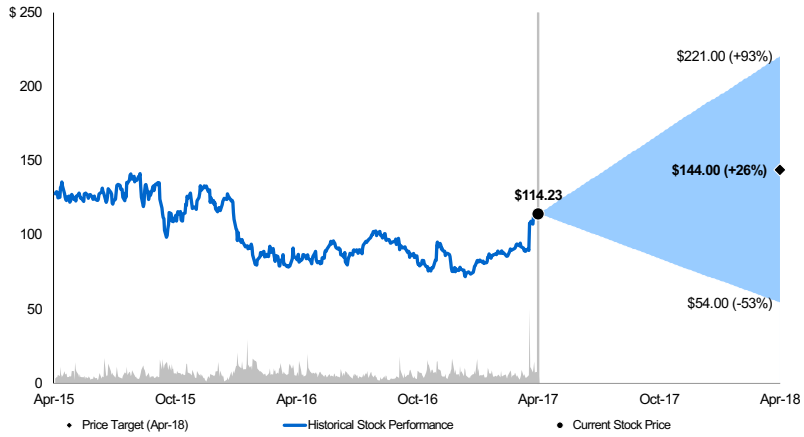
Vertex Risk Reward

Orkambi uptake, heterozygote success, and Kalydeco sales drive risk-reward



Source: Thomson Reuters, Morgan Stanley Research

Price Target **$144**

Our Price Target Is Derived From A Discounted Cash Flow Analysis Using A WACC Of 10% And A Terminal Growth Rate Of 0% Post 2029.

Bull **$221**

DCF

Good combo uptake, Triple combo works. The bull case assumes higher F508del homozygote combo penetration. The triple combo succeeds in F508del heterozygous CF patients with a launch in 2018. Peak WW sales of ~$8.9B in F508del heterozygotes and homozygotes. Additional combo and triple data are key.

Base **$144**

DCF

Robust Orkambi/'661 uptake, solid peak Kalydeco sales and risk-adjusted triple combo sales. Our base case assumes ~50% penetration of Orkambi in homozygous CF patients and peak WW sales of ~$5.0B in heterozygotes and homozygotes. Kalydeco monotherapy peaks at ~$935M.

Bear **$54**

DCF

Modest Orkambi uptake. Our bear case assumes ~20% (ROW) and ~25% (US) penetration of Orkambi in homozygous CF patients and peak WW sales of ~$1.1B. Kalydeco monotherapy peaks at ~$930M. Vertex does not succeed in reaching the heterozygote market.

Investment Thesis

- We are Overweight Vertex as we believe the stock does not reflect the potential of triple combination success in CF and is closer to the bear case in terms of long-term uptake by Orkambi/VX-661 in homozygote patients.
- We believe preclinical assay data suggest success for the triple combination and thus include risk-adjusted triple combination revenues in our base case.
- While we do believe there is the potential for competition, we believe Vertex has a significant advantage in its position with both on-market double combinations and in-development triple combinations. We model some share to competitors over the long-term.

Key Value Drivers

- The main drivers for Vertex are Kalydeco and Orkambi sales as well as clinical data on potential triple combinations and launch trajectory of the VX-661 doublet.

Risks to Achieving Price Target

- 1) Combo penetration falls short of expectations
- 2) Kalydeco sales fail to meet our expectations
- 3) Data from clinical candidates such as VX-661 and the next-gen corrector fail to meet expectations
- 4) Data from the competition exceeds expectations

Catalyst Calendar

Exhibit 128: Vertex Catalyst Calendar

Drug	Type	Milestone	Timing
VX-661+ivacaftor	PhIII update	Complete enrollment in PhIII trial with patients with gating mutation	Early 2017
VX-445	PhI start	Initiate PhI	1Q17
Orkambi	Regulatory event	MAA for use of Orkambi in homozygous F508del CF patients age 6-11	1H17
VX-661+ivacaftor	Regulatory event	File NDA for VX-661 + ivacaftor	2H17
VX-152 Triple Combo	PhII data	Triple combo data	2H17
VX-440 Triple Combo	PhII data	Triple combo data	2H17
VX-150	PhII start	Initiate PhII trials in neuropathic and acute pain	2H17
VX-659	PhII start	Initiate PhII	2H17
VX-661+ivacaftor	PhIII data	Data from PhIII trial in patients with gating mutation	2017
4th gen corrector	PhI start	Advance 4th gen corrector to clinic	2017
Orkambi	Regulatory event	Finish reimbursement discussions with many EU countries	2017

Source: Company Data, Morgan Stanley Research