



MEMO



To: Tax Client
From: William E. Bryant, CPA, CVA

Subject: Time Value of Money - Use 7.5% Growth Rate

Attached please find the two examples that illustrate the phenomenon of the Time Value of Money. The two examples initially appear to be the same, but they are quite different. Pay particular attention to "Sam" in the middle column.

Example 1, shows contributions of \$10,000 for John, \$20,000 for Sam, and \$30,000 for Ed, but the end result is extremely different due to the age at which each started their respective contributions. Sam paid in \$20,000 and his Fund Balance at age 65 is around \$129,204 which is a little more than one-half of John's fund balance. John has only paid in \$10,000 but he started at age 20. You will note that his fund balance at age 65 is around \$225,337.

Example 2 again shows John contributing a total of \$10,000 starting at age 20. We also see Sam starting his annual contributions at age 35, but this time he continues to make annual contributions right up until age 65 (for 30 years and a total of \$60,000). However, Sam still does not have the same fund balance as John, simply because John started at the early age of 20 (compare John's \$225,337 to Sam's \$222,309). Ed's pension remains unchanged in both examples, but you can see that starting at age 50 does not leave much time for his fund to grow to age 65, even though he has made contributions of \$30,000.

In both examples, be sure to compare the different ages and total amounts of annual contributions, as well as the amount of annual distributions that each will receive during their 20 years of retirement (from age 65 up to age 85).

End of Memo:

Example of Time Value of Money

Example: 1
Use 7.50%

#no	Year	Age	John at age 20 pays in \$2000 for only 5 Years		Sam at age 35 pays in \$2000 for 10 Years		Ed at age 50 pays in \$2000 for 15 years	
			Amount	Fund Bal	Amount	Fund Bal	Amount	Fund Bal
1	2000	20	\$2,000	\$2,150	\$0	\$0	\$0	\$0
2	2001	21	\$2,000	\$4,461	\$0	\$0	\$0	\$0
3	2002	22	\$2,000	\$6,946	\$0	\$0	\$0	\$0
4	2003	23	\$2,000	\$9,617	\$0	\$0	\$0	\$0
5	2004	24	\$2,000	\$12,488	\$0	\$0	\$0	\$0
6	2005	25	\$0	\$13,425	\$0	\$0	\$0	\$0
7	2006	26	\$0	\$14,431	\$0	\$0	\$0	\$0
8	2007	27	\$0	\$15,514	\$0	\$0	\$0	\$0
9	2008	28	\$0	\$16,677	\$0	\$0	\$0	\$0
10	2009	29	\$0	\$17,928	\$0	\$0	\$0	\$0
11	2010	30	\$0	\$19,273	\$0	\$0	\$0	\$0
12	2011	31	\$0	\$20,718	\$0	\$0	\$0	\$0
13	2012	32	\$0	\$22,272	\$0	\$0	\$0	\$0
14	2013	33	\$0	\$23,943	\$0	\$0	\$0	\$0
15	2014	34	\$0	\$25,738	\$0	\$0	\$0	\$0
16	2015	35	\$0	\$27,669	\$2,000	\$2,150	\$0	\$0
17	2016	36	\$0	\$29,744	\$2,000	\$4,461	\$0	\$0
18	2017	37	\$0	\$31,975	\$2,000	\$6,946	\$0	\$0
19	2018	38	\$0	\$34,373	\$2,000	\$9,617	\$0	\$0
20	2019	39	\$0	\$36,951	\$2,000	\$12,488	\$0	\$0
21	2020	40	\$0	\$39,722	\$2,000	\$15,575	\$0	\$0
22	2021	41	\$0	\$42,701	\$2,000	\$18,893	\$0	\$0
23	2022	42	\$0	\$45,904	\$2,000	\$22,460	\$0	\$0
24	2023	43	\$0	\$49,346	\$2,000	\$26,294	\$0	\$0
25	2024	44	\$0	\$53,047	\$2,000	\$30,416	\$0	\$0
26	2025	45	\$0	\$57,026		\$32,697	\$0	\$0
27	2026	46	\$0	\$61,303		\$35,150	\$0	\$0
28	2027	47	\$0	\$65,901		\$37,786	\$0	\$0
29	2028	48	\$0	\$70,843		\$40,620	\$0	\$0
30	2029	49	\$0	\$76,156		\$43,666	\$0	\$0
31	2030	50	\$0	\$81,868		\$46,941	\$2,000	\$2,150
32	2031	51	\$0	\$88,008		\$50,462	\$2,000	\$4,461
33	2032	52	\$0	\$94,609		\$54,247	\$2,000	\$6,946
34	2033	53	\$0	\$101,704		\$58,315	\$2,000	\$9,617
35	2034	54	\$0	\$109,332		\$62,689	\$2,000	\$12,488
36	2035	55	\$0	\$117,532		\$67,390	\$2,000	\$15,575
37	2036	56	\$0	\$126,347		\$72,445	\$2,000	\$18,893
38	2037	57	\$0	\$135,823		\$77,878	\$2,000	\$22,460
39	2038	58	\$0	\$146,010		\$83,719	\$2,000	\$26,294
40	2039	59	\$0	\$156,961		\$89,998	\$2,000	\$30,416
41	2040	60	\$0	\$168,733		\$96,748	\$2,000	\$34,847
42	2041	61	\$0	\$181,388		\$104,004	\$2,000	\$39,611
43	2042	62	\$0	\$194,992		\$111,804	\$2,000	\$44,732
44	2043	63	\$0	\$209,616		\$120,189	\$2,000	\$50,237
45	2044	64	\$0	\$225,337		\$129,204	\$2,000	\$56,154
Totals			\$10,000	\$225,337	\$20,000	\$129,204	\$30,000	\$56,154
			Paid-In	Fund Bal	Paid-In	Fund Bal	Paid-In	Fund Bal

The annual amount that each will be able to withdraw during their 25 years of retirement are:

John	\$22,104
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Sam	\$12,674
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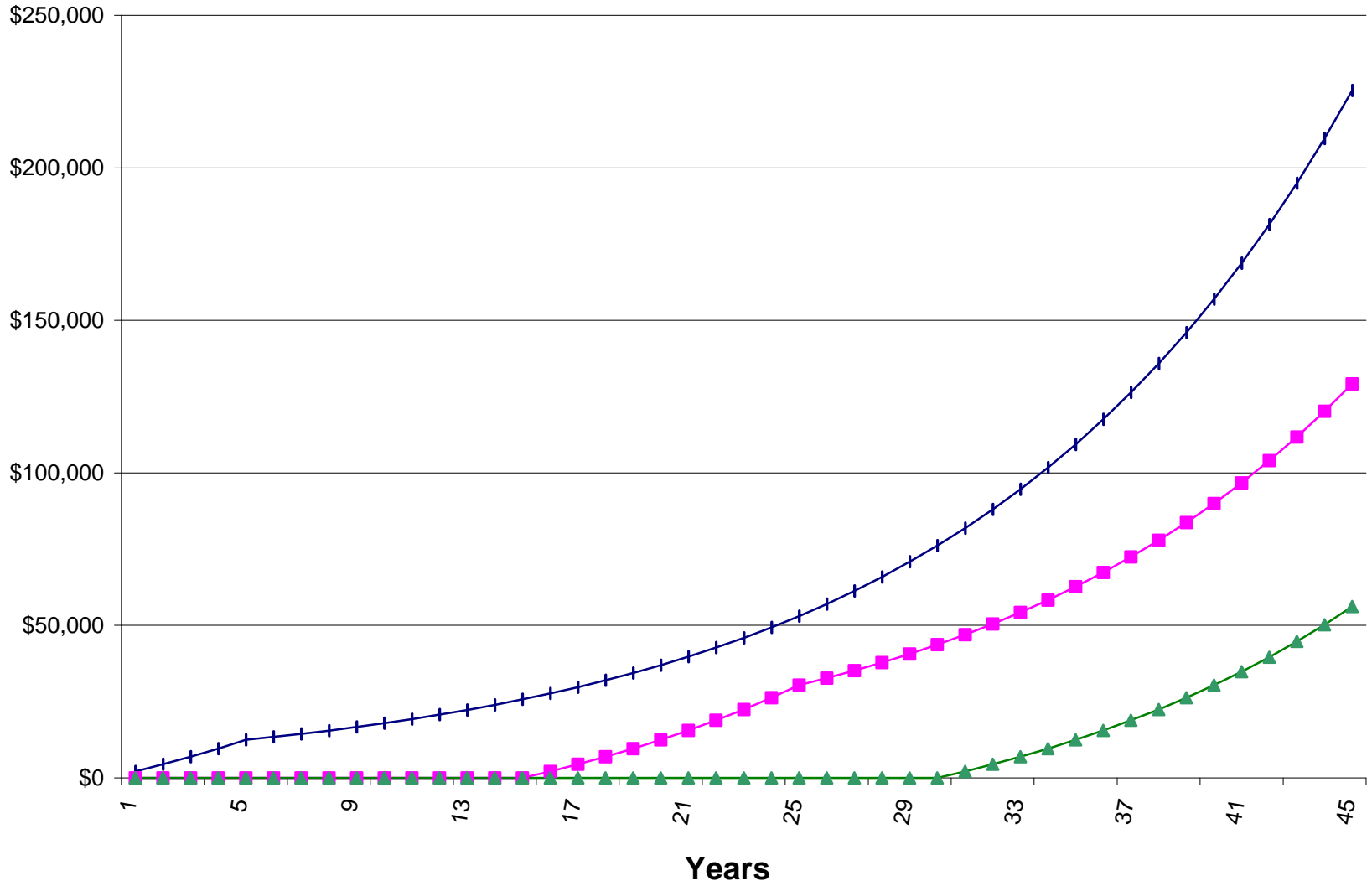
Ed	\$5,508
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Example 1 - 7.5%

Time Value of Money

Note the Ages and amounts of their Contributions - See Chart

- John - age 20
- Sam - age 35
- Ed - age 50



Example of Time Value of Money

Example: 2
Use 7.50%

#no	Year	Age	John at age 20 pays in \$2000 for only 5 Years		Sam at age 35 pays in \$2000 for 30 Years		Ed at age 50 pays in \$2000 for 15 years	
			Amount	Fund Bal	Amount	Fund Bal	Amount	Fund Bal
1	2000	20	\$2,000	\$2,150	\$0	\$0	\$0	\$0
2	2001	21	\$2,000	\$4,461	\$0	\$0	\$0	\$0
3	2002	22	\$2,000	\$6,946	\$0	\$0	\$0	\$0
4	2003	23	\$2,000	\$9,617	\$0	\$0	\$0	\$0
5	2004	24	\$2,000	\$12,488	\$0	\$0	\$0	\$0
6	2005	25	\$0	\$13,425	\$0	\$0	\$0	\$0
7	2006	26	\$0	\$14,431	\$0	\$0	\$0	\$0
8	2007	27	\$0	\$15,514	\$0	\$0	\$0	\$0
9	2008	28	\$0	\$16,677	\$0	\$0	\$0	\$0
10	2009	29	\$0	\$17,928	\$0	\$0	\$0	\$0
11	2010	30	\$0	\$19,273	\$0	\$0	\$0	\$0
12	2011	31	\$0	\$20,718	\$0	\$0	\$0	\$0
13	2012	32	\$0	\$22,272	\$0	\$0	\$0	\$0
14	2013	33	\$0	\$23,943	\$0	\$0	\$0	\$0
15	2014	34	\$0	\$25,738	\$0	\$0	\$0	\$0
16	2015	35	\$0	\$27,669	\$2,000	\$2,150	\$0	\$0
17	2016	36	\$0	\$29,744	\$2,000	\$4,461	\$0	\$0
18	2017	37	\$0	\$31,975	\$2,000	\$6,946	\$0	\$0
19	2018	38	\$0	\$34,373	\$2,000	\$9,617	\$0	\$0
20	2019	39	\$0	\$36,951	\$2,000	\$12,488	\$0	\$0
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22	2021	41	\$0	\$42,701	\$2,000	\$18,893	\$0	\$0
23	2022	42	\$0	\$45,904	\$2,000	\$22,460	\$0	\$0
24	2023	43	\$0	\$49,346	\$2,000	\$26,294	\$0	\$0
25	2024	44	\$0	\$53,047	\$2,000	\$30,416	\$0	\$0
26	2025	45	\$0	\$57,026	\$2,000	\$34,847	\$0	\$0
27	2026	46	\$0	\$61,303	\$2,000	\$39,611	\$0	\$0
28	2027	47	\$0	\$65,901	\$2,000	\$44,732	\$0	\$0
29	2028	48	\$0	\$70,843	\$2,000	\$50,237	\$0	\$0
30	2029	49	\$0	\$76,156	\$2,000	\$56,154	\$0	\$0
31	2030	50	\$0	\$81,868	\$2,000	\$62,516	\$2,000	\$2,150
32	2031	51	\$0	\$88,008	\$2,000	\$69,355	\$2,000	\$4,461
33	2032	52	\$0	\$94,609	\$2,000	\$76,706	\$2,000	\$6,946
34	2033	53	\$0	\$101,704	\$2,000	\$84,609	\$2,000	\$9,617
35	2034	54	\$0	\$109,332	\$2,000	\$93,105	\$2,000	\$12,488
36	2035	55	\$0	\$117,532	\$2,000	\$102,238	\$2,000	\$15,575
37	2036	56	\$0	\$126,347	\$2,000	\$112,056	\$2,000	\$18,893
38	2037	57	\$0	\$135,823	\$2,000	\$122,610	\$2,000	\$22,460
39	2038	58	\$0	\$146,010	\$2,000	\$133,956	\$2,000	\$26,294
40	2039	59	\$0	\$156,961	\$2,000	\$146,152	\$2,000	\$30,416
41	2040	60	\$0	\$168,733	\$2,000	\$159,264	\$2,000	\$34,847
42	2041	61	\$0	\$181,388	\$2,000	\$173,359	\$2,000	\$39,611
43	2042	62	\$0	\$194,992	\$2,000	\$188,511	\$2,000	\$44,732
44	2043	63	\$0	\$209,616	\$2,000	\$204,799	\$2,000	\$50,237
45	2044	64	\$0	\$225,337	\$2,000	\$222,309	\$2,000	\$56,154
Totals			\$10,000	\$225,337	\$60,000	\$222,309	\$30,000	\$56,154
			Paid-In	Fund Bal	Paid-In	Fund Bal	Paid-In	Fund Bal

The annual amount that each will be able to withdraw during their 20 years of retirement are:

John	\$22,104
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Sam	\$21,807
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Ed	\$5,508
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Example 2 - 7.5%

Time Value of Money

Note the Ages and amounts of their Contributions - See Chart

- John - age 20
- Sam - age 35
- Ed - age 50

