BAEZ & IPE Inc.

MannKind Corporation

Inhaled Insulin: Next Generation Diabetes Therapy

Afresa is well positioned to capture the inhaled insulin segment and to cut into the short-acting insulin market

JORGE BAEZ
jorge.baez@yale.edu

JAISON IPE
jaison.ipe@yale.edu

November 8, 2008

MNKD ($3.68) Rating: BUY

We are initiating coverage on MannKind with a Buy rating, and a price target of $5.39. With the completion of Phase 3 trials for Afresa and a positive pre-NDA meeting with FDA, we expect at least a 60% probability of approval.

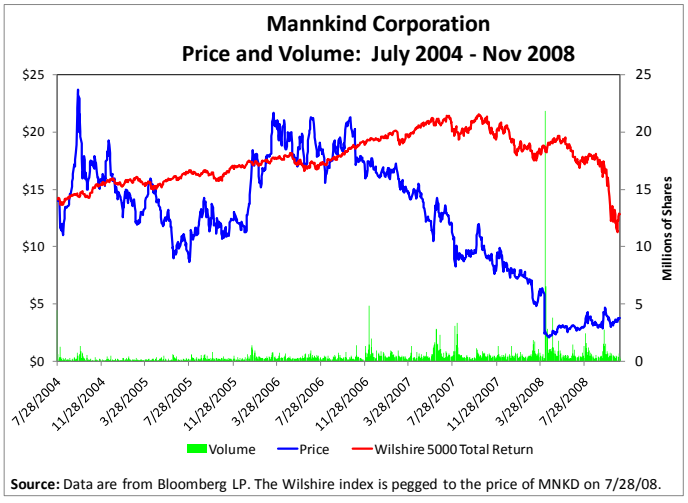
Approval of the transition of Exubera patients to Afresa demonstrates FDA's confidence in Afresa. The FDA has expressed support for the transition of patients currently on Pfizer's inhaled insulin therapy Exubera. This level of unqualified support from the FDA indicates that the agency is confident and comfortable with the efficacy and safety of Afresa.

Strong management with a proven record of accomplishment and high level of commitment. Chairman and CEO Alfred Mann has a proven track record of developing and commercializing diabetes drug therapies and other biotechnology treatments. In addition, he has exhibited a high level of commitment and confidence in the success of Afresa by not only taking a significant stake in the equity of the company, but also offering an additional $350 million line of credit.

A sales and marketing partnership has not yet been established. MannKind has not signed a development partnership agreement with any major pharmaceutical. MannKind lacks strong sales and marketing force and an established distribution channel this could be a concern hurting initial sales and allowing competition to gain market share.

Company Data: MNKD	November 7,2008
52-Week Range	$1.86 - $10.22
52-Week Avg. Daily Volume	429,000
Shares Outstanding	101.6 million
Market Capitalization	$374.29 million
Total Debt	$112.13 million
Cash/Short-Term Investment	$95.23 million

Year	2007A	2008E	2009E
Revenue	$0.01A	$0.01E	$0.01E
EPS:			
Q1	($1.00)A	($0.70)A	-
Q2	($0.98)A	($0.79)A	-
Q3	($0.99)A	($0.67)A	-
Q4	($0.75)A	($0.82)E	-
Year	($3.66)A	($2.98)E	($2.64)E



Source: Data are from Bloomberg LP. The Wilshire index is pegged to the price of MNKD on 7/28/08.

Please read the disclaimer at the end of this report before reading

Table of Contents

Company Overview

MannKind Corporation is a biopharmaceutical company that discovers, develops and commercializes drugs for the treatment of diabetes and cancer. Technosphere Insulin System is a dry powder insulin molecule that is aerosolized and thrust into the lung using MannKind's proprietary inhaler. This system enables rapid insulin absorption into the bloodstream, reaching peak levels in 12 to 14 minutes. Technosphere Insulin test results have shown improved glucose control without the weight gain associated with other types of insulin therapies. Phase 3 trials on this system have been completed and the company is currently focusing on data analysis for a new drug application.

MannKind maintains an active discovery research program focused on developing cancer immunotherapy and small molecule targeted cancer therapy. Phase 1 trials on a cancer therapy, MKC1106-PP, were completed in 2007 and FDA approvals for Phase 2 trials have been received in 2008.

Diabetes Background

Diabetes usually begins with insulin resistance, a disorder in which the body's cells do not use insulin appropriately. In an effort to metabolize glucose, the pancreas initially produces higher concentration of insulin. The pancreas gradually loses its ability to produce the higher level of insulin needed and becomes non-functional. Type 1 diabetes develops when the body's immune system destroys pancreatic beta cells that produce the hormone insulin to regulate blood glucose levels. Type 2 diabetes, while similar to Type 1, develops with old age, obesity and physical inactivity. Type 2 diabetes is also seen in certain segment of the population that has genetic predisposition to diabetes, history of gestational diabetes and impaired glucose metabolism. Diabetes can lead to other health issues such as stroke, cardio vascular disease, renal failure and blindness. Diabetes is currently the seventh leading cause of death in the United States. About 8% of the US population – 24 million people – has diabetes. Lifetime risk of developing diabetes for US residents is estimated at 35%. In adults, Type 2 diabetes accounts for about 90% to 95% of all diagnosed cases of diabetes. The Center for Disease Control and Prevention (CDC) estimates that diabetes costs the US about $174 billion annually, with $116 billion attributed to direct medical costs.

People with Type 1 diabetes have to inject insulin into their blood stream on a regular basis. Type 2 diabetes can be managed by controlling the blood glucose levels with a combination of proper diet, exercise and oral medication. Despite the combination therapy, many Type 2 diabetics require insulin injections to adequately control their blood glucose levels. Insulin can be administered in a variety of ways – subcutaneous injections using syringes, pens, pumps and inhaled insulin using proprietary inhalers.

CDC studies show that 75% of adults with diabetes also suffer from high blood pressure. The risk of stroke is 2 to 4 times higher among people with diabetes. In addition to diabetes medications, patients also take medications for hypertension, cholesterol and other cardiovascular conditions.

There are several types of treatments available to manage diabetes. Type 1 diabetes usually requires direct insulin therapy. Type 2 diabetics have options to use a combination of drugs and insulin therapy to treat the disease. There are several classes of drugs available – sulfonylureas (SFUs), biguanudes, thiazolidinediones (TZD), dipeptidyl peptidase-IV (DPP-IV) inhibitors and glucagon-like peptide-1 (GLP-1) mimetics. These drugs work in different ways and might be used in conjunction with each other to effectively treat the disease.

Pipeline Analysis

Afresa – Technosphere Insulin System:

Afresa is the proposed trade name for MannKind's Technosphere Insulin System. MannKind's long-term potential is dependent on Afresa's FDA approval to market inhaled insulin for Type 1 and Type 2 diabetes.

MannKind has currently completed Phase 3 trials of Afresa for Type 1 and Type 2 diabetes patients, and is currently in the data analysis phase. The company expects to complete Technosphere Insulin System Phase 3 data review in December and submit the New Drug Application (NDA) with the FDA in the first quarter of 2009. With Pfizer's withdrawal of its inhaled insulin product, Afresa is expected to be the only inhaled insulin therapy available in the market for a few years from the expected commencement of commercial production in 2010. Inhaled insulin therapy is expected to gradually cut into the subcutaneous injection insulin market. With a growing global diabetes market, the inhaled insulin therapy will expand into a multi-million dollar product. If approved by 2010, Afresa has the potential to generate over $1 billion in revenue within five years.

In anticipation of the NDA approval of Afresa, MannKind is developing a manufacturing facility in Danbury, Connecticut. The 328,000 square feet manufacturing facility is expected to be completed in 2008. In addition to manufacturing, this facility will be used for research and development and administrative purposes.

MKC253 – Natural GLP-1 Therapy:

MannKind is exploring the use of Technosphere technology to develop a new glucagon-like-peptide-1 (GLP-1) therapy to treat Type 2 diabetes. MKC253 is MannKind's proprietary version of GLP-1 therapy that utilizes Technosphere technology to stimulate incretin release that in turn stimulates the release of insulin by the pancreas. In late 2007, phase 1 trials were being conducted to assess MKC253 as a viable treatment option for Type 2 diabetes

MKC1106-PP & MT – Cancer Immunotherapy:

MannKind's cancer immunotherapy treatment uses DNA and peptide based compound to create an immune response against cancer cells. MKC11066-PP is being evaluated to treat colorectal, ovarian, renal, pancreatic, breast and prostate cancers and is currently in phase 1 trials. MKC1106-MT is an immunotherapy used to treat advanced melanoma and is currently in phase 1/2 trials.

Competitive Landscape

The biotechnology landscape is constantly changing with new and innovative technologies. In addition, the products have the capacity to change the way the disease is treated. MannKind's Technosphere Insulin System faces competition from existing therapeutic treatments such as subcutaneous injection to inhaled insulin systems and oral insulin therapies.

Subcutaneous Insulin Injections:

Humalog produced by Eli Lilly, Novolog produced by Novo Nordisk and Apidra produced by Sanofi Aventis are fast acting subcutaneous insulin injections. These injections with 5 to 20 minute onset times compete with Afresa which has an onset time of 12 to 14 minutes. Levemir and Lantus produced by Novo Nordisk and Sanofi Aventis respectively are longer-acting insulin injections with relatively longer onset times, 2-4 hours and hence offer lower level of competition to Afresa as compared to the fast-acting insulin injections.

Inhaled Insulin Systems:

In the third quarter of 2007, Pfizer withdrew Exubera, the only FDA approved inhaled insulin competition to Afresa. Nektar Therapeutics, the company that originally developed Exubera, is looking for partners to re-market the drug in the US. Nektar is also developing the next generation of inhaled insulin and plans to launch the drug in 2011.

In the first quarter of 2008, Novo Nordisk and Eli Lilly terminated their independent research and development efforts on inhaled insulin citing doubts about the commercial viability of inhaled insulin.

Oral Insulin Delivery:

Oral insulin drugs directly compete with Afresa because of its ease of delivery compared to subcutaneous injections. Biocon Limited is in phase 2 trial of its insulin tablet while Emisphere Technologies completed its phase 2 trials of oral insulin. Generex Biotechnology is currently selling its nasal insulin drug Oral-lyn in India and Ecuador and is in the process of conducting phase 3 trials in North America.

Non-Insulin Medications:

Non-insulin medications for type 2 diabetes work by reducing blood glucose levels appropriately. These medications often taken in conjunction with insulin compete with Afresa because they reduce the concentration of insulin required by patients for overall blood glucose control. Byetta, LAR, Januvia, Avandia, Glucophage, Glucotrol, Diabeta and Amaryl are a few examples of non-insulin drugs that compete with Afresa.

Investment Risks

Dependence on Technosphere technology & Afresa:

MannKind is dependent on one diabetes therapy currently in phase 3 trial. Any adverse impact on the FDA approval process of Technosphere based Afresa could negatively affect future cash flow. Currently the company does not have any other drugs in advanced stages of development with the potential for generating cash.

Sales and marketing partnership:

MannKind does not have sales and marketing expertise to launch large-scale distribution of Afresa. The company has not been able to collaborate with a major pharmaceutical company that has an established distribution channel and a seasoned sales force. The inability to establish a sales and marketing partner could hamper the adoption of Afresa, and consequently lead to poor drug sales and growth.

Competition from oral insulin delivery:

Oral delivery mechanism takes insulin administration to the next level of convenience as compared to inhaled insulin. Because an inhaler apparatus is not needed for oral insulin delivery, the manufacturing cost for oral medication would be lower, translating to lower price for the therapy.

Exubera effect:

Concerns with Exubera because of Pfizer's withdrawal of the drug from the market could affect Afresa, leading to slow adoption rates and consequently poor sales.

Limited manufacturing experience:

MaanKind does not have experience with large-scale production of the Technosphere technology system based Afresa.

Uncertainty of managed payor coverage and co-payments:

It is unclear whether managed payors would cover inhaled insulin therapies and if covered, the level of co-payments associated with this new diabetes therapy.

Valuation:

We are initiating coverage on MannKind with a Buy rating and a price target of $5.39. The target price represents an upside of 46% from the closing price of $3.68 on 11/7/08. Our price target is based on a probability of approval of 60% for Afresa and a discount rate of 16.46%. We value MannKind almost entirely on the success of Afresa, which is expected to get FDA approval in 2009 and hit the US market by 2010. Based on an analysis of current products in the market we believe there is a sizeable niche in the insulin landscape for both Type 1 and Type 2 diabetics on injectable insulins and other glucose controlling drugs. While we believe the legacy of discontinued pulmonary insulins, most notably Exubera, will initially be a challenge, we expect Afresa to eventually establish itself as a safe and viable alternative to injectable insulins, insuring a protected market position for the near future.

We performed a sensitivity analysis around our assumptions. As shown in Figure 1, we varied the probability of Afresa's approval by 10% and the discount rate by about 3%. There was only one scenario (probability of approval 50% and discount rate 19.75%) in which our valuation was below the current stock price. We believe that such a scenario is highly unlikely and thus feel confident with our Buy rating.

MNKD Price Per Share Sensitivity Analysis				
		Probability of FDA Approval		
		50%	60%	70%
Discount Rate	13.17%	$7.04	$8.17	$9.30
	16.46%	$4.57	$5.39	$6.24
	19.75%	$3.27	$3.89	$4.52

Figure 1

Afresa Market Share:

According to the Center for Disease Control's (CDC) June 2008 press release, the number of Type 1 and Type 2 diabetics in the US rose to 24 million in 2007. This represents a 4% increase from the previous year. Of the 24 million diabetics, only about 18 million were diagnose with the disease. The remaining 6 million remain undiagnosed. For our valuation, we used the total diagnosed population and grew it by 4% year over year until the terminal year.

Figure 2 shows a breakdown of diabetes treatment in the US. Fifty seven percent of diagnosed diabetics use oral non-insulin medications. Fourteen percent of diabetics use insulin only, 13% of the diabetics uses a combination of insulin and oral medication and 16% of diabetics use no medication at all.

Based on the diabetes treatment breakdown, we determined that the market for inhaled insulin would consist of the diabetic group that use insulin only and the group that uses the combination of insulin and oral medication. The two groups account for 27% of the total diabetes market.

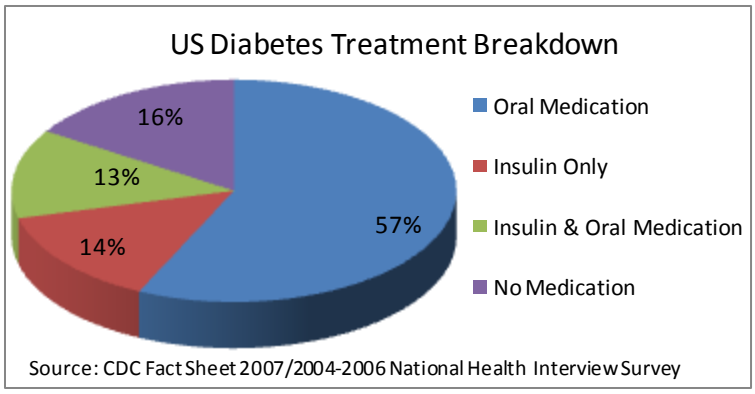


Figure 2

MaanKind's survey study of primary care physicians and endocrinologists showed that a over 30% of the physicians indicated that Technosphere insulin was an improvement over current fast-acting insulin therapies1. To get a conservative estimate, we discounted the results of this study and assumed that a little over 10% of the potential Afresa market would switch over by 2013. These assumptions were applied to our total diabetes market, starting at 3% in 2010 and annually incrementing by 2.5% to get to 10.5% in 2013. Similarly, we estimated the diabetes market of Western Europe using data from the Diabetes Atlas for Europe. We used the same treatment breakdown as the US and assumed that Afresa's Europe sales would commence in 2012.

Afresa Pricing:

Based on parameters from Afresa's predecessor Exubera, we assume the company will launch Afresa at a daily price-point of $4.69[2]. We assume the manufacturing cost per day will be about 38% of the price based on an analysis of Exubera's revenues and costs from 2005 through 2007, shown in Figure 3. We assume these prices and costs apply to both the United States and Europe.

Exubera Revenues and Costs

Year	Revenues	Costs	% Costs
2005	$320	$106	33%
2006	$482	$190	39%
2007	$639	$269	42%
Average			**38%**

Source: WR Hambrecht report on Pfizer, Sept. 2007.

Figure 3

[1] Physician study data and results provided in MannKind's 2007 10-K.

[2] In 2006, Exubera's price was in the range of $3.73 to $4.67 according to IMS Health. We took an average and increased the price annually by a historical inflation rate of 2.79%. We also looked at Actos, a competing drug for Type 2 diabetes, whose price ranged from $4 to $5 in 2007 to reaffirm our estimates. In our model we also increase the price every year by the same inflation rate.

Afresa Strategic Partnerships:

We believe that MannKind will need a strategic partner for the launch of Afresa. The partner should be capable enough to handle marketing, sales and distribution as stated by the company. Such an agreement makes sense since the company has no expertise in any of these areas. We assume that MannKind would enter a profit sharing agreement with an industry standard royalty of 50% of profits[3]. The company also intends to enter into development and marketing partnerships for Europe. We assume MannKind will receive a 20% royalty on Afresa sold in Europe since the strategic partner will also handle manufacturing[4]. Our revenue estimates for Afresa in both the U.S. and Europe are detailed in Figure 4.

Pipeline Products Value:

In February 2008, MannKind finalized terms of a research award from the Multiple Myeloma Research Foundation that will help to support the development of the IRE-1 antagonist. Under this award, the company will receive up to $5.0 million over the next five years. Additionally a small value was added to the company's terminal value to account for the potential of all other pipeline products currently under early stages of development.

Research and Development:

MannKind's R&D expenses have decreased this year as compared to the prior year primarily due to decreased costs associated with the clinical development of Afresa. The company anticipates that R&D expenses will continue to decline as clinical studies are completed. We included in our model a decline in these expenses in the next two years before stabilizing at 2003 levels.

SG&A:

SG&A expenses increased in 2008 as compared to 2007 due to increased employee-related and consulting expenses and increased stock-based compensation expense. The company expects SG&A expenses to remain constant in the future.

Tax Loss Carry-forwards:

MannKind has recorded negative earnings since its inception and expects this trend to continue for the next couple of years. As such, the company has accumulated a considerable amount of tax loss carry-forwards that will allow the company to offset future taxes. We have included these benefits in our model.

[3] Amylin recently signed a marketing, sales and distribution agreement with Eli Lilly of 50% profit sharing for LAR (a competing diabetic treatment) in the United States.
[4] Amylin recently signed a manufacturing, marketing, sales and distribution agreement with Eli Lilly of 20% profit sharing for LAR (a competing diabetic treatment) in Europe.

Debt:

MannKind currently has $112 million of 3.75% Senior Convertible Notes issued in December 2006 and due in 2013. In August 2007, the company entered into a $350 million loan arrangement with the founder and CEO Alfred Mann. The company expects to receive $150 million in 2009 and the remaining $200 million in 2010.

Free Cash Flows:

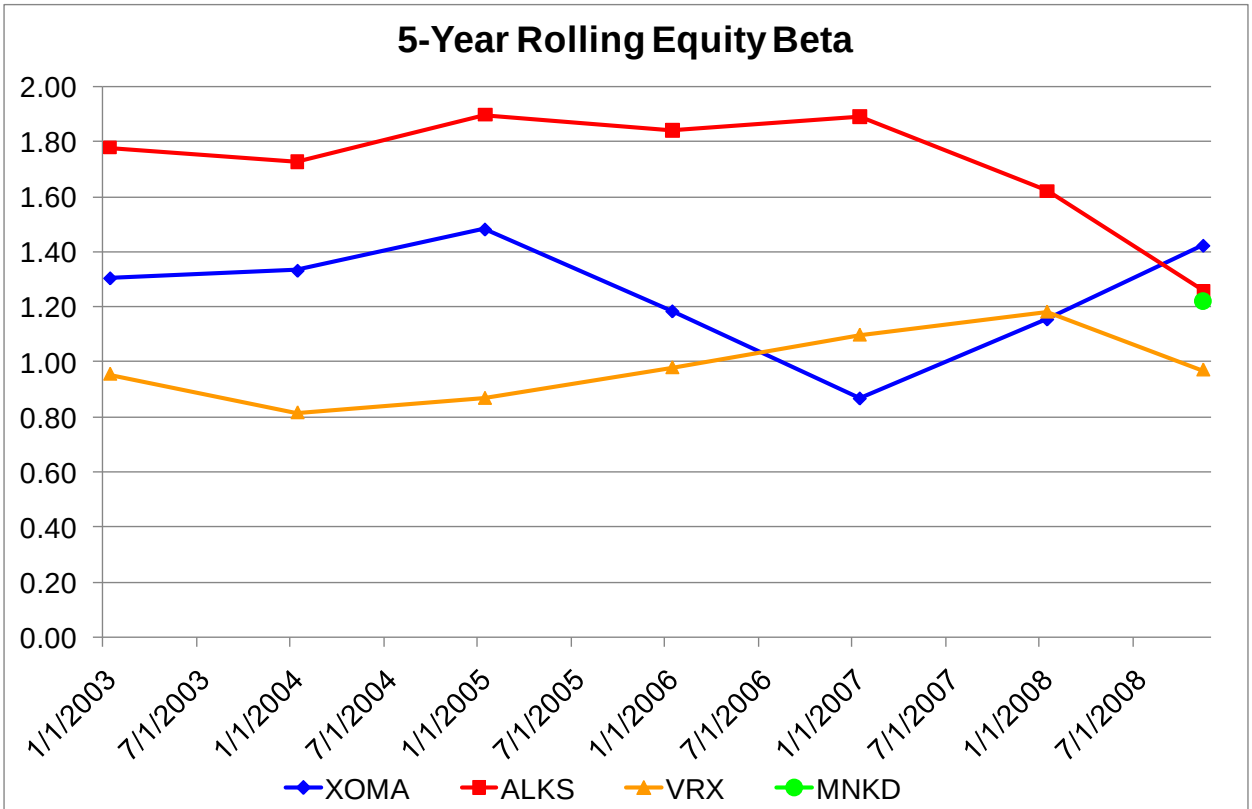
Using all of the data and assumptions described above we estimated MannKind's free cash flows. Figure 4 summarizes the company's free cash flows for the next five years. It is important to note that these calculations assume that Afresa will be approved by the FDA.

Mannkind Corporation - Free Cash Flow Estimates Years Ending December 31 (in $'000, except for estimates per day)											
	Actual					Forecast					
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Afresa Price Per Day								4.69	4.82	4.95	5.09
Afresa Cost Per Day								(1.79)	(1.84)	(1.89)	(1.95)
Afresa Profit Per Day								2.90	2.98	3.06	3.15
United States											
Market for Diabetes (patients)	14,300	15,200	15,800	16,423	17,071	17,745	18,446	19,174	19,931	20,718	21,536
Market for Nasal Insulin (patients) %								27.0%	27.0%	27.0%	27.0%
Afresa Marketshare %								3.0%	6.0%	8.5%	11.0%
Afresa Population								155	323	475	640
Afresa Gross Profit								164,215	350,913	531,161	734,441
Europe											
Market for Diabetes (patients)	10,406	10,822	11,255	11,705	12,174	12,660	13,167	13,694	14,241	14,811	15,403
Market for Nasal Insulin (patients) %										27.0%	27.0%
Afresa Marketshare %										3.0%	6.0%
Afresa Population										120	250
Afresa Gross Profit										134,018	286,528
Afresa Royalty Profits US								82,108	175,456	265,580	367,220
Afresa Royalty Profits Europe										26,804	57,306
Pipeline Products Profits							1,000	1,000	1,000	1,000	1,000
Other Profits	0	0	0	100	10	0	0	0	0	0	0
Gross Profit	**$0**	**$0**	**$0**	**$100**	**$10**	**$0**	**$1,000**	**$83,108**	**$176,456**	**$293,384**	**$425,526**
SG&A	(20,699)	(17,743)	(22,775)	(42,001)	(50,523)	(56,533)	(56,533)	(56,533)	(56,533)	(56,533)	(56,533)
Research & Development	(45,613)	(59,406)	(95,347)	(191,796)	(256,844)	(242,267)	(202,936)	(163,605)	(124,274)	(84,944)	(45,613)
EBIT	**($66,312)**	**($77,149)**	**($118,122)**	**($233,697)**	**($307,357)**	**($298,800)**	**($258,469)**	**($137,031)**	**($4,351)**	**$151,907**	**$323,380**
Loss Carryforwards	(66,312)	(143,461)	(261,583)	(495,280)	(802,637)	(1,101,437)	(1,359,906)	(1,496,937)	(1,501,289)	(1,448,121)	(1,334,938)
Federal and State Income Taxes	(1)	(1)	(1)	(5)	0	0	0	0	0	(53,167)	(113,183)
Other Income(Expenses)	36	226	78	208	(197)	0	0	0	0	0	0
Interest Expense			0	(1,733)	(3,408)	(4,200)	(9,825)	(17,325)	(19,058)	(20,963)	(23,060)
Interest Income	398	932	3,707	4,679	17,775	0	0	0	0	0	0
Actual Taxes	(1)	(1)	(1)	(5)	0	0	0	0	0	0	0
Net Income	**($65,879)**	**($75,992)**	**($114,338)**	**($230,548)**	**($293,187)**	**($303,000)**	**($268,294)**	**($154,356)**	**($23,409)**	**$130,943**	**$300,320**
Add back depreciation and amortization				26,243	35,844	32,537	32,537	32,537	32,537	32,537	0
Subtract Capital Expenditures					(122,482)	(110,234)	(99,210)	(89,289)	(80,360)	(72,324)	(65,092)
Subtract New Net Working Capital		(41,436)	(55,101)	(258,954)	0	(65,514)	(65,514)	(65,514)	(65,514)	(65,514)	(65,514)
Free Cash Flow					**($379,825)**	**($446,212)**	**($400,482)**	**($276,623)**	**($136,747)**	**$25,641**	**$169,714**

Figure 4

Beta Estimation:

MannKind's asset beta was computed by estimating the regression between the stock's weekly stock returns and the dividend adjusted Wilshire 5000 Index's weekly returns for the period between August 2004 and October 2008. Since the stock's IPO was in 2004, we could not estimate a five-year rolling beta to verify the stability of this metric. Instead, we looked at the rolling beta of three comparable companies (biotech companies involved in the diabetes market and with similar debt to equity ratios (Figure 6). The results, as seen in Figure 5, confirmed the validity of our asset beta calculation.



Notes and Sources: Data are from Bloomberg LP. Beta is computed by estimating the regression between each stock's weekly returns and the dividend adjsutedWilshire 5000 Index's weekly returns for a five year rolling period.

Figure 5

Debt to Equity Ratios ($billions)			
	Equity	**Debt**	**D/E**
MNKD	0.343	0.112	33%
XOMA	0.148	0.076	51%
ALKS	0.827	0.244	30%
VRX	1.610	0.781	49%

Source: Company filings and Bloomberg.

Figure 6

Discount Rate:

The company's discount rate was estimated through the capital asset pricing model. The following table details the data and steps used for this calculation. It is important to note that there are two discount rates. The first, 15.38% was obtained by using a risk-free rate equivalent to the present five-year treasury and is used in the model to discount cash flows for the next five years. The second, 16.46% uses the ten year treasury as the risk-free rate and is used to discount the terminal value of the company. This adjustment allows for time variation in interest rates without including a significant risk premium.

Metric	Value	Description
Stock Price	$3.38	From Bloomberg L.P. as of 11/5/08
Shares Outstanding	101,598,408	From MNKD 3Q08 10-Q as of 8/1/08
Equity Value	$343,403,000	$Equity\ Value = Price\ \times Shares\ Outstanding$
Debt Value	$112,004,000	From MNKD 3Q08 10-Q as of 8/1/08
Debt/Equity Ratio	32.62%	From MNKD 10-K and Bloomberg L.P. as of 11/5/08
Return on Debt	3.75%	From MNKD 3Q08 10-Q as of 8/1/08
Tax Rate	35.00%	From MNKD 3Q08 10-Q as of 8/1/08
Market Risk Premium	7.83%	Monthly excess return on the market from 1926 through 2008 from Fama-French Factors Database
Risk Free Rate	2.73% (5yr) 3.81% (10yr)	Constant Maturity Treasury on September 1, 2008 from the Federal Reserve Economic Data (FRED)
Inflation Rate	2.79%	Average of the continuously compounded annual rate of change of CPI Index from 1921 through 2008 from the U.S. Department of Labor: Bureau of Labor Statistics
Beta Asset	1.22	See Beta Estimation
Beta Equity	1.62	$\beta_{Equity} = \beta_{Asset}\left[1 + \frac{Debt}{Equity}\left(1 - \frac{TaxRate \times r_{Debt}}{1 + r_{Debt}}\right)\right]$
Discount Rate	15.38% (5yr) 16.46% (10yr)	$R_{Equity} = R_{Risk\ Free} + \beta_{Equity}\,[Market\ Risk\ Premium]$

Figure 7

Afresa Approvability Analysis

MannKind expects to submit a NDA to the FDA for Afresa in the first quarter of 2009. The FDA can respond to the NDA with three possible decisions. The first is an approved letter allowing the drug to be available for physicians to prescribe. The second is a not approvable letter that prohibits the drug from being marketed. The third is an approvable letter that can mean that the FDA wants more data, wants label revisions, wants some post-marketing studies, or has other questions before making a final decision. The process creates four possible scenarios for MannKind's Afresa with different consequences, as shown in Figure 8.

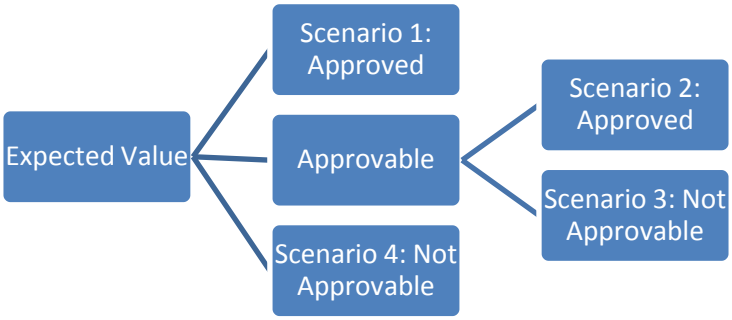


Figure 8

To determine the probability of each scenario happening we analyzed data on all NDAs submitted to the FDA in the past nine years, shown in Figure 9. The results indicated that on average 60% of drugs receive an approved letter, 6% receive an approvable letter and eventually get approved, 25% receive an approvable letter and are never approved, and 9% receive a not approvable letter. These results have been relatively consistent since 2000 except for the years before and after the Vioxx scandal of 2003.

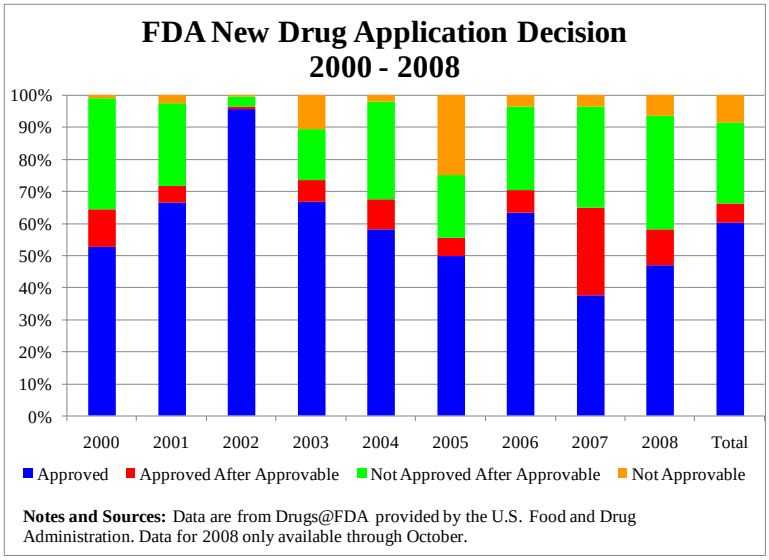


Figure 9

Scenarios:

1. **Afresa Approved:** In this scenario, we assume that Afresa will receive approval from the FDA in 2010. To estimate the value of the stock we use the free cash flow estimates depicted in the valuation section of the report. Our other assumptions in estimating the value of the company are depicted below and yield a price per share of $8.64.

	2008	2009	2010	2011	2012	2013	Terminal Value	Total
	Scenario: Afresa Approved							
Free Cash Flow (FCF)	(446,212)	(400,482)	(276,623)	(136,747)	25,641	169,714		
Debt Tax Shield (DTS)	0	0	0	0	7,337	8,071	289,548	
Discount Rate	15.38%	15.38%	15.38%	15.38%	15.38%	15.38%	16.46%	
Growth Rate							2.79%	
Present Value FCF	(72,616)	(338,916)	(202,891)	(86,927)	14,127	81,037	1,275,749	669,563
Present Value DTS	0	0	0	0	4,042	3,854	131,759	139,655
Current Assets								68,450
Total Market Value								**$877,668**
Price Per Share								**$8.64**

2. **Afresa Approvable – Approved:** In this scenario, we assume that the FDA will require additional data with regards to Afresa before granting approval. As such, the company's R&D expenses will increase in the next couple of years and revenues from sales will be delayed by two years. The following table depicts all other assumptions in obtaining a price per share of $2.31.

	2008	2009	2010	2011	2012	2013	Terminal Value	Total
	Scenario: Afresa Approvable - Approved							
Free Cash Flow (FCF)	(446,212)	(439,813)	(398,061)	(351,534)	(212,339)	(81,880)		
Debt Tax Shield (DTS)	0	0	0	0	0	8,071	318,502	
Discount Rate	15.38%	15.38%	15.38%	15.38%	15.38%	15.38%	16.46%	
Growth Rate							2.79%	
Present Value FCF	(72,616)	(372,200)	(291,960)	(223,463)	(116,986)	(39,097)	1,094,282	38,204
Present Value DTS	0	0	0	0	0	3,854	124,449	128,303
Current Assets								68,450
Total Market Value								**$234,957**
Price Per Share								**$2.31**

3. **Afresa Approvable – Not Approved:** In this scenario, we assume that the FDA will require additional data with regards to Afresa. MannKind will invest in the requested additional studies and obtain unsatisfactory results that lead to a not approvable letter. This is the worst-case scenario since the company expends additional resources on R&D in the next couple of years and receives no revenues at any point from Afresa. The following table depicts the other assumptions that yield to a price per share of $0.04.

	2008	2009	2010	2011	2012	2013	Terminal Value	Total
	Scenario: Afresa Approvable - Not Approvable							
Free Cash Flow (FCF)	(446,212)	(439,813)	(50,101)	(50,101)	(50,101)	(50,101)		
Debt Tax Shield (DTS)	0	0	0	0	0	0	217,541	
Discount Rate	15.38%	15.38%	15.38%	15.38%	15.38%	15.38%	16.46%	
Growth Rate							2.79%	
Present Value FCF	(72,616)	(372,200)	(36,746)	(31,848)	(27,602)	(23,923)	393,890	(149,360)
Present Value DTS	0	0	0	0	0	0	85,001	85,001
Current Assets								68,450
Total Market Value								**$4,091**
Price Per Share								**$0.04**

4. **Afresa Not Approvable:** In this scenario, we assume that the FDA will outright deny the approval of Afresa by 2010 and hence the company will not earn any revenues from the drug. After the decision, R&D, SG&A, debt, capex and working capital expenses are cut starting in 2010. The following table depicts all other assumptions in obtaining a price per share of $0.53.

	2008	2009	2010	2011	2012	2013	Terminal Value	Total
	Scenario: Afresa Not Approvable							
Free Cash Flow (FCF)	(446,212)	(207,325)	(50,101)	(50,101)	(50,101)	(50,101)		
Debt Tax Shield (DTS)	0	0	0	0	0	0	217,541	
Discount Rate	15.38%	15.38%	15.38%	15.38%	15.38%	15.38%	16.46%	
Growth Rate							2.79%	
Present Value FCF	(72,616)	(175,453)	(36,746)	(31,848)	(27,602)	(23,923)	254,824	(99,335)
Present Value DTS	0	0	0	0	0	0	85,001	85,001
Current Assets								68,450
Total Market Value								**$54,116**
Price Per Share								**$0.53**

Expected Value:

Using the estimates above for each of the scenarios and the corresponding probabilities, we obtain a result of $5.39 per share for the expected value of MannKind's stock. The decision tree is illustrated in Figure 10 and the results summarized in Figure 11.

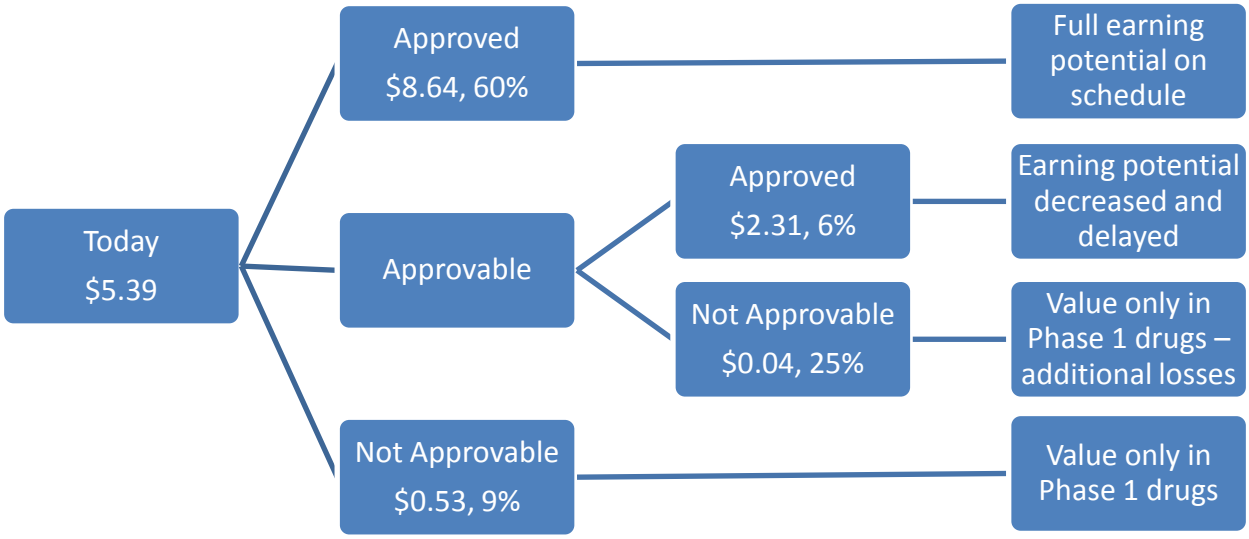


Figure 10

MNKD Price Per Share			
Scenario	**Price**	**Probability**	**EV**
Approved	$8.64	60.10%	$5.19
Approvable - Approved	$2.31	5.96%	$0.14
Approvable - Not Approvable	$0.04	25.32%	$0.01
Not Approvable	$0.53	8.61%	$0.05
Total			**$5.39**

Figure 11

Appendix A

Explanation of Ratings

Buy: Shares expected to increase in price over the next six months

Hold: Shares expected to remain stable in price over the next six months

Sell: Shares expected to decrease in price over the next six months

IMPORTANT DISCLAIMER

Please read this document before reading this report.

This report has been written by MBA students at Yale's School of Management in partial fulfillment of their course requirements. *The report is a* ***student and not a professional*** report. It is intended solely to serve as an example of student work at Yale's School of Management. It is not intended as investment advice. It is based on publicly available information and may not be complete analyses of all relevant data.

If you use this report for any purpose, you do so at your own risk. **YALE UNIVERSITY, YALE SCHOOL OF MANAGEMENT, AND YALE UNIVERSITY'S OFFICERS, FELLOWS, FACULTY, STAFF, AND STUDENTS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, ABOUT THE ACCURACY ORSUITABILITY FOR ANY USE OF THESE REPORTS, AND EXPRESSLY DISCLAIM RESPONSIBIITY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, CAUSED BY USE OF OR RELIANCE ON THESE REPORTS**