

Milestones of the Dow Jones Industrial Average

How long term investing really grows your wealth.

Here are some milestones of the Dow Jones Industrial Average:

- January 1906: 100
- March 1956: 500
- November 1972: 1000
- January 1987: 2000
- April 1991: 3000
- March 1999: 10,000
- February 2009: 6500
- May 2013: 15,000
- May 2015: 18,100
- October, 2021: 33,844

$$\frac{\text{Money Invested}}{\text{Index Value}} = \frac{\text{Money Invested}}{\text{Index Value Different Year}}$$

1. The Carnegie family made an investment of \$400,000 in the Dow Jones Index in January 1906. What would that be worth in May 2015?

1906 → 2015

$$\frac{\$400,000}{100} = \frac{X}{18,100} \quad \$72,400,000$$

2. Dr. Phil invests \$3900 in the Dow Jones Index in January 1987. Find out how much it would be worth in May 2013.

1987 → 2013

$$\frac{\$3900}{2000} = \frac{X}{15,000} \quad \$29,250$$

3. Jake invests \$2,000 into the Dow Jones in March 1956. Find out how much it would be worth today.

1956 → 2021

$$\frac{\$2000}{500} = \frac{X}{33,844} \quad \$135,376$$

4. Renaissance Technology started a hedge fund. Their fund invests \$5,000,000 into the Dow Jones Index in April 1991. The fund cashes out its investments in March 1999. The fund lets its investments stay cash until February 2009, when it re-invests all of the money back into the Dow Jones.

- a. How much was Renaissance's investment worth in March 1999?

1991 → 1999

$$\frac{\$5,000,000}{3000} = \frac{X}{10,000} \quad \$16,666,666$$

- b. How much is the final investment worth now?

2009 → 2021

$$\frac{\$16,666,666}{6500} = \frac{X}{33,844} \quad \$86,779,483$$

- c. What would be the difference if Renaissance just left their \$5,000,000 investment in the Dow Jones the entire time from 1991 until 2021?

1991 → 2021

$$\frac{\$5,000,000}{3000} = \frac{X}{33,844} \quad \$56,406,666$$

so it's about a \$30 million difference

Name Key
 Riding out the Investment Roller Coaster
 Sheet #3

A recent college graduate wants to put \$3200 of their income each year into the bank. The bank promises 1.25% guaranteed interest on a CD. However, a mutual fund that the college graduate has researched has historical performance of 9%.

1 year at a time... don't need it!

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

Option 1: Bank CD. Use monthly compounding for "n."

Year	Beginning Balance	Amount This Year	Total Invested This Year	Rate %	Calculation	Ending Balance
1	0	3200	3200	1.25	$3200 \left(1 + \frac{0.0125}{12} \right)^{12}$	3240.23
2	3240.23	3200	6440.23	1.25	$6440.23 \left(1 + \frac{0.0125}{12} \right)^{12}$	6521.20
3	6521.20	3200	9721.20	1.25	$9721.20 \left(1 + \frac{0.0125}{12} \right)^{12}$	9843.41
4	9843.41	3200	13,043.41	1.25	$13,043.41 \left(1 + \frac{0.0125}{12} \right)^{12}$	13,207.39
5	13,207.39	3200	16,407.39	1.25	$16,407.39 \left(1 + \frac{0.0125}{12} \right)^{12}$	16,613.66

Option 2: Mutual Fund. Use quarterly compounding for "n."

Year	Beginning Balance	Amount This Year	Total Invested This Year	Rate %	Calculation	Ending Balance
1	0	3200	3200	9	$3200 \left(1 + \frac{0.09}{4} \right)^4$	3497.87
2	3497.87	3200	6697.87	9	$6697.87 \left(1 + \frac{0.09}{4} \right)^4$	7321.33
3	7321.33	3200	10,521.33	9	$10,521.33 \left(1 + \frac{0.09}{4} \right)^4$	11,500.69
4	11,500.69	3200	14,700.69	9	$14,700.69 \left(1 + \frac{0.09}{4} \right)^4$	16,069.08
5	16,069.08	3200	19,269.08	9	$19,269.08 \left(1 + \frac{0.09}{4} \right)^4$	21,062.71

Which investment is expected to be better for this college student?

Mutual Fund makes more money

By how much? _____

$$21,062.71 - 16,613.66 = \$4449.05$$