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Zarządzanie finansami firm – teoria i praktyka

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THE IMPACT OF SEASONALITY ON THE LEVEL OF WORKING CAPITAL NEEDS

Summary: It is essential for business to consider the impact of seasonality on the optimal level of working capital. The aim of the article is to show the influence of a fast increase of receipts and a seasonal nature of the development of needs connected with business financing. The paper presents theoretical deliberation concerning working capital and an important element as an introduction of the notion of financial needs for operations.

Keywords: working capital, financial needs for operation, seasonality.

1. Introduction

When a firm starts operating and growing, it has to decide how much cash and inventory it needs, how to obtain the necessary funds and how much debt to take. Limited access to the outside sources of financing cause that the company has to look for other sources of funding. Acquiring financial funds is possible by optimizing working capital in a company.

The aim of article is to present working capital and to introduce the notion of financial needs for operation. The article also shows the effects of seasonality and business growth on working capital needs. For a seasonal business, it is essential to consider the impact of seasonality on the optimal level of working capital. Company's financial needs for operation consist of current liabilities, account receivables or credit to customers and inventories. Therefore the authors also present an indication of differences of the individual components of assets and liabilities which form the working capital in the International Financial Reporting Standards (IFRS) and the Generally Accepted Accounting Principles (US-GAAP) that are standard accounting principles in the United States of America.

1.1. The definition and interpretation of working capital

Working Capital (WC) is financial metric, which represents operating liquidity available to a business. The term of working capital originated with the old Yankee peddler, who would load his wagon with goods and then go off on his route to peddle his

wears. The merchandise was called working capital because it was what he actually sold, or “turned over”, to make his profits. The wagon and horse were his fixed assets (financed by equity), but they were borrowed funds to buy the merchandise. The borrowings were called working capital loans [Ehrhardt, Brigham 2009, p. 576]. Recently, gross working capital refers to elements of financial statement. The definition of working capital bases on balance sheet elements i.e. current assets, and in case of net working capital on current assets less current liabilities [Yadav, Kamath, Manjrejar 2009, p. 28]. Working capital is a complex subject. “Traditional definition shows how much cash (or liquid assets) is available to satisfy the short-term cash requirements imposed by current liabilities” [Preve, Sarria-Allende 2010, p. 15].

The difference between current assets and current liabilities is defined as net working capital [Eljasiak, Parteka 1996, p. 128], or Net Working Capital = Fixed Capital – Fixed Assets where: Current Assets = Current Receivables + Inventories + Short term Debt. Financial managers often refer to the difference simply as working capital [Brealey, Myers, Marcus 2001, p. 168].

The components of working capital constantly change. Firms typically follow a cycle in which they purchase inventory, sell goods on credit (or cash), and then collect accounts receivable. Various elements of working capital are interrelated, and can be seen as part of a short-term cycle [Atrill 2009, p. 394]. This cycle is more often called as cash conversion cycle [Ehrhardt, Brigham 2009, p. 576]. For manufacturing business working capital cycle is shown in Figure 1.

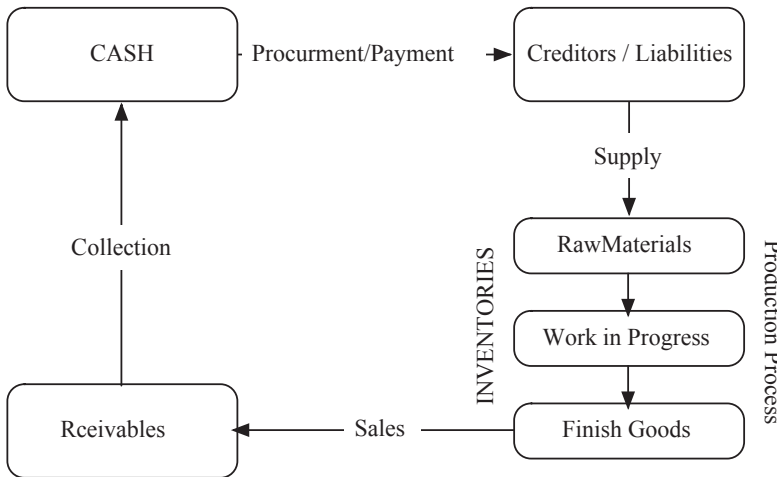


Figure 1. Cash to cash cycle

Source: R.A. Brealey, S.C. Myers, J.A. Marcus, *Fundamentals of Corporate Finance*, The McGraw-Hill, Phoenix 2001, p. 168.

Cash is used to pay trade payables for raw materials, or materials can be bought for cash (payables = 0). Cash is spent for compensations, taxes and other items that turn raw materials into work in progress and, finally, into finished goods. The finished goods are sold to customers. In the case of credit customers, there will be a delay before the cash is received from the sales. Receipt of cash completes the cycle [Atrill 2009, p. 394].

An important part of working capital management is keeping the fix level of current assets, special cash and inventories, to be ready for unexpected market situations [Szczepański, Szyszko 2007, p. 428]. The additional subject is the source of financing the net working capital. A company can choose one of three policies:

- The neutral strategy is in line with golden rule of balance sheet. According to this principle, intangible assets should be financed by equity and long-term debt, because this part are long-term assets associated with the company. Fixed assets have a lower possibility to be exchanged on cash and therefore more stable capital should be funded and placed at the disposal of a company in the long term [Sierpińska, Jachna 2006, p. 34].
- Conservative working capital strategy is more saved from the perspective of the business liquidity and generally more costly [Dobbs, Lund, Roxburgh 2010, p. 2]. This is a situation when current assets are financed partially from long-term debt and equity and net working capital is positive.
- An aggressive policy is a one of the aggressive financing strategies, where fixed assets are financed from short-term debt and/or from trade liabilities. The weighted average cost of capital (WACC), especially for business financed from trade liabilities is significantly lower than businesses financed according to two previous strategies.

Working capital and cash conversion cycle are not cast in stone. To a large extent it is within management control. The trade-off between lower cost of financing and risk of financial liquidity is an essence of operational management. This consideration shows that investment in working capital contains both: cost and benefits [Brealey, Myers, Marcus 2001, p. 171].

1.2. Determinants and components of working capital

Corporate finance literature has traditionally focused on the study of working capital as short-term financial decisions, particularly inventory, liability and receivables decisions. However, the presentation methodology of short-term assets and liabilities in the company financial statement is an important element of working capital management. In general, working capital value depends not only on operational decisions. From the overall perspective of working capital, the Chief Financial Officer (CFO) decisions about accounting policies and balance sheet presentations policies have a significant impact on the final level of working capital presentation in the financial statement.

1.2.1. Inventories

The accounting principles for inventories are the major consideration for many entities and managers. The reason is the significance on the balance sheet and on the income statement in position of cost of goods sold (COGS). The International Accounting Standard (IAS) 2 defines inventories as the assets [*International Accounting... 2009*]:

- held for sale in the ordinary course of business,
- in the process of production for such a sale;
- in the form of materials or supplies to be consumed in the production process or in the rendering of services.

The accounting for inventories must be realized in two types of businesses:

a) Trade companies where the biggest position are goods for resale (merchandise inventory). These are the goods bought by the entity for resale. It is important that a company does not change physical and chemical form of the goods.

b) Manufacturers where generally we can define three types of inventories: raw materials, intermediates, by-products and co-products, work in progress, finished goods.

Table 1. Accounting rules for IFRS vs. GAAP inventory

Inventory Treatment Under U.S. GAAP	IFRS Inventory Treatment
Allowable costing methods include FIFO, average cost and LIFO	LIFO costing is now banned under IFRS
No special rules for biological inventory (e.g., growing crops, livestock)	IAS 41 on agriculture specifies the use of fair value less estimated selling costs for biological assets, with changes in value reported in income
Presentation at lower cost or market required	Presentation at lower cost or net realizable value
Only in rare instances (mining of gold, etc.) there is presentation at fair value in excess of cost permitted	Certain defined situations, including agricultural products, for reporting at fair value in excess of actual cost
Certain costs (idle capacity, spoilage) cannot be added to overhead charge in inventory cost, conforming to IFRS rule	Certain costs (idle capacity, spoilage) cannot be added to overhead charge in inventory cost
Lower cost or market adjustments cannot be reversed	Lower cost or market adjustments must be reversed under defined conditions
Recognition in interim periods of inventory losses from market declines that reasonably can be expected to be restored in the fiscal year not required	Recognition in interim periods of inventory losses from market declines that reasonably can be expected to be restored in the fiscal year is required; guidance in the areas of disclosure and accounting for inventories of service providers offered

Source: [Epstein 2012].

The complexity of accounting for inventories arises from several factors: the high volume of activity (or turnover) in the account, various cost flow alternatives that are acceptable, classification of inventories [Epstein, Jermakowicz 2010, p. 244]. Additionally the definition of inventories according to the international accounting standards is not comprehensive with other national generally accepted accounting principles (GAAP). Main differences are listed in the table 1.

1.2.2. Current liabilities

Liability (or payables) is an obligation of the reporting entity arising from the past, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits [Epstein, Jermakowicz 2010, p. 594]. Company liabilities consist of current liabilities and long-term liabilities. Simply words it is difference between total balance sheet sum and equity. Current liabilities are payments due for payment shortly (one year usually), while long term debt covers a wide range of periods. The last element of liabilities is provisions for liabilities having uncertain timing or amount. Accounting for all of legal entities liabilities separately and on detail level (how much, to whom, for what) is clearly necessary in order realization of payments and accurately conveys actual financial position to investors, creditors and stakeholders [Brealey, Myers, Marcus 2001, p. 126]. Main differences in understanding and recognising of liabilities in IFRS and US GAAP are listed in table 2.

Table 2. Accounting rules for current liabilities IFRS vs. GAAP

U.S. GAAP: Current Liabilities & Contingencies	IFRS: Current Liabilities & Contingencies
Different recognition threshold for timing of recognition of liabilities associated with a re-structuring than under IFRS; recognize under U.S. GAAP only if event occurs making this a present obligation	A variety of recognition criteria for different items that may enter into the measurement of a provision are identified, missing under U.S. GAAP; recognize when formal plan is announced
Short-term debt refinanced before statement issuance date can often be shown as noncurrent	Short-term debt refinanced before statement of financial position date can be shown as noncurrent; if later (but still before issuance of financials) disclosure only
Provisions (estimated liabilities) measured by reference to low end of range of amounts needed to settle, sometimes but not always discounted to present value	Provisions measured by reference to best estimate to settle, discounted to present value
Specific rules for certain provisions (e.g., for environmental liabilities)	Only general guidance provided under IFRS
Contingent gains not recognized	IFRS provides for some recognition of contingent gains

Source: [Epstein 2012].

From the working capital perspective the most important element is split between payables related to the operations: trade, salary and remuneration and taxes; and liabilities related to the short and long term financing of business. IAS 1 requires that reporting entity must present current and noncurrent liabilities as separate classifications. Amounts expected to be realized or settled within no more than twelve months after the reporting period should be presented as short term.

Table 3 shows an example of correctly presented liabilities in the balance sheet on an example of Novartis Group.

Table 3. Presentation of non-current liabilities in balance sheets [USD millions]

Liabilities	2010	2009
Non-current liabilities		
Financial debts	14360	8675
Deferred tax liabilities	7689	4407
Provisions and other non-current liabilities	6842	5491
Total non-current liabilities	28891	18573
Current liabilities		
Trade payables	4788	4012
Financial debts and derivative financial instruments	8627	5313
Current income tax liabilities	1710	1816
Provisions and other current liabilities	9533	8329
Total current liabilities	24658	19470
Total liabilities	53549	38043

Source: Consolidated balance sheets (2010 and 2009), Novartis Group: Novartis Annual Report 2010, p. 182.

Novartis Group consolidated financial statement for 2010, consistent with the International Financial Reporting Standards (IFRS) as published by the International Accounting Standards Board (IASB), presents trade payables (operating part) and financial debt (financing part) separately. The way of liabilities presenting is important from the working capital perspective, because reporting of operating working capital should consider only short term payables related to the operations.

1.2.3. Account receivables

Firms would rather sell for cash than on credit, but competitive pressure forces most firms to offer credit. Thus goods are shipped, inventories are reduced, and account receivable is created [Ehrhardt, Brigham 2009, p. 591]. Accounts receivable appears on the books of a seller. Total amount of A/R outstanding at any given time is determined by two factors: the value of revenues from credit sales and the average length of time between sales and collections. The IASB's Framework defines "income" to include both revenue and gains. IAS 18 deals only with revenue. Revenue is defined as income arising from the ordinary activities of an entity and may be referred to by

a variety of names including sales, fees, interest, dividends and royalties. A gross inflow of economic benefits during the period resulting from an entity's ordinary activities is considered as revenue, provided those inflows result in increases in equity, other than increases relating to contributions from owners or equity participants [*International Accounting...* 2009, p. 480]. Revenue refers to the gross amount (of revenue) and excludes amounts collected on behalf of third parties. The quantum of revenue to be recognized is usually dependent upon the terms of the contract between the entity and the buyer of goods, the recipient of the services, or the users of the assets of the entity. Revenue should be measured at the fair value of the consideration received or receivable, net of any trade discounts and volume rebates allowed by the entity [Epstein, Jermakowicz 2010, p. 268]. On a company's balance sheet, the money (not paid revenues) owed to that company by entities outside of the company is accounts receivable. The receivables owed by the company's customers from ordinary activity are called trade receivables.

The main differences in understanding and recognising account receivables and prepayments in IFRS and US GAAP are listed in the table below.

Table 4. Accounting rules for IFRS vs. GAAP receivables

U.S. GAAP Treatment of Receivables and Prepaid Expenses	IFRS Treatment of Receivables and Prepaid Expenses
No specific guidance offered under U.S. GAAP or IFRS	No specific guidance offered under either set of standards
Industry specific guidance for acquired loans and receivables	Loans and receivables measured at amortized cost
Accounting for pledging, factoring similar under IFRS	Accounting for pledging, factoring similar under U.S. GAAP

Source: [Epstein 2012].

1.3. Impact of seasonality and business growth on working capital needs

The connection between a given level of operating activity of the company and the level of working capital is very high, but sometimes it is misunderstood. Managers tend to match financing maturity with their assets average life. This may lead the manager to finance short-term operating assets with short-term debt. However, such a practice would ignore the fact that certain portion of short-term assets resembles fixed assets [Preve, Sarria-Allende 2010, p. 26]. To complete understanding of working capital from the perspective of operational management and business financing, the definition of working capital should be expanded. The net operating investment necessary to run business is a critical element in the process of its short and middle time financing. Financial needs for operation (FNOs) is a capital needed to sustain the operation of the firm after taking into account its short-term operating liabilities. The FNOs are defined as [Preve, Sarria-Allende 2010, p. 16]:

$$\text{Financial Needs for Operation} = \text{Current Assets} - \text{Short-term operating liabilities}$$

where: $\text{Current Assets} = \text{Current Receivables} + \text{Inventories}$

Firm’s FNOs are the level of operating investment needed for a company to operate its business. This investment can be financed using working capital and/or short-term financial debt. Because firm’s working capital and FNOs are interconnected, the use of only one of them in isolation will usually lead the manager astray [Putra 2010]. The figure below presents the graphical interpretation of financial needs for operation and working capital.

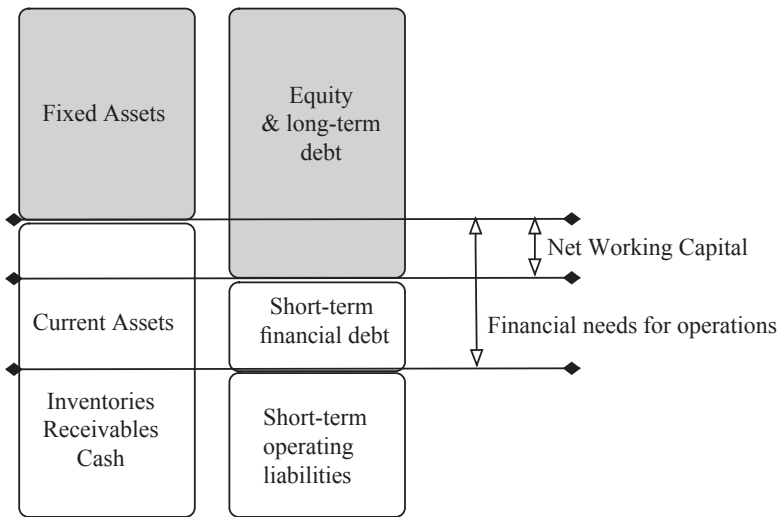


Figure 2. Working capital and financial needs for operations

Source: L.A. Preve, V. Sarria-Allende, *Working Capital Management*, Oxford University Press, Oxford 2010, p. 17.

Many industries are characterized by high seasonality. Typical examples of seasonal businesses are those operating in the toy, agriculture, tourism, beverages and farming industries. For managers who work in seasonality conditions, it is essential to manage optimal level of working capital to consider the impact of this element. When a firm faces seasonality, it needs to analyse how to mix alternative sources of funding in order to cover financing needs, or how to find optimal location for free cash. The table below shows how a company without any changes of sales and purchase conditions faces the problem of seasonal needs for short-term debt during the high season and has cash reserves during the low season.

Table 5. Financial model of impact of seasonality on working capital and FNO's

		Normal Season		High Season		Low Season	
Sales	[\$]	1000		1500		500	
COGS	[\$]	-250		-375		-125	
Gross Margin	[%]	25%		25%		25%	
Conditions of sales	[days of credit]	30		30		30	
Conditions of purchase	[days of debt]	14		14		14	
Conditions of inventory	[day on hand]	60		60		60	
		Assets	Financing Source	Assets	Financing Source	Assets	Financing Source
Equity		1500,0		1500,0		1500,0	
Short Term Financing				691,7			
Short Term Deposit						691,6	
Cash	[\$]	116,7		116,7		116,7	
Account Receivables	[\$]	1000,0		1500,0		500,0	
Inventory	[\$]	500,0		750,0		250,0	
Account Payables	[\$]		116,7		175,0		58,3
		1616,7	1616,7	2366,7	2366,7	1558,3	1558,3
FNOs	[\$]	1500,0		2883,4		116,8	
Working Capital	[\$]	1500,0		2191,7		808,4	

Source: author's own work.

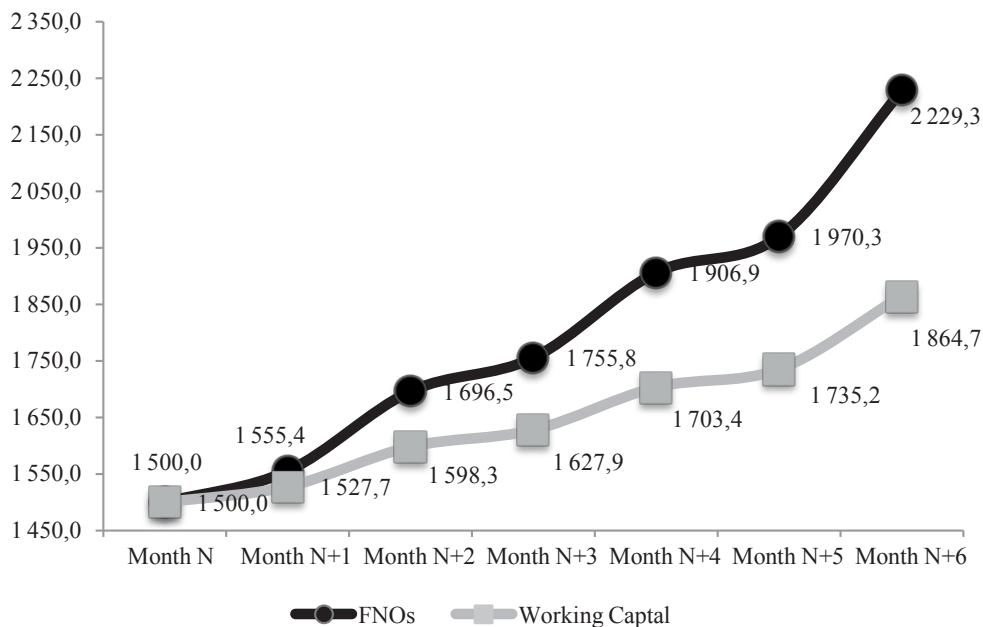


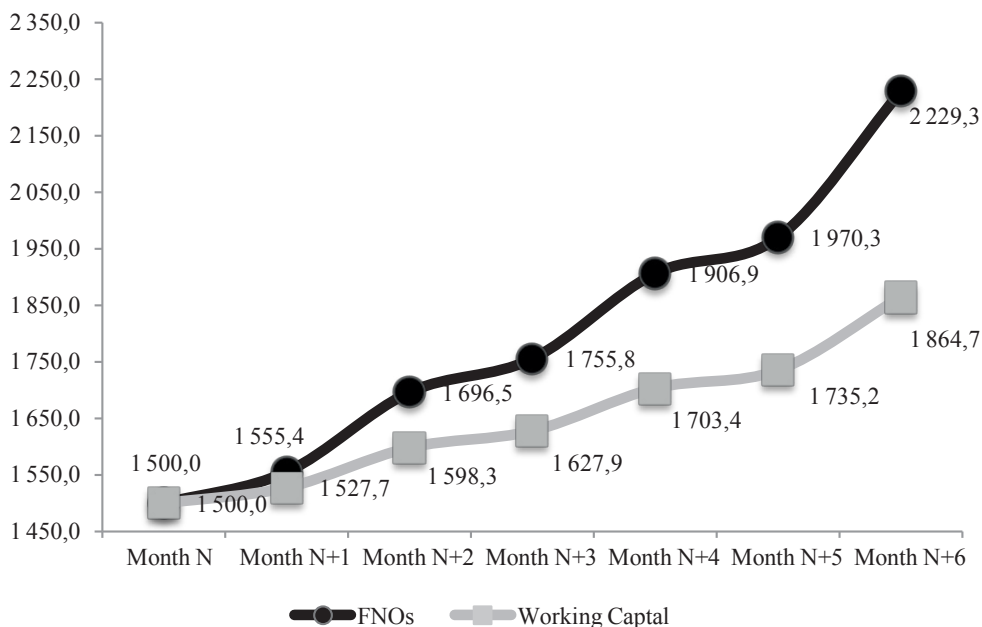
Figure 3. Impact of seasonality on working capital and FNOs

Source: author's own work.

Table 6. Financial model of impact of business growth on working capital and FNOs

		Month N	Month N+1	Month N+2	Month N+3	Month N+4	Month N+5	Month N+6	
Sales	[\$]	1 000,0	1 020,0	1 071,0	1 092,4	1 147,0	1 170,0	1 263,6	
COGS	[\$]	-250,0	-255,0	-267,8	-273,1	-286,8	-292,5	-315,9	
Gross Margin	[%]	25%	25%	25%	25%	25%	25%	25%	
Conditions of sales	(days of credit)	30	30	30	30	30	30	30	
Conditions of purchase	(days of debt)	14	14	14	14	14	14	14	
Conditions of inventory	(day on hand)	60	60	60	60	60	60	60	
		Assets	Financing Source	Assets	Financing Source	Assets	Financing Source	Assets	Financing Source
Equity		1 500,0		1 500,0		1 500,0		1 500,0	
Short Term Financing			27,7		98,3		203,4		354,7
Short Term Deposit									
Cash	(\$)	116,7	116,7	116,7	116,7	116,7	116,7	116,7	
Account Receivables	(\$)	1 000,0	1 020,0	1 071,0	1 092,4	1 147,0	1 170,0	1 263,6	
Inventory	(\$)	500,0	510,0	535,5	546,2	573,5	585,0	631,8	
Account Payables	(\$)		119,0	125,0	127,4	133,8	136,5	147,4	
		1 616,7	1 646,7	1 723,2	1 755,3	1 837,3	1 871,7	2 012,1	
		1 616,7	1 646,7	1 723,2	1 755,3	1 837,3	1 871,7	2 012,1	
FNOs	[\$]	1 500,0	1 555,4	1 696,5	1 755,8	1 906,9	1 970,3	2 229,3	
Working Capital	[\$]	1 500,0	1 527,7	1 598,3	1 627,9	1 703,4	1 735,2	1 864,7	

Source: author's own work.

**Figure 4.** Impact of business growth on working capital and FNOs

Source: author's own work.

The most important issue in the process of working capital management is trading off between the goals of minimalizing low-return investments related to idle cash (low return rate deposits for free cash) and avoiding liquidity problems during high season. There is one additional important factor having a big impact on working capital financing level i.e. easiness of access and cost of short term financing, which is related to the location of business (companies located in the USA and Europe have

more opportunities for financing than companies located in developing countries). However, in general, managers have to find the optimal strategy of financing based on business environment conditions and unique characteristics of company they manage.

When a company is growing and its sales are rising, it needs to stock up with more finished products and materials for their production in order to satisfy market demand. It also attracts more clients who, by contract or otherwise, defer payments. It develops supplier relationships that grow bigger by number and size and sometimes allow for deferred payment while in other occasions require advance payment [Nedev 2009]. A company that faces aggressive growth is challenged from the perspective of working capital management and liquidity. The growth pattern is not even, this is a combination of increase of business and seasonality. The table below shows the impact of business growth without changes of sales, purchase and inventory conditions.

The model above shows that 26.3% growth of sales, with fixed working capital parameters, significantly rises the needs for short term financing related to the increase of working capital. During the growth period, various departments implement programs to increase sales, production and service quality. A suggestion that a firm is able to increase significantly by giving customers longer payment periods is typical of commercial area. At the same time a supply chain manager will recommend increasing the inventory and feedback about capital expenditure (CAPEX) needs are typical of productionis. All of these elements will have an additional impact on the increase of working capital and short-term financing needs.

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WPLYW SEZONOWOŚCI NA POZIOM KAPITAŁU OBROTOWEGO

Streszczenie: W artykule przedstawiono istotę kapitału pracującego i pojęcie zapotrzebowania na finansowanie operacji. Ponadto na podstawie Międzynarodowych Standardów Rachunkowości (IFRS) i Standardów Rachunkowości obowiązujących w Stanach Zjednoczonych Ameryki (US GAAP) ukazano różnice w ujmowaniu poszczególnych składników aktywów i pasywów kształtujących kapitał pracujący. Opisano także wpływ wzrostu przychodów na kształtowanie się potrzeb finansowania biznesu.

Słowa kluczowe: kapitał obrotowy, sezonowość, Międzynarodowe Standardy Sprawozdawczości Finansowej.