CHRYSLER'S WARRANTS: SEPTEMBER 1983

We quietly asked the government to surrender the warrants to us at little or no cost. What a mistake! There was a huge uproar over our request.... I was furious....
—Lee Iacocca

There is no justification for forgoing one penny. Any profit the government could earn would be a reasonable reward for taking on the risk of saving Chrysler.[1]
—Rep. William S. Green

At the bottom of its financial distress in 1980, Chrysler Corporation arranged with the U.S. government for guarantees of Chrysler's debt up to $1.5 billion in return for cash fees and common stock warrants.[2] The fees, to be paid annually, would be equal to 1% of the loans guaranteed. The warrants were for 14.4 million shares exercisable at $13 per share until 1990. The government also had a first lien on Chrysler's assets, which were estimated to have a liquidation value of $2.5 billion. Participating banks were also given warrants on the same terms for 13.286 million shares. During the period when the loan guarantee was negotiated, the price of Chrysler's shares was about $7.50. (See **Exhibit 1** for a history of Chrysler's share price during the period of the guarantee negotiations.)

[1]"The Kicker," *New Yorker* (January 7, 1985): 56.

[2]Numerous arguments were advanced in favor of providing assistance: (1) The impact on the federal budget of a Chrysler failure would be greater than the cost of assistance. Budget impacts were expected in unemployment benefits, trade adjustment assistance payments, other social programs, and reduced tax revenues. (2) A Chrysler failure would disproportionately affect a city and region that already had substantial economic problems. (3) Failure would lead to either greater monopoly power by surviving U.S. firms, or worsening balance of payments as foreign producers captured increased U.S. market share. (4) Chrysler's output of its popular small cars was 300,000 units in 1979 and 1980; this would expand to one million units in the near future.

Eventually only $1.2 billion of the guarantee was used. In June 1980, $500 million in notes were issued at 10.35%. Another $300 million were issued in July at 11.40%. And in February 1981, $400 million were issued at 14.90%.

By the summer of 1983, Chrysler was plainly recovering. **Exhibit 2** presents the share-price history during the period of recovery. In the spring, an offering of 26 million new shares at $16.625 was sold out within an hour, and in the following weeks, the price per share rose to $35.00. Then on July 13, Lee Iacocca, the chief executive officer, presented a check repaying the guaranteed loans in their entirety.[3]

Chrysler's Request

In the context of this recovery, Chrysler asked the government to return its warrants at no cost to Chrysler. On May 6, Gerald Greenwald, Chrysler's vice chairperson, argued that, in view of the rapid recovery, the terms of the guarantee had been too onerous. The government had not "paid a nickel" for the loans, he said, adding, "At some point, you have to define what the term 'usury' means." Lee Iacocca stated:

> These warrants were a sword hanging over our head. At any point over the next seven years, the government—or anyone else who owned the warrants—could demand that we issue an extra 14.4 million shares of Chrysler stock at bargain-basement prices…. When you consider that the government's money was never at risk in the first place—they had a lien on everything we owned, which was worth far more than $1.2 billion—that kind of profit was almost indecent.[4]

Chrysler had initially borrowed only $1.2 billion on its $1.5 billion line of credit for a term of up to ten years, and repaid the debt after three years. The cash costs associated with this debt included $404 million in interest, $33 million in administrative fees to the federal government, and $67 million in fees to investment bankers and lawyers. Iacocca viewed the potential dilution from the exercise of the warrants as an additional cost to shareholders. Chrysler had a total of 68.5 million shares outstanding.

During the Great Depression of the 1930s, the federal government had bought preferred stock of large commercial banks in order to improve their financial stability, but in the long history of government loan guarantees, there were no examples of equity kickers. At the time Chrysler requested the loan guarantees, government loan guarantees of $409 billion were currently outstanding. In general, the government's loan losses had been quite small; the most notable loss was related to the bankruptcy of the Penn Central railroad, which eventually required $3 billion in cash assistance in order to maintain operations.

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[3] At the end of 1983, Chrysler's debt outstanding was $1.07 billion.

[4] Lee Iacocca and William Novak, *Iacocca: An Autobiography* (New York: Bantam Doubleday Dell, 1984), 283.

Frederick Zuckerman, the treasurer of Chrysler, said:

> In May of 1980, Chrysler had a poker hand full of deuces and the government had one full of face cards. We *had* to give the warrants. In 1983, there was a philosophical issue as to whether or not it was right for the government to be profiting so enormously. Remember, it hadn't put up any money—only guaranteed loans made by others.[5]

Reaction to the Request

G. William Miller, Secretary of the Treasury at the time the loan guarantee was approved, wrote to the Chrysler Loan Guarantee Board urging them not to return the warrants as "a matter of grave public concern and an ill-advised precedent."

In reacting to the news of Chrysler's request, Representative William Green said:

> The equity kicker that Congress insisted on is entirely consistent with the high risk. There is no reason for surrendering a penny of it. It wasn't a windfall. I didn't notice Mr. Iacocca offering to give back his options on Chrysler stock.[6]

Iacocca owned 1,000 common shares and held options for 320,000 shares exercisable at prices ranging from $9.88 to $11.02.

John Albertine, president of the American Business Conference, said that the request bordered on "disgrace." Kenneth McLean, staff director of the Senate Banking Committee, called the proposal "outrageous." And David Healey, an auto-industry analyst with Drexel Burnham Lambert, said, "They're trying to change the score of the game after it's over."

Only Representative Stewart McKinney saw merit in the request. He argued that Chrysler had paid $33 million in fees to the government: "…A hefty price. And having the government make a windfall is a little bit absurd."

The Loan Guarantee Board rejected Chrysler's initial request as well as a subsequent offer of $218 million for the warrants Chrysler made in July 1983. Instead, the board proposed to sell the warrants to the highest bidder in a sealed-bid auction in September 1983.

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[5] "The Kicker," 56.

[6] "The Kicker," 56.

Decision

With the prospect of an open auction for the warrants, Chrysler executives faced the likelihood of paying a competitive price. Iacocca assigned Robert S. Miller, Chrysler's executive vice president of finance, the task of making a winning bid. But, said Miller, "He told me that if the bid was a penny too low or more than a dollar too high not to come home." Miller was reminded that in July Shearson/American Express had offered $20.10 per warrant. How should Chrysler's bid be determined? Moreover, was that price at all consistent with the risks the government had run? In fact, had the government been overpaid?

Historical information was available that might assist in valuing the warrants. **Exhibit 3** presents certain definitions about the information, and **Exhibit 4** calculates the standard deviation of the log-normalized return on Chrysler's common stock in July and August 1983. **Exhibits 5** through **8** calculate the standard deviation over various time periods when the loan guarantee was being negotiated. **Exhibit 9** presents the long-term volatilities of selected companies. During this entire period, Chrysler paid no dividends on its common stock. This historical look affords a check on the estimates at the time of the case.

Chrysler had other warrants outstanding that could provide another benchmark in the valuation. These other warrants (for 5 million shares) had been issued in connection with preferred stock. They could be exercised at $13 per share any time until June 15, 1985. Chrysler retained the option to shorten the life of the warrants, however, which it exercised in the summer of 1983. The new expiration date would be December 1, 1983. **Exhibit 10** presents historical information relevant to the value of these warrants.

Exhibit 11 calculates the standard deviation of log-normalized returns on two issues of Chrysler's debt that were trading on the New York Exchange at the time the loan guarantees were negotiated. These issues were the $100-million sinking-fund debentures (8.875s) of 1995; and the $200-million sinking-fund debentures (8.5s) of 1998. The return is an average of the daily trading returns of the bonds weighted by par value. This information might provide a foundation for evaluating the loan guarantee itself.

Exhibit 12 presents interest rates on selected debt instruments over the 1979–83 period. **Exhibit 13** presents the yields to maturity on selected corporate bonds as of May 12, 1980, the date the loan guarantee was signed.

Exhibit 1

CHRYSLER'S WARRANTS: SEPTEMBER 1983

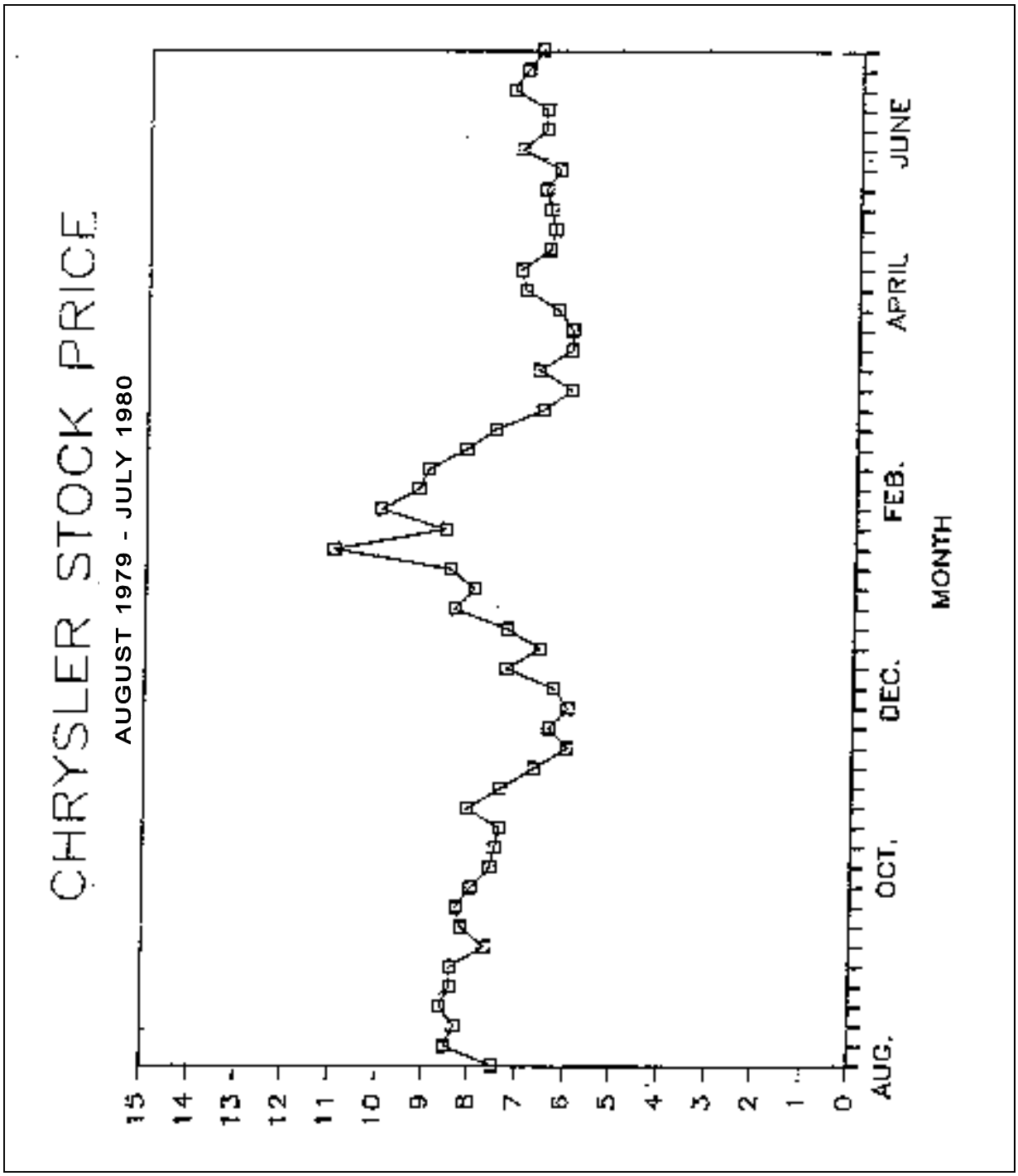


Exhibit 2

CHRYSLER'S WARRANTS: SEPTEMBER 1983

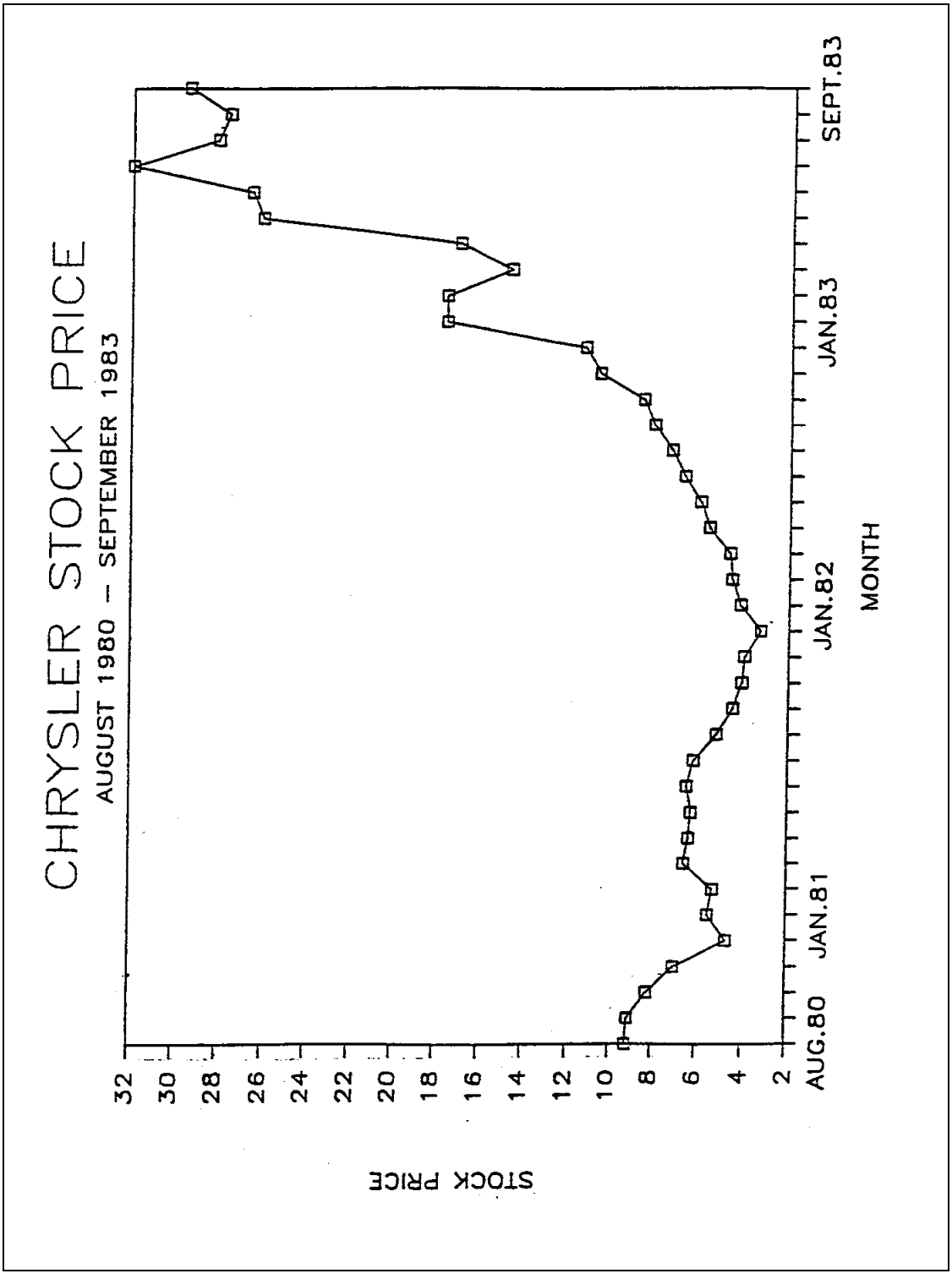


Exhibit 3

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Definition of Components of Exhibits 4–8

Sj	=	Stock price.
Rj	=	Price relatives, calculated as today's closing stock price divided by yesterday's closing stock price.
LN Rj	=	Natural Logarithm of daily price relatives. This corrects for the possibility that the distribution of price relatives does not have a normal distribution.
U	=	Mean of LN Rj.
LN Rj-U	=	Deviation of price relatives from mean.
Sigma	=	Standard deviation of log-normalized daily price relatives annualized, the typical measure of volatility of a stock.

Exhibit 4

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Calculation of Standard Deviation of Daily Percentage
Changes in Stock Price: September 1, 1983
(Date bids for the government's Chrysler warrants were due)

Date	Chrysler Stock Price, Sj	Rj-Sj/ Sj-1	Log Rj	Log Rj-U	Log Rj-U Squared
7/21/83	32.000				
7/22	31.000	0.969	-0.03175	-0.028	0.00077
7/25	30.875	0.996	-0.00404	.000	.00000
7/26	31.375	1.016	0.01606	0.020	0.00040
7/27	30.500	0.972	-0.02828	-0.024	0.00000
7/28	28.500	0.934	-0.06782	-0.064	0.00407
7/29	28.125	0.987	-0.01325	-0.009	0.00009
8/01	27.375	0.973	-0.02703	-0.023	0.00053
8/02	28.000	1.023	0.02257	0.027	0.00071
8/03	27.625	0.987	-0.01348	-0.009	0.00009
8/04	26.000	0.941	-0.06062	-0.057	0.00321
8/05	25.500	0.981	-0.01942	-0.015	0.00000
8/08	24.375	0.956	-0.04512	-0.041	0.00169
8/09	25.625	1.051	0.05001	0.054	0.00000
8/10	26.750	1.044	0.04297	0.047	0.00221
8/11	25.750	0.963	-0.03810	-0.034	0.00116
8/12	25.500	0.990	-0.00976	-0.006	0.00003
8/15	26.375	1.034	0.03374	0.038	0.00142
8/16	26.125	0.991	-0.00952	-0.006	0.00003
8/17	27.000	1.033	0.03294	0.037	0.00137
8/18	26.125	0.968	-0.03294	-0.029	0.00084
8/19	25.750	0.986	-0.01446	-0.010	0.00011
8/22	25.000	0.971	-0.02956	-0.026	0.00065
8/23	24.500	0.980	-0.02020	-0.016	0.00026
8/24	23.000	0.939	-0.06318	-0.059	0.00350
8/25	23.875	1.038	0.03734	0.041	0.00171
8/26	26.000	1.089	0.08526	0.089	0.00797
8/29	26.000	1.000	0.00000	-0.004	0.00002
8/30	26.375	1.014	0.01432	0.018	0.00034
8/31	27.750	1.052	0.05082	0.000	0.00000
9/01/83	28.375	1.023	0.02227	0.026	0.00069
		Sum=	-0.12023	Sum=	0.03386
		U=	-0.00401		
Sigma- (Sum of Log Rj-U squared/30) × (30/29)=					0.001167
To convert to annual variance: × 365 or					0.426159
Annual volatility-square root or					0.652808

Exhibit 5

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Calculation of Standard Deviation of Daily Percentage
Changes in Stock Price: September 14, 1979
(First date of loan-guarantee bill with equity kicker drawn up at Treasury)

Date	Chrysler Stock Price, Sj	Rj-Sj/ Sj-1	Log Rj	Log Rj-U	Log Rj-U Squared
8/02/79	7.875				
8/03	7.625	0.968	-0.03226	0.000	0.00000
8/06	7.500	0.984	-0.01653	-0.017	0.00027
8/07	7.750	1.033	0.03279	0.000	0.00000
8/08	7.750	1.000	0.00000	.000	.00000
8/09	8.750	1.129	0.12136	0.121	0.01473
8/10	8.625	0.986	-0.01439	-0.014	0.00021
8/13	8.500	0.986	-0.01460	-0.015	0.00021
8/14	8.375	0.985	-0.01482	-0.015	0.00022
8/15	8.500	1.015	0.01482	0.000	0.00000
8/16	8.500	1.000	0.00000	.000	.00000
8/17	8.375	0.985	-0.01482	-0.015	0.00022
8/20	8.375	1.000	0.00000	.000	.00000
8/21	8.500	1.015	0.01482	0.000	0.00000
8/22	8.625	1.015	0.01460	0.015	0.00021
8/23	8.750	1.014	0.01439	0.000	0.00000
8/24	8.750	1.000	0.00000	.000	.00000
8/27	8.625	0.986	-0.01439	-0.014	0.00021
8/28	8.625	1.000	0.00000	.000	.00000
8/29	8.500	0.986	-0.01460	0.000	0.00000
8/30	8.375	0.985	-0.01482	-0.015	0.00022
8/31	8.500	1.015	0.01482	0.000	0.00000
9/04	8.500	1.000	0.00000	.000	.00000
9/05	8.375	0.985	-0.01482	-0.015	0.00022
9/06	8.625	1.030	0.02941	0.029	0.00087
9/07	8.500	0.986	-0.01460	-0.015	0.00021
9/10	8.000	0.941	-0.06062	-0.061	0.00368
9/11	7.750	0.969	-0.03175	-0.000	0.00000
9/12	7.750	1.000	0.00000	.000	.00000
9/13	7.875	1.016	0.01600	0.016	0.00026
9/14/79	7.875	1.000	0.00000	.000	.00000
		Sum=	.00000	Sum=	0.02173
		U=	.00000		
Sigma- (Sum of Log Rj-U squared/30) × (30/29)=					0.000749
To convert to annual variance: × 365 or					0.273493
Annual volatility-square root or					0.522965

Exhibit 6

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Calculation of Standard Deviation of Daily Percentage
Changes in Stock Price: January 7, 1980
(President signs the loan-guarantee bill with no equity kicker)

Date	Chrysler Stock Price, Sj	Rj-Sj/ Sj-1	Log Rj	Log Rj-U	Log Rj-U Squared
11/21/79	6.375				
11/23	6.000	0.941	-0.06062	-0.066	0.00436
11/26	6.000	1.000	0.00000	-0.005	0.00003
11/27	5.875	0.979	-0.02105	-0.026	0.00070
11/28	5.750	0.979	-0.02151	-0.027	0.00072
11/29	6.000	1.043	0.04256	0.037	0.00138
11/30	6.500	1.083	0.08004	0.075	0.00557
12/03	6.250	0.962	-0.03922	-0.045	0.00199
12/04	6.250	1.000	0.00000	-0.005	0.00003
12/05	6.000	0.960	-0.04082	-0.046	0.00214
12/06	6.000	1.000	0.00000	-0.005	0.00003
12/07	6.000	1.000	0.00000	-0.005	0.00003
12/10	6.000	1.000	0.00000	-0.005	0.00003
12/11	6.000	1.000	0.00000	-0.005	0.00003
12/12	6.000	1.000	0.00000	-0.005	0.00003
12/13	6.000	1.000	0.00000	-0.005	0.00003
12/14	6.375	1.063	0.06062	0.055	0.00305
12/17	6.625	1.039	0.03847	0.033	0.00109
12/18	6.500	0.981	-0.01905	-0.024	0.00060
12/19	7.375	1.135	0.12629	0.121	0.01461
12/20	7.375	1.000	0.00000	-0.005	0.00003
12/21	7.375	1.000	0.00000	-0.005	0.00003
12/24	7.750	1.051	0.04960	0.044	0.00195
12/26	7.625	0.984	-0.01626	-0.022	0.00047
12/27	7.250	0.951	-0.05043	-0.056	0.00312
12/28	6.750	0.931	-0.07146	-0.077	0.00591
12/31/79	6.750	1.000	0.00000	-0.005	0.00003
01/02/80	6.750	1.000	0.00000	-0.005	0.00003
01/03	7.000	1.037	0.03637	0.031	0.00096
01/04	7.375	1.054	0.05219	0.047	0.00219
01/07	7.500	1.017	0.01681	0.011	0.00013
		Sum=	0.16252	Sum=	0.05129
		U=	0.00542		
Sigma- (Sum of Log Rj-U squared/30) × (30/29) =					0.001768
To convert to annual variance: × 365 or					0.645594
Annual volatility-square root or					0.803489

Exhibit 7

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Calculation of Standard Deviation of Daily Percentage
Changes in Stock Price: April 8, 1980
(Chrysler and the Treasury negotiate, warrants proposed)

Date	Chrysler Stock Price, Sj	Rj-Sj/ Sj-1	Log Rj	Log Rj-U	Log Rj-U Squared
2/25/80	8.875				
2/26	8.625	0.972	-0.02857	-0.019	0.00035
2/27	8.625	1.000	0.00000	0.010	0.00009
2/28	8.625	1.000	0.00000	0.010	0.00009
2/29	9.000	1.043	0.04256	0.052	0.00274
3/03	8.875	0.986	-0.01399	-0.004	0.00002
3/04	8.625	0.972	-0.02857	-0.019	0.00035
3/05	8.625	1.000	0.00000	0.010	0.00009
3/06	8.250	0.957	-0.04445	-0.035	0.00120
3/07	8.250	1.000	0.00000	0.010	0.00009
3/10	8.000	0.970	-0.03077	-0.021	0.00044
3/11	8.250	1.031	0.03077	0.041	0.00164
3/12	8.000	0.970	-0.03077	-0.021	0.00044
3/13	8.000	1.000	0.00000	0.010	0.00009
3/14	7.750	0.969	-0.03175	-0.022	0.00048
3/17	7.500	0.968	-0.03279	-0.023	0.00053
3/18	7.125	0.950	-0.05129	-0.042	0.00173
3/19	7.125	1.000	0.00000	0.010	0.00009
3/20	6.750	0.947	-0.05407	-0.044	0.00196
3/21	6.750	1.000	0.00000	0.010	0.00009
3/24	6.375	0.944	-0.05716	-0.047	0.00225
3/25	6.250	0.980	-0.01980	-0.010	0.00010
3/26	6.375	1.020	0.01980	0.030	0.00087
3/27	6.000	0.941	-0.06062	-0.051	0.00259
3/28	6.000	1.000	0.00000	0.010	0.00009
3/31	6.125	1.021	0.02062	0.030	0.00092
4/01	6.250	1.020	0.02020	0.030	0.00000
4/02	6.375	1.020	0.01980	-0.030	0.00087
4/03	6.750	1.059	0.05716	0.067	0.00448
4/07	6.625	0.981	-0.01869	-0.009	0.00008
4/08	6.625	1.000	0.00000	0.010	0.00009
		Sum=	0.29239	Sum=	0.02492
		U=	0.00975		
Sigma- (Sum of Log Rj-U squared/30) × (30/29) =					0.000859
To convert to annual variance: × 365 or					0.313596
Annual volatility-square root or					0.559996

Exhibit 8

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Calculation of Standard Deviation of Daily Percentage
Changes in Stock Price: May l2, 1980
(Government signs guarantee including warrants)

Date	Chrysler Stock Price, Sj	Rj-Sj/ Sj-1	Log Rj	Log Rj-U	Log Rj-U Squared
3/28	6.000				
3/31	6.125	1.021	0.02062	0.021	0.00043
4/01	6.250	1.020	0.02020	0.020	0.00041
4/02	6.375	1.020	0.01980	0.020	0.00039
4/03	6.875	1.078	0.07551	0.076	0.00570
4/07	6.625	0.964	-0.03704	-0.037	0.00137
4/08	6.625	1.000	0.00000	0.000	0.00000
4/09	6.500	0.981	-0.01905	-0.019	0.00036
4/10	6.500	1.000	0.00000	0.000	0.00000
4/11	6.000	0.923	-0.08004	-0.080	0.00641
4/14	5.750	0.958	-0.04256	-0.043	0.00181
4/15	5.625	0.978	-0.02198	-0.022	0.00048
4/16	5.500	0.978	-0.02247	-0.022	0.00051
4/17	6.250	1.136	0.12783	0.128	0.01634
4/18	6.000	0.960	-0.04082	-0.041	0.00167
4/21	5.625	0.938	-0.06454	-0.065	0.00417
4/22	5.875	1.044	0.04349	0.043	0.00189
4/23	5.875	1.000	0.00000	0.000	0.00000
4/24	6.125	1.043	0.04167	0.042	0.00174
4/25	6.375	1.041	0.04001	0.040	0.00160
4/28	6.875	1.078	0.07551	0.076	0.00570
4/29	7.250	1.055	0.05311	0.053	0.00282
4/30	7.125	0.983	-0.01739	-0.017	0.00030
5/01	7.000	0.982	-0.01770	-0.018	0.00031
5/02	7.000	1.000	0.00000	0.000	0.00000
5/05	6.750	0.964	-0.03637	-0.036	0.00132
5/06	6.625	0.981	-0.01869	-0.019	0.00035
5/07	7.250	1.094	0.09015	0.090	0.00813
5/08	6.625	0.914	-0.09015	-0.090	0.00813
5/09	7.125	1.075	0.07276	0.073	0.00529
5/12	7.500	1.053	0.05129	0.051	0.00263
		Sum=	0.22314	Sum=	0.08026
		U=	0.00744		
Sigma- (Sum of Log Rj-U squared/30) × (30/29) =					0.002767
To convert to annual variance: × 365 or					1.010145
Annual volatility-square root or					1.005060

Exhibit 9

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Historical Volatility of Selected Companies

Name	Industry	Historical Volatility (1/1/80 to 1/1/84)
Caterpillar Tractor	Machinery (const. and mining)	.27
John Deere	Agricultural equipment	.29
Firestone Tire	Tire and rubber	.33
Ford Motor	Autos and trucks	.36
General Motors	Autos and trucks	.28
Goodyear Tire	Tire and rubber	.29
Winnebago	Recreational vehicles	.68

Source: John C. Cox and Mark Rubinstein, *Options Markets* (Englewood Cliffs, N.J.: Prentice-Hall, 1985), 346–58. Adapted by permission of Prentice-Hall, Inc.

Exhibit 10

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Chrysler's Publicly Traded Warrants

	Price of Warrant	Time in Warrant (years)	Stock Price	Exercise Price
Sept. 14, 1979	2.875	5.75	7.875	13
Jan. 7, 1980	2.750	5.42	7.500	13
April 8, 1980	3.000	5.17	6.625	13
May 12, 1980	3.630	5.00	7.500	13
Sept. 1, 1983	16.380	0.25	28.375	13

Exhibit 11

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Calculation of Standard Deviation of Daily Percentage
Changes in Bond Price Using Weighted Average of Chrysler Bonds:
100 Million of 8 7/8% Bonds of 1995 and
200 Million of 8% Bonds of 1998
As of May 12, 1980
(Government signs guarantee including warrants)

Date	Chrysler Debt Price, Sj	Rj-Sj/ Sj-1	Log Rj	Log Rj-U	Log Rj-U Squared
3/28	31.268				
3/31	35.434	1.133	0.12509	0.112	0.01259
4/01	35.640	1.006	0.00580	-0.007	0.00005
4/02	37.001	1.038	0.03748	0.025	0.00060
4/03	37.950	1.026	0.02532	0.012	0.00015
4/07	38.899	1.025	0.02469	0.012	0.00014
4/08	39.270	1.010	0.00950	-0.003	0.00001
4/09	40.260	1.025	0.02490	0.012	0.00014
4/10	41.333	1.027	0.02629	0.013	0.00018
4/11	38.693	0.936	-0.06600	-0.079	0.00622
4/14	34.485	0.891	-0.11512	-0.128	0.01636
4/15	35.764	1.037	0.03641	0.024	0.00055
4/16	38.198	1.068	0.06584	0.053	0.00280
4/17	40.590	1.063	0.06075	0.048	0.00229
4/18	40.920	1.008	0.00810	-0.005	0.00002
4/21	37.538	0.917	-0.08628	-0.099	0.00984
4/22	36.300	0.967	-0.03352	-0.046	0.00215
4/23	37.496	1.033	0.03242	0.020	0.00038
4/24	39.435	1.052	0.05041	0.038	0.00141
4/25	39.518	1.002	0.00209	-0.011	0.00012
4/28	40.219	1.018	0.01759	0.005	0.00002
4/29	44.220	1.099	0.09484	0.082	0.00672
4/30	45.788	1.035	0.03483	0.022	0.00048
5/01	45.581	0.995	-0.00451	-0.017	0.00030
5/02	45.375	0.995	-0.00454	-0.017	0.00030
5/05	46.695	1.029	0.02868	0.016	0.00025
5/06	45.293	0.970	-0.03050	-0.043	0.00188
5/07	47.190	1.042	0.04104	-0.028	0.00079
5/08	41.993	0.890	-0.11669	-0.130	0.01689
5/09	42.900	1.022	0.02138	0.008	0.00007
5/12	46.035	1.073	0.07053	0.058	0.00332
		Sum=	0.38682	Sum=	0.08698
		U=	0.01289		
Sigma- (Sum of Log Rj-U squared/30) × (30/29) =					0.002999
To convert to annual variance: × 365 or					1.094799
Annual volatility-square root or					1.046326

Exhibit 12

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Yields to Maturity on
Selected Debt Instruments

	Debt of the U.S. Treasury				AAA Bonds	BAA Bonds
	90-Day T-Bill	1-Year T-Bond	5-Year T-Bond	10-Year T-Bond	Moody's Average	Moody's Average
September 14, 1979	11.42%	10.79%	9.25%	9.27%	9.42%	10.48%
January 7, 1980	12.31	11.67	10.49	10.63	10.88	12.29
April 8, 1980	15.70	14.60	12.45	11.03	12.95	14.75
May 12, 1980	9.34	9.34	9.83	10.52	10.93	13.20
September 1, 1983	9.59%	10.48%	11.92%[1]	11.94%	12.54%	13.65%

[1]On September 1, 1983, the yield on a 7-year Treasury Bond was .1193.

Exhibit 13

CHRYSLER'S WARRANTS: SEPTEMBER 1983

Yield to Maturity of Selected Corporate Bonds
On May 12, 1980

Selected CCC Issues

McCrory Corp. deb. 10.5s =85	15.310%
McCrory Corp. deb. 7.5s =94	15.850
LTV Corp. sub. s.f.deb. 5.0s =88	15.360
Fedders Corp. sub. s.f. deb. 8.875s =94	16.300
Allegheny Beverage, sub. deb. 10.0s =97	16.820%

Selected Chrysler Issues

S.f. deb. 8 7/8s =95	19.480%
S.f. deb. 8s =98	18.700
Chrysler financial notes 8 7/8s =84	20.800
Chrysler financial notes 9S =86	21.450
Chrysler financial sub. deb. 7 3/8s =86	23.360%

VLOCT2002TN.XLS

This spreadsheet supports INSTRUCTOR analysis of the case, "Value Line Publishing, October 2002" (Case 10).

Revised, November 14, 2007

Exhibit 1

VALUE LINE, OCTOBER 2002

Retail Building Supply Industry Sales

Sales ($billions)	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2006**
Hardware	22.8				26.2	26.2	26
Home Centers	64.5				89	91.9	102
Lumber	51.5				59	60.1	66
Total Market	138.8	149.5	159.7	168	174.2	178.2	194

Share of Market	**2001**
Home Depot Inc	22.90%
Lowe's Companies	10.80%
TruServe Corp	2.90%
Menard Inc	1.50%

Source: Economist Intelligence Unit

Exhibit 2

	Fiscal year				
	1997	**1998**	**1999**	**2000**	**2001**
The Home Depot					
Number of stores (1)	624	761	930	1134	1333
Sq. footage (M)	66.0	81.0	100.0	123.0	146.0
Number of transactions (M)	550	665	797	937	1091
Number of employees	124400	156700	201400	227300	256300
Lowe's					
Number of stores	477	520	576	650	744
Sq. footage (M)	39.9	47.8	57.0	67.8	80.7
Number of transactions (M)	231	268.232	299.225	342.173	395.141
Number of employees	64070	72715	86160	94601	108317

(1) Excludes Apex Supply Company, Georgia Lighting, Maintenance Warehouse, Your "other" Wa

Exhibit 3

VALUE LINE PUBLISHING, OCTOBER 2002

Cost of capital calculation

Current yield on long-term U.S. Treasuries	4.8%
Historical market risk premium	5.5%

The Home Depot

Proportion of debt capital (market value)	2%
Cost of debt (Current yields of Aaa-rated debt)	6.8%
Marginal tax rate	38.6%
Cost of equity (Beta=1.4)	12.5%
Weighted average cost of capital	12.3%

Lowe's

Proportion of debt capital (market value)	12%
Cost of debt (Current yields of Aa-rated debt)	7.3%
Marginal tax rate	37.0%
Cost of equity (Beta=1.4)	12.5%
Weighted average cost of capital	11.6%

Exhibit 4

VALUE LINE PUBLISHING, OCTOBER 2002

Financial Statements for Home Depot
($ millions)

	Fiscal year				
	1997	**1998**	**1999**	**2000**	**2001**
INCOME STATEMENT					
Sales	24,156	30,219	38,434	45,738	53,553
Cost of sales	17,092	21,241	26,560	31,456	36,642
Gross profit	7,064	8,978	11,874	14,282	16,911
Cash operating expenses (1)	4,885	5,935	7,603	9,490	11,215
Depreciation & amortization	283	373	463	601	764
EBIT	1,896	2,670	3,808	4,191	4,932
Non-recurring expenses	0	0	0	0	0
Net interest expense	-2	16	4	-26	-25
EBT	1,898	2,654	3,804	4,217	4,957
Income taxes	738	1,040	1,484	1,636	1,913
Net earnings	1,160	1,614	2,320	2,581	3,044
BALANCE SHEET					
Cash and ST investments	174	62	170	177	2,546
Accounts receivable	556	469	587	835	920
Merchandise inventory	3,602	4,293	5,489	6,556	6,725
Other current assets	128	109	144	209	170
Total current assets	4,460	4,933	6,390	7,777	10,361
Net property and equipment	6,509	8,160	10,227	13,068	15,375
Other assets	260	372	464	540	658
Total assets	11,229	13,465	17,081	21,385	26,394
Accounts payable	1,358	1,586	1,993	1,976	3,436
Accrued salaries and wages	312	395	541	627	717
Short-term borrowings	0	0	0	0	0
Current maturities of long-term debt	8	14	29	4	5
Other current liabilities	778	862	1,093	1,778	2,343
Current liabilities	2,456	2,857	3,656	4,385	6,501
Long-term debt	1,303	1,566	750	1,545	1,250
Deferred income taxes	78	85	87	195	189
Other long-term liabilities	178	208	237	245	372
Minority interest	116	9	10	11	0
Shareholders' equity	7,098	8,740	12,341	15,004	18,082
Total liab. and owner's equity	11,229	13,465	17,081	21,385	26,394

(1) Includes operating lease payments of $262 million in 1997, $321 million in 1998, $389 million in 1999, $479 mi

llion in 2000, a

Exhibit 5

VALUE LINE PUBLISHING, OCTOBER 2002

Financial Statements for Lowe's
($ millions)

	Fiscal year				
	1997	**1998**	**1999**	**2000**	**2001**
INCOME STATEMENT					
Sales	10,137	12,245	15,906	18,779	22,111
Cost of sales	7,447	8,950	11,525	13,488	15,743
Gross profit	2,690	3,295	4,381	5,291	6,368
Cash operating expenses (1)	1,825	2,189	2,870	3,479	4,036
Depreciation & amortization	241	272	338	410	534
EBIT	624	833	1,172	1,402	1,798
Non-recurring expenses	0	0	24	0	0
Net interest expense	66	75	85	121	173
EBT	559	758	1,063	1,281	1,625
Income taxes	201	276	390	472	601
Net earnings	357	482	673	810	1,024
BALANCE SHEET					
Cash and ST investments	211	243	569	469	853
Accounts receivable	118	144	148	161	166
Merchandise inventory	1,715	2,105	2,812	3,285	3,611
Other current assets	65	94	164	243	291
Total current assets	2,110	2,586	3,693	4,157	4,920
Net property and equipment	3,005	3,637	5,177	7,035	8,653
Other assets	104	122	142	166	162
Total assets	5,219	6,345	9,012	11,358	13,736
Accounts payable	969	1,133	1,567	1,714	1,715
Accrued salaries and wages	83	113	164	166	221
Short-term borrowings	98	92	92	250	100
Current maturities of long-term debt	12	99	60	42	59
Other current liabilities	286	328	503	738	922
Current liabilities	1,449	1,765	2,386	2,911	3,017
Long-term debt	1,046	1,283	1,727	2,698	3,734
Deferred income taxes	124	160	200	251	305
Other long-term liabilities	0	0	4	3	6
Minority interest	0	0	0	0	0
Shareholders' equity	2,601	3,136	4,695	5,495	6,674
Total liab. and owner's equity	5,219	6,345	9,012	11,358	13,736

(1) Includes operating lease payments of $59 million in 1997, $89 million in 1998, $144 million in 1999, $162 million

in 2000, and $

Exhibit 6

VALUE LINE PUBLISHING, OCTOBER 2002

Value Line Economic Series

Annual Statistics	**1997**	**1998**	**1999**	**2000**	**2001**	**2002***
Gross Domestic Product ($Bill.)	8318	8782	9274	9825	10082	10440
Real GDP (1996 Chained $Bill.)	8159	8509	8859	9191	9215	9428
Total Consumption ($Bill.)	5424	5684	5965	6224	6377	6577
Nonresidential Fixed Investment ($Bill.)	1009	1136	1228	1324	1255	1190
Industrial Prod. (% Change, Annualized)	6.9	5.1	3.7	4.5	-3.7	3.8
Housing Starts (Mill. Units)	1.47	1.62	1.65	1.57	1.6	1.66
Unit Car Sales (Mill. Units)	8.3	8.1	8.7	8.9	8.4	8.2
Personal Savings Rate (%)	4.2	4.7	2.7	2.8	2.3	3.5
National Unemployment Rate (%)	4.9	4.5	4.2	4	4.8	5.9
AAA Corp Bond Rate (%)	7.3	6.5	7	7.6	7.1	6.4
10-Year Treasury Note Rate (%)	6.4	5.3	5.6	6.0	5.0	4.8
3-Month Treasury Bill Rate (%)	5.1	4.8	4.6	5.8	3.4	1.7
Annual Rates of Change						
Real GDP	4.4	4.3	4.1	3.8	0.3	2.3
GDP Price Index	1.9	1.2	1.4	2.1	2.4	1.7
Consumer Price Index	2.3	1.5	2.2	3.4	2.8	2.3

Quarterly Annualized Rates	**2002**				
	1st	**2nd***	**3rd***	**4th***	**1st***
Gross Domestic Product ($Bill.)	10313	10307	10475	10600	10756
Real GDP (1996 Chained $Bill.)	9363	9388	9446	9516	9598
Total Consumption ($Bill.)	6514	6544	6608	6641	6691
Nonresidential Fixed Investment ($Bill.)	1188	1184	1190	1199	1222
Industrial Production (% Change, Annualized)	2.6	4.6	3	5	5.5
Housing Starts (Mill. Units)	1.73	1.66	1.65	1.6	1.57
Unit Car Sales (Mill. Units)	7.9	8.1	8.4	8.2	8.2

*Estimated

Source: Value Line Publishing

2003*	2005-2007*
10984	13255
9728	10827
6772	7457
1266	1625
5.3	4
1.59	1.63
8.3	8
3.4	1.5
5.9	5
6.4	7.3
5.1	6.2
2.4	4.5
3.2	3.8
2.5	2.6
2.5	2.8

	2003	
2nd*	3rd*	4th*
10901	11060	11270
9681	9770	9861
6748	6798	6849
1249	1279	1315
5.5	5	5
1.58	1.6	1.6
8.2	8.3	8.4

Exhibit 7

VALUE LINE PUBLISHING, OCTOBER 2002

Ratio Analysis for Home Depot

	Fiscal year				
	1997	**1998**	**1999**	**2000**	**2001**
Working capital (CA-NIBCL*)	2,012	2,090	2,763	3,396	3,865
Fixed assets	6,769	8,532	10,691	13,608	16,033
Total capital	8,781	10,622	13,454	17,004	19,898
Tax rate	38.9%	39.2%	39.0%	38.8%	38.6%
NOPAT (EBIT*(1-t))	1,158	1,623	2,323	2,565	3,028
PROFITABILITY					
Return on capital (NOPAT/Total capital)	13.2%	15.3%	17.3%	15.1%	15.2%
Return on equity (Net earnings/S. Equity)	16.3%	18.5%	18.8%	17.2%	16.8%
MARGINS					
Gross margin (Gross profit/Sales)	29.2%	29.7%	30.9%	31.2%	31.6%
Cash operating expenses/Sales	20.2%	19.6%	19.8%	20.7%	20.9%
Depreciation/Sales	1.2%	1.2%	1.2%	1.3%	1.4%
Depreciation/P&E	4.3%	4.6%	4.5%	4.6%	5.0%
Operating margin (EBIT/Sales)	7.8%	8.8%	9.9%	9.2%	9.2%
NOPAT margin (NOPAT/Sales)	4.8%	5.4%	6.0%	5.6%	5.7%
TURNOVER					
Total capital turnover (Sales/Total capital)	2.8	2.8	2.9	2.7	2.7
P&E turnover (Sales/P&E)	3.7	3.7	3.8	3.5	3.5
Working capital turnover (Sales/WC)	12.0	14.5	13.9	13.5	13.9
Receivable turnover (Sales/AR)	43.4	64.4	65.5	54.8	58.2
Inventory turnover (COGS/M. inventory)	4.7	4.9	4.8	4.8	5.4
Sales per store ($ millions)	38.7	39.7	41.3	40.3	40.2
Sales per sq foot ($)	366.0	373.1	384.3	371.9	366.8
Sales per transaction ($)	43.9	45.4	48.2	48.8	49.1
GROWTH					
Total sales growth		25.1%	27.2%	19.0%	17.1%
Sales growth for existing stores		2.6%	4.1%	-2.4%	-0.4%
Growth in new stores		22.0%	22.2%	21.9%	17.5%
Growth in sq footage per store		0.6%	1.0%	0.9%	1.0%
LEVERAGE					
Total Capital/Equity	1.24	1.22	1.09	1.13	1.10

*Non-interest-bearing current liabilities

Exhibit 8

VALUE LINE PUBLISHING, OCTOBER 2002

Financial Forecast for Home Depot

		Fiscal year				
ASSUMPTIONS	**2001**	**2002E**	**2003E**	**2004E**	**2005E**	**2006E**
Growth in new stores	17.5%	15.0%	13.2%	9.0%	7.0%	5.5%
Sales growth for existing stores	-0.4%	3.0%	4.0%	8.3%	8.3%	8.3%
Total sales growth	17.1%	18.0%	17.2%	17.3%	15.3%	13.8%
Gross margin	31.6%	32.0%	32.3%	32.4%	32.5%	32.5%
Cash operating expenses/Sales	20.9%	21.0%	20.7%	20.8%	20.5%	20.5%
Depreciation/Sales	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
Income tax rate	38.6%	37.6%	37.5%	37.5%	37.5%	37.5%
Cash & ST Inv/Sales	4.8%	5.0%	5.0%	5.1%	5.3%	5.3%
Receivable turnover	58.2	55.0	53.0	52.0	50.0	50.0
Inventory turnover	5.4	5.3	5.1	5.0	4.7	4.7
P&E Turnover	3.5	3.3	3.3	3.3	3.3	3.3
Payables/COGS	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%
Other curr liab/Sales	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%
FORECAST						
Number of stores	1,333	1,533	1,735	1,891	2,024	2,135
Net sales	53,553	63,195	74,049	86,860	100,149	114,000
Cost of sales	36,642	42,972	50,131	58,717	67,601	76,950
Gross profit	16,911	20,222	23,918	28,143	32,549	37,050
Cash operating expenses	11,215	13,271	15,328	18,067	20,531	23,370
Depreciation & amortization	764	902	1,056	1,239	1,429	1,626
EBIT	4,932	6,050	7,533	8,837	10,589	12,054
NOPAT	3,028	3,775	4,708	5,523	6,618	7,534
Cash and ST investments	2,546	3,160	3,702	4,430	5,308	6,042
Accounts receivable	920	1,149	1,397	1,670	2,003	2,280
Merchandise inventory	6,725	8,170	9,868	11,743	14,383	16,372
Other current assets	170	170	170	170	170	170
Total current assets	10,361	12,648	15,138	18,014	21,864	24,864
Accounts payable	3,436	4,030	4,701	5,506	6,339	7,216
Accrued salaries and wages	717	717	717	717	717	717
Other current liabilities	2,348	2,765	3,240	3,800	4,382	4,988
Current liabilities	6,501	7,511	8,658	10,023	11,438	12,920
Working capital	3,860	5,137	6,480	7,990	10,426	11,944
Net property and equipment	15,375	19,150	22,439	26,321	30,348	34,545
Other assets	658	658	658	658	658	658
Total capital	19,893	24,945	29,578	34,970	41,433	47,147
Return on capital	15.2%	15.1%	15.9%	15.8%	16.0%	16.0%

Exhibit TN1

VALUE LINE PUBLISHING, OCTOBER 2002

Performance comparison--The Home Depot vs. Lowe's 2001

	The Home Depot	Lowe's
Working capital (CA-NIBCLs)	3,865	2,063
Fixed assets	16,033	8,816
Total capital	19,898	10,879
Tax rate	38.6%	37.0%
NOPAT (EBIT*(1-t))	3,028	1,133
PROFITABILITY		
Return on capital (NOPAT/Total capital)	15.2%	10.4%
Return on equity (Net earnings/S. Equity)	16.8%	15.3%
MARGINS		
Gross margin (Gross profit/Sales)	31.6%	28.8%
Cash operating expenses/Sales	20.9%	18.3%
Depreciation/Sales	1.4%	2.4%
Depreciation/P&E	5.0%	6.2%
Operating margin (EBIT/Sales)	9.2%	8.1%
NOPAT margin (NOPAT/Sales)	5.7%	5.1%
TURNOVER		
Total capital turnover (Sales/Total capital)	2.7	2.0
P&E turnover (Sales/P&E)	3.5	2.6
Working capital turnover (Sales/WC)	13.9	10.7
Receivable turnover (Sales/AR)	58.2	133.5
Inventory turnover (COGS/M. inventory)	5.4	4.4
Sales per store ($ millions)	40.2	29.7
Sales per sq foot ($)	366.8	274
Sales per transaction ($)	49.1	56.0
GROWTH		
Total sales growth	17.1%	17.7%
Sales growth for existing stores	-0.4%	2.9%
Growth in new stores	17.5%	14.5%
Growth in sq footage per store	1.0%	4.0%
LEVERAGE		
Total Capital/Equity	1.10	1.63

Exhibit TN2

VALUE LINE PUBLISHING, OCTOBER 2002

Ratio analysis--Lowe's

	Fiscal year				
	1997	**1998**	**1999**	**2000**	**2001**
Working capital (CA-NIBCL*)	772	1,012	1,460	1,539	2,063
Fixed assets	3,110	3,759	5,319	7,201	8,816
Total capital	3,881	4,771	6,779	8,739	10,879
Tax rate	36.0%	36.4%	36.7%	36.8%	37.0%
NOPAT (EBIT*(1-t))	399	530	742	886	1,133
PROFITABILITY					
Return on capital (NOPAT/Total capital)	10.3%	11.1%	10.9%	10.1%	10.4%
Return on equity (Net earnings/S. Equity)	13.7%	15.4%	14.3%	14.7%	15.3%
MARGINS					
Gross margin (Gross profit/Sales)	26.5%	26.9%	27.5%	28.2%	28.8%
Cash operating expenses/Sales	18.0%	17.9%	18.0%	18.5%	18.3%
Depreciation/Sales	2.4%	2.2%	2.1%	2.2%	2.4%
Depreciation/P&E	8.0%	7.5%	6.5%	5.8%	6.2%
Operating margin (EBIT/Sales)	6.2%	6.8%	7.4%	7.5%	8.1%
NOPAT margin (NOPAT/Sales)	3.9%	4.3%	4.7%	4.7%	5.1%
TURNOVER					
Total capital turnover (Sales/Total capital)	2.6	2.6	2.3	2.1	2.0
P&E turnover (Sales/P&E)	3.4	3.4	3.1	2.7	2.6
Working capital turnover (Sales/WC)	13.1	12.1	10.9	12.2	10.7
Receivable turnover (Sales/AR)	85.6	85.1	107.5	116.6	133.5
Inventory turnover (COGS/M. inventory)	4.3	4.3	4.1	4.1	4.4
Sales per store ($ millions)	21.3	23.5	27.6	28.9	29.7
Sales per sq foot ($)	254.3	256.2	279.1	277.1	274.0
Sales per transaction ($)	43.9	45.7	53.2	54.9	56.0
GROWTH					
Total sales growth		20.8%	29.9%	18.1%	17.7%
Sales growth for existing stores		10.8%	17.3%	4.6%	2.9%
Growth in new stores		9.0%	10.8%	12.8%	14.5%
Growth in sq footage per store		10.0%	7.6%	5.4%	4.0%
LEVERAGE					
Total Capital/Equity	1.49	1.52	1.44	1.59	1.63

*Non-interest-bearing current liabilities

Exhibit TN3

VALUE LINE PUBLISHING, OCTOBER 2002

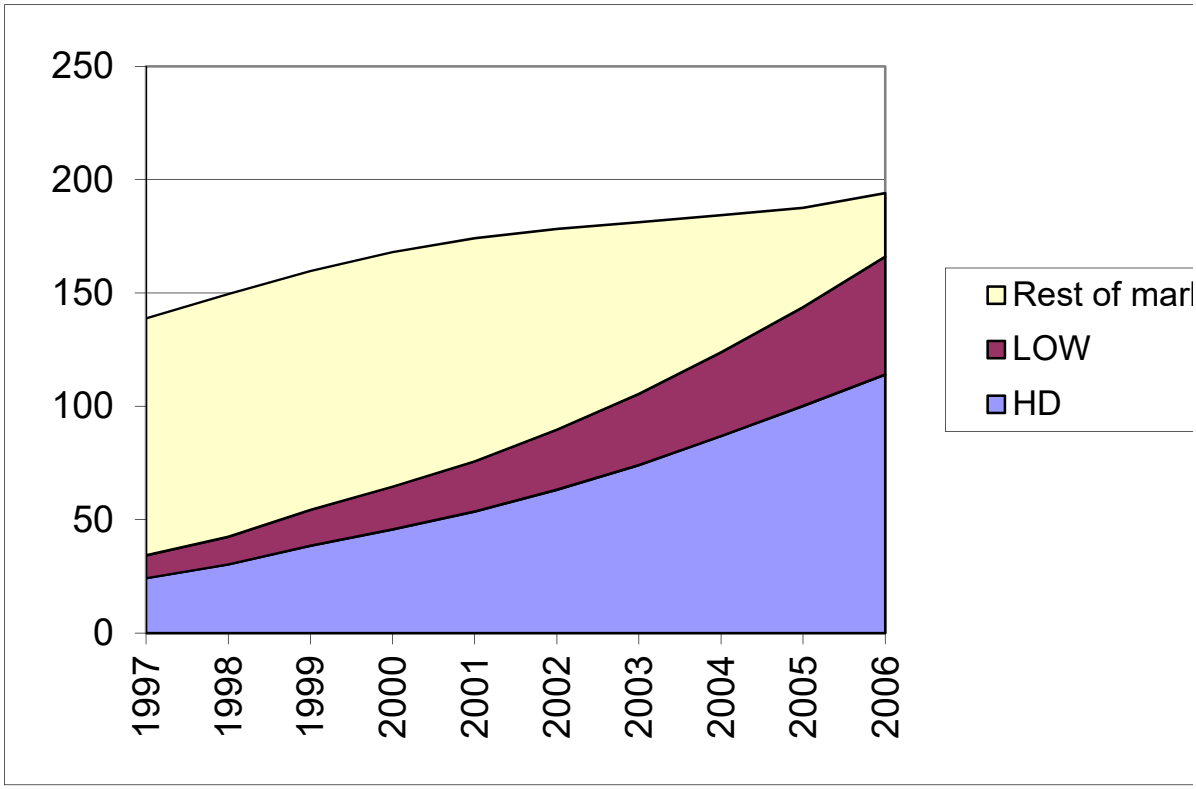
Financial forecast--Lowe's

			Fiscal year			
ASSUMPTIONS	2001	2002E	2003E	2004E	2005E	2006E
Growth in new stores	14.5%	16.9%	15.9%	13.8%	13.0%	13.0%
Sales growth for existing stores	2.9%	3.0%	2.6%	3.9%	4.9%	6.4%
Total sales growth	17.3%	19.9%	18.5%	17.7%	17.9%	19.4%
Gross margin	28.8%	29.2%	29.5%	29.5%	29.5%	29.5%
Cash operating expenses/Sales	18.3%	17.7%	18.0%	18.0%	17.7%	17.5%
Depreciation/Sales	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Income tax rate	37.0%	37.4%	37.5%	37.5%	37.5%	37.5%
Cash & ST Inv/Sales	3.9%	3.9%	4.1%	4.1%	4.5%	4.5%
Receivable turnover	133.5	133.5	133.5	133.5	133.5	133.5
Inventory turnover	4.4	4.4	4.4	4.2	4.2	4.0
P&E Turnover	2.6	2.6	2.8	3.0	3.2	3.2
Payables/COGS	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%
Other curr liab/Sales	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%
FORECAST						
Number of stores	744	870	1,008	1,147	1,296	1,464
Net sales	22,111	26,502	31,400	36,958	43,573	52,026
Cost of sales	15,743	18,764	22,137	26,055	30,719	36,679
Gross profit	6,368	7,739	9,263	10,903	12,854	15,348
Cash operating expenses	4,036	4,691	5,652	6,652	7,712	9,125
Depreciation & amortization	534	640	758	893	1,053	1,257
EBIT	1,798	2,408	2,853	3,357	4,089	4,966
NOPAT	1,133	1,507	1,783	2,098	2,556	3,104
Cash and ST investments	853	1,023	1,287	1,515	1,961	2,341
Accounts receivable	166	198	235	277	326	390
Merchandise inventory	3,611	4,304	5,077	6,204	7,314	9,170
Other current assets	291	291	291	291	291	291
Total current assets	4,921	5,816	6,891	8,287	9,892	12,191
Accounts payable	1,715	2,044	2,411	2,838	3,346	3,995
Accrued salaries and wages	221	221	221	221	221	221
Other current liabilities	922	1,105	1,309	1,541	1,817	2,169
Current liabilities	2,858	3,370	3,941	4,600	5,384	6,385
Working capital	2,063	2,446	2,949	3,687	4,508	5,806
Net property and equipment	8,653	10,372	11,214	12,319	13,617	16,258
Other assets	162	162	162	162	162	162
Total capital	10,878	12,980	14,326	16,168	18,287	22,226
Return on capital	10.4%	11.6%	12.4%	13.0%	14.0%	14.0%

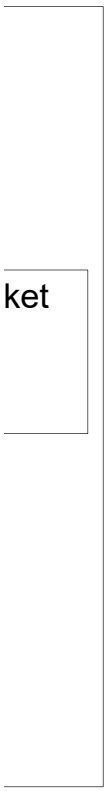
Exhibit TN4

VALUE LINE PUBLISHING, OCTOBER 2002

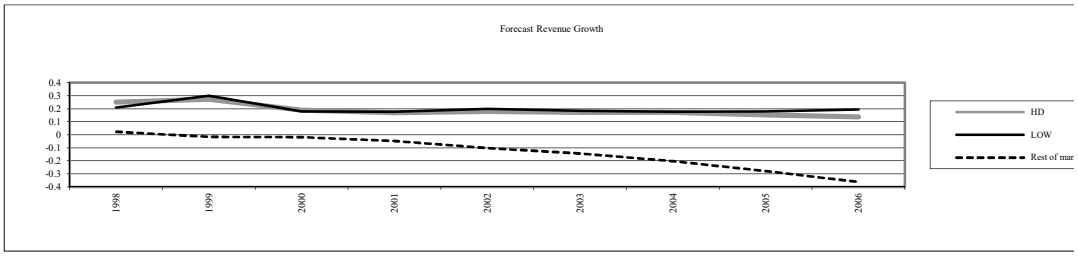
Forecast market share of retail building supply market



Revenue	1997	1998	1999	2000	2001	2002	2003	2004	2005
HD	24	30	38	46	54	63	74	87	100
LOW	10	12	16	19	22	27	31	37	44
Rest of market	105	107	105	103	99	89	76	61	44
Industry	139	150	160	168	174	178	181	184	188



2006
114
52
28
194


Forecast Revenue Growth
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
1998
1999
2000
2001
2002
2003
2004
2005
2006
HD
LOW
Rest of mar

rket

This spreadsheet supports INSTRUCTOR analysis of the case "Horniman Horticulture" (Case 11).

Rev. Apr. 25, 2011

Exhibit 1

HORNIMAN HORTICULTURE

Projected Horniman Horticulture Financial Summary (in thousands of dollars)

	2002	2003	2004	2005
Profit and loss statement				
Revenue	788.5	807.6	908.2	1048.8
Cost of goods sold	402.9	428.8	437.7	503.4
Gross profit	385.6	378.8	470.5	545.4
SG&A expense	301.2	302.0	356.0	404.5
Depreciation	34.2	38.4	36.3	40.9
Operating profit	50.2	38.4	78.2	100.0
Taxes	17.6	13.1	26.2	39.2
Net profit	32.6	25.3	52.0	60.8
Balance sheet				
Cash	120.1	105.2	66.8	9.4
Accounts receivable	90.6	99.5	119.5	146.4
Inventory[1]	468.3	507.6	523.4	656.9
Other current assets[2]	20.9	19.3	22.6	20.9
Current assets	699.9	731.6	732.3	833.6
Net fixed assets[3]	332.1	332.5	384.3	347.9
Total assets	1032.0	1064.1	1116.6	1181.5
Accounts payable	6.0	5.3	4.5	5.0
Wages payable	19.7	22.0	22.1	24.4
Other payables	10.2	15.4	16.6	17.9
Current liabilities	35.9	42.7	43.2	47.3
Net worth	996.1	1021.4	1073.4	1134.2
Capital expenditure	22.0	38.8	88.1	4.5
Purchases[4]	140.8	145.2	161.2	185.1

[1] Inventory investment was valued at the lower of cost or market. The cost of inventory was determined by accumulating the costs associated with preparing the plants for sale. Costs that were typically capitalized as inventory included direct labor, materials (soil, water, containers, stakes, labels, chemicals), scrap, and overhead.

[2] Other current assets included consigned inventory, prepaid expenses, and assets held for sale.

[3] Net fixed assets included land, buildings and improvements, equipment, and software.

[4] Purchases represented the annual amount paid to suppliers.

Exhibit 2

HORNIMAN HORTICULTURE

Financial Ratio Analysis and Benchmarking

	2002	2003	2004	2005	Benchmark[1]
Revenue growth	2.9%	2.4%	12.5%	15.5%	(1.8)%
Gross margin (Gross profit / Revenue)	48.9%	46.9%	51.8%	52.0%	48.9%
Operating margin (Op. profit / Revenue)	6.4%	4.8%	8.6%	9.5%	7.6%
Net profit margin (Net profit / Revenue)	4.1%	3.1%	5.7%	5.8%	2.8%
Return on assets (Net profit / Total assets)	3.2%	2.4%	4.7%	5.1%	2.9%
Return on capital (Net profit / Total capital)	3.3%	2.5%	4.8%	5.4%	4.0%
Receivable days (AR / Revenue * 365)	41.9	45.0	48.0	50.9	21.8
Inventory days (Inventory / COGS * 365)	424.2	432.1	436.5	476.3	386.3
Payable days (AP / Purchases * 365)	15.6	13.3	10.2	9.9	26.9
NFA turnover (Revenue / NFA)	2.4	2.4	2.4	3.0	2.7

[1]Benchmark figures are based on 2004 financial ratios of publicly traded horticulture producers.

Exhibit TN1

HORNIMAN HORTICULTURE

Projected 2006 Horniman Horticulture Financial Summary (in thousands of dollars)

	2002	2003	2004	2005	2006E	Assumptions		
Profit and loss statement								
Revenue	788.5	807.6	908.2	1048.8	1363.4	30.0%	Sales growth	
Cost of goods sold	402.9	428.8	437.7	503.4	654.4			
Gross profit	385.6	378.8	470.5	545.4	709.0	52.0%	2005 Margin	
SG&A expense	301.2	302.0	356.0	404.5	525.9	38.6%	2005 % of Revenue	
Depreciation	34.2	38.4	36.3	40.9	46.0		Maggie's estimate	
Operating profit	50.2	38.4	78.2	100.0	137.2			
Taxes	17.6	13.1	26.2	39.2	53.8	39.2%	2005 % of Operating profit	
Net profit	32.6	25.3	52.0	60.8	83.4			
Balance sheet								
Cash	120.1	105.2	66.8	9.4	(169.3)	Plug	8% of revenue=	109.1
Accounts receivable	90.6	99.5	119.5	146.4	190.3	50.9	2005 days	
Inventory	468.3	507.6	523.4	656.9	854.0	476.3	2005 days	
Other current assets	20.9	19.3	22.6	20.9	27.2	2.0%	2005 % of Revenue	
Current assets	699.9	731.6	732.3	833.6	902.2			
Net fixed assets	332.1	332.5	384.3	347.9	376.9		NFA+Capex-Dep	
Total assets	1032.0	1064.1	1116.6	1181.5	1279.1			
Accounts payable	6.0	5.3	4.5	5.0	6.5	9.9	2005 days	
Wages payable	19.7	22.0	22.1	24.4	31.7	2.3%	2005 % of Revenue	
Other payables	10.2	15.4	16.6	17.9	23.3	1.7%	2005 % of Revenue	
Current liabilities	35.9	42.7	43.2	47.3	61.5			
Net worth	996.1	1021.4	1073.4	1134.2	1217.6			
Capital expenditure	22.0	38.8	88.1	4.5	75.0		Maggie's estimate	
Purchases	140.8	145.2	161.2	185.1	240.6	37%	2005 COGS %	
NWC	664.0	688.9	689.1	786.3	840.7		CA-CL	

Exhibit TN2

HORNIMAN HORTICULTURE

Projected 2006 Free Cask Flow for Horniman Horticulture (in thousands of dollars)

	2003	2004	2005	2006E
Scenario 1: Exhibit TN1 Assumptions with cash balance as plug				
Operating profit	38.4	78.2	100.0	137.2
- Taxes	13.1	26.2	39.2	53.8
+ Depreciation	38.4	36.3	40.9	46.0
Operating cash flow	63.7	88.3	101.7	129.4
- Capex	38.8	88.1	4.5	75.0
- Inc in NWC	24.9	0.2	97.2	54.4
Free cash flow	0.0	0.0	0.0	0.0
Scenario 2: Exhibit TN1 Assumptions with cash balance at 8% of revenue				
Operating profit	38.4	78.2	100.0	137.2
- Taxes	13.1	26.2	39.2	53.8
+ Depreciation	38.4	36.3	40.9	46.0
Operating cash flow	63.7	88.3	101.7	129.4
- Capex	38.8	88.1	4.5	75.0
- Inc in NWC	24.9	0.2	97.2	332.7
Free cash flow	0.0	0.0	0.0	(278.3)

WARREN E. BUFFETT, 2005

Teaching Note

Synopsis and Objectives

Set in May 2005, this case invites the student to assess Berkshire Hathaway's bid, through MidAmerican Energy Holdings Company, its wholly owned subsidiary, for the regulated energy-utility PacifiCorp. The task for the student is to perform a simple valuation of PacifiCorp and to consider the reasonableness of Berkshire's offer. Student analysis readily extends into the investment philosophy and the remarkable record of Berkshire's chair and CEO, Warren E. Buffett.

Suggested complementary case about investment managers and superior performance: "Bill Miller and Value Trust" (UVA-F-1481).

The case is an introduction to a finance course or a module on capital markets. The analytical tasks are straightforward and intended to provide a springboard into discussion of the main tenets of modern finance. Thus, the case would be useful for:

- *setting themes* at the beginning of a finance course, including risk-and-return, economic reality (not accounting reality), the time value of money, and the benefits of alignment of agents and owners
- *linking valuation to the behavior* of investors in the capital market
- *modeling good practice* in management and investment using Warren Buffett as an example by returning to the image of Buffett repeatedly during a finance course to ask students what Buffett would likely do in a situation
- *characterizing stock prices* as equaling the present value of future equity cash flows
- *exercising simple equity-valuation skills*

While the numerical calculations in the case are simple, novices will find it to be a meaty introduction to a number of important concepts in finance. Ideally, the case could be positioned near the beginning of a course or module, after which it can be reinforced by other cases and exercises.

Suggested Questions for Advance Assignment

1. What is the possible meaning of the changes in stock price for Berkshire Hathaway and Scottish Power plc on the day of the acquisition announcement? Specifically, what does the $2.55 billion gain in Berkshire's market value of equity imply about the intrinsic value of PacifiCorp?
2. Based on the multiples for comparable regulated utilities, what is the range of possible values for PacifiCorp? What questions might you have about this range?
3. Assess the bid for PacifiCorp. How does it compare with the firm's intrinsic value? As an alternative, the instructor could suggest that students perform a simple discounted cash-flow (DCF) analysis.
4. How well has Berkshire Hathaway performed? How well has it performed in the aggregate? What about its investment in MidAmerican Energy Holdings?
5. What is your assessment of Berkshire's investments in Buffett's Big Four: American Express, Coca-Cola, Gillette, and Wells Fargo?
6. From Warren Buffett's perspective, what is the intrinsic value? Why is it accorded such importance? How is it estimated? What are the alternatives to intrinsic value? Why does Buffett reject them?
7. Critically assess Buffett's investment philosophy. Be prepared to identify points where you agree and disagree with him.
8. Should Berkshire Hathaway's shareholders endorse the acquisition of PacifiCorp?

Suggested Supplemental Readings

As the case indicates, there is a growing library of books and articles about Buffett and his investment style. The instructor may choose to assign readings from one or more of the publications listed in **Exhibit TN1**. Alternatively, it may be appropriate simply to share the list of books with students to illustrate the breadth of scholarship and reportage about the Sage of Omaha, Warren Buffett.

Suggested Teaching Plan

The following questions could be used to motivate a 90-minute discussion of the case:

1. *What does the stock market seem to be saying about the acquisition of PacifiCorp by Berkshire Hathaway?*

   This opening offers the opportunity to develop the notion that stock prices are the present value of expected cash flows. Moreover, it deals with the immediate opening problem of

the case: the market's response to the PacifiCorp announcement. Finally, it should help to motivate a discussion of Buffett's investment philosophy.

2. *Based on your own analysis, what do you think PacifiCorp was worth on its own before its acquisition by Berkshire?*

   This question expands upon the opening question and helps deepen the mystery about the acquisition—the bid price seems to be a fairly full-price offer for PacifiCorp.

3. *Well, maybe Buffett is overpaying—does he have a record of overpaying in the past?*

   Here, the discussion should shift to an analysis of Berkshire's general record, its experience with MidAmerican, and its experiences buying equity positions in the Big Four. The general conclusion will be that Buffett has done very well as an investor and as the manager of Berkshire.

4. *Here are the major elements of Buffett's philosophy. What do those elements mean? Do you agree with them?*

   On a sideboard, one could list the major topic headings given in the case. The aim here should be to discuss the intuition behind each point: why Buffett holds those views and what they imply for his work. If the students already have been exposed to the major underpinnings of modern finance, this segment of the discussion would take the form of a quick review. For novices, this segment would warrant slower development.

5. *Let's return to the basic issue. Is the PacifiCorp acquisition a good or bad deal? Why?*

   This question returns the discussion to the opening and aims to rationalize some of the contradictions that will have emerged during class. The main contradiction is the full price and the positive market reaction to the announcement. As a value investor, Buffett would probably say that he sees something that others do not—the positive market reaction is just the market revising its expectations about the future profitability of PacifiCorp.

6. *Take a vote on whether the shareholders should endorse the acquisition. For those of you who believe that PacifiCorp will be a good purchase, what justifies your belief? For those of you who voted no, why did you oppose it?*

   Hearing from both sides will serve as a summary of the major themes in the case and will invite a discussion about the sustainability of Buffett's record.

The instructor could close with a discussion of the core tenets of finance and then discuss how the class will return to those themes repeatedly during the course. The instructor could also augment the discussion of tenets with more reading of material about Buffett. Finally, students could be updated on Berkshire Hathaway's performance since the date of the case. See the firm's Web site, http://www.berkshirehathaway.com, for updated reports as well as a compilation of Buffett's letters to shareholders.

Case Analysis

Investor reaction to the PacifiCorp announcement

Discussion question 1

The investor reaction suggests that the deal will not only create value for PacifiCorp's acquirer, Berkshire Hathaway, but also for the seller, Scottish Power. In fact, as a relative matter, it would appear that the market sees more value accruing to Scottish Power because of its divestiture of PacifiCorp than to Berkshire, as a result of its acquisition of the company. Students could be encouraged to consider why this might be so (i.e., why Scottish Power would seem to gain more benefit from the deal than Berkshire Hathaway).

The $2.55 billion increase in Berkshire Hathaway's market value indicates an expected benefit to Berkshire from the acquisition. Some students will measure the extent of this benefit as a gain of $2.55 billion in Berkshire's market value of equity divided by PacifiCorp's 312.18 million shares outstanding or $6.95 per PacifiCorp share *more* than Buffett is paying. Berkshire is offering $5.1 billion in cash for PacifiCorp's equity, for a per-share price of $16.34; altogether, this would imply a per-share expected value for PacifiCorp's shares of $23.29. Is this a fair estimate of PacifiCorp's intrinsic value? Students must perform their own valuation of PacifiCorp in order to arrive at an independent judgment about this value.

Valuation of PacifiCorp

Discussion questions 2 and 3

Because PacifiCorp is a privately held company that does not pay a dividend, the case does not contain enough information to derive a valuation for PacifiCorp using market values or the dividend discount model. It is necessary, therefore, to rely on an implied valuation for the firm using multiples from comparable regulated utilities. Case Exhibit 9 provides financial data for the comparable firms, and case Exhibit 10 presents implied valuations for PacifiCorp using averages and medians of those firms' multiples. **Table 1** presents a summary of the range of valuations provided in the case:

Table 1. Summary of PacifiCorp valuation estimates.

Enterprise Value as Multiple of:				**MV Equity as Multiple of:**	
Rev.	**EBIT**	**EBITDA**	**Net Income**	**EPS**	**Book Value**
6,252	8,775	9,023	7,596	4,277	5,904
6,584	9,289	9,076	7,553	4,308	5,678

Because the case states that it would take 12 to 18 months for the deal to acquire PacifiCorp to close, the instructor may wish to solicit a present value for Berkshire Hathaway's offer for the equity portion of PacifiCorp. An appropriate discount rate may be derived using the

capital asset pricing model (CAPM). Footnote 13 in the case explains that the yield on the 30-year U.S. Treasury bond was 5.76% and that Berkshire's beta was 0.75, and the case states that the long-run market return was 10.5%. So Berkshire's cost of equity may be estimated as 9.32%. Using this rate to discount Berkshire's $5.1 billion offer over 12 or 18 months, we get a present value of about $4.7 billion.

Berkshire's offer for PacifiCorp was, therefore, roughly in line with the range of peer firm valuations. This does not explain why the market reacted so positively to the news of the acquisition. It is possible that the investors perceived potential synergies between PacifiCorp and MidAmerican, but in the highly regulated and regionally focused electric-utility business, such synergistic benefits may be weak. Was there perhaps something in Buffett's record as an investor that led to the market's response?

Buffett's record

Discussion questions 4 and 5

The case affords three opportunities to analyze Berkshire Hathaway's historical record.

Berkshire Hathaway's historical wealth creation: The case offers a range of evidence about shareholder wealth creation at Berkshire Hathaway. The case gives a rate of 24% compound annual growth in stock prices from 1965 to 1995. In comparison, wealth creation for large firms averaged 10.5% per year over the same period. The first chart in the case helps students visualize the supernormal performance of Berkshire Hathaway. Novices to finance should be encouraged to consider how difficult it is to beat the market by such a wide margin.

Berkshire's experience with MidAmerican: Data in the case and case Exhibit 6 give information with which to perform a simple analysis of Berkshire's return on investment in MidAmerican. Beginning in 2000, Berkshire Hathaway made an outlay of $1.642 billion for an eventual 80.5% economic interest in MidAmerican. Berkshire's economic interest in MidAmerican was composed of both equity and debt investments such that the cash flows to Berkshire included interest payments, common dividends, and preferred dividends. Therefore, Berkshire's return on investment can be approximated by computing Berkshire's share of MidAmerican's free cash flows, the cash flows available to all debt and equity claims. The income statement and balance sheet data in case Exhibit 6 may help us derive Berkshire's share of MidAmerican's free cash flows from 2001 to 2004, revealing that Berkshire had an internal rate of return (IRR) on this investment of 71%. **Exhibit TN2** presents those calculations.

Berkshire's experience with equity investments: The data in case Exhibit 3 give a foundation for a simple assessment of the major equity investments by Berkshire. With a class of novices, the instructor could motivate them to observe that all those issues have market values considerably higher than their costs. With a class of students more experienced in finance, it would be possible to estimate a holding-period return for Berkshire's investments in the Big Four. Using the information in this exhibit and its footnote, we find that Berkshire's investments

in American Express, Coca-Cola, Gillette, and Wells Fargo generated a compound annual growth rate of 16.07%. Students could be encouraged to compare this return with the long-term return for all large stocks, 10.5%.

Buffett's Investment Philosophy

Discussion questions 6 and 7

Buffett's investment philosophy reads mostly like a summary of the theory of modern finance. As the subheadings in the case indicate, the elements of the philosophy are as follows:

1. Economic reality, not accounting reality
2. Account for the cost of the lost opportunity
3. Focus on the time value of money
4. Focus on wealth creation
5. Invest on the basis of information and analysis
6. The alignment of agents and owners is beneficial to firm value

Buffett strongly disagrees, however, with three other elements of modern finance:

1. *Use of risk-adjusted discount rates*: The method he uses seems rather similar to the certainty equivalent approach to valuation (i.e., discount certain cash flows at a risk-free rate). Although it seems doubtful that the cash flows he discounts are truly certain, the very fact that he matches riskless cash flows with a risk-free discount rate implies an approach consistent with the risk-and-return logic of the CAPM.
2. *Benefits of portfolio diversification*: Although Buffett disavows portfolio diversification, the breadth of Berkshire Hathaway's holdings probably approaches efficient diversification. Case Exhibit 2 gives a breakdown of Berkshire's diverse business segments (also described in the case); case Exhibit 3 gives a listing of Berkshire's 10 major investees. From the list, students could be asked whether the portfolio looks diversified—this should stimulate a discussion of what diversification means to them and what it might mean in finance theory.

   The case does not provide the data with which to complete an analysis based on market values and asset allocations, but by just looking, one might identify possible industry concentrations in Berkshire's holdings. Those concentrations do not seem to account for the bulk of Berkshire's market value. The firm's portfolio consists of an assortment of odd manufacturing and service businesses suggested in the case, plus some major equity holdings (case Exhibit 3) that are not easily classified in the concentration groups. The mass of research on portfolio diversification suggests that it does not require very many different equities to achieve the risk-reduction benefits of diversification. Despite his public disagreement with the concept of diversification, Buffett seems to practice it.
3. *Capital-market efficiency*: Buffett's emphasis on the value of information asymmetries seems to confirm some appreciation for efficiency in security prices. From his public

statements as reported in the case, Buffett's disagreement with efficiency focuses on two aspects:

- The concept of passive portfolio management (i.e., indexing)
- The implication that quoted prices equal intrinsic values

The theory of efficiency does not absolutely preclude benefits of active management or the possibility that prices may not equal intrinsic values. But it does suggest that without an information advantage or some unusual skill, it would be very difficult to earn supernormal returns consistently over time. It is in this context that Warren Buffett appears to be a major anomaly. The supernormal returns of Berkshire Hathaway suggest that it is possible to beat the market by a wide margin. Still, Buffett's investment style is consistent with efficiency in some important ways:

- *Discipline and rationality*: If one is trying to beat the market, it makes no sense to invest in shares that are fairly priced. Buffett's quotations in the case and his acquisition philosophy in case Exhibit 8 suggest that he is looking for the market's pricing anomalies. Looking for the anomalies (the rationality part) and waiting to find them (the discipline part) are not inconsistent with a market that generally prices securities efficiently. Indeed, one could argue that the activities of investors such as Buffett help to create the efficiency that he denies.
- *Information*: By virtue of Berkshire's large stockholdings in selected firms, Buffett holds directorships and enjoys an informational advantage unavailable to outside investors. Information advantages are valuable in a world of only semi-strong efficient markets.

Conclusion

The final issue raised by the case has to do with the sustainability of Buffett's record. A bid for PacifiCorp of $9.4 billion does not seem unreasonable relative to current comparable valuations. For the PacifiCorp acquisition to be a success in the sense of matching historical returns at Berkshire, Buffett's expectations for PacifiCorp must be radically different from current, implied, and expected values for peer firms. With an investment of this size, a mistake will have lasting adverse consequences for Berkshire and Buffett. Even if Buffett's bet on PacifiCorp in May 2005 is correct, the need to deploy larger amounts of money will invite mistakes—as Buffet said, "A fat wallet is the enemy of superior investment results." With more than $40 billion in cash and cash equivalents, Buffett would have been mindful of this admonition.

As described here, the case gives the novice a broad introduction to the valuation of, and investment in, equities. The elements of this introduction include the following:

- ex post analysis of investment returns (Berkshire, MidAmerican, and the Big Four) and comparison of those returns with a benchmark, such as the S&P 500 Index or the Ibbotson total return figures
- peer multiples valuation analysis of PacifiCorp
- discussion of the meaning of share-price movements following the announcement of the PacifiCorp acquisition
- review of the major tenets of finance in the context of Buffett's investment philosophy

Exhibit TN1

WARREN E. BUFFETT, 2005

Bibliography for Warren E. Buffett

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Exhibit TN2

WARREN E. BUFFETT, 2005

Example of Completed IRR Analysis for Berkshire Hathaway's Investment in MidAmerican
($ in millions except per-share figures)

Period		Initial Investment	2001	2002	2003	2004
Operating Revenue and Other Income			**$ 4,973.0**	**$ 4,903.0**	**$ 6,143.0**	**$ 6,727.0**
- Cost of sales and operating expenses			$ 3,522.0	$ 3,092.0	$ 3,913.0	$ 4,390.0
- Depreciation and amortization			$ 539.0	$ 530.0	$ 603.0	$ 638.0
Profit Before Tax			**$ 912.0**	**$ 1,281.0**	**$ 1,627.0**	**$ 1,699.0**
- Taxes @ ...	40%		$ 364.8	$ 512.4	$ 650.8	$ 679.6
Profit After Tax			**$ 547.2**	**$ 768.6**	**$ 976.2**	**$ 1,019.4**
+ Depreciation and amortization			$ 539.0	$ 530.0	$ 603.0	$ 638.0
- Net change in fixed assets and working capital			$ 833.0	$ 4,363.0	$ 289.0	$ 331.0
Free Cash Flow from Operations			$ 253.2	$(3,064.4)	$ 1,290.2	$ 1,326.4
Terminal value[1]						$ 21,634
Total Free Cash Flow			$ 253.2	$(3,064.4)	$ 1,290.2	$ 22,960.5
Berkshire's Ownership:	**80.5%**	$ (1,642)	$ 203.8	$(2,466.8)	$ 1,038.6	$ 18,483.2
MidAmerican IRR	**71.1%**					

[1]Terminal Value = Free Cash Flow×(1+g)/(K_e-g); assumes 3% growth; and Ke can be estimated using the CAPM, where the 30-year Treasury rate was 5.76% (see case footnote 13), Berkshire's Beta is 0.75 (case footnote 13), and the long-term, U.S. equity-market risk premium is 10.5% (see case footnote 3); so, Ke = 5.76% + 0.75(10.5%-5.76%) = 9.32%.

	Risk-free Rate	Berkshire Beta	Risk premium	Risk-free Rate	
Ke=	5.76%	0.75	10.50%	5.76%	**9.32%**

BILL MILLER AND VALUE TRUST

Teaching Note

Synopsis and Objectives

Suggested complementary case in investment management and financial performance: "Warren E. Buffett, 2005" (UVA-F-1483).

Set in the autumn of 2005, the case recounts the remarkable performance record of Value Trust, a mutual fund managed by William H. (Bill) Miller III at Legg Mason, Inc. The case describes the investment style of Miller, whose record with Value Trust had beaten the S&P 500 fourteen years in a row. The tasks for the student are to assess the performance of the fund, consider the sources of that success, and to decide on the sustainability of Miller's performance. Consistent with the introductory nature of this case, the analysis requires no numerical calculations. The instructor should not be deceived, however, because the absorption of the capital-market background and the implications of the finance concepts in the case will fully occupy the novice. This case updates and replaces "Peter Lynch and the Fidelity Magellan Fund," (UVA-F-0777) and "The Fidelity Magellan Fund, 1995" (UVA-F-1126).

The case is intended for use in the opening stages of a finance course. It provides a nontechnical introduction to the U.S. equity markets and sets the foundation for some basic concepts in finance. Specific teaching objectives are to:

- Motivate a discussion of the concept of capital-market efficiency.
- Impart some recent capital-market history—in particular, regarding the Internet bubble of the late 1990s and early 2000s, and the market crash of 1987.
- Convey a perspective on the role of large institutions (lead steers) in setting securities' prices.
- Introduce the basic concept of value additivity. As illustrated by the net asset valuation of mutual funds, the value of a firm will be equal to the sum of the values of its parts.
- Affirm the notion of using market benchmarks to assess performance.

This teaching note was prepared by Robert F. Bruner with the assistance of Sean D. Carr. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation.

Suggested Questions for Advance Assignment to Students

1. How well has Value Trust performed in recent years? In making that assessment, what benchmark(s) are you using? How do you measure investment performance? What does good performance mean to you?
2. What might explain the fund's performance? To what extent do you believe an investment strategy, such as Miller's, explains performance?
3. How easy will it be to sustain Miller's historical performance record into the future? What factors support your conclusion?
4. Consider the mutual fund industry. What roles do portfolio managers play? What are the differences between fundamental and technical securities analysis? How well do mutual funds generally perform relative to the overall market?
5. What is capital-market efficiency? What are its implications for investment performance in general? What are the implications for fund managers, if the market exhibits characteristics of strong, semi-strong, or weak efficiency?
6. Suppose that you are an advisor to wealthy individuals in the area of equity investments. In 2005, would you recommend investing in Miller's Value Trust? What beliefs about the equity markets does your answer reflect?

Collateral Readings

Peter Lynch, the legendary former manager of Fidelity's Magellan Fund, has written (along with John Rothchild) *One up on Wall Street: How to Use What You Already Know to Make Money in The Market,* (New York: Simon & Schuster, 2000). This book is an engaging exposition of Lynch's investing style and could be used to supplement the discussion about the "Bill Miller and Value Trust" case in various ways. Lynch makes numerous statements about market efficiency and other theories of modern finance that stand in stark contrast to the standard textbook presentations.[1] The case distills the two points of view: Lynch versus the theorists. Readings from this book could be assigned in a supplementary or a follow-on fashion and may be expected to stimulate a spirited discussion.

As a counterpoint to Lynch, the instructor may find it useful to review Burton Malkiel's article surveying mutual fund performance from 1971 to 1991.[2] This article is not targeted toward the novice in finance. Malkiel finds some evidence of "hot hands" and "cold hands," but concludes that the evidence provides no reason to abandon the theory of capital-market efficiency. Another excellent book by Malkiel, *A Random Walk down Wall Street* (New York:

[1] For instance, "It seemed to me that most of what I learned at Wharton, which was supposed to help you succeed in the investment business, could only help you fail," (*One up on Wall Street*, 34)

[2] Burton G. Malkiel, "Returns from Investing in Equity Mutual Funds, 1971 to 1991," *Journal of Finance* 50 (June 1995): 549–572.

W.W. Norton & Co., 2003), surveys the evidence for an efficient market in prose accessible to the novice.

Students who are new to the subject of finance may also find it useful to refer to one or more dictionaries of financial terms, such as *Barron's Dictionary of Finance and Investment Terms,* 6th ed., by John Downes and Jordan Elliot Goodman (Hauppauge, New York: Barron's Educational Series, Inc., 2002), or *The New Palgrave Dictionary of Money and Finance,* ed. Newman, Milgate, and Eatwell (New York: Stockton Press, 1992).

Hypothetical Teaching Plan

Assuming the case is taught early in an introductory finance course, the teacher's classroom strategy can begin with the coin-flipping exercise suggested by Malkiel. All students are asked to stand up and to prepare to flip a coin. At the first and subsequent rounds, those who get tails are asked to sit down. Usually cheers and humor accompany the final rounds.

1. Question for the student who won the coin-tossing game: *The case mentions that Burton Malkiel suggests this example. What concept is he trying to illustrate, and how does this exercise illustrate it?*

   This question provides an entry into the theory of efficiency, and especially the arguments of its proponents like Malkiel.

2. *What is the efficient-markets hypothesis? What does it imply for the performance of mutual funds?*

   This question builds on the first question and aims to establish the null hypothesis against which the performance of Bill Miller and Value Trust can be evaluated. If students have not encountered the difference between strong, semi-strong, and weak forms of efficiency, here would be an opportune moment to discuss it.

3. *What would Miller say in response to the claim that his success is luck? What is his investment style?*

   With this question, the discussion turns to the other side of the debate. The instructor can list the descriptors of Miller's investment style on the board. In that segment, the instructor can distinguish between fundamental and technical analysts, and the different kinds of insights they seek. This segment of the discussion should seek to flesh out what active management means, namely, that one looks for pricing inefficiencies.

4. *Does anything about Value Trust surprise you? Why? How big a factor is the fund, or all of the equity mutual funds, in the stock market today?*

   Here the discussion turns to the significant role that large institutional investors play in the equity markets. The bulk of trading takes place among institutions—individuals are not significant in setting equity prices.

5. *What does it mean to beat the market? How do you define excellent performance?*

   In this stage of the discussion, the instructor could introduce a notion of the investors' opportunity cost—the ability to invest in an index fund that aims to match the performance of a broad equity market index. Against this benchmark, students should be nudged to consider the risk-return characteristics of an actively managed fund like Value Trust.

6. *What is Legg Mason, Inc.? What is its relationship to Value Trust? What are Legg Mason's core competencies?*

   This segment of the discussion turns to consider the economic justification of mutual funds in a world of efficient markets. The possible justifications include research (that is, the effort to identify pricing inefficiencies), goal-setting, monitoring of managers, and convenience for the investor.

7. *Would you invest in Value Trust, as of autumn 2005, given the information in the case?*

   Many students are attracted by the stock-picking skill (or hot hand) of Value Trust's Bill Miller. Other students will be impressed by the coin-flipping exercise.

The instructor could close the discussion with a vote on the investment recommendation, and then discuss the performance of Bill Miller and Value Trust since the date of the case. The instructor could use the update as a springboard for closing comments on capital-market efficiency. Web sites for Legg Mason and Morningstar are highly recommended as sources of updated information. See http://www.leggmason.com and http://www.mfb.morningstar.com.

Case Analysis

This note assumes that the instructor is familiar with the efficient-markets hypothesis and the academic research surrounding it. The discussion that follows will focus on other teaching opportunities in the case discussion.

Large institutional investors and the structure of U.S. capital markets

Discussion questions 2, 3, & 4

An important objective of the case is to introduce the novice to the structure of the U.S. capital markets. Later, this foundation is useful for the student when he or she encounters concepts founded on capital-market efficiency, investor rationality, and perfect competition. The case conveys the role of arbitrage driven by huge volumes of money (managed by institutional investors) that set prices in the markets.

Simple demographics are an important descriptive element. The capital market can be segmented into the stock, bond, and money markets. Within the stock market, there are major segments by type of player: pension funds, mutual funds, hedge funds, and individuals. The mutual-fund segment, in turn, can be broken down by investment objective: growth, income, etc.

The magnitude of the market (in terms of dollars and people) and the heterogeneity of investors underscore the difficulty of achieving superior performance consistently.

The case indicates several important trends in the capital markets:

- An 11% compound average growth rate in dollars under management by all mutual funds between 1995 and 2005.
- 9% compound average growth rate in number of mutual funds.
- 20% of the outstanding stock in all U.S. companies was owned by mutual funds.
- Domination of trading by lead steers, which is reflected in the trading characteristics of those institutional investors, such as higher trading volumes, bigger size of trades, and block trading.

Increasing liquidity in the market, increasing investor demand for mutual funds, segmentation of the market by mutual funds, switching among funds by investors, increasing volatility, and increasing attempts to "time" the swings in the market—many of those are believed to be indicators of "hot money" in the stock market.

Another important descriptive element is recent capital-market history, especially the stock market bubble of the late 1990s and early 2000s, and the market crash of 1987. Here the novice confronts the dynamic nature of the market and the essential challenge to investors posed by changing conditions. Those conditions can motivate a discussion of market timing and technical analysis as investment strategies, and the relative significance of the basic buy-and-hold strategy.

A third descriptive element concerns the structure of the mutual fund management industry itself. One could characterize money management as a cottage industry—thousands of small firms and relatively easy entry—but such a view is misleading. It ignores the huge barriers that block entry into the group of large mutual-fund managers, including:

- Reputation (past success)
- Investment expertise
- Economies of scale in administration, trading, and research
- Some skill in market segmentation of investors.

Despite those barriers, sustaining a comparative advantage in the competition for the management of investors' funds remains difficult. Key success factors are high-quality research and trading talent.

Miller's strategy and performance: the measurement issue

Discussion question 5

The case relates the elements of Miller's management approach:

- Lowest average cost wins. If the fundamentals are good, do not be afraid to buy a stock on its way down.
- Pick stocks based on their fundamentals, such as high intrinsic-value stocks.
- Buy low-expectation stocks. Take a contrarian's perspective.
- Take the long view by avoiding high turnover.

With that strategy, Miller successfully beat the market (i.e., the S&P 500 Index) 14 years in a row. The encomiums quoted on the first page of the case ("off the charts," "superhuman," and "mortal genius") suggest that Miller had a "hot hand," the investment-management equivalent of a basketball player's ability to score repeatedly.

The statistics from case Exhibits 1 and 5 are impressive. Value Trust beat the S&P 500 and the Russell 1000 indices on average for the past 1, 3, 5, 10, and 15 years. Since its inception, Value Trust had better average annual returns than all other equity finds in the Legg Mason fund family. Growth of Value Trust's net assets over the 1994–2005 period was a compound rate of 26% (versus 11% for the S&P 500, and an inflation rate of about 3%). Yet Miller was able to achieve such stellar and consistent returns with relatively little trading: Value Trust's turnover rate had not surpassed 30% since 1992, and had been as low as 4% in 2004. Morningstar gave Value Trust its top five-star rating.

Two other statistics from case Exhibit 1 invite caution, however. First, true to Miller's strategy of choosing stocks that are trading cheaply relative to their intrinsic value, Value Trust's portfolio at March 2005 included the stocks of a number of firms that were undergoing major turnarounds or restructurings, such as Tyco International and Eastman/Kodak. Concurrently, Value Trust also had relatively large positions in a number of high-fliers in the Internet sector, such as eBay and Amazon.com. Both of those investment areas were highly volatile, perhaps indicating that Value Trust was achieving its high returns by taking high-risk gambles. The fund's beta of 1.31, however, suggests that the fund's risk was not excessively high.

Second, as the commentary in Morningstar indicates, the size of Value Trust is not yet a major concern, "but we're keeping an eye on the matter." The larger a fund becomes, the harder it may be for the fund manager to adhere to his initial strategy because that fund may have already maximized its positions most likely to show strong positive returns. In addition, as a fund gets larger it starts acting like an index fund, which is representative of the market at large. Value Trust has not quite passed that threshold, but its growing size will invite concerns about the sustainability of Miller's record.

Miller and Value Trust's core competencies

Discussion question 6

If time permits, the instructor can invite students to reflect on the sources of excellent performance in money management. Two general groups of thoughts will emerge:

- *Information and speed to market*: Legg Mason (and Bill Miller, himself) employs a large staff of analysts and supplements its work with the insights of other analysts outside the firm. Moreover, portfolio managers such as Miller place great weight on personal research—visits, interviews, and the like. This is supplemented by a tendency to move quickly upon learning new information.
- *Reputation*: Typically, size denotes power in the marketplace. Yet while Value Trust is not the largest equity mutual fund, Bill Miller's consistent record of success provides him with great market influence; other market participants pay close attention to his actions because of his reputation. Some students will claim that this influence may give Miller the bargaining power with which to squeeze brokers for new ideas and advantageous prices, and generally to lead and/or to manipulate the market.

The information argument is consistent with market efficiency—the entrepreneur, who first exploits the insights that the rest of the market does not have will generally earn supernormal profits. The reputation argument is debatable. While Miller may have certain influence, his actions are still small relative to the entire stock market. Past success has never been a guarantee of excellent future performance. The case, however, does not provide the data needed to gain closure on the debate about the value of Miller's legendary reputation.

Market efficiency and the anomaly of excellent performance

Discussion question 7

Bill Miller's apparent success with Value Trust seems to present an anomaly to the theory of capital-market efficiency. The instructor can use this to motivate a debate about efficiency. Novices may be quite ready to embrace the concept of efficiency (especially with the instructor standing in front of them, or if they have just finished reading about the theory in textbooks or other readings). The instructor may need to play the devil's advocate on the behalf of Miller in order to stimulate debate. A key insight to emerge from such a debate must be that efficiency is assured only if there are investors who seek to arbitrage information asymmetries in the capital markets. In other words, the existence of Bill Miller is no mark of market inefficiency.

CASE 3

BEN & JERRY'S HOMEMADE

Teaching Note

This case examines issues of asset control for Ben & Jerry's Homemade, Inc., in light of the outstanding takeover offers by Chartwell Investments, Dreyer's Grand, Unilever, and Meadowbrook Lane Capital in January 2000. The case provides a unique opportunity to discuss fundamental firm objectives and the implications of poor financial performance as it reviews the development of Ben & Jerry's strong social consciousness and the takeover defense mechanisms that maintain management's control of company assets. Taking the role of an outside board member, students may review management's performance, estimate the economic cost of current management practice, and evaluate the implications of takeover defense strategies. Ultimately, students must take a position on whether the board should defend the agenda of the current management team or accept one of the takeover offers and support a shift toward a more traditional orientation.

The case provides opportunities for the instructor to develop any of the following teaching objectives:

- Establish the importance of financial performance for a firm in a public capital market.
- Stimulate an appreciation for the tension regarding asset control among corporate stakeholders.
- Evaluate the role of corporate takeovers and the merits of takeover defenses.
- Introduce corporate valuation using investor multiple measures.

The case requires relatively little prior knowledge of finance, and it largely provides a stimulating introduction to the principles of a traditional corporate finance curriculum.

This teaching note was prepared by Professor Michael J. Schill, with research assistance from Ruslana Deykun.

Sample Student Study Questions

1. How has Ben & Jerry's fulfilled its mission statement? What evidence can you provide regarding Ben & Jerry's performance on each of the three dimensions of the mission statement?
2. How did Ben & Jerry's become a takeover target?
3. Do you think the current takeover offers are justifiable? What might Ben & Jerry's be worth to the bidders?
4. Should Henry Morgan defend the agenda of the current management team or support one of the acquisition offers?

Suggested Supplementary Readings

This case introduces many of the fundamental principles of corporate finance. Little prior knowledge or supplementary reading on the part of students is required. Instructors may consider reading Cohen and Greenfield's *Ben & Jerry's Double-Dip,* published by Simon and Schuster, as it provides a fascinating and entertaining review of the development of Ben & Jerry's Homemade and its founders' business philosophy.

Hypothetical Teaching Plan

1. *What decision does Morgan face?*

The members of the board must choose either to defend the ongoing agenda of the current management team or to encourage a change in asset control by supporting an outside takeover offer. Because most of the board members are part of the management team and Morgan has been associated with the founders for some time, a vote for a change in control is likely to be hard to make. As a member of the board, Morgan does have a fiduciary responsibility to his shareholders. If the case is used as a course opener, the instructor may find it attractive to avoid the details of the various offers by focusing on the highest and, arguably, the most interesting offer, the Unilever offer of $36 in cash. The instructor can close this discussion with a class vote on the Unilever offer.

2. *How did Ben & Jerry's become a takeover target? Hasn't Ben & Jerry's been successful in fulfilling its mission statement? Would you support a takeover?*

The objective of this portion of the discussion is to establish that, at first pass, Ben & Jerry's appears to have been successful across all but the financial dimension. The instructor may begin by asking students to summarize Ben & Jerry's mission statement. The instructor can then survey the class by asking students to grade management on its performance across corporate objectives. The grades become management's report card. Generally, students give management

good marks on the product and social objectives (A's and B's) and less favorable grades on the economic objective (C's and D's). Students should be asked to defend their evaluations. Providing some support for this view of Ben & Jerry's financial performance can be the stock market performance, return on equity (ROE) and return on assets (ROA) (relative to comparables and risk-free debt yields), and comparable investor multiples, as well as the takeover offers. The instructor may emphasize the point by discussing Ben & Jerry's strong performance relative to other stakeholders (e.g., suppliers, employees, management). The conclusion is likely to be that Ben & Jerry's management has received straight A's for all but its financial performance. The instructor can close with a class vote on the takeover decision.

3. *What evidence is there that investors are dissatisfied?*

The instructor can gather evidence from those who believe that Ben & Jerry's financial performance is poor. Such evidence includes poor operating returns (ROE, ROA), poor cumulative stock returns, and low investor multiples. One theme that could be introduced is the notion of benchmarks. The only way to state that Ben & Jerry's performance is unsatisfactory is to have some standard with which to compare its performance. Much of the curriculum in standard finance classes is devoted to identifying appropriate benchmarks. Case Exhibit 1 suggests that Ben & Jerry's ROE has been running on par with the yield on 30-year U.S. Treasuries. The instructor might probe the merits and faults using government debt yield as the benchmark for Ben & Jerry's equity returns.

The instructor may also want to review the mechanics and intuition of such ratios as ROE and price-earnings multiples. In reviewing the PE ratio, the instructor might ask what level of PE would be A-level performance. For example, if Ben & Jerry's were to achieve Dreyer's level of PE (47.2), the implied stock price would be $50 (the Dreyer's PE of 47.2 multiplied by the Ben & Jerry's earnings per share in case Exhibit 1 of $1.06).

The instructor should be careful that the students do not lay all the blame for the financial underperformance on management's social agenda. By blaming Ben & Jerry's charitable giving, one would be hard-pressed to justify the current discounts. Rather, the point is that the discount is more likely to be associated with poor overall management of Ben & Jerry's assets. Certain students are likely to argue that investors knew management's agenda *ex ante*, and should be satisfied with average to below-average financial performance. In a sense, "no one buys Ben & Jerry's to get rich." This discussion should be encouraged and then expanded in the following discussion.

4. *Who ultimately controls the assets of Ben & Jerry's? In general, how are assets allocated in a free-market system?*

The objective of this discussion is to establish that, in a free-market system, market forces ultimately discipline those who deploy assets suboptimally. The instructor may begin with a discussion of who ultimately controls the assets of Ben & Jerry's Homemade. The debate is likely to focus on the founders and board, the current investors, and the potential investors of the

overall capital market. The point is, in a free market, assets are allocated based on the price mechanism. Only those who are willing to pay the market-clearing price maintain the right to an asset. Investors are rarely tolerant of poor management. Even investors who are highly interested in charitable giving want their money to do the most good possible. By subsidizing a poor management team (even if that team supports worthy causes), such investors are missing opportunities to put their money to better use with better management teams that also give to charities.[1] As the value gap widens, current investors will eventually defect as they find better alternatives for their investment money.

5. *What is the impact of the asset-control devices used by management and the state of Vermont? Do you support the use of such control restrictions?*

At this point, the instructor can review examples of takeover defense strategies. **Exhibit TN1** describes some common pre-offer and post-offer methods. This exhibit may be copied and distributed to students for use with this case. The discussion is likely to focus on the role of asset-control restrictions in protecting management from the disciplining effects of the market. Some of this protection may be warranted to discourage short-term-oriented raiders from hastily breaking up a viable enterprise. In summary, the devices may allow management to pursue long-term or non-traditional strategies, though possibly at great cost to shareholders.

6. *Could Ben & Jerry's get straight A's?*

This question explores the benefits of free markets. One argument is to identify examples of where corporate policy provides conflicting responses. The case mentions a number of examples of such conflicts (e.g., the restricted stock offering, the 7.5% charitable donation, product pricing, the Greystone brownie blocks, free cone day, and subsidizing Earl's pig farm). The instructor can then tease out the "pecking order" of the three objectives. The students' various views will reveal contrasting positions on the asset-control rights of corporate stakeholders. One might extend this discussion to other stakeholders to emphasize the apparent contrasting interests among stakeholders.

An alternative view is that proper profit maximization benefits all stakeholders. By focusing on making investors happy, management increases the size of the pie for all. On second thought, the A's given to Ben & Jerry's performance with respect to the other stakeholders may be difficult to justify when one considers how better management might have benefited stakeholders. By keeping the capital market happy, management gains access to the resources to make all parties better off eventually. Management teams that fail to keep capital markets happy are eventually disciplined by the market so that asset control shifts to those who can generate

[1] One interesting digression that the instructor may want to make is to explore the merits of corporate charitable donations in general. One might arguably question why managers choose to donate investors' money instead of "dividending" the money to investors and allowing them to donate to the causes of their choice. A relevant example is the Bill and Melinda Gates Foundation, which donates the founders' wealth—rather than that of Microsoft shareholders—to causes of the founders' choice. Some counterarguments for corporate charitable donations include tax advantages and profit-oriented goodwill with other stakeholders. The corporate manager needs to remember that corporate donations should be made with deference to the shareholders' wishes.

greater value. The lesson is that corporate managers in a free capital market must understand and respond to the capital market.

7. *Should Morgan support a takeover offer?*

Morgan is likely to share a certain level of affection for Cohen and Greenfield and their social agenda, yet he was hired to represent and defend the interests of shareholders. Gather the students' views on how Morgan should respond. Question those students who support a takeover about their recommendations with regard to the various outstanding offers. Unilever provides the most attractive price to shareholders but is likely to be the most disruptive to Ben & Jerry's social agenda.

If the instructor wishes to introduce multiple-based valuation procedures, the discussion may lead to exploring whether the current offer prices are high enough. One approach is to use the investor multiples of comparable firms listed in case Exhibit 6 and the financial data in case Exhibit 1 to calculate implied stock prices. **Exhibit TN2** provides a full summary of implied values using all the data provided in case Exhibits 1 and 6. The instructor should review how the analyst might weigh the wide range of estimates to obtain a single value estimate. The comparable estimate can then be compared with the pre-offer stock price of $21. If one attaches greater weight to Dreyer's values (arguably the closest peer), the analysis suggests that Ben & Jerry's shareholders are sacrificing tremendous wealth to subsidize management's charitable activities. The discussion may emphasize that Ben & Jerry's assets are likely to be worth substantially more than $36 a share.

End with a summary vote on whether to sell the company.

Epilogue

The Ben & Jerry's board of directors continued to debate the offers for another two months. By early April 2000, Unilever's offer had climbed to $43, more than double Ben & Jerry's pre-offer market price. Dreyer's offer and a combined Meadowbrook/Chartwell/Unilever offer had both increased to $38.

On April 12, Ben & Jerry's board announced that it had accepted a Unilever tender offer at $43.60 a share. As part of the agreement, Ben & Jerry's was to operate independently of Unilever's other ice-cream operations, including retaining a separate board, purchasing Vermont milk exclusively, and donating 7.5% of profits to charity. Perry Odak was to continue as general manager, and Cohen and Greenfield were to manage the company's brand and social agenda. Unilever agreed to provide Cohen with $5 million to launch a venture-capital firm to fund business ventures in low-income communities. Ironically, the Ben & Jerry's acquisition was announced on the same day as Unilever's acquisition of diet-supplement maker Slim-Fast. Unilever hoped to expand both firms' presence in international markets. Unilever acknowledged

the attractiveness of Ben & Jerry's superpremium brand in the Unilever portfolio, which had not previously had such a product.

David Gram of the Associated Press reported Ben Cohen's response to the takeover agreement: "I wanted the company to remain independent," he said, his voice cracking slightly. "I tried real hard to keep it independent." The comment came toward the end of an hour-long conversation in which Cohen spoke mostly about keeping his hope alive for injecting the business with the social agenda of helping the poor, cleaning up the environment, and doing other good works.

In late November 2000, Unilever selected French Unilever veteran Yves Couette to head the Ben & Jerry's unit, against the will of Cohen and Greenfield. In 2001, total unit sales grew by 8%. Over the next two years, Couette continued to support select social causes aggressively, including the "One Sweet Whirled" campaign, but much of the prior social agenda was trimmed. Couette also announced some plant restructuring, including plant closures in southern Vermont. Couette expected to expand aggressively in Europe, including the opening of European production facilities.

Susan Green of the *Rutland Herald* reported in mid 2002 that Greenfield and Cohen had distanced themselves from the company to varying degrees. "Today, their faces are no longer included in the short video screened at the popular factory tours in Waterbury. Instead, the audience sees two pairs of sneakers and hears a narrator explain that the men first became friends in gym class."

Exhibit TN3 provides the tombstone advertisement and tender-offer details for the instructor.

Exhibit TN1

BEN & JERRY'S HOMEMADE

Common Takeover Defenses

Pre-offer Defenses

Type of Defense	Description
Supermajority	Merger approval requires abnormally high percentage of votes, usually 80%.
Dual class recapitalization	Firm issues a new class of equity with superior voting rights, allowing managers to obtain a majority vote without owning a majority of shares.
Staggered board	Board consists of three equal groups, with one group being elected each year, so that bidder cannot acquire control of the target immediately after obtaining majority.
Poison pill	Firm makes acquisition more costly by providing that a distasteful event (e.g., existing debt becomes due, other shareholders receive rights to buy shares at a discounted price) is triggered when a certain percentage of shares is acquired unless pill is redeemed by board.
Poison put	Bondholders receive right to redeem debt in the event of a takeover at a specified premium.
Golden parachutes	Contracts require big payoffs to existing management in the event they lose their jobs, usually in the context of a hostile acquisition.
Fair-price amendment	Feature restricts shareholders from owning more than a specified percentage of outstanding shares without paying a "fair price," determined by a specified formula or appraisal by an independent organization.

Exhibit TN1 (continued)

Post-offer Defenses

Type of Defense	Description
Management buyout	Management and partners buy out target's equity using debt backed by firm assets.
White knight	Target accepts takeover bid from friendly outside parties.
White squire	Target attracts friendly large stockholder.
Greenmail	Target firm buys back bidder's shares at a premium.
Asset restructuring	Target sells assets that bidder wants ("crown jewels") and/or buys assets that bidder doesn't want or that will create antitrust problems ("scorched earth").
Liability restructuring	Target increases the number of shareholders through an acquisition or by issuing shares to a friendly third party (e.g., initiating an employee stock exchange program).
Management resignation	Threatening resignation is effective in firms where a few individuals play disproportionately important roles (e.g., high-technology firms, fashion industry).

This supplemental exhibit was prepared by Professor Michael J. Schill for use with the case "Ben & Jerry's Homemade" (2001).

Exhibit TN2

BEN & JERRY'S HOMEMADE

Implied Share Price based on Comparable Multiples

	Comparable Firm Multiple		Ben & Jerry's 1999 Financial Statements		Implied Share Value
	Price/Earnings	Price/Book	EPS	BPS	
Dreyer's Grand					
Earnings	47.2		$1.06		$50.0
Book equity		7.8		$11.82	$92.2
Eskimo Pie					
Earnings	30.7		$1.06		$32.5
Book equity		1.1		$11.82	$13.0
TCBY					
Earnings	12.5		$1.06		$13.3
Book equity		1.2		$11.82	$14.2
Yocream					
Earnings	9.4		$1.06		$10.0
Book equity		1.8		$11.82	$21.3

Exhibit TN3
BEN & JERRY'S HOMEMADE
Tender-Offer Announcement

This announcement is neither an offer to purchase nor a solicitation of an offer to sell shares. The offer is made solely by the offer to purchase dated April 18, 2000, and the related Letter of Transmittal and is not being made to (nor will tenders be accepted from or on behalf of) holders of shares in any jurisdiction in which the making of the offer or the acceptance thereof would not be in compliance with the laws of such jurisdiction. In any jurisdiction the securities, blue sky or other laws of which require the Offer to be made by a licensed broker or dealer, the Offer shall be deemed made on behalf of the Purchase by the Dealer Manager or one or more registered brokers or dealers licensed under the laws of such jurisdiction.

Notice of Offer to Purchase for Cash
All Outstanding Shares of Class A Common Stock
(Including the associated Class A Common Stock Purchase Rights)
and
All Outstanding Shares of Class B Common Stock of
(Including the associated Class B Common Stock Purchase Rights)

Ben & Jerry's Homemade, Inc.

at

$43.60 Net Per Share

by

Vermont All Natural Expansion Company,
A wholly owned subsidiary of
Conopco, Inc.,
A subsidiary of
Unilever N. V.

THE OFFER AND WITHDRAWAL RIGHTS WILL EXPIRE AT 12:00 MIDNIGHT, NEW YORK CITY TIME. ON MONDAY. MAY 15. 2000. UNLESS THE OFFER IS EXTENDED.

The Information Agent for the Offer is:
MORROW & CO., INC.
445 Park Avenue 5th Floor
New York, NY 10022
Call Collect (212) 754-8000
Banks and Brokerage Firms, please call: (800) 622-5200
Shareholders, please call: (800) 566-9061
The Dealer Manager for the Offer is:
MORGAN STANLEY DEAN WITTER
1585 Broadway New York, New York 10036 (212) 761-4750