COMPANY'S OPERATING ASSETS AND FREE CASH FLOW AS A SOURCE OF PROFIT

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Introduction

The purpose of this paper is to show how to calculate free cash flow and how to determine operating (production) assets for the company, because these assets generate company's free cash flow. Company's free cash flow is generated from operating profits, accrued depreciation and changes in working capital. The paper also considers company's working capital and its changes.

In this article, the author considers the interpretation of the results of the analysis and management of operating assets and free cash flow, which are important aspects of the firm's financial management and interpreting financial analysis results. Their importance is justified, in particular, by the fact that operating assets and free cash flow are the sources of profit creation for the company.

The article is topical, because it shows that the generally accepted opinion of financiers, that the source of operating profit are company's assets, which are accounted at book value is not entirely correct – in reality the source of operating profits are company's assets, which are accounted at their initial value.

The author also shows that operating free cash flow is not the same as cash flow from operations, therefore when analysing the operations of a company for financial management, it is important to correctly interpret the information of financial reports for financial management and study those positions, which provide the necessary and important information for taking managerial decisions.

The calculations are done using the data of hypothetical companies, they illustrate how to determine free cash flow in practice, cash flow from operations, analyse these indicators and make correct conclusion. The paper also suggests measures shareholders have to take so that the company does not suffer the shortage of cash in its current operations.

1. Operation of a Company and Operating (Production) assets

Every company has a particular purpose, which is its main operation. However, a part of its assets can potentially be used for other operations, for example, for investments in external projects. Usually the proportion of operations, which are not related to the main purpose of a company, is small.

Thus, in order to determine whether the objectives of investors are achieved, from all of the assets of a company one can separate the operating assets, determine free cash flows, which those assets generate, and determine their net present value.

Production Assets at Cost, PAC, consist of:

- Long-term Production Assets at Initial Cost, *LPAC;*
- Net Working Capital, *WC*;

Thus production assets at cost are calculated as: PAC= LPAC + WC (Equation1) [8].

Long-term production assets ***at initial cost*** consist of:

- Plants, Property and Equipment, PPE;
- Intangible Assets, IA;
- Company Goodwill, GW;
- Other Assets, OA.

Thus long-term production assets are calculated as:

LPAC= PPE + IA + GW + OA (Equation 2)

Long-term production assets do not include:

- Equity investment, EI, in other companies, whose results are not consolidated in the reports of a given company;
- Changes in assets, which are not a result of investment, (for example, changes due to revaluation).

Net operational capital (working capital, WC) is calculated as:

$$WC = CA - \Delta CA - C - COL + \Delta C \qquad \text{(Equation 3)}$$

where:

- CA denotes Current Assets;
- ΔCA denotes operating non-cash assets, which are used outside of a company,
- C denotes cash and cash equivalents,
- COL denotes current operating liabilities to partners, clients, personnel etc;
- ΔC denotes cash part of working capital, which is necessary to maintain normal levels of working capital.

The amount of working capital (WC) is usually expressed as a part of operational expenses of a company, but other coefficients could also be used.

Example: Sample Determination of Working Capital

Table 1: Working Capital for Company N

Accounting Category	Beginning of period	End of period
Operating (production) assets:	140	160
Cash part of working capital (ΔC)	20	22
Debtors	60	64
Inventories of goods and raw material	50	60
Other assets	10	10
Current operating liabilities (*COL*):	80	90
Liabilities to partners	30	34
Liabilities to clients	40	46
Liabilities to staff	6	4
Other liabilities	4	6
Working capital (WC)	60	70
Change in working capital	-	10

If a company invests the amount *I* into creating new production assets, then production assets at cost are increased by the amount *I*.

If a part of the production assets, which had been created by a previous investment *J*, is written off due to depreciation, then production assets at cost are decreased by the amount *J*.

Production (operating) assets, which are shown on the balance sheet, are given by:

$$PAB = PAC - D_{cum,} \qquad \text{(Equation 4)}$$

Where PAB denotes production assets on balance sheet and $D_{cum,}$ denotes cumulative depreciation of production assets on balance sheet.

If depreciation is calculated according to the linear method, then the formula for depreciation is:

$$D = \frac{AC}{T_a} \qquad \text{(Equation 5)}$$

where:

AC denotes *assets at initial cost*,

T_a denotes the time for depreciating the asset in years.

Attracted capital shown on a company's balance sheet consists of company's own capital and liabilities, including deferred taxes.

The part of attracted capital, which is used in the creation of production assets on balance sheet, is *usable capital.* The capital, which is left after excluding usable capital from the attracted capital, is a source of non-production or non-operating assets.

2. Company Assets as a Source of Profit

There is a widespread opinion among financiers that production assets on balance sheet are the source of operating profit for a company.

Actually, the sources of operating profit are company assets, which are accounted at initial cost – production assets at cost (PAC).

This can be proved as follows. Suppose shareholders invested 2000 currency units into a company and acquired 10 new pieces of production equipment, with the term of depreciation for this equipment being 5 years. Every piece of production equipment can produce 100 units of output annually. Thus, at the end of the first year, the company will produce 1000 units of output.

Let us also assume that the price of one unit of output is 4 currency units and the operating expenditure per one unit of output (including depreciation) – 3.4 currency units. Thus, at the end of the first year:

Operating income is 4000 currency units (1000x4).

Operating expenditure is 3400 currency units (1000x3.4), which includes 400 currency units for depreciation.

Operating profit is therefore 600 currency units.

If the corporate income tax rate is 15.0%, then net operating profit less adjusted taxes and net company profit is 510 currency units.

Free cash flow of a company is then determined by:

Net operating profit less adjusted taxes + depreciation = 510 + 400 = 910 currency units.

Let us now assume that shareholders pay out net profit in dividends, but depreciation allocations – 400 currency units are invested into fixed assets and acquire 2 new production plants. Now, at the end of the second year, the company will produce 1200 units of produce.

Operating income will now be 4800 currency units (1200x4).

Operating expenditure will now be 4080 currency units (1200x3.4), including 480 currency units for depreciation allocations.

The operating profit will now be 720 currency units. If the corporate income tax rate is 15.00%, then net operating profit less adjusted taxes is 612 currency units.

One can see that PAC at the end of the second year had increased by 400 currency units or 1.2 times. Net operating profit less adjusted taxes and net profit also have increased 1.2 times.

At the same time the production assets on the balance sheet at the end of the second year have decreased to 1520 currency units (at the end of the first year it was 1600 currency units).

The reasons for this are that the calculation of depreciation is a formal accounting operation, which does not reflect the technical condition of fixed assets and their ability to produce output. The ability of fixed assets to produce new output does not depend on the amount of depreciation deductions and the balance sheet value of fixed assets.

All of the abovementioned allows one to conclude that the real production ability of assets is not related to the amount of depreciation deductions and that the more correct information about the ability of fixed assets to produce output and services is provided by the value of fixed assets accounted at initial cost, because that is the real source of operating profits.

3. Types and Methods of Determining Cash Flow

It is possible to separate the operation of any company into three components: the operating (main) part, financial part and investment part. Each type of operation is described by two

types of cash flows – "inflow" and "outflow".

One can distinguish two methods of calculating cash flow.

First, there is the **direct method**, which is based on analysing the movement of cash on the company accounts. This method:

- allows to show the main sources of cash inflows and directions of cash outflows;
- gives the ability to make quick conclusions about the sufficiency of funds to cover payments for current liabilities;
- determines the relationship between sales and cash revenues for the reporting period.

Second, there is the **indirect method**, which is based on analysing balance sheet items and reports on financial results. This method:

- allows to show the relationship between different types of company's operations;
- determines the relationship between net profit and changes in the assets of a company in the reporting period [6];

In literature and in practice different meaning and types of cash flow are used: free cash flow (FCF), gross operating cash flow (CF), net cash flow (NCF), net operating cash flow. The relationship between them and their structure are shown below on the Diagram 1.

Earnings after interest and taxes decreased by the amount of repayment of short-term debts comprise **net cash flow** – net cash flow, which does not take into account the cash flow from investment operations.

One has to say that "free cash flow", created as a result of company operations and investment decisions is equivalent to the cash flow, which can be directed to company's investors. In this sense, it is not profit, and not the cash flow, which is just a balance between inflows and outflows, but the ability of a company to create **free cash flow, which is the most important determinant of its economic value.**

EBIT: Earnings Before Interest and Taxes

- taxes (corporate income tax and other taxes paid out of profits)

+ depreciation + reserves (reserves for bad debts)

- additional expenses (for example, differences due to exchange rates and other expenditure unrelated to servicing capital needs)

= **gross Cash Flow** (cash flow from operations)

- Δ NWC - net working capital needs (if Δ NWC > 0, then it is subtracted, if Δ NWC < 0, then it is added

= NOCF – net operating cash flow, that is cash flow without taking into account cash flow from financial (capital servicing) and investment operations of a company

- CF from investment operations (investment into property, plants, etc.)

= **Free Cash Flow (FCF)**

Figure 1: The Relationship between Different Meanings and Types of Cash Flow

For countries with a developing market economy, it is typical to observe high levels of macroeconomic risks (e.g. general instability, high inflation, macroeconomic instability, capital controls imposed by the state, changes in the policy or state regulation, weak mechanism of accounting control and corruption) [7]. In order to take into account these risks in calculating cash flows it is recommended to create several scenarios of macroeconomic development in the country attaching some key parameters of this development to the main ingredients of company's cash flow. Then the results of the discounted cash flow valuation are weighed according to the different scenario probabilities and weighed company value can be calculated. This is outside the realm of this article, however, and is not discussed here.

4. Operating Free Cash Flow as the Source of Company Profit and Its Division between Shareholders and Lenders

It is worth to point out, that in recent years an increased amount of authors have devoted their attention to forecasting cash flow, in order to ever faster obtain the data, which is necessary both for potential investors as well as creditors when analysing both the liquidity of the company as well as changes in the price of shares of the company.

The forecasts of cash flow and its modelling has been studied by Barth, M.E., Cram D.P., Nelson K.[1], DeFond, Hung M.L. [2], Jordan, C.E., Waldron M.A. [3], Nikkinen, J., Sahlström P. [5], Mavrotas, G., Caloghirou Y., Koune J.[4], as well as many other authors. However the literature on cash flow devotes relatively little attention to free cash flow from operations, which is not the same as cash flow from operations. However, it is precisely the analysis of free cash flow, which provides the ability to answer the question – how much funds, which have accrued from the operations of the company, can shareholders withdraw without risking the company suffering from cash shortage in its current operations?

Table 2: Profit/Loss Account of Company N P/Z (thousands of currency units)

Item	**Amount**
Operating earnings	200,0
Operating expenditure	140,0
Including depreciation	30,0
Earnings before interest and taxes	60,0
Other earnings and expenditure	(12,0)
incl. Loan interest	(10,0)
Other expenditure	(2,0)
Earnings before Taxes	48,0
Corporate income tax 15% (*IT)*	7,2
Net income *(NI)*	40,8

So, what cash funds, which have appeared as a result of company's operations, shareholders can take out, so that the company does not suffer a shortage of cash during its normal operations?

In order to reply to this question, one has to determine free cash flow, which is generated by operating earnings (earnings before interest and taxes).

Table 3: Free Cash Flow of Company N (thousands of currency units)

Item	**Amount**
Earnings Before Interest and Taxes	60,0
Corporate Income Tax Rate (*Tax*)	0,15
Net Operating Profit Less Adjusted Taxes	51,0
Depreciation (D)	30,0
Free cash flow before deductions for investment R	81,0
Investments into operating (working) capital (Δ*WC)*	10,0
Free cash flow after investments into working capital	71,0
Investments (I), including:	
Equipment	25,0
Total Free Cash Flow (F)	46,00

One can subtract from the operating earnings:

- income taxes;
- investment into working capital;
- investment into long-term assets;

and add:

- depreciation.

Notes:

- Net operating profit less adjusted taxes is corrected by the amount of deferred taxes;
- This calculation assumes that all taxable incomes are taxed at the same tax rate;
- Investments into equipment can occur not only as a result of expanding a business, but also to compensate for the assets written off;
- Investments into equipment (cash expenditures), as well as cash income from the sale of fixed assets are not a part of cash flow from operations, however, since the amount of operating assets changes as a result of these operations, these investments are taken into account when determining free operating cash flow.

It is important to note, that company's free cash flow before deductions for new investment is often equated to cash flow from operations in accounting sense, which are a part of the cash flow report. This is incorrect, because the abovementioned cash flow from operations in accounting sense answers to a question: how much money from operations does the company, not the investors, receive.

In Table 4, one can see the calculation of cash flow from operations in accounting sense, where this cash flow equals 62.8 thousand lats. At the same time free cash flow before deductions for new investment for this company is 81 thousand lats (Table 3), or, if one takes into account the increase in working capital by 10 thousand – 71 thousand lats.

Table 4: Cash Flow from Operations in accounting sense for the Company N (thousands currency units)

Item	**Amount**
Net income (NI) (+)	40,8
Depreciation (D) (+)	30,0
Changes in the working capital without changes in the cash part (without ΔC) ()	8,0
Cash flow from operations	62,8

The discrepancy arises due to the following reasons:

- When calculating cash flow in the accounting sense, interest paid to the creditors is deducted;
- Changes in the working capital, which are taken into account when determining cash flow in the accounting sense, are not accounted in its cash part;
- Net profit contains profit from other economic income and expenditure, which is not income and expenditure from operations;
- Table 5 provides corrections, which allow arriving to the free cash flow from operations before deductions for investment into equipment, using cash flow from operations in the accounting sense as a starting point.

Table 5: Recovering Company N free operating cash flow before deductions for investment from cash flow from operations (thousand currency units)

Item	**Amount**
Cash flow from operations	62,8
Loan interest (+)	10,0
Tax shield for loan interest (-)	1,5
Changes in the cash part of working capital (ΔC) (-)	2,0
Other income and expenditure (+)	2,0
Tax shield for other income and expenditure (-)	0,3
Free operating cash flow before deductions for investments into equipment	71,0

Let us now prove that free operating cash flow is not the same as cash flow from operations. This can be achieved by reconstructing cash flow from operations as well as free operating cash flow for the company N, using the data provided in the previous tables.

Dividing the free operating cash flow between shareholders and creditors

The main investors for a company are usually its shareholders and creditors. Free cash flows belong to all investors; however, the total flow can be separated into two parts – those belonging to the creditors and those belonging to the shareholders.

For example, if the company N repays the principal amount of the loan of 20 thousand currency units during the reporting period, then its free cash flow before new investments, which is equal to 81.0 thousand currency units, is divided between creditors and shareholders as follows:

Creditors: 10^{1}*(1-0.15) +20^{2} = 28.5 thousand currency units.

Shareholders: 81.0- 28.5 = 52.5 thousand currency units.

Conclusions:

- Shareholders of the company can withdraw free cash flow from the company without losses to the current operations of the company. In order to increase free cash flow, one needs to increase the volume of production or services provided.
- Since production assets at cost (PAC) are the source for production, it is necessary to increase PAC in order to increase the volume of production or services. Therefore, the main reason for growth (change) in the working capital is the growth (change) in PAC.
- The source of the free cash flow for the company is company's PAC that is accumulated investments of the company.

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[1] Interest on the loan, taking into account the tax shield correction

[2] Returned principal amount of the loan