Why is the concept of present value so important for corporate finance

Finance

The importance of concept of present value to the world of corporatefinanceis that present value calculations are widely used in business and economics to provide a means to compare cash flows at different times.

Present Value’s definition and simplistic formula used for normal purchases, the concept’s importance to corporate finance and why present value is the very first topic taught in finance classes explain that present value is an essential knowledgeable tool to ensure we make the best decisions with ourmoney. However, first, What Does Present Value - PV Mean?

Present value is “ the current worth of a future sum of money or stream of cash flows given a specified rate of return. Future cash flows are discounted at the discount rate, and the higher the discount rate, the lower the present value of the future cash flows.

Determining the appropriate discount rate is the key to properly valuing future cash flows, whether they are earnings or obligations. ” Through the definition itself, an importance to corporate finance is explained as well as why professors begin a finance course with a basis explanation in the time value of money – discounting and investment risk included.

In more detail, capital investment decisions are long-term corporate finance decisions relating to fixed assets and capital structure. Decisions are made with several criteria to consider, and where corporate management seeks to maximize value in the firm by the correctly calculated net present value when valued using an appropriate discount rate.

It would be beneficial on a personal level for the following reasons; “ Learning how to use a financial calculator to make present value calculations can help you decide whether you should accept a cash rebate, 0% financing on the purchase of a car or to pay points on a mortgage.

Present value could often the first topic taught in any finance class, due to the fact that knowledge of this formula can be used for basic financial planning that will lead to larger level strategy – making the best company investment decisions. Now, on to the fun stuff that is so anxiously taught in class – the problems and formulas. 2a. $500 if invested for five years at a 4% interest rate:

- FV = 500 (1 + . 04)^1) = 500 (1. 04) = $520. 00
- FV = 520 (1 + . 04)^2) = 520 (1. 0816) = $540. 80
- FV = 540. 80 (1 + . 04)^3) = 540. 80 (1. 124864) = $562. 43
- FV = 562. 43(1 + . 04)^4) = 562. 43(1. 169859) = $584. 3
- FV = 584. 93(1 + . 04)^5) = 584. 93 (1. 216653) = $608. 33

End of Year

Principal$500. 00$520. 00$540. 80$562. 43$584. 93

Interest$20. 00$20. 80$21. 63$22. 50$23. 40

Total$520. 00$540. 80$562. 43$584. 93$608. 33 2b. $150 if invested for three years at a 9% interest rate:

- FV = 150 (1 + . 09)^1) = 150 (1. 09) = $163. 50
- FV = 163. 50(1 + . 09)^2) = 163. 50(1. 1881) = $178. 22

- FV = 178. 22 (1 + . 09)^3) = 178. 22 (1. 295029) = $194. 25

End of Year123 Principal $150. 00 $163. 50 $178. 22

Interest $13. 50 $14. 72 $16. 04

Total $163. 50 $178. 22 $194. 25 2c. $9100 if invested for seven years at a 3% interest rate:

- FV = 9100 (1 + . 03)^1) = 9100 (1. 03) = $9373
- FV = 9373 (1 + . 03)^2) = 9373 (1. 0609) = $9654. 19
- FV = 9654. 19 (1 + . 03)^3) = 9654. 19 (1. 092727) = $9943. 82
- FV = 9943. 82 (1 + . 03)^4) = 9943. 82 (1. 12550881) = $10242. 13
- FV = 10242. 13 (1 + . 03)^5) = 10242. 13 (1. 15927407) = $10549. 39
- FV = 10549. 39 (1 + . 03)^6) = 10549. 39(1. 1940523) = $10865. 88
- FV = 10865. 88(1 + . 03)^7) = 10865. 88 (1. 22987387) = $11191. 85

End of Year1234567 Principal$9, 100. 00$9, 373. 00$9, 654. 19$9, 943. 82$10, 242. 13$10, 549. 39$10, 865. 88

Interest$273. 00$281. 19$289. 63$298. 31$307. 26$316. 48$325. 8

Total $9, 373. 00$9, 654. 19$9, 943. 82$10, 242. 13$10, 549. 39$10, 865. 88$11, 191. 85 2d. $1000 if invested for ten years at a 0. 5% interest rate:

- FV = 1000 (1 + . 005)^1) = 1000 (1. 005) = $1005
- FV = 1005 (1 + . 005)^2) = 1005 (1. 010025) = $1010. 03
- FV = 1010. 03 (1 + . 005)^3) = 1010. 03 (1. 01507513) = $1015. 08
- FV = 1015. 08 (1 + . 005)^4) = 1015. 08 (1. 020150501) = $1020. 15

- FV = 1020. 15 (1 + . 005)^5) = 1020. 15 (1. 02525125) = $1025. 25
- FV = 1025. 25 (1 + . 005)^6) = 1025. 25(1. 03037751) = $1030. 38
- FV = 1030. 38(1 + . 005)^7) = 1030. 38 (1. 0355294) = $1035. 53
- FV = 1035. 53 (1 + . 05)^8) = 1035. 53 (1. 040707) = $1040. 71
- FV = 1040. 71 (1 + . 005)^9) = 1040. 71(1. 0459106) = $1045. 91
- FV = 1045. 91(1 + . 005)^10) = 1045. 91 (1. 0511401) = $1051. 14

End of Year12345

- Principal $1, 000. 00 $1, 005. 00 $1, 010. 03 $1, 015. 08 $1, 020. 15
- Interest $5. 00$5. 02$5. 05$5. 08$5. 10
- Total $1, 005. 00$1, 010. 03$1, 015. 08$1, 020. 15$1, 025. 25

End of Year 678910

- Principal$1, 025. 25$1, 030. 38$1, 035. 53$1, 040. 71$1, 045. 91
- Interest$5. 13$5. 15$5. 18$5. 20$5. 23
- Total$1, 030. 38$1, 035. 53$1, 040. 71$1, 045. 91$1, 051. 14

Present Value - 3a. $7700 to be received three years from now with a 5% interest rate

PV = 7700 / (1 + . 05) ^ 3 = 7700 / (1. 157625) = $6651. 55 3b. $1500 to be received five years from now with a 7% interest rate PV = 1500 / (1 + . 07) ^ 5 = 1500 / (1. 4025517) = $1069. 48 3c. $7200 to received two years from now with an 11% interest rate PV = 7200 / (1 + . 11) ^ 2 = 7200 / (1. 2321) = $ 5843. 68

3d. $ 680, 000 to be received eight years from now with a 9% interest rate. PV = 680000 / (1 + . 09) ^ 8 = 680000 / (1. 9925626) = $341269. 07

Time Value of Money – Annuities 4. Present Value - Annuity / Suppose you are to receive an annuity of $3000 every year for 3 years @ 3% interest rate.

PV = PVAF(r, n)*CF PVAF(r, n) = 1/r - 1/[r*(1+r)^n] (33. 33 - 30. 50472 = 2. 828611) PV = 2. 828611*3000 PV = $ 8485. 83 5. Future Value - Annuity / Suppose you receive a payment of $5000 every year for 3 years, depositing into a bank that pays 2% interest.

- FV = CF * FVAF (r, n)
- FVAF(r, n) = 1/r - 1/[r*(1+r)^n] (50 - 47. 11612 = 2. 883883)
- FV = 5000 * 2. 883883
- FV = $14419. 42

REFERENCES

- Anonymous (2010). Investopedia. com. Present Value. Retrieved on 5 Apr 2010 @ http://www. investopedia. com/terms/p/presentvalue. asp 2
- Megginson, William (2008). Corporate Finance. Stamford: Thomson Learning. P. 86. Anonymous (2010).
- Investopedia. com. Explaining Present Value-PV. Retrieved on 5 Apr 2010 @ http://www. investopedia. com/terms/p/presentvalue. asp 4 Anonymous (n. d).
- FinanceProfessor. com. Future Value. Retrieved on 3 Apr 2010 from http://www. financeprofessor. com/fiancnenotes/introductoryfin/presentvalue. htm 5 Anonymous (n. d).

- FinanceProfessor. com. Present Value. Retrieved on 3 Apr 2010 from http://www. financeprofessor. com/fiancnenotes/introductoryfin/presentvalue. htm 6 Anonymous (2008).
- The Time Value of Money. Retrieved on 4 Apr 2010 from http://www. econedlink. org/lessons/index. cfm? lesson= EM37