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FINANCIAL RESULTS OF COMPANY DECISIONS IN THE LIGHT OF THREE LENS ACCOUNTING

Introduction

Decision making processes, i.e. the selection of objectives, the strategy of their achievement, including the means and the objects of labor and human and financing resources, require both theoretical knowledge and practical abilities. Knowledge is formed by science, and—as S.Flejterski reminds the slogan of the Econometric Society – science is measurement¹. From early 2030s to 2050s, economic analysis underwent a radical methodological transformation as regards the formalization and mathematization of its disciplines, finance including. Present-day finance cannot exist without mathematics; however, it is strongly believed that the financial aspect is becoming increasingly detached from real economy, both in the macro- and micro-economic approach. Such trend is referred to as the financialization of economy².

Thus, economic science - finance including – should be approached in a complex, holistic or systematic way. The consideration of all the aspects of the investigated phenomena and processes is of particular significance³.

Accounting is the language of business; it is the social practice and it plays numerous roles in economic development⁴. M.Kwiecień emphasizes the informative function of accounting and she refers to it as the notary of business. She recalls the important, although not well known, evidence function of accounting. Consequently, financial statement is a proof of the financial position and measures the operations of e.g. an issuer of shares. However, the financial scandals at the turn of the 21st century resulted in the loss of trust in accounting, in particular to its evidence function. Instead of providing a true picture of an entity, the so called creative accounting tends to be used with the aim to reach financial targets and to hide the real position and/or the risks related to business operations. The normative and positive theory of accounting,

¹ S. Flejterski, *Ekonomia, finanse i zarządzanie w perspektywie metodologicznej i interdyscyplinarnej*, [in:] *Nauki ekonomiczne. Stylizowane fakty a wyzwania współczesności*, scientific editor B. Fiedor, PTE Warszawa 2015, p. 364

² K. Jajuga, *Nauka o finansach - dyscyplina nauk ekonomicznych*, w: *Nauki ekonomiczne. Stylizowane fakty a wyzwania współczesności* scientific editor B. Fiedor, PTE Warszawa 2015, p. 353

³ S. Flejterski, *Ekonomia, finanse i zarządzanie w perspektywie metodologicznej i interdyscyplinarnej*, [in:] *Nauki ekonomiczne. Stylizowane fakty a wyzwania współczesności*, scientific editor B. Fiedor, PTE Warszawa 2015, p. 376

⁴ M. Kwiecień *Dylematy rachunkowości jako nauki społecznej*, w: *Nauki ekonomiczne. Stylizowane fakty a wyzwania współczesności*, scientific editor B. Fiedor, PTE Warszawa 2015, p. 379

which respects the principles of ethical business, is an opportunity to regain the trust to accounting and to apply it not only to present the picture of an entity but also – and first of all – to use it in decision-making processes in business organizations.

The research hypothesis of the article is that accounting is not sufficiently implemented to reach optimal decisions in organizations. Such accounts as net or investment cash flow constitute only a bureaucratic enclosure to applications for financing or public assistance; organizations are not convinced about their usefulness as they are frequently not sure if the figures and results presented are adequately interpreted⁵. Moreover, the assessment of the effects of decisions tend to be biased and adjusted to the commercial targets of organizations, e.g. with the aim to create profit or credit investment return, while the effects of all decisions made in organizations, irrespectively of the area they refer to, concentrate on the financial level⁶, and the theory of accounting makes it possible and requires an integrated approach in the analysis of the effects as regards balance-sheet, result and cash results, referred to as the three lenses⁷.

The article defines the Author's three-lens model of accounting which is applied to investigate the financial results of a selected investment decision of a company.

1. Company decisions as the creator of company financial structure in the three lens theory.

J.Czekaj and Z.Dresler differentiate company investment and financial decisions. Investment decisions include the formation of assets that are necessary to run business operations, i.e. they refer to the use of capital, while financial decisions concern the acquisition of the financing sources of the assets, i.e. their amount, type and structure⁸.

The integrated results of company decisions are described by company's financial structure. ... *Finance investigate the phenomena that are related to human activity in which money flow occurs ... The research in the area of finance includes particularly the analysis of the causes and effects of the money flow between business entities*⁹. Money can accept various forms,

⁵ R. Gwiazdowski states that *Very few can read a balance sheet of a commercial law company, and even lawyers do not understand capital flows.* <http://www.money.pl/emerytura/wiadomosci/artukul/gwiazdowski-o-wyroku-w-sprawie-ofe-decyzja>

⁶ M. Sierpińska, T. Jachna, *Metody podejmowania decyzji finansowych*, Wyd. Naukowe PWN, 2007, p. 9

⁷ The Author refers to it as *three lens accounting*, modified in relation to the so called theory of three lenses, referred to as remits. They are described by the main elements of an entity's financial statement. Cf. Act of 29 September 1994 on accounting, integrated text, Journal of Laws 2013, item 330, as amended.

⁸ J. Czekaj, Z. Dresler, *Zarządzanie finansami przedsiębiorstw. Podstawy teorii*, Wyd. Naukowe PWN, Warszawa 2001, pp. 14-15.

⁹ K. Jajuga, *Nauka o finansach - dyscyplina nauk ekonomicznych*, w: *Nauki ekonomiczne. Stylizowane fakty a wyzwanie współczesności*, scientific editor B. Fiedor, PTE Warszawa 2015, p. 349

including fixed and working assets as the results of investing the savings with the use of the payment function of money. The classical perception of company finance as described in the theory of accounting includes provision of capital which is the money value that balances company assets which are referred to in the balance sheet as the liabilities. That is why financing includes all the processes that are related to the formation of company liabilities. A wider approach to finance should also cover the sales as company financing. If so, financing does not only cover the provision of capital (presented by company liabilities) but also – or first of all – a constant and lawful financial availability, both active and passive in character. Such financial availability means, first of all, the acquisition of money capital for investment purposes¹⁰. The investment takes different forms and is accounted as assets in a company balance sheet.

The use of capital for investment is considered by W.Bień as the core of company finance. He defines company finance management as the acquisition of financial resources (both outside capital and equity capital) and the location of capital assets with the aim to maximize shareholders benefits by maximizing the profitability of the equity and optimizing the financial surplus while monitoring the financial risk¹¹.

The substance of financing is described by the category of capital. It denotes the origin of tangible, intangible and financial assets that enable entrepreneurs conduct economic activities¹². Such capability is referred to as capital¹³. In accounting, capital means the method or procedure of financing company's assets, which is accounted for in the balance sheet and is referred to as the liabilities.

Company's decision results in the capital structure in its broad sense. It covers the types, volumes and ratios between capitals (also referred to as funds) and the methods of capital acquisition, time of repayment of capital, etc. The investigation of such structure is most usually limited to the determination of the share of particular components in the total value of assets (liabilities), distinguished by various criteria.

The determination of the capital, its structure and financing processes is most commonly related to company's balance sheet (its assets and funds). However, financing processes affect two other financial "presentations/pictures" of a company which are connected with company's assets and liabilities. They are: the result-based approach (presented by the profit and loss

¹⁰ Such properties of finance and company financing are emphasized in the German classical literature on the subject Cf. U. Dornieden, F. W. May, *Finanzierung. Finanzierungsvorgänge und Finanzierungsinstrumente*, Verlag Gabler GmbH, Wiesbaden 1990, p. 7.

¹¹ W. Bień, *Zarządzanie finansami przedsiębiorstwa*, Difin, Warszawa 2002, p. 15.

¹² Act of 2 July 2004 on freedom of economic activity, Journal of Laws 2004, No. 173, item 1807 as amended

¹³ „Kapitał jest ekonomicznym odpowiednikiem energii, zdolności do wykonania pracy”. Cf. *Teoria rachunkowości podstawa nauk ekonomicznych*, ed. M. Dobija, Wyd. UEK w Krakowie, Kraków 2014, p. 9

account) and the money-based approach (the money flow account). A synthetic structure of the author's three financial approaches is given in tables 1, 2 and 3. Each approach presents the most important issues that require monitoring and assessment for the needs of decision-making by company management.

Table 1. Company's financial structure in a static approach

Assets=resources=capital=use of capital=results of investing	Liabilities=capitals=funds=source of capital=ownership structure of capital
<p>Fixed assets</p> <ul style="list-style-type: none"> • intangible assets (rights, patents, licenses, positive goodwill) • tangible fixed assets (means of labor, often practically referred to as tangible investment although they do not constitute investment in accounting terms) • long-term receivables • long-term investment (real estate, financial assets, loans that provide additional benefits and not used as means of labor) 	<p>Equity capital</p> <ul style="list-style-type: none"> • core (share) capital • spare capital (also from shareholders, from profit sharing, to cover losses and finance investment) • reserve capital (e.g. from asset update) • financial result
<p>Current assets</p> <ul style="list-style-type: none"> • Stock (objects of labor) • short-term debtors (contractors, customers, budget, employees) • short-term investment (financial assets, cash) 	<p>Provisions and reserves for liabilities</p> <ul style="list-style-type: none"> • provisions for liabilities (e.g. for deferred income taxation) • credit and long-term loans (including the ones from shareholders) • provisions for bonds • credit and short-term loans • trade creditors • taxation, customs duty and social security creditors • payroll creditors • other • accruals and deferred income (including negative goodwill)
<p>Suggestions for controlling</p> <ul style="list-style-type: none"> • capital intensity of production and sales • inventory use intensity of production • inventory rotation and cycles, cash dues • current liquidity 	<p>Propozycje do controllingu</p> <p>Suggestions for controlling</p> <ul style="list-style-type: none"> • stopień samofinansowania (kapitał stały/aktywa trwałe) • level of self-financing (constant capital/fixed assets) • level of indebtedness (liabilities/assets) • cost of equity capital and cost of outside capital

Source: Author's development.

Table 2. Company's profit and loss account and its structure

Revenue (value of sold products, merchandise and services) and profits (on surplus sales)	Costs (value of factors of production used) and losses (assets lost, shortfall of income against costs)
Operating revenue (on sales of products, services, raw materials, fixed assets, and subsidies)	Operating expenses <ul style="list-style-type: none"> • depreciation • materials and energy • external services • taxes and remuneration • social insurance • other
Financial revenue (dividends, share in profit received, interests received, on sale of investment)	Financial expenses (interest paid on capital borrowed, loss on sale of investment)
Extraordinary profits (including receivables redeemed)	Extraordinary losses
Profit <ul style="list-style-type: none"> • on sales • on ordinary activities • financial • extraordinary • before taxation • after taxation 	Loss <ul style="list-style-type: none"> • on sales • on ordinary activities • financial • extraordinary • before taxation • after taxation
Suggestions for controlling <ul style="list-style-type: none"> • sources of income • profit center • sales profitability • breakeven point 	Suggestions for controlling <ul style="list-style-type: none"> • zmiany obciążenia kosztami stałymi • cost sources • cost centers • capital cost and its share in total costs • cost level for various approaches • cost structure and its changes • fixed and variable costs

Source: Author's development

Table 3. Company cash flow statement and its structure

Cash inflow	Cash outflow (purpose, expenditures)
Operating activities <ul style="list-style-type: none"> • sales (without the increase in receivables) • other sources 	Operating activities <ul style="list-style-type: none"> • supplies and services (paid, not financed by liabilities) • remuneration and insurance • taxes • other expenditure (excluding depreciation, without inventory decrease)
Investing activities <ul style="list-style-type: none"> • fixe assets sales • other sources 	Investing activities <ul style="list-style-type: none"> • purchase of fixed assets paid • other expenses
Financing activities <ul style="list-style-type: none"> • share issue and capital contribution • debentures issues, credit and borrowings, including ones from shareholders 	<ul style="list-style-type: none"> • acquisition of shares (treasury shares) • payment of dividend to shareholders • distribution of profit • payment of credits and borrowings • redemption of debenture • payments for financial leasing • capital interests • other expenses
Suggestions for controlling <ul style="list-style-type: none"> • volume and structure of the inflow from particular areas • single and recurring inflows • the share of operating activities in money inflow • efficiency of receivables collection 	Suggestions for controlling <ul style="list-style-type: none"> • należności i zobowiązań • volume and structure of expenses in particular areas • single expenses (e.g. investment) and recurring expenses • financing activities costs • efficient settlement of liabilities • adjustment of deadlines for settling receivables and liabilities

Source: Author's development

The above three financial approaches are sometimes referred to as three lenses¹⁴. They are related to the basic elements of a financial statement but differ from the approach applied by the Author. The so called theory of three lenses mentioned in the quoted group work is limited to three lenses – the economic, financial and asset lens¹⁵. The economic lens covers the whole area of phenomena related to such categories as profit, loss, sales revenue, costs, profit rate, rate of return after taxation, etc. The financial lens is measured by cash flows from operating activities. It indicates money surplus in contrast to accrual surplus (financial result). The asset lens is reduced to questions about assets, relations between fixed and working capital (operational risk), the sources of financing the assets and the structure of liabilities limited to the share of external

¹⁴Cf. *Finanse*, group work, scientific editor J. Ostaszewski, Difin, Warszawa 2007, p. 331

¹⁵ *Finanse*, group work, scientific editor J. Ostaszewski, Difin, Warszawa 2007, chapter 9, pp. 330-346

sources in the liabilities. Such interesting approach results in substantial problems as regards the identification of the lenses. Their division does not apply any defined criteria of the division of company's areas of operations into the lenses and – which is even more troublesome – it does not relate the lenses to the elements of the financial statement.

The Author's approach includes the informative and substantive (regarding decision making) value added. The balance sheet-based lens makes it possible to determine the static (regarding reserves) results of decisions in the form of assets and the sources of their financing. The result-based lens, covered by the profit and loss account, enables the determination of the results in the form of revenue and cost streams and the financial result that is added to the static reserves of the equity capital. Cash-based lens, given by cash flow account, makes it possible to determine the result in the form of cash inflow and outflow streams and the changes in the balance of cash, which explain the change of the balance of cash in the balance sheet.

The advantage of the integrated approach is in the fact that it covers all three areas of company activities – operating, investing and financing – simultaneously in the three accounts in the scope enabled by the rules of financial statements. Such approach makes it possible to realize the shortfalls of limiting the assessment of company decisions – for example – only to the financial result. The profit and loss account does not cover the investment and the costs related to investment, the acquisition of investment financing sources and operating activities. The balance sheet, result and money-based approaches - described above as three lenses - should be complementary and not alternative as only together do they account for all possible financial effects of decisions made.

2. Description of the decision situation¹⁶

The company considers the decision on an investment expenditure (related to manufacturing) that requires 100 monetary units. The investment is scheduled to be completed at the beginning of the accounting year. It may result in a new turnover and sale worth 90 units a year. It is estimated that 20 units of the revenues from sales will not be paid by customers. The costs by type (excluding depreciation) will rise by 50 units. Some part of the purchase of materials and media is estimated not to be paid and the resulting increase of receivables will amount to 30 units. The investment costs will be fully transformed to tangible fixed assets at the beginning of the accounting year and depreciated by an average depreciation rate of 10%. The

¹⁶ In order to simplify the calculation, money units were accepted and their change against the baseline situation; it was assumed that the company is already in operation; the changes (and not the balances) of the investigated volumes and flows are the assessment criteria of the investment decision impact.

repayment of the investment credit installments will begin in the next accounting year while the payment of bank loan interests will start at the beginning of the first accounting year. The company is an income tax payer at 19% and pays duly the liabilities .

Research objectives for two ways of financing the investment:

- A. the changes in the company's financial position (as regards capital assets, results, cash) in the first accounting year after the decision on the investment, with the assumption that the whole investment will be credited by a bank loan in a current account at the interest rate of 20%.
- B. the changes in the company's financial positions under investigation when only 50% of the investment is financed by a bank loan (one should take into consideration whether financing the whole investment is possible from the point of view of the distribution of bank risk when financing a debtor)

3. Investigation of the integrated financial impact of the investment

Model approaches to particular options of the investment financing include the following stages:

Stage I – investigation of the impact on the result (the changes in revenues, costs, income taxes and profits after taxation)

Stage II – investigation of the impact on cash position (the changes in cash inflows, outflows and balance)

Stage III – investigation of assets and liabilities (balancing the financial impact as the criterion of correct assessment) – the changes in fixed assets, current assets, equity capitals, liabilities i.e. the sources of financing fixed and current assets that should balance the total changes in assets

Their order is not optional as the financial effects are interrelated. Thus, the result effects should be determined first since the due income tax (and the cost taxes) that are defined in the result effects may be a necessary element of the cash outflow or/and of the balance receivables/liabilities. The net financial result is necessary in the determination of the changes in equity capitals in the balance sheet. The cash flow account, i.e. the changes in the balance of cash that are defined in stage II, is necessary to determine the changes in the cash balance in current assets.

Stage I – investigation of the impact on the result

Elements of the account	Full financing by a bank loan	Financing half of the investment by a bank loan
Sales revenue	+ 90 j	+ 90 j
Costs	+50 +10 (a) + 20 (kf) = 80 j	+50 +10 (a) + 10 (kf) = 70 j
Gross financial result	+90 - 80 = 10 j	+ 90 - 70 = 20 j
Income tax	10 x 0.19 = 1.9 j	20 x 0.19 = 3.8 j
Net financial result	10 - 1.9 = 8.1 j	20 - 3.8 = 16.2 j

Stage II – investigation of changes in cash

Elements of the account	Full financing by a bank loan	Financing half of the investment by a bank loan
Cash inflow	+90 - 20 (n) + 100 (ki) = 170 j	(+90 - 20) + 50 (ki) = 120 j
Cash outflow	100(ni)+ (50-30z) + 20 (kf)+1.9 (pd) = 141.9 j	100(ni)+(50-30z)+10(kf) +3.8(pd) = 133.8 j
Net cash flow	170 - 141.9 = + 28.1 j	120 - 133.8 = - 13.8 j

Stage III – investigation of the asset capital change

Elements of the account	Full financing by a bank loan	Financing half of the investment by a bank loan
Changes in fixed assets	+100 - 10 (u) = + 90 j	+100 - 10 (u) = + 90 j
Changes in current assets	+ 20 (n) + 28.1 = + 48.1 j	+ 20 (n) - 13.8 = + 6.2 j
Changes in assets - total	+ 90 + 48.1 = 138.1 j	+ 90 + 6.2 = 96.2 j
Changes in equity capitals	+ 8.1 j	+ 16.2 j
Changes in liabilities	+ 30z+ 100 (ki) = + 130 j	+ 30z + 50 (ki) = + 80 j
Changes in liabilities - total	+ 8.1 + 130 = 138.1	+ 16.2 + 80 = 96.2

Key to abbreviations:

- a - depreciation
- kf – financial costs (bank interests)
- j - units
- n – increase in receivables
- z – increase in current liabilities
- ki – investment credit
- ni – investment spending
- pd – income tax
- wf – financial result
- KW – equity capital
- AT – fixed assets

The investigated financial impact of the investment decision and its financing makes it possible to determine the basic data and relations (indexes) for the two options under investigation.

Selected data and financial relations in the first accounting year

Relations	Full financing by a bank loan	Financing half of the investment by a bank loan
Net financial result	8.1 j	16.2 j
Net cash flows	+ 28.1 j	- 13.8 j
Level of self-financing (KW/AT)	0.09	0.18
Level of indebtness (%)	95	84
Current financial liquidity	0.37	0.08
Financial surplus (a + wf)	18.1 j	26.2
Credit payback period (from financial surplus)	$100/18.1 = 5.53$ years	$50/26.2 = 1.91$ years
Investment credit payback period (from net cash increase)	$100/28.1 = 3.56$ years	No increase of cash to pay back the credit (negative net cash flow)

Conclusions

The investigated options of investment decisions differ only in the volume of the bank loan to finance them. This element changes each of the three financial effects that were investigated in the first accounting year (with the assumption of similar trends in the subsequent years). When the investment was fully financed by a bank loan, the potential increase in the financial result was lower than in the case when only half of it was financed by the credit.

In the first option, the investment credit payback period from the financial surplus would be over 5.5 years, while in the second option almost 2 years. However, the ability to pay is expressed by cash flows. The increase in cash balance would ensure the payback of 100 units of the investment credit within 3.5 years, while in the second option 50 units would not be paid back as the change of the balance in the cash flow amounts to 13.8 units.

The first option of financing results in a more significant increase of assets and company's indebtness at a very low level of financing the fixed assets with the equity capital and at a higher level of current financial liquidity - although significantly lower than the recommended standard. Obtaining a credit to finance the whole investment is of little probability when considering the principles of risk sharing and bank requirements regarding investor's own contribution. That is the case in the latter option but then the financial feasibility of the investment would be impossible without the contribution of cash savings from previous periods.

An investment decision for the conditions described above would require a period of analysis extended by several years, especially as regards the opportunities for the increase of the turnover

and sales and the conditions and costs of the credit repayment. Neither of the approaches under investigation nor the limitation of the analysis to one year justify such decision.

The calculations above prove that the consideration of only one of the three criteria (asset capital, result or cash-based), which is frequently done, does not provide sound bases for making correct investment and financial decisions. Such basis is also not provided by discounted net cash flows that dominate in modern assessment models of development projects. The accounting of three lenses is essential when determining and assessing all integrated effects of company current and long-term decisions, particularly regarding ex ante conditions.

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10. Act of 2 July 2004 on freedom of economic activity, *Journal of Laws* 2004, No. 173, item 1807 as amended
11. Act of 29 September 1994 on accounting, integrated text, *Journal of Laws* 2013, item 330 as amended

Abstract

The research hypothesis of the article assumes that accounting is not sufficiently implemented to reach optimal decisions in organizations. The impact of all decisions made in companies, irrespectively of the area they concern, concentrate on the financial level, while the theory of accounting enables and requires the analysis of the integrated impact as regards balance-sheet, result and cash-based results, referred to as the three lenses. The article defines the Author's three-lens approach which is applied to investigate the financial impact of an exemplary investment decision of a company.