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Dependent Cash Flow (DEPCF)

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Abstract Dependent cash flow (DEPCF) is the cash flow a business needs for its all operations. It could not be distributed its investors. In this article, three methods were created to calculate "dependent cash flow (DEPCF)". They are: 1. DEPCF= CFFO-FCF +CFFI+CFFF, (1) 2. DEPCF= DEPCFFO+CFFI+CFFF, (2) and 3. DEPCF= CE+PPEPM+CFFI+CFFF. (3). In addition to these three methods, other two methods were created to calculate "dependent cash flow from operations (DEPCFFO)". It is used as an item of the second DEPCF method as it could be seen above. The two methods created are: 1. DEPCFFO= CFFO-FCF, (4) and 2 DEPCFFO= CE+PPEPM (5) These five methods together explain a new corporate finance subject "dependent cash flow (DEPCF).

Keywords: *Dependent cash flow (DEPCF), dependent cash flow from operations (DEPCFFO), free cash flow (FCF), cash flow from operations (CFFO)*

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1. Introduction

Dependent cash flow (DEPCF) is the cash a business needs to be operated. Its technical calculation and the calculation of its some items needs to be done.

The concept is new and very important. Why does it need? Why is it important for a business? Its answer is "the concept dependent cash flow (DEPCF) will complete the concept free cash flow (FCF).

It could be be seen from this article that dependent cash flow (DEPCF) will cover all financial sources. These financial sources could be external and/or internal.

In this article, another concept "dependent cash flow from operating (DEPCFFO)" will be introduced to calculate an item which will be used to calculate dependent cash flow (DEPCF). That is, this article's main subject is dependent cash flow (DEPCF), not "dependent cash flow from operations (DEPCFFO).

In this study:

-the sub-chapter 2.1. covers a rejection about the sub-title "Managing Dependent Cash" in Yilmaz [1].

- the sub-chapter 2.2 covers a definition of dependent cash flow from operations (DEPCFFO) and two methods to calculate the dependent cash flow from operations (DEPCFFO), and

- the sub-chapter 2.3 covers two definitions of dependent cash flow (DEPCF) and three methods to calculate the dependent cash flow (DEPCF).

2. Dependent Cash Flow (DCF)

2.1. The Title "Managing Dependent Cash" in Yilmaz [1]

2.1.1. The Content

Yilmaz [1] says under the title "2.2.2. Managing Dependent Cash" like that: "Dependent cash is the cash which is used for disbursements of current operations being fulfilled. Dependent cash can be calculated if the definition for free cash is "a derivative of the CFFO; that is, it is the CFFO less any required cash disbursement in the subsequent periods (Ferris, Tennant, and Jerris, 1002: 182) as follows:

$$OCFFO = CFFO – FCF\ 2^{1} \quad (6)$$

$$DCF = OCFFO + (CFFI + CFFF)\ 3 \quad (7)$$

$$DCF = OCFFO - CFFI + CFFF\ 4 \quad (8)$$

$$DCF = OCFFO + CFFI –CFFF\ 5 \quad (9)$$

Where,

OCFFO = cash flow from operations without free cash flow, CFFO = cash flow from operations,FCF= free cash flow,DCF = dependent cash flow,CFFI= cash flow from investment , CFFF= cash flow from financing.

As you see, DFC could be calculated in three ways. Formula 3 shows DCF if both CFFI and CFFF are positive. Formula 4 and 5 show DCF if one of CFFI and CFFF is negative. Actually, mostly, CFFI and CFFF are negative. Formula 3 assumes that if CFFI and CFFF are negative, it

[1] This number and the numbers in the next three numbers 3,4, and 5 are formula nos in the Yilmaz (2011).

is already calculated negative sign before the parenthesis.

The dependent cash is invested in stocks, options, futures, treasury bill, government bond, certificate of deposit, commercial paper, bank acceptance, repurchasing agreement (REPO), money market funds, saving bonds. They are all short-term investment vehicles. A company can use dependent cash when it needs. It needs cash budgeting to use them without alternative cost.

2.1.2. Rejection of the Content of the Subtitle

This content at the title 2.2.2. of Yilmaz [1] is very different than Yilmaz thinks today about the subject. The reasons of Yilmaz's different thinking today could be explained like that:

a. Ferris et.al. (1992:182) calculate the FCF like that:

FCF=CFFO - Any Required Cash Disbursements in the Subsequent Periods (10)

This method is not clear enough. To calculate free cash flow (FCF) they sub struct "Any Required Cash Disbursements in the Subsequent Periods" from the "cash flow from operations (CFFO)".

To explain "Any Required Cash Disbursements in the Subsequent Periods", they give some examples such as dividends, currently maturing debt payments, or the like a sinking fund payment. They say that "the free cash flow represents the portion of a company's CFFO that is available to fund discretionary corporate actions such as a merger or takeover, some form of capital asset expansion, or perhaps a stock buyback or early debt retirement".

It could be seen from the passage that they target to use free cash flow two main purposes. They are:

1. Capital asset investments and merger or takeover
2. Stock buyback or early debt retirement.

It means that they consider capital investments and mergers as an addition of the payment for the stockholders and bondholders. Logically, the second item used to calculate free cash flow "any required cash disbursements in the subsequent periods" does not cover capital investments and mergers or takeovers because of they are covered free cash flow.

The writers (in the same page) continue their sentences about their free cash flow opinions like that: "This residual measure, (they mean the free cash flow), is important to investors because it represents the source of new dividend payments and internal growth investment, and to lenders because it is the source of principal repayment for any new debt agreements. Clearly, the larger the free cash flow, the more a company will be able to undertake new opportunities when they arise."

These sentences show that they aim with the free cash flow somethings like that:

1.New dividend payments,
2. Principal payments for lenders,
3. Internal growth investments.

As it could be seen from the passage, they aim with the free cash flow to pay to the two groups, for investors and for capital investments. Payment for investors are "new dividend payments" for the stockholders and "principal payments for lenders" for the debtholders. The writers aim to finance capital investments with free cash flow.

Ferris et.al. [2]'s free cash flow using insight does not fit Yilmaz's free cash flow using insight because Yilmaz [3] subtracts capital investment and investment through M&A from cash flow from operations (CFFO). That is, Yilmaz [3]finances capital investments with depended cash flow (DEPCF), not free cash flow (FCF).

b. The item "Any Required Cash Disbursements in the Subsequent Periods" is shortened as OCFFO and explained as "cash flow from operations without free cash flow". It is very confusing. It is not even the openings of the initials OCFFO. It should have been "other cash flow from operations".

c. Yilmaz [1] gives four calculation methods for dependent cash flow. They are:

$$OCFFO = CFFO – FCF2^{2} \quad (11)$$

$$DCF = OCFFO + (CFFI + CFFF)3 \quad (12)$$

$$DCF = OCFFO - CFFI + CFFF\ 4 \quad (13)$$

$$DCF = OCFFO + CFFI –CFFF\ 5 \quad (14)$$

If OCFFO is changed as DEPCFFO the method 2 (to their numbering system) is correct. The issue OCFFO was explained at "a" in this subsection 2.1.2 at above.

The outputs of the methods 3,4, and 5 (to their numbering system) are actually same. The method 3 does not need the parenthesis. The methods 4 and 5 do not need the negative (-) signs. The three methods should have been the only one method and it should have been like that:

$$DCF = OCFFO + CFFI –CFFF \quad (15)$$

If it 'is thought that the concept OCFFO in this formula (the formula 15) in Yilmaz [1] and the concept DEPCFFO in the formula 23 in the sub-section 2.3 of this article are equal, these two formulas are equal, too.

d.Yilmaz [1] thinks that "dependent cash" is used to finance short-term investment. He also accepts that a company can use dependent cash when it needs. He adds his dependent cash opinion that the company needs cash budgeting to use them without alternative cost. This means that Yilmaz [1] thinks that dependent cash is used to finance only current assets. At the same time, the use of cash budgeting means short term use of dependent cash flow (DEPCF).

Yilmaz (2011) was not accepted by Yilmaz today (in this article) because of some different perceptions and opinions of the Yilmaz [1]about dependent cash flow (DEPCF).

2.2. Depended Cash Flow from Operations (DEPCFFO)

Dependent cash flow from operations (DEPCFFO) could be defined like that: "Dependent cash flow from operations (DEPCFFO) is the dependent cash flow (DEPCF) being obtained from "cash flow from operating activities (CFFO).

Dependent cash flow from operations (DEPCFFO) is a part of dependent cash flow (DCF).

Dependent cash flow from operations (DEPCFFO) could be calculated like that:

Method 1:

$$DEPCFFO = CFFO - FCF^{3} \quad (16)$$

[2] This number and the numbers in the next three numbers 3,4, and 5 are formula nos in the Yilmaz (2011).

In here;
CFFO: cash flow from operations,
and,
FCF: free cash flow.
Method: 2

$$DEPCFFO^{4}=CE+PPEPM \quad (17)$$

In here;
CE: Capital expenditures,
and,
PPEPM: Property, Plant, and Equipment Purchased via a M&A

2.3. Dependent Cash Flow (DEPCF)

Dependent cash flow (DEPCF) could be defined like that: Dependent cash flow is the cash flow will be used to finance all of the assets including current assets and fixed assets.

Another definition could be given like that:

Dependent cash flow (DEPCF) is the cash flow covering dependent cash flow from operations (DEPCFFO), cash flow from investment activities (CFFI), and cash flow from financing activities (CFFF).

Dependent cash flow (DEPCF) could be calculated in two methods like that:

Method 1:

$$DEPCF=CFFO-FCF^{5}+CFFI+CFFF \quad (22)$$

In here,
CFFO: Cash flow from operations, activities
FCF: Free cash flow
CFFI: Cash flow from investment activities,
and,
CFFF: Cash flow from investment activities
Method 2:

$$DEPCF=DEPCFFO^{6}+CFFI+CFFF \quad (23)$$

In here,
DEPCFFO: Dependent cash flow from operations,
CFFI: Cash flow from investment activities,
and,
CFFF: Cash flow from investment activities
Method 3:

$$DEPCF^{7}=CE+PPEPM+CFFI+CFFF \quad (24)$$

In here,
CE: Capital Expenditures
PPEPM: Property, Plant, and Equipment Purchased via a M&A
CFFI: Cash flow from investment activities,
and,
CFFF: Cash flow from investment activities

3. An Application on the Apple Corp.'s Statements of Cash Flow

3.1. Calculation of Dependent Cash Flow from Operations (DEPCFFO)

The Apple Corp.'s depended cash flow from operations (DEPCFFO) was calculated in the two methods. The calculations are given as below.

Method 1. (DEPCFFO= CFFO -FCF)

Table 1. Calculation of dependent cash flow from operations *(DEPCFFO)* of the Apple Corp. through the Formula 16 in the Years 2019-2024

Year	The Calculation	DEPCFFO
2019 [4]	69,391-58,272	11,119
2020 [5]	80,724-71,841	8,883
2021 [6]	104,038-92,920	11,118
2022 [7]	122,151-111,137	11,014
2023 [8]	110,543-99,584	10,959
2024 [9]	118,254-108,777	9,477

Method 2. (DEPCFFO= CE+PPEPM)

Table 2. Calculation of dependent cash flow from operations *(DEPCFFO)* of the Apple Corp. through the Formula 17 in the Years 2019-2024

Year	The Calculation	DEPCFFO
2019 [4]	10,495+624	11,119
2020 [5]	7,309+1,524	8,883
2021 [6]	11,085+33	11,118
2022 [7]	10,708+306	11,014
2023 [8]	10,959+0	10,959
2024 [9]	9,477+0	9,477

As it could be seen from the two tables, the amounts calculated via the two methods is equal. This shows the consistency of the two methods.

3.2. Calculation of Dependent Cash Flow (DEPCF)

The Apple Corp.'s depended cash flow (DEPCF) was calculated in the three methods. The calculations are given as below.

Method 1: DEPCF= CFFO-FCF+CFFI+CFFF

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[3] The FCF calculation method of Yilmaz (2024) is shown as below: Free cash flow (FCF)= Cash flow from operations (CFFO) - Capital Expenditures (CE) - Property, Plant, and Equipment Purchased via a M&A (PPEPM) (18)

[4] The DEPCFFO is derived in three stages including itself. It could be shown like that:
Stage 1:
DEPCFFO= CFFO-(CFFO-CE-PPEPM) (19)
Stage 2:
DEPCFFO= CFFO-CFFO+CE+PPEPM (20)
Stage 3 (The last stage):
DEPCFFO = CE+PPEPM (21)
The stage 3 will be used as a second method to calculate the DEPCFFO.

[5] The FCF calculation method of Yilmaz (2024) is shown as below: *Free cash flow (FCF)= Cash flow from operations (CFFO) - Capital Expenditures (CE) - Property, Plant, and Equipment Purchased via a M&A (PPEPM) (25)*

[6] The DEPCFFO is the output of the Formula 1 and the Formula 2. The outputs of the two formulas are equal.

[7] The DEPCF is derived in three stages including itself. It could be shown like that:
Stage 1: *DEPCF= CFFO-(CFFO-CE-PPEPM)+CFFI+CFFF (26)*
Stage 2: *DEPCF=CFFO-CFFO +CE+PPEPM +CFFI+CFFF (27)*
Stage 3 (The last stage): *DEPCF = DEPCF=CE+PPEPM+CFFI+CFFF (28)* The stage 3 will be used as a second method to calculate the DEPCF

Table 3. Calculation of dependent cash flow (DEPCF) of the Apple Corp. through the Formula 22 in the Years 2019-2024

Year	The Calculation	DEPCF
2019 [4]	69,391-58,272 +45,896-90,976	-33,961
2020 [5]	80,724-71,841-4,289-86,820	-82,276
2021 [6]	104,038-92,920-14,545-93,353	-96,780
2022 [7]	122,151-111,137-22,354-110,749	-122,089
2023 [8]	110,543-99,584+3,705-108,488	-93,824
2024 [9]	118,254-108,777+2,935-121,983	-109,571

Method 2: DEPCF=DEPCFFO+CFFI+CFFF

Table 4. Calculation of dependent cash flow (DEPCF) of the Apple Corp. through the Formula 23 in the Years 2019-2024

Year	The Calculation	DEPCF
2019 [4]	11,119+45,896-90,976	-33,961
2020 [5]	8,883-4,289-86,820	-82,276
2021 [6]	11,118-14,545-93,353	-96,780
2022 [7]	11,014-22,354-110,749	-122,089
2023 [8]	10,959+3,705-108,488	-93,824
2024 [9]	9,477+2,935-121,983	-109,571

Method 3: DEPCF= CE +PPEPM+CFFI+CFFF

Table 5. Calculation of dependent cash flow (DEPCF) of the Apple Corp. through the Formula 25 in the Years 2019-2024

Year	The Calculation	DEPCF
2019 [4]	10,495+624+45,896-90,976	-33,961
2020 [5]	7,309+1,524 -4,289-86,820	-82,276
2021 [6]	11,085+33 -14,545-93,353	-96,780
2022 [7]	10,708+306 -22,354-110,749	-122,089
2023 [8]	10,959+0 +3,705-108,488	-93,824
2024 [9]	9,477+0 +2,935-121,983	-109,571

As it could be seen from the three tables, the amounts calculated via the three methods are equal. This shows the consistency of the three methods.

The proof of "DEPCF+FCF = Cash Flow (CF)" could be shown at the Table 6 as below.

Table 6. The equality of cash flow (CF) to "dependent cash flow (DEPCF)+free cash flow (FCF)"

Year	Calculation (DEPCF+FCF)	Cash Flow[8]	Check with the Apple's Statement of Cash Flow
2019 [4]	58,272-33,961	24,311	Equal
2020 [5]	71,841-82,276	-10,435	Equal
2021 [6]	92,920-96,780	-3,860	Equal
2022 [7]	111,137-122,089	-10,952	Equal
2023 [8]	99,584-93,824	5,760	Equal
2024 [9]	108,777-109,571	-794	Equal

As it could be from the Table 6, the totals of DEPCFs and FCF s are equals to the "Cash Flow" s in the Statements of Cash Flow suitable to the 10-K.

4. Conclusion

Dependent cash flow (DEPCF) is a complementary part of free cash flow (FCF). It could be thought that dependent cash flow (DEPCF) is more important than free cash flow. Its reason is that dependent cash flow (DEPCF) is a cash flow dependent on a business. A business needs the cash flow for its all-operations including capital investments. Its coverage is more than dependent cash flow from operations (DEPCFFO). The depended cash flow (DEPCF) covers cash flow from investing activities (CFFI) and cash flow from financing activities (CFFF) in addition to dependent cash flow from operations (DEPCFFO).

In this article, the two methods were produced to calculate dependent cash flow from operations (DEPCFFO). They are:

$$DEPCFFO= CFFO-FCF \quad (29)$$

and,

$$DEPCFFO=CE+PPEPM \quad (30)$$

In addition to the two methods, another three methods were produced to calculate depended cash flow (DEPCF). They are:

$$DEPCF= CFFO-FCF+CFFI+CFFF \quad (31)$$

$$DEPCF=DEPCFFO+CFFI+CFFF \quad (32)$$

and,

$$DEPCF= CE +PPEPM+CFFI+CFFF \quad (33)$$

An application was fulfilled on the Apple Corp's Statements of Cash Flow. The statements of cash flows in the years 2019-2024 were used to calculate the two methods to calculate dependent cash flow from operations (DEPCFFO) and the two methods to calculate dependent cash flow (DEPCF).

The two methods to calculate dependent cash flow from operations (DEPCFFO) gives the same results for the six years, exactly. They are 11,119 for the year 2019, 8,883 for the year 2020, 11,118 for the year 2021, 11,014 for the year 2022, 10,959 for the year 2023, and 9,477 for the year 2024.

The three methods to calculate dependent cash flow (DEPCF) gives the same results for the six years, exactly. They are -33,961 for the year 2019, -82,276 for the year 2020, -96,780 for the year 2021, -122,089 for the year 2022, -93,824 for the year 2023, and -109,571for the year 2024.

The interesting thing for this case is the becoming of all DEPCFFOs is positive signed and the becoming of all DEPCFs is negative signed. This means that the Apple has produced or created dependent cash flow from the operations (DEPCFFO). However, cash flow from investment activities (CFFI) and the cash flow from financing activities (CFFF) have been turned dependent cash flow (DEPCF) to negative. Reason of this is to the cash flow from investment activities (CFFI) and the cash flow from financing activities (CFFF).

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