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Using (Casio FC-200V) for
Fundamentals of Financial Management
(220)

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CLEARING THE CALCULATOR'S MEMORY:-

You have to clear the memory before you use the calculator. Follow these steps to clear the memory of your calculator.

Press "Shift" → Press "9" → Select "All" → Press "EXE" → Press "EXE" → Press "AC"

USING THE CALCULATOR FOR CHAPTER "TIME VALUE OF MONEY":-

IMPORTANT NOTES:

- **Cash outflows** should have **a negative sign** and **cash inflows** should have **a positive sign**. In other words, if PV is cash outflow, then it should have a negative sign and if FV is cash inflow, then it should have a positive sign. If you don't do it, you will get "ERROR".
- When you input the interest rate, it should always be **without the percentage**, %. For instance, if the interest rate was 12%, then the input should be 12 as the calculator assumes by default the percentage, %.

Example 1:

If your mother deposits \$10,000 in a bank account that pays 12% interest annually, **how much money will she have in her account after 7 years?**

Answer:

We need to input the following information to get the future value (FV).

N=7, PMT=0, PV=-10,000, I=12%, FV=?

1. Press "CMPD".
2. Scroll to **N** and then input "7" and then Press "EXE".
3. Scroll to **PMT** and then input "0" and then Press "EXE".
4. Scroll to **PV** and then input "-10,000" and then Press "EXE".
5. Scroll to **I** and then input "12" and then Press "EXE".
6. Scroll to **FV** and then Press "SOLVE".

The answer you should be getting is **"22,106.814"**.

Example 2:

If you deposit \$5,000 *in the beginning of every year* in a bank account that pays 10% interest annually, **how much money will you have in your account after 4 years?**

Answer:

Since the deposit was made in the beginning of every year, we need to adjust the calculator. Then, we need to input the following information to get the future value (FV).

N=4, PMT=-5000, PV=0, I=10%, FV=?

1. Press "CMPD".
2. Scroll to **Set:End** and then Press "EXE". Choose **2:Begin** and press "EXE".
3. Scroll to **N** and then input "4" and then Press "EXE".
4. Scroll to **PMT** and then input "5000" and then Press "EXE".
5. Scroll to **PV** and then input "0" and then Press "EXE".
6. Scroll to **I** and then input "10" and then Press "EXE".
7. Scroll to **FV** and then Press "SOLVE".

The answer you should be getting is "25,525.5".

Example 3:

If the annual interest rate is 10%, what is the present value of a 5-year annuity that pays \$100 each year?

Answer:

We need to input the following information to get the present value (PV).

N=5, PMT=100, I=10%, FV=0, PV=?

1. Press "CMPD".
2. Scroll to **N** and then input "5" and then Press "EXE".
3. Scroll to **PMT** and then input "100" and then Press "EXE".
4. Scroll to **FV** and then input "0" and then Press "EXE".
5. Scroll to **I** and then input "10" and then Press "EXE".
6. Scroll to **PV** and then Press "SOLVE".

The answer you should be getting is "-379.0786".

Example 4:

You are thinking of buying a house and the bank is willing to lend you \$100,000 to buy that house. The loan will be fully amortized in 5 years (20 quarters) and the nominal interest rate is 10% *with interest paid quarterly*.

- a) What would be the quarterly payment?
- b) How much interest was included in the 2nd payment?
- c) How much repayment of principal was included in the 2nd payment?

Answer (a):

Since the interest is paid quarterly, we need to **multiply** the number of years (n) by 4 and **divide** the interest rate (I) by 4. Then, we need to input the following information to get the quarterly payment (PMT).

N=20, FV=0, PV=100,000, I=2.5%, PMT=?

1. Press "CMPD".
2. Scroll to **N** and then input "20" and then Press "EXE".
3. Scroll to **FV** and then input "0" and then Press "EXE".
4. Scroll to **PV** and then input "100000" and then Press "EXE".
5. Scroll to **I** and then input "2.5" and then Press "EXE".
6. Scroll to **PMT** and then Press "SOLVE".

The answer you should be getting is "-6414.712".

Answer (b) & (c):

1. Press "AMRT".
2. Scroll to **PM1** and then input "2" and then press "EXE".
3. Scroll to **PM2** and then input "3" and then press "EXE".
4. Scroll to **N** and then input "20" and then Press "EXE".
5. Scroll to **FV** and then input "0" and then Press "EXE".
6. Scroll to **PV** and then input "100000" and then Press "EXE".
7. Scroll to **I** and then input "2.5" and then Press "EXE".
8. Scroll to **PMT** and then input "-6414.712" and then Press "EXE".

<p><u>(b) How much interest was included in the 2nd payment?</u></p>	<p>9. Scroll to INT and then Press "SOLVE". The answer you should be getting is "<u>2402.1321</u>".</p>
<p><u>(c) How much repayment of principal was included in the 2nd payment?</u></p>	<p>9. Scroll to PRN and then Press "SOLVE". The answer you should be getting is "<u>4012.5806</u>".</p>

Example 5:

A bank pays 9% nominal interest rate compounded quarterly, **what is EFF?**

Answer:

1. Press "CNVR".
2. Scroll to **N** and then input "4" and then Press "EXE".
3. Scroll to **I%** and then input "9" and then Press "EXE".
4. Scroll to **EFF** and then Press "SOLVE".

The answer you should be getting is "9.30833%".

Note: if the interest rate was compounded monthly, then N should be 12

If the interest rate was compounded semi-annually, then N should be 2

If the interest rate was compounded daily, then N should be 365

Example 5:

If the effective interest rate was 9.2025%, what is the nominal interest rate assuming compounded semi-annually?

Answer:

1. Press "CNVR".
2. Scroll to **N** and then input "2" and then Press "EXE".
3. Scroll to **I%** and then input "9.2025" and then Press "EXE".
4. Scroll to **APR** and then Press "SOLVE".

The answer you should be getting is "9%".

USING THE CALCULATOR FOR CHAPTER "BONDS AND THEIR VALUATION":-

Example 1:

You have a 5-year bond with a par value of \$1000 that pays a 10% semi-annual coupon rate. It is currently selling for \$975. Calculate the yield to maturity (YTM).

Answer:

Since the coupon rate is semi-annual, we need to multiply the number of years (n) by 2 and divide the coupon payment by 2. Then, we need to input the following information to get the YTM of the bond.

N=10, PMT=50, PV=-975, FV=1000, I=?

1. Press "CMPD".
2. Scroll to **N** and then input "10" and then Press "EXE".
3. Scroll to **PMT** and then input "50" and then Press "EXE".
4. Scroll to **PV** and then input "-975" and then Press "EXE".
5. Scroll to **FV** and then input "1000" and then Press "EXE".
6. Scroll to **I** and then Press "SOLVE".

The answer you should be getting is "5.32895%", but you have to multiply it by 2. As a result, the final answer is 10.65791%.

Example 2:

You have a 5-year bond with a par value of \$1000 that pays a 10% coupon rate annually. The yield to maturity is 9%. Calculate the present value of the bond (PV).

Answer:

We need to input the following information to get the PV of the bond.

N=5, I=9%, PMT=100, FV=1000, PV=?

1. Press "CMPD".
2. Scroll to **N** and then input "5" and then Press "EXE".
3. Scroll to **PMT** and then input "100" and then Press "EXE".
4. Scroll to **I** and then input "9" and then Press "EXE".
5. Scroll to **FV** and then input "1000" and then Press "EXE".
6. Scroll to **PV** and then Press "SOLVE".

The answer you should be getting is "-1038.89651".

<p style="text-align: center;"><u>USING THE CALCULATOR FOR CHAPTER "THE BASICS OF CAPITAL BUDGETING":-</u></p>

Example 1:

Your company wants to invest in a project that costs \$1200. The project generates cash flows of \$600 at end of the first year, \$400 at the end of year 2, and finally \$550 at the end of year 3. The cost of capital is 10%. **Calculate NPV, IRR, Payback Period, and Discounted Payback period.**

Answer:

In order to calculate the **NPV**, follow these steps:

1. Press "CASH".
2. Scroll to **I%=0** and then input "10" and then finally Press "EXE".
3. Scroll to **Csh=D.Editor X** and then Press "EXE".
4. Input "-1200" then press "EXE".
5. Input "600" then press "EXE".
6. Input "400" then press "EXE".
7. Input "550" then press "EXE".
8. Press "CASH" again.
9. Scroll to **NPV:Solve** and then Press "Solve" button.

The answer you should be getting is "89.256".

In order to calculate the **IRR**, follow these steps.

1. Press "CASH".
2. Scroll to **Csh=D.Editor X** and then Press "EXE".
3. Input "-1200" then press "EXE".

4. Input "600" then press "EXE".
5. Input "400" then press "EXE".
6. Input "550" then press "EXE".
7. Press "CASH" again.
8. Scroll to **IRR:Solve** and then Press "Solve" button.

The answer you should be getting is "14.2707%".

In order to calculate the **Payback period**, follow these steps.

1. Press "CASH".
2. Scroll to **I%=0** and then input "0" and then finally Press "EXE".
3. Scroll to **Csh=D.Editor X** and then Press "EXE".
4. Input "-1200" then press "EXE".
5. Input "600" then press "EXE".
6. Input "400" then press "EXE".
7. Input "550" then press "EXE".
8. Press "CASH" again.
9. Scroll to **PBP:Solve** and then Press "Solve" button.

The answer you should be getting is "2.3636" years.

In order to calculate the **Discounted Payback period**, follow these steps.

1. Press "CASH".
2. Scroll to **I%=0** and then input "10%" and then finally Press "EXE".
3. Scroll to **Csh=D.Editor X** and then Press "EXE".
4. Input "-1200" then press "EXE".
5. Input "600" then press "EXE".
6. Input "400" then press "EXE".
7. Input "550" then press "EXE".
8. Press "CASH" again.
9. Scroll to **PBP:Solve** and then Press "Solve" button.

The answer you should be getting is "2.784" years.

*Note: **Discounted payback period and payback period** have **the same function** in the calculator, the difference is that if you want to **calculate the payback period**, then **I% must be ZERO** and if you want to calculate **the discounted payback period**, you must **input interest rate in I%**.*

Example 2:

YEAR	0	1	2	3	4
CASHFLOW	-500	200	600	-300	350

Calculate MIRR assuming that the cost of capital is 10%.

Note: in order to calculate the MIRR, you need to calculate the PVs of all cash outflows (negative) and calculate the FVs of all cash inflows (positive)

Step 1: calculate the total PVs of all cash outflows (negative numbers):

1. Press **"CASH"**.
2. Scroll to **I%=0** and then input **"10%"** and then Press **"EXE"**.
3. Scroll to **Csh=D.Editor X** and then Press **"EXE"**.
4. Input **"-500"** then press **"EXE"**.
5. Input **"0"** then press **"EXE"**.
6. Input **"0"** then press **"EXE"**.
7. Input **"-300"** then press **"EXE"**.
8. Input **"0"** then press **"EXE"**.
9. Press **"CASH"** again.
10. Scroll to **NPV:Solve** and then Press **"Solve"** button.

The answer you should be getting is **"-725.3944"**.

Step 2: calculate the total FVs of all cash inflows (positive numbers):

1. Press **"CASH"**.
2. Scroll to **I%=0** and then input **"10%"** and then Press **"EXE"**.
3. Scroll to **Csh=D.Editor X** and then Press **"EXE"**.
4. Input **"0"** then press **"EXE"**.
5. Input **"200"** then press **"EXE"**.
6. Input **"600"** then press **"EXE"**.
7. Input **"0"** then press **"EXE"**.
8. Input **"350"** then press **"EXE"**.
9. Press **"CASH"** again.
10. Scroll to **NFV:Solve** and then Press **"Solve"** button.

The answer you should be getting is **"1342.2"**.

Step 3: calculate MIRR

1. Press **"CMPD"**.
2. Scroll to **N** and then input **"4"** and then Press **"EXE"**.
3. Scroll to **PMT** and then input **"0"** and then Press **"EXE"**.
4. Scroll to **PV** and then input **"-725.3944"** and then Press **"EXE"**.
5. Scroll to **FV** and then input **"1342.2"** and then Press **"EXE"**.
6. Scroll to **I** and then Press **"SOLVE"**.

The answer you should be getting is **"16.6301%"**.