ssue stem cell un ts. Although we forecast modest growth for CBR w th revenues r s ng from $118mn n 2017 to $129mn by 2025 we v ew the durab l ty of th s revenue stream favorably as the h stor cal low attr t on rates (<1% of un ts per year) and lack of P/exclus v ty prov de a stable durable revenue backbone for AMAG. The bus ness represents ~$10 per share n our model prov d ng a sol d base value for AMAG shares.

Where we could be wrong. t s poss ble that subcutaneous Makena s not approvable and that mult ple gener c entrants erode the market more qu ckly than ant c pated even n our worst-case scenar o result ng n pressure on AMAG shares. f ntrarosa s unable to successfully ga n share n the dyspareun a market sales could lag expectat ons. A complete response letter (CRL) for eraheme n ebruary 2018 or unexpected eros on of CBR's bus ness also represent potent al downs de.

Risk Reward

With the Makena bear case largely priced in, we look ahead to Intrarosa as a growth driver



Source: Thomson Reuters, Morgan Stanley Research

Price Target $26

We derive our PT from a risk-adjusted sum-of-the-parts (SOP) analysis. We forecast expected revenue/profits for each drug/condition combination. We assume a 9% WACC and no terminal growth to derive our NPV. We then assign a probability factor for each drug/condition to reflect clinical and regulatory risks/timing, sum the risk-adjusted NPVs and add cash in excess of required investment.

Bull $40

Risk-adjusted SOP

n a best-case scenar o Makena gener cs are delayed by 2 or more years and AMAG s able to rap dly convert the market to subcutaneous Makena follow ng DA approval n eb 2018 result ng n peak Makena sales of ~$570mn. The ntrarosa launch exceeds expectat ons w th qu ck adopt on and m n mal payor pushback w th greater uptake and peak sales of $450mn. eraheme usage n broad DA dr ves h gher-than-ant c pated revenue growth.

Base $26

Risk-adjusted SOP

Makena faces gener c compet t on from one gener c upon orphan drug exclus v ty exp ry n eb 2018 followed shortly thereafter by ntroduct on of the company's subcutaneous auto- njector. ntrarosa sees a gradual launch that starts to accelerate n 2018 dr ven by the drug's d fferent ated attr butes and ncreased phys c an awareness. We see peak sales of ~$330mn n 2030. We see peak sales eraheme label expans on nto broad DA s successful dr v ng ~$60mn of ncremental peak revenue.

Bear $10

Risk-adjusted SOP

n a worst-case scenar o mult ple Makena gener cs enter the market and subcutaneous auto- njector Makena never reaches the market. ntrarosa's launch d sappo nts and/or market dynam cs change (e black box removed from all local estrogens) that make the product's d fferent at on less appeal ng lead ng to peak sales of less than ~$100mn. eraheme does not ga n broad

Investment Thesis

- **Makena bear case is largely priced in.** Wh le nvestor focus has been on the ant c pated loss of orphan drug exclus v ty (ODE) and potent al for l fe cycle extens on of Makena AMAG's largest current source of revenue we bel eve the bear case s largely pr ced n. Our August 2017 AlphaW se OB/GYN survey shows phys c ans are pos t ve on the auto- njector w th some sense of loyalty to the branded ntramuscular Makena wh le our propr etary scenar o analys s shows NPV for the Makena franch se of $10 per share n our base case $5 per share n our worst case scenar o and $26 per share n our best case scenar o.
- **Intrarosa is an underappreciated growth driver, with AlphaWise OB/GYN survey showing strong positive differentiation and prescribing intentions.** ntrarosa a vag nal stero d to treat dyspareun a (pa n dur ng sex) s v ewed as pos t vely d fferent ated by over 80% of OB/GYNs n our AlphaW se survey w th peak usage expected n ~25% of dyspareun a pat ents. The lack of a black box warn ng s a s gn f cant pos t ve d fferent at ng factor wh ch we th nk s l kely to dr ve uptake n pat ents concerned about the long-term use of estrogen therap es and/or at moderate r sk of breast cancer. We see peak sales of ~$330mn for ntrarosa 3x h gher than current consensus peak of ~$125mn.
- **CBR and Feraheme provide strong revenue/NPV backbone, while Feraheme label expansion represents upside.** Cord Blood Reg stry (CBR) and the eraheme base bus ness represent a comb ned ~$16 per share of NPV n our model. eraheme label expans on nto broad DA w th an DA dec s on (PDU A) date n eb 2018 represents an add t onal ~$65mn of sales at peak ($2 share NPV) wh ch we do not bel eve s reflected n consensus today.

Key Value Drivers

- The key valuat on dr vers are commerc al ntrarosa eraheme and the Cord Blood Reg stry (CBR) serv ce as well as p pel ne advancement and bus ness development.

Potential Catalysts

- 3Q17 earn ngs n late Oct/early Nov
- Weekly/monthly prescr pt on track ng for ntrarosa
- DA dec s on (PDU A) for eraheme label expans on eb 2 2018
- DA dec s on (PDU A) for subcutaneous Makena eb 18 2018
- Makena orphan drug exclus v ty exp ry eb 3 2018

Risks to Achieving Price Target

- Makena l fe cycle extens on strategy fa ls and mult ple Makena M gener cs are ntroduced lead ng to faster-than-ant c pated eros on and sales that are mater ally below expectat ons
- eraheme label expans on does not mater al ze sales fall short of expectat ons
- P pel ne does not advance and bus ness development s value destruct ve

Key Investment Levers for AMAG Pharmaceuticals

Overview: AMAG Pharmaceut cals s a b opharmaceut cal company that spec al zes n women's health prescr pt on drugs and serv ces as well as hematology products. Pr mary value dr vers for the company nclude three marketed drugs n Makena eraheme and recently launched ntrarosa as well as the Cord Blood Reg stry (CBR) stem cell collect on and storage serv ce for newborns. We bel eve that the bear case for Makena AMAG's largest current revenue source wh ch s fac ng the exp rat on of orphan drug exclus v ty n ebruary 2018 s largely reflected n shares at these levels. Supported by durable revenue streams n eraheme and CBR we bel eve that the market s overlook ng a prom s ng growth dr ver n ntrarosa a non-estrogen treatment for postmenopausal women exper enc ng dyspareun a (pa n dur ng sex) that our AlphaW se survey suggests s h ghly pos t vely d fferent ated and l kely to take ~25% of the $1bn market for these treatments. Wh le we expect a gradual launch for ntrarosa as the drug ga ns broader awareness and formulary access we see the potent al for peak sales to exceed $300mn approx mately 3x current consensus and would encourage nvestors to use any weakness around the n t al launch as an entry po nt.

Winter is coming for Makena, but AlphaWise survey and proprietary scenario analysis suggest the bear case is already largely priced in. Orphan drug exclus v ty for ntramuscular Makena a progesterone nject on used to reduce the r sk of recurrent preterm b rth exp res on ebruary 3 2018. We ant c pate at least one gener c entrant nto the market follow ng exclus v ty exp rat on as does the company. We bel eve AMAG w ll launch the r own author zed gener c ntramuscular Makena sacr f c ng pr ce to ma nta n share of the market. Our d l gence supported by our propr etary AlphaW se survey of 108 US OB/GYNs suggests that phys c ans would prefer the Makena subcutaneous auto- njector should t ga n approval and that there s some sense of brand loyalty to branded ntramuscular Makena suggest ng there w ll l kely be some durab l ty for AMAG n th s segment of the market. See the AlphaW se survey supports SC Auto- njector uptake f approved and a surpr s ng level of branded M Makena durab l ty sect on of th s report for more deta l on the Makena port on of our AlphaW se survey.

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