Equity Research

Earnings Update

May 6, 2015

Price: $36.04 (05/5/2015)

Price Target: NA

OUTPERFORM (1)

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Key Data

Symbol	NASDAQ: RDUS
52-Week Range:	$51.22 - 7.46
Market Cap (MM):	$1,363.1
Net Debt (MM):	$0.0
Cash/Share:	$3.20
Dil. Shares Out (MM):	36.3
Enterprise Value (MM):	$1,282.2
ROIC:	NA
ROE (LTM):	NA
BV/Share:	$1.93
Dividend:	NA

FY (Dec)	2014A	2015E	2016E
Earnings Per Share			
Q1	$(50.45)	$(0.47)A	-
Prior Q1	-	*$(0.49)*	-
Q2	$(1.68)	$(0.55)	-
Prior Q2	-	-	-
Q3	$(0.59)	$(0.63)	-
Prior Q3	-	-	-
Q4	$(0.58)	$(0.68)	-
Prior Q4	-	-	-
Year	$(4.04)	$(2.34)	$(3.15)
Prior Year	-	*$(2.35)*	-
P/E	NM	NM	NM
Consensus EPS	$(4.04)	$(2.17)	$(1.45)

Consensus source: Thomson Reuters

Revenue (MM)			
Year	$0.0	$0.0	$5.0
EV/S	-	-	256.4x

Abaloparatide 24-Month Fracture Data In Q2; Regulatory Filings To Follow

The Cowen Insight

Radius reported Q1 financials. Abaloparatide, a wholly-owned candidate for osteoporosis, looks superior to LLY's Forteo and remains on-track for NDA and MAA filings in H2. Early data on RAD1901 in ER+ breast cancer is scheduled for presentation at ASCO. We continue to view RDUS shares as significantly undervalued based upon these two assets.

Q1 Financials; Cash Into Q4:2016

Radius reported a $17.1MM net loss vs. our $18.4MME. The company ended Q1 with $243.1MM in cash, inclusive of a $158.4MM secondary offering in January. Management expects funding to be sufficient into Q4:16 and through key milestones including the first commercial sales of abaloparatide and Phase I data on RAD1901.

Abaloparatide Full 24-Month Fracture Data In Late Q2; Followed By Regulatory Filings

Radius is on-track to present the topline six-month data from the Phase III ACTIVExtend trial and the full 24-month fracture dataset for abaloparatide at the end of Q2. The results of the first six-month data from ACTIVExtend and the 18-month Phase III ACTIVE results will be submitted for NDA and MAA filings in H2. Management indicated that the preclinical package to satisfy regulatory filing requirements has been completed while the Phase I renal safety trial will conclude shortly. Recall abaloparatide has demonstrated very strong data in reduction in vertebral fracture rates vs. placebo and directionally superior fracture rates relative to Forteo ($1.3B in 2014 sales). The drug also produced impressive data in BMD build in the hip and femoral neck while also reducing wrist fractures. We continue to think abaloparatide' efficacy, safety, and convenience are best-in-class, and it will eventually become the #1 anabolic agent. Radius expects to secure an ex-U.S. partner prior to possible first commercial sales of abaloparatide in late 2016.

Abaloparatide-TD Patch To Enter Clinical Evaluation In H2

Radius remains on-track to initiate a Phase I study of abaloparatide patch (abaloparatide-TD) in H2:15 with the goal of demonstrating PK equivalence to subQ abaloparatide. In December, Radius announced that a working prototype has achieved comparable AUC, Cmax, Tmax, and T1/2 with a desirable PK profile closely resembling that of the subQ injectable in non-human primates. Progress on the patch optimization will be presented at the Transdermal Conference (May 11-12).

Wholly-Owned RAD1901 Progressing In ER+ Metastatic Breast Cancer

Radius expects to report early safety Phase Ib data from a few ER+ mBrCa patients at ASCO (abstract #TPS638). Initiation of an EU Phase I trial of RAD1901 in mBrCa is on-track for 2015. The trial will be carried out at centers specialized in FES-PET imaging to evaluate pharmacodynamic effects of RAD1901 in mBrCA patients. Radius believes that RAD1901's favorable clinical profile shown thus far allows for future combination studies.

At A Glance

Our Investment Thesis

Abaloparatide is an injectable peptide analog of the PTH-related protein in Phase III development for osteoporosis. In December 2014, Radius announced positive Phase III data demonstrating a statistically significant reduction in vertebral fracture rates for abaloparatide versus placebo, and superior gains in bone mineral density and relative to Eli Lily's PTH analog, Forteo. In addition, abaloparatide achieved a statistically significant reduction in non-vertebral fractures versus placebo while the Forteo comparator arm did not. We think abaloparatide's efficacy, safety, and convenience is best-in-class, and believe it will eventually eclipse Forteo as the #1 anabolic agent. A transdermal patch formulation (abaloparatide-TD) is in development with Phase I trial to be initiated in H2:15, and could further expand the market. RDUS's other clinical candidate, RAD1901, is selective estrogen receptor degrader (SERD) with promising potential in breast cancer and other ER+ driven tumors.

Forthcoming Catalysts

- Complete and present abaloparatide 6-month extension study in Q2:15
- Present early data from Phase Ib of RAD1901 in mBrCa at ASCO
- Submit abaloparatide NDA and MMA filings in H2

Base Case Assumptions

- Subcutaneous injection of abaloparatide receives FDA approval
- Abaloparatide becomes a $550MM+ drug in the U.S.

Upside Scenario

- Radius successfully develops abaloparatide-TD, and the patch significantly expands the drug's market
- Radius successfully develops RAD1901 for patients with brain mets
- Radius is acquired

Downside Scenario

- Abaloparatide subcutaneous injection fails to gain regulatory approval
- Abaloparatide fails to achieve $550MM+ in sales in the U.S.

Price Performance

Source: Bloomberg

Company Description

Radius is developing abaloparatide, a synthetic analog of the first 34 amino acids of human parathyroid hormone related protein (hPTHrP), for osteoporosis patients with high risk for bone fractures. Abaloparatide increases patients' bone mineral density (BMD) by stimulating osteoblasts to promote new bone formation. Abaloparatide succeeded in a Phase III trial demonstrating a statistically significant reduction in vertebral fracture rates versus placebo and superior gain in BMD gains relative to Eli Lilly's Forteo (a human recombinant 34-amino acid N-terminal fragment of the parathyroid hormone), the only FDA approved anabolic agent. Radius is on-track to submit NDA filing for abaloparatide in H2:15 while an abaloparatide patch formulation is progressing. Radius's second drug candidate RAD1901 functions as a selective estrogen receptor down-regulator (SERD) at a high dose for mBrCa and a modulator (SERM) at a low dose for vasomotor symptoms.

Analyst Top Picks

	Ticker	Price (05/5/2015)	Price Target	Rating
Alexion Pharmaceuticals	ALXN	$168.55	$216.00	Outperform
Celgene	CELG	$107.54	$146.00	Outperform
Biogen	BIIB	$385.80	$494.00	Outperform

Investment Thesis

Radius's lead candidate, abaloparatide, is an injectable peptide analog of the PTH-related protein in Phase III development for osteoporosis. In December 2014, Radius announced positive Phase III data demonstrating a statistically significant reduction in vertebral fracture rates for abaloparatide versus placebo, and superior gains in bone mineral density and relative to Eli Lily's PTH analog, Forteo. In addition, abaloparatide achieved a statistically significant reduction in non-vertebral fractures versus placebo while the Forteo comparator arm did not. Radius anticipates NDA and MAA filings for abaloparatide in H2:15 and intends to market abaloparatide on its own in the U.S. Forteo sales were over $1.3B worldwide in 2014, and we think abaloparatide could expand this market by virtue of its superior potency, convenience, and safety. Abaloparatide is also being developed as a patch for transdermal delivery (abaloparatide-TD). Radius's second candidate, RAD1901, is a selective estrogen receptor degrader or SERD for estrogen receptor-positive breast cancer. SERDs are a relatively new and exciting class of therapeutics that has the ability to treat hormone-resistant tumors. Radius initiated a Phase Ib trial on RAD1901 in ER+ HER2- breast cancer patients with brain metastases in January 2015 following the announcement of Phase I data in healthy volunteers that supports QD dosing and demonstrated favorable safety and tolerability. Radius also plans to develop RAD1901 as selective estrogen receptor modulator (SERM) for vasomotor symptoms and anticipates the initiation of a Phase IIb study in H2:2015. We expect RDUS share to outperform as abaloparatide advances to the market and RAD1901 achieve proof-of-concept.

Radius Health - Upcoming Milestones/Events

Indication/Milestone	Timing
Data from preclinical evaluation of abaloparatide-TD patch at Transdermal & Intradermal Conference	May 11-12
Early Phase I data on RAD1901 in ER+ breast cancer at ASCO	May 30
24-month fracture data from abaloratide's Phase III extension trial (ACTIVExtend)	Late Q2:15
ACTIVE III Responder data analysis at EULAR	June 10-13
NDA and MAA submissions for abaloparatide	H2:15
Initiate Phase IIb study on RAD1901 for vasomotor symptoms	H2:15
Initiate clinical evaluation of optimized abaloparatide-TD patch	H2:15
Initiation of Phase I trials of RAD1901 in breast cancer patients with brain mets in Europe	2015
Publication of Phase III ACTIVE trial data	2015
Sign ex-U.S. commercial marketing partner for abaloparatide	2015-16
Potential FDA and EMA approvals for abaloparatide	H2:16
U.S. commercial launch of abaloparatide	Late 2016

Source: Cowen and Company

Radius Health Quarterly P&L Model ($MM)

	Q1:14A	Q2:14A	Q3:14A	Q4:14A	2014A	Q1:15A	Q2:15E	Q3:15E	Q4:15E	2015E
Abaloparatide-SC U.S. Sales Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abaloparatide-SC ex-U.S. Royalty Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Revenue	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
COGS	-	-	-	-	-	-	-	-	-	-
GMs										
R&D	9.7	10.6	13.8	11.6	45.7	11.6	14.0	16.0	17.0	58.6
SG&A	2.1	3.1	2.8	5.6	13.7	4.8	6.5	7.5	8.5	27.3
Other	-	-	-	-	-	-	-	-	-	-
Total Operating Expenses	**11.9**	**13.7**	**16.7**	**17.2**	**59.4**	**16.3**	**20.5**	**23.5**	**25.5**	**85.8**
Income from Operations	**(11.9)**	**(13.7)**	**(16.7)**	**(17.2)**	**(59.4)**	**(16.3)**	**(20.5)**	**(23.5)**	**(25.5)**	**(85.8)**
Op Margins										
Interest and Investment Income	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4
Other Income (expense)	(2.2)	1.5	0.0	(0.0)	(0.7)	(0.1)	0.0	0.0	0.0	(0.1)
Interest expense	(0.4)	(0.5)	(0.8)	(0.8)	(2.5)	(0.8)	(0.5)	(0.5)	(0.5)	(2.3)
Net Loss	**(14.5)**	**(12.6)**	**(17.4)**	**(18.0)**	**(62.5)**	**(17.1)**	**(20.9)**	**(23.9)**	**(25.9)**	**(87.8)**
Acretion of Preferred Stock	(5.0)	0.0	0.0	0.0	(5.0)	0.0	0.0	0.0	0.0	0.0
Unrealized Loss from Marketable Securities		0.0	(0.0)	(0.0)	(0.0)	0.1				
Pre Tax Earnings (Losses)	**(19.5)**	**(12.6)**	**(17.4)**	**(18.0)**	**(62.5)**	**(17.1)**	**(20.9)**	**(23.9)**	**(25.9)**	**(87.8)**
Tax rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0.0*	*0%*
Income Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Income (Loss)	**($19.5)**	**($12.6)**	**($17.4)**	**($18.0)**	**($71.5)**	**($17.1)**	**($20.9)**	**($23.9)**	**(25.9)**	**(87.8)**
GAAP EPS	**($50.45)**	**($1.68)**	**($0.59)**	**($0.55)**	**($4.04)**	**($0.47)**	**($0.55)**	**($0.63)**	**($0.68)**	**($2.34)**
Diluted Shares	0.4	7.5	29.7	32.7	17.7	36.3	37.7	38.0	38.2	37.5

Source: Cowen and Company

Radius Health Annual P&L Model ($MM)

	2014A	2015E	2016E	2017E	2018E	2019E
Abaloparatide-SC U.S. Sales Revenue	0.0	0.0	5.0	70.0	125.0	175.0
Abaloparatide-SC ex-U.S. Royalty Revenue	0.0	0.0	0.0	0.8	6.0	15.0
Total Revenue	**0.0**	**0.0**	**5.0**	**70.8**	**131.0**	**190.0**
COGS	-	-	0.9	10.5	17.5	23.3
GMs	*0%*	*0%*	*83%*	*85%*	*86%*	*87%*
R&D	45.7	58.6	70.0	80.0	85.0	90.0
SG&A	13.7	27.3	65.0	80.0	90.0	95.0
Total Operating Expenses	**59.4**	**85.8**	**135.9**	**170.5**	**193.4**	**208.3**
Income from Operations	**(59.4)**	**(85.8)**	**(130.9)**	**(99.8)**	**(62.4)**	**(18.3)**
Op Margins	*0%*	*0%*	*0%*	*0%*	*0%*	*NA*
Interest and Investment Income	0.1	0.4	0.5	0.5	0.5	0.5
Other Income (expense)	(0.7)	(0.1)	0.0	0.0	0.0	0.0
Interest expense	(2.5)	(2.3)	(2.0)	(2.0)	(2.0)	(2.0)
Net Loss	**(62.5)**	**(87.8)**	**(132.4)**	**(101.3)**	**(63.9)**	**(19.8)**
Acretion of Preferred Stock	(5.0)	0.0	0.0	0.0	0.0	0.0
Pre Tax Earnings (Losses)	**(62.5)**	**(87.8)**	**(132.4)**	**(101.3)**	**(63.9)**	**(19.8)**
Tax rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Income Tax	0.0	0.0	0.0	0.0	0.0	0.0
Net Income (Loss)	**($71.5)**	**($87.8)**	**($132.4)**	**($101.3)**	**($63.9)**	**($19.8)**
GAAP EPS	**($4.04)**	**($2.34)**	**($3.15)**	**($2.35)**	**($1.30)**	**($0.40)**
Diluted Shares	17.7	37.5	42.0	43.0	49.0	50.0

Source: Cowen and Company

Valuation Methodology And Risks

Valuation Methodology

Biotechnology:
In calculating our 12-month target price, we employ one or more valuation methodologies, which include a discounted earnings analysis, discounted cash flow analysis, net present value analysis and/or a comparable company analysis. These analyses may or may not require the use of objective measures such as price-to-earnings or price-to-sales multiples as well as subjective measures such as discount rates.

We make investment recommendations on early stage (pre-commercial) biotechnology companies based upon an assessment of their technology, the probability of pipeline success, and the potential market opportunity in the event of success. However, because these companies lack traditional financial metrics, we do not believe there are any good methodologies for assigning a specific target price to such stocks.

Investment Risks

Biotechnology:
There are multiple risks that are inherent with an investment in the biotechnology sector. Beyond systemic risk, there is also clinical, regulatory, and commercial risk. Additionally, biotechnology companies require significant amounts of capital in order to develop their clinical programs. The capital-raising environment is always changing and there is risk that necessary capital to complete development may not be readily available.

Risks To The Price Target

Radius Health is unprofitable, has no approved products, and will likely need to raise additional capital from the public markets prior to turning profitable. There is no guarantee that abaloparatide's Phase III study will meet its primary endpoint of fracture reduction. Even if successful, abaloparatide may face other commercial and competitive risks that thwart adoption.

We make investment recommendations on early stage (pre-commercial) biotechnology companies based upon an assessment of their technology, the probability of pipeline success, and the potential market opportunity in the event of success. However, because these companies lack traditional financial metrics, we do not believe it there are any good methodologies for assigning a specific target price to such stocks.

Addendum

Stocks Mentioned In Important Disclosures

Ticker	Company Name
ALXN	Alexion Pharmaceuticals
BIIB	Biogen
CELG	Celgene
RDUS	Radius Health

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Cowen and Company Rating System effective May 25, 2013

Outperform (1): The stock is expected to achieve a total positive return of at least 15% over the next 12 months

Market Perform (2): The stock is expected to have a total return that falls between the parameters of an Outperform and Underperform over the next 12 months

Underperform (3): Stock is expected to achieve a total negative return of at least 10% over the next 12 months

Assumption: The expected total return calculation includes anticipated dividend yield

Cowen and Company Rating System until May 25, 2013

Outperform (1): Stock expected to outperform the S&P 500

Neutral (2): Stock expected to perform in line with the S&P 500

Underperform (3): Stock expected to underperform the S&P 500

Assumptions: Time horizon is 12 months; S&P 500 is flat over forecast period

Cowen Securities, formerly known as Dahlman Rose & Company, Rating System until May 25, 2013

Buy – The fundamentals/valuations of the subject company are improving and the investment return is expected to be 5 to 15 percentage points higher than the general market return

Sell – The fundamentals/valuations of the subject company are deteriorating and the investment return is expected to be 5 to 15 percentage points lower than the general market return

Hold – The fundamentals/valuations of the subject company are neither improving nor deteriorating and the investment return is expected to be in line with the general market return

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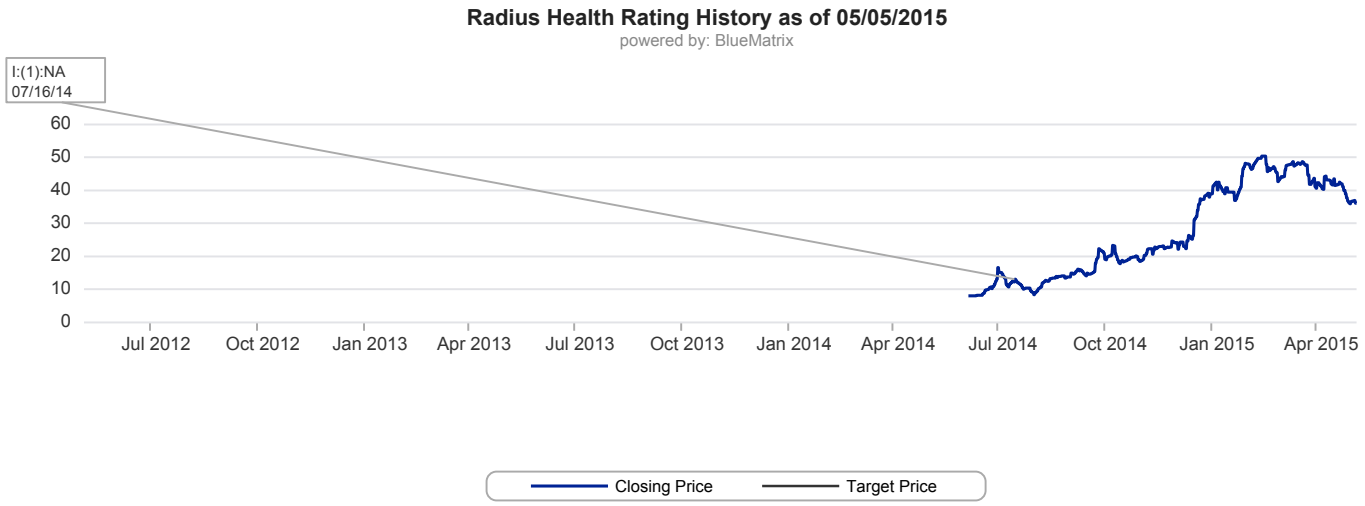
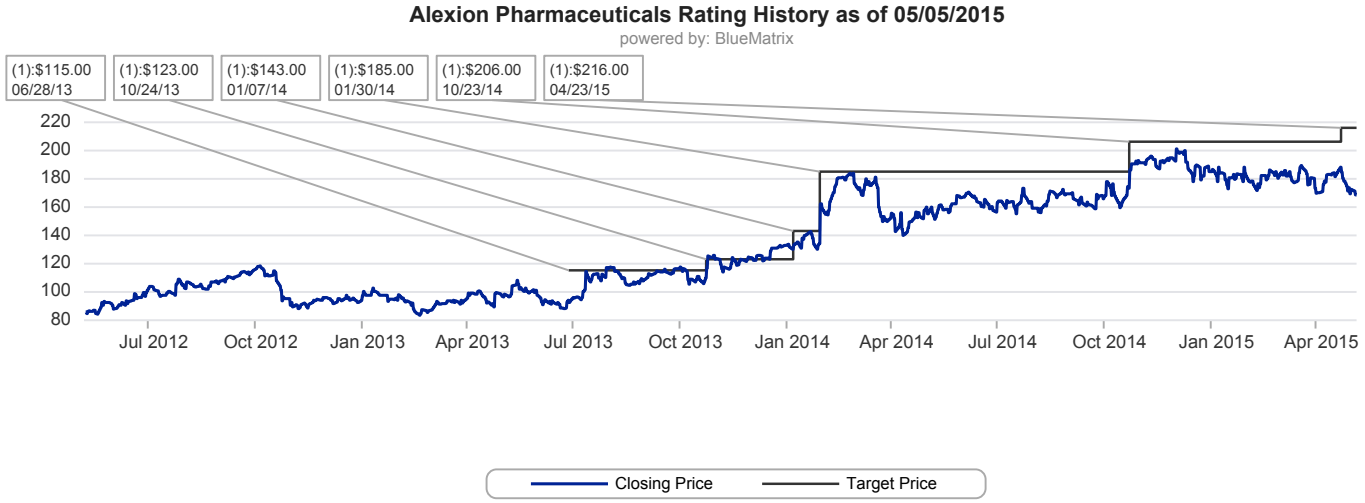
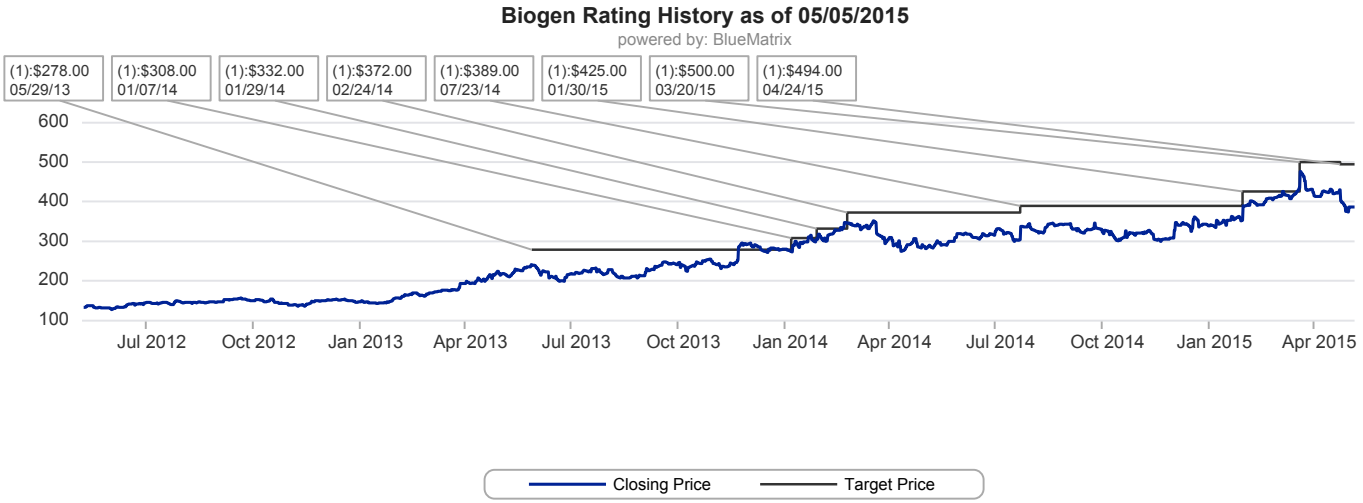
Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy (a)	450	58.67%	103	22.89%
Hold (b)	302	39.37%	8	2.65%
Sell (c)	15	1.96%	0	0.00%

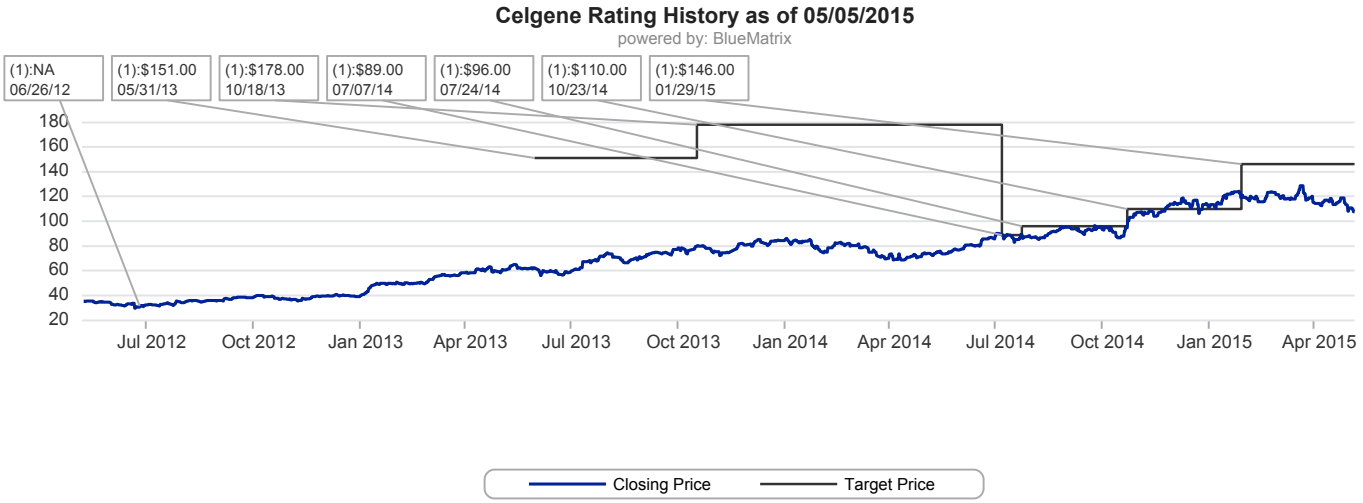
(a) Corresponds to "Outperform" rated stocks as defined in Cowen and Company, LLC's rating definitions. (b) Corresponds to "Market Perform" as defined in Cowen and Company, LLC's ratings definitions. (c) Corresponds to "Underperform" as defined in Cowen and Company, LLC's ratings definitions.

Note: "Buy", "Hold" and "Sell" are not terms that Cowen and Company, LLC uses in its ratings system and should not be construed as investment options. Rather, these ratings terms are used illustratively to comply with FINRA and NYSE regulations.









Legend for Price Chart:

I = Initiation | 1 = Outperform | 2 = Market Perform | 3 = Underperform | UR = Price Target Under Review | T = Terminated Coverage | $xx = Price Target | NA = Not Available | S=Suspended

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