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THE RAMSYNC BRIEF

Elliott Weinstein wrote this case under the supervision of Professors Walid Busaba and Zeigham Khokher solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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INTRODUCTION

Jaclyn Grimshaw, the manager of a billion-dollar hedge fund, had just been approached on May 18, 2004 by a syndicate of funds to gauge her interest in a bid to purchase RamSync Incorporated.

HEDGE FUNDS — AN INTRODUCTION

In 1949, Alfred Jones established the first hedge fund, which would allow investors to utilize "short-selling." By combining long and short positions, Jones exploited the relative pricing of stocks, while minimizing his exposure to the overall market. Throughout the 1960s the popularity of these investment vehicles grew enormously as Jones's hedge fund outperformed most mutual funds in this period.

While both hedge and mutual funds share the characteristic of pooling investors' money to make investments, they differ in other significant ways. First, hedge funds are unregulated, which allows fund managers to sell short, charge performance-based compensation and lever their positions. Hedge fund managers are able to use high degrees of leverage through the use of futures, options and other complex derivatives. These practices are not available to fund managers in the heavily regulated mutual fund industry. Due to the lack of regulation, hedge fund managers market their services to a small group of high–net-worth clients ("sophisticated investors") and institutional clients. Moreover, while mutual fund managers have to constantly maintain enough liquidity to satisfy requests for redemptions, clients of hedge funds often face liquidity constraints that force them to hold their investment in the fund for a number of years.

POTENTIAL INVESTMENT IN RAMSYNC

Grimshaw began her preliminary due diligence to determine whether she should participate in a $900-million bid to purchase RamSync, a Silicon Valley company that manufactured the fast synchronous dynamic random access memory (SDRAM) memory chips. Grimshaw knew that the current random access memory (RAM) marketplace was extremely competitive and estimated that the SDRAM market

would stop growing at the end of five years. However, she also knew that if she were to acquire RamSync, she would have the option to enter the much-anticipated magnetoresistive random access memory (MRAM) market within the next five years. MRAM chip technology combined the speed of the traditional RAM chip with increased endurance and promised the customer more reliability at a competitive cost.

Grimshaw decided she would begin by conducting a net present value (NPV) analysis of the SDRAM project. She was aware of one standard procedure that involved forecasting incremental free cash flows, which were discounted at the weighted average cost of capital (WACC).

The current yield on the 10-year U.S. government bond was 6 per cent, and RamSync's levered beta was 1.40. Based on comparables in the industry, RamSync's optimal capital structure would be 70 per cent equity and 30 per cent debt. Comparable companies with similar capital structures have a yield-to-maturity of 10.0 per cent on their debt financing. RamSync's tax consultants estimated that the corporate tax rate over the life of the project would be 38.9 per cent. Pro forma projections of cash flows for RamSync had been completed (see Exhibit 1).

A negative NPV of $33 million didn't look good. But Grimshaw began to wonder if things could be that simple. Was there hidden *value* in the MRAM market that would justify the acquisition?

Discussions with RamSync's executives informed Grimshaw that RamSync could enter the MRAM market with an initial investment of $250 million, followed by another investment one year later of $265 million (see Exhibit 2). Grimshaw's due diligence on the industry revealed that entering the MRAM market would add $165 million in future discounted cash flow to the firm (see Exhibit 3). The annual standard deviation of asset returns in the SDRAM industry was 65 per cent and was expected to be similar for the MRAM market. This meant that there was a great deal of uncertainty about the value of the MRAM project, and the $165 million estimate of MRAM's asset value could either increase dramatically or come crashing down.

To organize her thoughts, Grimshaw listed her questions to herself:

1. What is an option?
2. Do the following factors affect the call price?
   - Stock and exercise price
   - Time to maturity
   - Volatility
3. How does an option's intrinsic value[1] differ from its time value?
   - RamSync's prospectus contained data on options; how do the option premiums separate into time value and intrinsic value? (She wanted to fill in the chart in Exhibit 4 with this information.)
4. Is the MRAM *growth option* comparable to a financial option? If so, how?
5. How much would the MRAM growth option have to be worth to make it worthwhile to invest in RamSync?
6. Does the predicted volatility for MRAM's cash flows affect the amount she is willing to pay for RamSync?
7. If the MRAM market could provide $300 million in future discounted cash flow to the firm, would that change the decision to purchase RamSync?

[1] *The intrinsic value of a call option is equal to the greater of zero, or the stock price less the exercise price. The intrinsic value of a put option is equal to the greater of zero, or the exercise price less the stock price. The time value of an option is the value of the option beyond its intrinsic value. This value reflects the fact that, over time, the value of the underlying asset changes, and this change in price of the underlying asset can increase the value of an option.*

Exhibit 1

THE SDRAM PROJECT
(in thousands of US$)

Risk-Free Rate	6.0%
Levered Beta	1.4
Market Premium	5.5%
Cost of Equity	13.7%

Cost of Debt Financing	10.0%
Tax Rate (T)	38.9%
After-Tax Cost of Debt	6.1%

% Long-term Debt	30%
% Long-term Equity	70%
Weighted Average Cost of Capital (WACC)	8.4%

	2004	2005	2006	2007	2008
EBIT (1-T)	$ 71,200	$ 70,200	$ 71,200	$ 71,200	$ 71,200
Net investment in Working Capital	300	300	100	50	50
Depreciation	2,500	2,500	2,500	2,500	2,500
Capital Expenditures	500	500	500	500	500
Cash Flow	69,000	71,900	73,100	73,150	73,150
Terminal Value (0% Growth Rate)					871,932
Discounted Cash Flow (DCF)	**$ 63,659**	**$ 61,201**	**$ 57,406**	**$ 52,999**	**$ 631,735**

Sum of DCF	$ 867,000
Proposed Cost to Buy the Firm	$ 900,000
Net Present Value	$(33,000)

Exhibit 2

PRESENT VALUE OF EXERCISE PRICE
(in thousands of US$)

$250,000	Initial Investment
$265,000	Required Investment at End of First Year
6.00%	Risk-Free Rate
$500,000	Present Value of Exercise Price (as of now, discounted at the risk-free rate)

Exhibit 3

THE MRAM PROJECT
(in thousands of US$)

Risk-Free Rate	6.0%
Levered Beta	1.4
Market Premium	5.5%
Cost of Equity	13.7%

Cost of Debt Financing	15.0%
Tax Rate (T)	38.9%
After-Tax Cost of Debt	9.2%

% Long-term Debt	30%
% Long-term Equity	70%
Weighted Average Cost of Capital (WACC)	10.5%

	2004	2005	2006	2007	2008
EBIT (1-T)	11,040	$ 11,592	$ 12,172	$ 12,780	$ 13,419
Net investment in Working Capital	100	150	200	250	300
Depreciation	5,000	5,000	5,000	5,000	5,000
Capital Expenditures	7,000	7,000	7,000	7,000	7,000
Cash Flow	8,940	9,442	9,972	10,530	11,119
Terminal Value (5% Growth Rate)					211,155
Discounted Cash Flow (DCF)	**$ 8,088**	**$ 7,729**	**$ 7,385**	**$ 7,055**	**$ 134,743**

Asset Value (Sum of DCFs) $ 165,000

Exhibit 4

INTRINSIC VALUE AND TIME VALUE

1. Using the data below, fill in the intrinsic value and time value for each call and put option.
2. Does the time value get larger or smaller as the time to maturity increases?
3. What has the greatest intrinsic value?
   a) Out-of-the-money options
   b) In-the-money options
   c) At-the-money options
4. What has the greatest time value?
   a) Out-of-the-money options
   b) In-the-money options
   c) At-the-money options

RamSync's Corp: Stock Price as of May 18, 2004: $25.79

CALL OPTION PRICES

	Expiration Date		
Strike Price	**Jun '04**	**Sep '04**	**Dec '04**
$20.00	$5.88	$7.16	$8.23
$22.50	$3.61	$5.53	$6.80
$25.00	$1.85	$4.20	$5.59
$27.50	$0.77	$3.14	$4.58
$30.00	$0.26	$2.32	$3.74

PUT OPTION PRICES

	Expiration Date		
Strike Price	**Jun '04**	**Sep '04**	**Dec '04**
$20.00	$0.04	$1.01	$1.79
$22.50	$0.26	$1.84	$2.78
$25.00	$0.99	$2.96	$3.99
$27.50	$2.41	$4.36	$5.40
$30.00	$4.39	$6.00	$6.98

Intrinsic Value of Option

$20.00				$20.00			
$22.50				$22.50			
$25.00				$25.00			
$27.50				$27.50			
$30.00				$30.00			

Time Value of Option

$20.00				$20.00			
$22.50				$22.50			
$25.00				$25.00			
$27.50				$27.50			
$30.00				$30.00			