

# Merck and co. inc. financial viability of taking the license of davanrik essay sa...

[Business](#), [Company](#)



## Executive Summary

Merck & Co. Inc. has been for several years a pharmaceutical company a global pioneer in pharmaceutical research and has built its brand on the faith of customers and investors on this simple facet. The company has been consistently having a gross margin of about 45% every year, for the past three years, which is evident from the balance sheets and income statements. The net margin of the company is also a healthy 20%, and all that could soon change, as it would lose the exclusive rights of manufacture of several drugs, as its patents would expire by the year 2002.

To overcome the challenges caused when generic substitutes would be available aplenty in the market, Merck has decided to take the license of an antidepressant that also can be helpful for weight loss, named Davanrik. In spite of its high failure rate, LAB pharmaceuticals, the company that developed the drug believes it would be a successful money-spinner, which has been proven true with the help of a present value analysis that shows the drug generating \$ 13. 98 million. The drug should be more profitable with time, helping in sustain the brand reputation of Merck as a research driven organization.

This measure would help the company strengthen its presence as a research driven pioneer and would also help the company by providing some time to develop indigenous drugs.

## Introduction to the case

The management and leadership of Merck & Co. Inc. has been for many months contemplating the possibilities of taking the license of drugs that can increase the company's profitability, as it would be losing the exclusive rights of several patents by the year 2002. Merck & Co., Inc. has been well recognized as a research driven global pharmaceutical leader that discovers, manufactures and markets a wide range of human and animal products. The scenario is quite different today as it faces cutthroat competition from generic manufacturers who can damage the revenue streams of the company.

LAB Pharmaceuticals, is a company that specializes in developing compounds for treatment of neurological disorders, approaches Merck & Co., Inc., and offers them to license 'Davanrik', a drug being developed by LAB Pharmaceuticals, to help reduce depression, obesity and possibly both too. However, the drug is in the pre-clinical stage and is not yet ready for FDA approval or for bulk production. The onus would lie on Merck & Co. Inc. to help the drug pass the three stages of drug development, which might consume as much as seven years; and then manufacture and market the product. The research has a huge chance of failure, especially during the first and second stages, where the first stage has a failure chance of 40% and the second stage has a failure chance of 70%!

The proposition is mutually beneficial, as LAB pharmaceuticals does not have the knowhow or capital to clear the final stages of development and market the product. At the same time, Merck gains in time and money that goes waste on developing a drug from scratch. However, if the research fails in

the middle, LAB Pharmaceuticals would not be held responsible for the loss and that would have to be borne by Merck. In return for the right of licensing, Merck & Co., Inc. would pay LAB Pharmaceuticals an initial fee, a royalty on the sales and make additional payments to LAB at every stage of approval.

The proposition is not without its share of roadblocks. But, one major force that is driving Merck to accept the offer is the simple fact that Merck is soon going to lose a significant market share, when generic substitutes for its patented products are available. Also, the deal does seem lucrative as it generates a Present Value of Net Cash flow's to the tune of \$ 13. 98 million within a three-year period and an expected value of \$ 16. 68 million. Hence, over the period of the license the investment should yield high yield for Merck & Co., Inc., reducing the loss caused by the expiration of many other patents. Customers, investors and all other stakeholders, especially knowing the threat imposed by generic drugs available at lower prices, would appreciate these measures.

The following paragraphs talks about the questions asked in the assignment, and provide solutions for the same with the help of illustrations too.

Net Present Value of Davanrik Licensing statement

Probable Outcome	Launch costs	Tree CF	Tree Cash outflow	Tree Cash Inflow	Net Cash flow	Tree Prob calculation	Tree prob.

Launch depression 250 CF+ -520 1200 \$680 .6\*.1\*.85 0.051

(Phase 1, 2 & 3  
success – pursue  
depression only)

(Phase 1 & 2  
success & 3  
failure – pursue  
depression only) CF- -270 0 (\$270) .6\*.1\*.15 0.009

Launch weight loss 100 CF+ -320 345 \$25 .6\*.15\*.75 0.0675

(Phase 1, 2 & 3  
success – pursue  
weight loss only)

(Phase 1 & 2  
success & 3  
failure – pursue  
weight loss only) CF- -220 0 (\$220) .6\*.15\*.25 0.0225

Launch both 400 CF+ -970 2250 \$1,280 .6\*.05\*.7 0.021

(Phase 1, 2 & 3  
success – pursue

both and launch

both)

Launch	250	CF+	-820	1200	\$380	.6*	.05*	0.
depression only						15		0045

(Phase 1, 2 & 3

success - pursue

both but launch

only depression)

Launch weight	100	CF-	-670	345	(\$325)	.6*	.05*	0.
loss only						05		0015

(Phase 1, 2 & 3

success - pursue

both but launch

only weight loss)

(Phase 1 & 2

success & 3

failure - pursue

both)

(Phase 1 failure)		CF-	-30	0	(\$30)	0.4		0.4
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(phase 1 success and 2 failure)	CF-	-70	0	(\$70)	. 6*. 7	0. 42
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#### NET PRESENT VA: LUE OF DAVANRIK LICENSING

The above net present value statement provides us with the information that the NPV of the drug Davanrik is \$ 13. 98 million for a given period. The project has to be taken up due to the positive cash flows that it generates, in spite of its huge out flows in the first few years. By bidding for the drug, Merck would retain its brand position in its customers that it is a research oriented drug manufacturing company, which is sensitive to the needs of the customers and identifies solutions that meets their the needs and wants.

Even investors are attracted to companies that are research driven and have a vision to establish as a pioneer in research, which are values that Merck has always stood for. The day that its customers or investors find out that no significant research is happening at the company, they would be tempted to try another company that offers similar solutions and has equal brand value. Hence, Merck would suffer a double onslaught when customers seek low priced generic products and investors seek companies that provide better opportunities for growth. Hence, Merck must license the drug Davanrik to maintain its presence in the industry.

However, a major question needs to be answered, as to what price Merck can pay to LAB pharmaceuticals to gain the license of Davanrik. The solution is pretty straightforward as the NPV of the drug is \$ 13. 98 million, the

maximum amount that the company can shell down would be \$ 13. 98 million. Any amount payable beyond this would make the project financially unreasonable and unviable.

Expected Value of the licensing arrangement

Expected Value Calculations:

Phase I (100% chance of occurring)	=	\$ 5 million
Phase II (60% chance of occurring)	=	\$ 2. 5 million
Phase III depression (10% chance of occurring)	=	\$ 20 million
Phase III weight loss (15% chance of occurring)	=	\$ 10 million
Phase III both (5% chance of occurring)	=	\$ 40 million
Depression Success, upper path (85%) 05	=	\$ 1. 2 billion * . 05
Weight loss success, upper path (75%)	=	\$ 345 * . 05
Depression Success, lower path (15%) 05	=	\$ 1. 2 billion * . 05
Weight loss success, upper path (05%)	=	\$ 345 * . 05
Both Success (70%) 05	=	\$ 2. 25 billion * . 05

$$\begin{aligned} \text{Expected Value} = & 5 + .6(2.5) + (.6*.1)20 + (.6*.15) + (.6*.05)40 + (. \\ & .6*.1*.85*.05)1200 + (.6*.15*.75*.05)345 + (.6*.05*.15*.05)1200 + (. \\ & .6*.05*.05*.05)345 + (.6*.05*.7*.05)2250 \end{aligned}$$

$$= 5 + 1.5 + 1.2 + .9 + 1.2 + 3.06 + 1.16 + .27 + .03 + 2.36$$

= \$ 16.68 million is the expected value of the project.

If the cost of launching weight loss alone were \$ 225 million

When you look into the PV statement, one can easily understand that any investment into the weight loss segment of business would seem futile, unless there is some additional return caused by the investment. Hence, it is impractical to go assume an increase in the launch costs of weight loss. The same is explained through the following calculations.

Situation I: when weight loss is only pursued in Phase II

$$\text{Net Cash flow} = \$ 25 \text{ million}$$

Increase in launching cost of Davanrik by \$ 125 million, would mean that the cash flow would reduce by the same amount of \$ 125 million.

$$\text{Net Cash flow in this case} = \$ (100) \text{ million}$$

$$\text{Tree probability} = .0675$$

$$\text{Expected cash flow} = \$ (6.75) \text{ million}$$

Situation I: when weight loss is only pursued in Phase III

Net Cash flow = \$ (325) million

Increase in launching cost of Davanrik by \$ 125 million, would mean that the cash flow would reduce by the same amount of \$ 125 million.

Net Cash flow in this case = \$ (450) million

Tree probability = . 0015

Expected cash flow = \$ (. 675) million

Total PV change because of increasing the launch cost to \$ 225 million = \$ (7. 425) million

This is a completely unrealistic and unacceptable proposition as the NPV of the project is reduced by more than half, by increasing the launch costs of weight loss. Unless there is some positive inflow, which is greater than the outflow, there is no sane reason to launch weight loss at all.

Relevant issues to be taken into consideration by Merck & Co. Inc.

A research-oriented company always has a strong footing when compared to low cost competitors in the pharmaceutical industry. This has been the factor that has helped the company stand its ground against a barrage of low cost competitors. The patents that the company has possessed have created great brand value for the organization and also helped the company in creating huge profits for its shareholders. All of its stakeholders recognize Merck as a company with a strong vision and direction in research, which is at stake today if it does not have strong drug licenses. In the absence of

patented drug licenses, Merck would have to get into a price war with most of the generic manufacturers, which is a losing proposition for the company.

The income statements of Merck throw further light on the kind of profitability that the company has been enjoying. In the past three years alone, the company has had gross margins between 45% to 50% and with net margin of about 20% consistently. A majority of the drugs that have helped in reaping such profits would be soon generic and available in the market for a far lower price than the prices sold by Merck. This would cause the company's profit to dwindle, then would the earnings per share, which would finally hit the brand value and investor faith.

However, merely taking the license of Davanrik is not the gateway to heaven for Merck. It would need to identify similar hard-selling drugs, which are under development by smaller drug companies. Organizations like LAB pharmaceuticals would not be in a position to manufacture and market the drug and would be eager to license their drug to a larger company. Merck should be on the lookout to have a few more drugs in their basket.

Antidepressants are traditionally notorious for their side effects. Hence, the management of Merck should study the drug Davanrik wholesomely, before taking the decision to take the license. Also, strong side-effects are seriously detrimental to human health, and an incomplete study of the same can deplete the company's brand image quite significantly.

Another major cause of concern as one studies the case is that the drug Davanrik has a huge failure possibility during the second phase of

development. Due to this factor, the drug is not as profitable as it could have been. Even a minor change in the failure rate could increase the cash flows of the drug significantly. Before Merck takes the license of Davanrik, it would be advised to thoroughly investigate these reasons.

## Conclusion

The biggest factor in the mind of any company while undertaking such a major decision is the availability of funds. The balance sheet of the past three years reveals that there has a consistent current ratio over one, and the company has significant retained earnings, which can be invested for the licensing of Davanrik and other research propositions. Keeping in mind the competitive environment of the pharmaceutical industry, the move initiated by Merck & Co. Inc. would be productive to the company in the long run, in the form of brand value improvement, gaining investor confidence and increase in profitability.

Merck & Co. Inc. would need to identify other potential drugs to sustain this momentum and build its brand value further. The company has been a global pioneer in research and to uphold its place, it needs to further enhance its research process.

Taking this opportunity, the in-house research team should identify potential value propositions to develop indigenous drugs on its own. This would prevent a similar situation from occurring years later. This is a vital step to re-establish itself as a significant player in the pharmaceutical industry.

## Exhibit – Decision Tree of Phase I, Phase II &amp; Phase III of Davanrik

Step 0	Step 1	Step 2	Step 3	Final
			Phase 3 success	Launch depression
		Pursue depression	(\$200) 85%	
		(\$40) 10%	Phase 3 failure	
			(\$200) 15%	
			Phase 3 success	Launch weight loss
		Pursue weight loss	(\$150) 75%	
	Phase 1 success	(\$40) 15%	Phase 3 failure	
	(\$30) 60%		(\$500) 25%	

				Phase 3 success	Launch both
				(\$500)	70%
Yes			Pursue both	Phase 3 success	Launch depression only
				(\$500)	15%
-30			(\$40)	5%	Phase 3 success
				(\$500)	5%
				Phase 3 failure	Launch weight loss only
	Phase 1 failure			(\$500)	10%
No	-30	40%		Phase 2 failure	
0			(\$40)	70%	

## References

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James C. Van Horne, John M. Wachowicz, *Fundamentals of Financial Management*, Prentice Hall, 2008

Peter Byrne, *Risk, Uncertainty and Decision-Making in Property*, Taylor & Francis, 1996

Don Dayananda, *Capital budgeting: financial appraisal of investment project*, Cambridge University Press, 2002

Jae K. Shim, Joel G. Siegel, *Financial Management*, Barron's Educational Series, 2008