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Supply Chain Finance Solutions

Relevance - Propositions - Market Value

Bearbeitet von
Erik Hofmann, Oliver Belin

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Chapter 2
Relevance of WCM and Its Weaknesses

Abstract Working capital and the cash-to-cash cycle are important indicators to reveal supply chain efficiencies. Thereby, the objective is to balance and optimize the amount of working capital to successfully manage a company. Until recently traditional approaches were used to improve working capital mainly focusing on a single company. In contrast, the Supply Chain Finance approach provides opportunities to improve working capital for all parties involved in a supply chain.

Keywords Working capital management · Enterprise value · Accounts payables · Accounts receivables · Liquidity · Profitability · Cash-to-cash cycle · Prisoner's dilemma

2.1 Impact of Working Capital on Enterprise Value

From a shareholder perspective, a company's key focus is to make profits and thereby enhance its enterprise value. One long neglected lever for this, which has been arousing increased attention recently, is the management of a company's working capital (Bhalla 2005). Working capital can be described by the following equation:

$$\text{Working Capital} = \text{Current assets} - \text{Current liabilities} \tag{2.1}$$

Working capital is one of the most important indicators of efficiency in a supply chain (Farris and Hutchison 2003). It is defined as current assets less current liabilities. Current in this context usually refers to a time horizon of a year or less (Emery and Finnerty 1997). Current assets are mainly made up of inventory, accounts receivable (A/Rs), marketable securities and cash and bank balances (Fig. 2.1).

Current liabilities contain accounts payable (A/P), notes payable, (current) accruals, as well as other current liabilities (Emery and Finnerty 1997). Hence, working capital is roughly the part of current assets that has to be financed with interest-bearing capital (Shin and Soenen 1998). A lower working capital can be achieved by reducing any of the three components of current assets i.e. cash,

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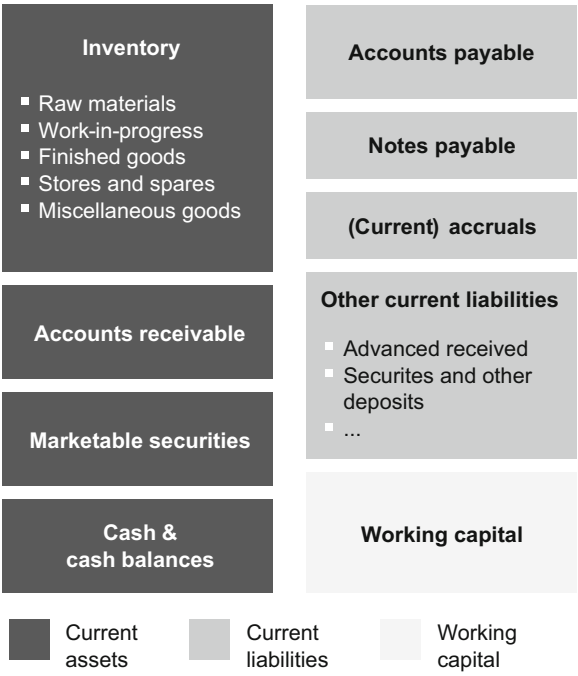

Fig. 2.1 The elements of working capital

inventory or A/R and increasing current liabilities. However, optimizing these components can have a direct or indirect impact on the bottom line (Scherr 1989).

Each company has to balance these components to obtain the optimum amount of working capital needed to run the business. The management of working capital aims at the minimization of capital tied up in a company's turnover process by reducing A/R and inventory, while extending A/P. These goals can generate several issues when looking at the whole supply chain of a company and a tradeoff between risk and profitability (Rafuse 1996):

- *Positive working capital* (holdings of A/R and inventory exceed A/P) strengthens liquidity since these current assets are easily convertible into cash. This mitigates risk, but harms overall profitability because of a large capital commitment, leading to higher inventory and financing costs.
- *Negative working capital* (holdings of A/P exceed A/R and inventory) leads to lower funding costs and thereby increases profitability, but bears risks and insufficiencies. A possible loss of production and supply shortage because of insufficient inventory might both harm growth and result in a loss of goodwill towards customers. Additionally, tighter liquidity might harm creditworthiness and hinder refinancing.

Considering the implications of both extremes, current research sets a low level of positive working capital as an optimum (Shulman and Cox 1985).

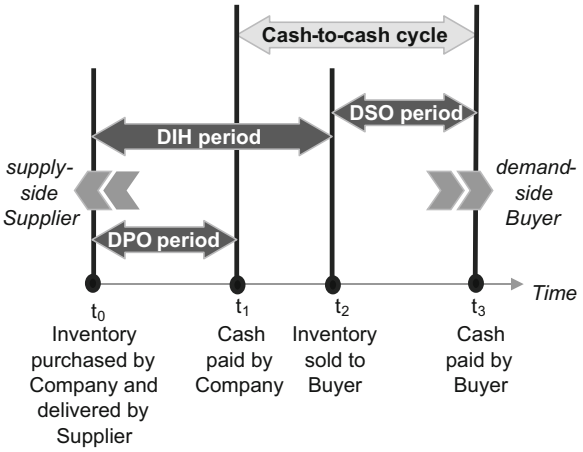

Fig. 2.2 The C2C cycle and its components

To optimize working capital, the cash-to-cash (C2C) cycle, introduced by Richards and Laughlin (1980), is an important indicator and measurement parameter. It indicates the time between the cash outlay and cash recovery of a company. The C2C cycle is calculated with the following formula (Farris and Hutchison 2003; Soenen 1993):

$$\text{C2C cycle} = \text{DSO period} + \text{DIH period} - \text{DPO period} \tag{2.2}$$

- *Days sales outstanding* (DSO) = ø A/R/(net sales/365). The number of days that a company takes to collect payments from its customers.
- *Days inventory held* (DIH) = ø inventory/(net sales/365). The time in which the stock of raw materials, work in progress (WIP) and finished goods are converted into product sales.
- *Days payables outstanding* (DPO) = ø A/Ps/(net sales/365). The number of days it takes a company to pay its suppliers (Fig. 2.2).

Some evidence suggests a negative correlation between a company's C2C cycle and its enterprise value. According to observations, a 25% reduction in the C2C cycle of the average manufacturing company leads to an increase in the enterprise value of approximately 7.5% (Howorth and Westhead 2003; García-Teruel and Martínez-Solano 2007). Empirical studies confirm this observation and state a link between a shorter C2C cycle and a higher present value of net cash flows generated by assets (Shin and Soenen 1998). To calculate the increase in enterprise value, the discounted cash flow or the economic value added (EVA®)[1] model can be applied (Rappaport 1999) (Fig. 2.3).

As a company manages to shorten its C2C cycle, the release of originally locked up and idle capital increases free cash flow and thereby improves a

[1] "Economic Value Added" (EVA®) is a registered trademark of Stern Stewart & Co

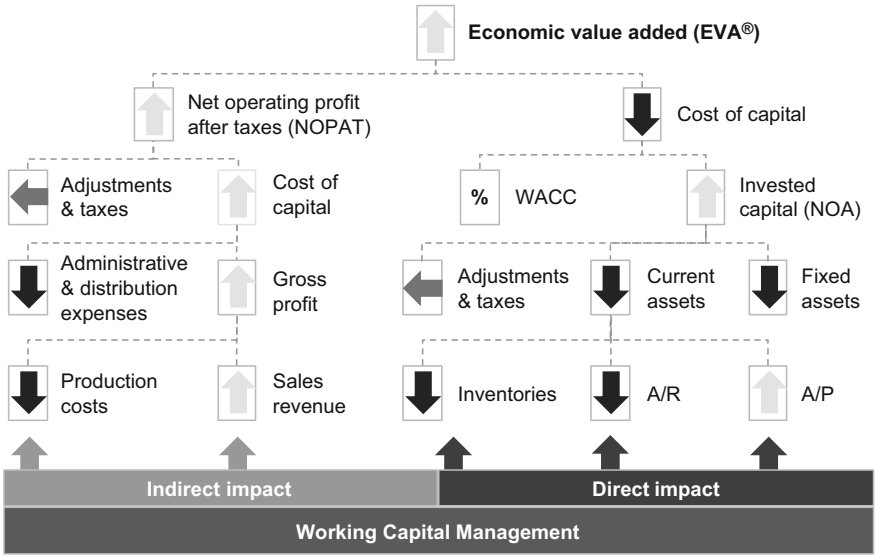

Fig. 2.3 The link between WCM and EVA®

company's internal funding ability, which facilitates sales revenue growth (Moss and Stine 1993). This increased capital efficiency brings about higher revenue generated per dollar invested in capital. Consequently, this enables lower costs of capital, which lead to higher returns on invested capital (direct impact) and increased operating income (indirect impact) because of lower production and operating expenses (Jose et al. 1996). A further impact is a better creditworthiness due to a greater perceived financial independence, leading to a better credit rating and lower weighted average costs of capital (WACC) (Hofmann et al. 2011).

The impact of working capital on enterprise value demonstrates the relevance of the approach (Hofmann and Locker 2009). However, practical applications have to deal with various deficiencies in WCM (Hofmann and Locker 2009).

2.2 Deficiencies in WCM

An enhanced view on the C2C cycle in Fig. 2.4 includes three sub-cycles: the purchase-to-pay cycle, concentrating on the sourcing and expenditure management on the supply side of a company; the forecast-to-fulfill cycle, which focuses on production, warehousing, forecasting and order processing activities; and the order-to-cash cycle, referring to the sales and revenue management on the demand side of a company.

Deficiencies in working capital can be identified according to the sub-cycles listed below (Reason 2005; Cheng et al. 2005; Callioni et al. 2005):

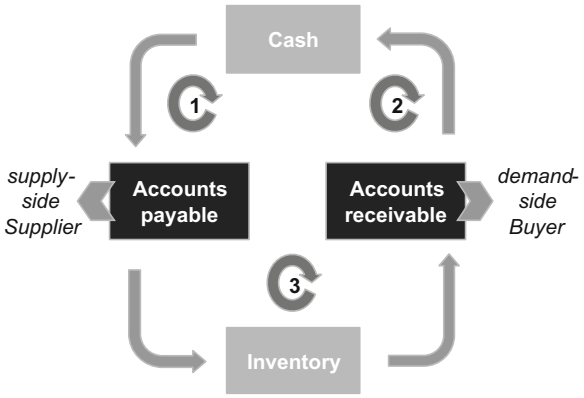

Fig. 2.4 The three sub-cycles of the C2C-cycle

- *Deficiency in the purchase-to-pay cycle*: Problems on the supply side entail dealing with supplier interactions, cash disbursement, and DPO. On the one hand, buying firms want to develop long-term relationships with suppliers but, on the other hand, these vendors are often seen as a cheap source of cash. The result, when confronted with unanticipated volatile demand and extended terms of payment, is that a supplier's approach usually includes either an increased unit price or a reduced quality or service level in the long-term (Pike et al. 2005).
- *Deficiency in the forecast-to-fulfill cycle*: The cost of holding liquidity and material stocks can result in a lower rate of return of these assets because of the stock premium and, possibly, tax disadvantages. On the one hand, higher stocks reduce a firm's risk and increase its readiness to deliver. On the other, an excessive amount of cash and inventory does not maximize shareholder wealth. According to Ross et al. (2005), companies have to solve this tradeoff between the costs of cash/stock holdings (carrying costs) and the costs of out-of-stocks (shortage costs).
- *Deficiency in the order-to-cash cycle*: Delays in invoice reconciliation are a particular cause of additional working capital; they delay receipt of payments and increase DSO of receivables (Mian and Smith 1992). When there is a mismatch between invoice and shipping receipts, there is an inevitable delay while the imbalance is investigated. These reviews normally take time, as well as add cost (Pike et al. 2005). A typical tradeoff at the demand side exists between the gains from a faster cash collection, the increased cost of introducing and maintaining new debtor management processes and changed customer behavior (Reider and Heyler 2003).

Although those deficiencies can be dealt individually by a single company, this cannot be done at a supply chain level. The reasoning for this is straightforward when regarding two consecutive members of a supply chain. Any single organization in the supply chain has both A/P and A/R activities. Each invoice is an A/P from the downstream buyer's perspective and an A/R from the upstream seller's viewpoint.

Most companies require significant amounts of working capital to deal with variable and somewhat unpredictable financial inflows and outflows through their interaction with other supply chain participants. When viewed collaboratively, the challenges such as slow supply chain processing, unreliable and unpredictable cash flows, costly activities, high DSO and suboptimal credit decisions require a higher working capital than necessary (Hofmann and Kotzab 2010).

2.3 Traditional Methods for Improving Working Capital

To improve working capital, several single company-oriented procedural methods have previously been applied with the aim of attaining an optimum level of working capital (Ng et al. 1999; Farris and Hutchison 2003):

- *Enforced DPO extension*: Strong buyers use their bargaining power to enforce late payment to smaller, less powerful suppliers. Longer payment terms to suppliers are likely to worsen the commercial relationship as working capital is shifted up the supply chain, resulting in an unsound supplier base as suppliers are likely to have higher WACC.
- *Just-in-time and other inventory reduction solutions*: The consumption of old stock triggers new stock to be ordered in time, being directly available for production. However, since stock levels are determined by historical demand, any sudden unexpected demand rise depletes inventory faster than usual and might cause shortages and high transportation costs.
- *Enforced DSO reduction*: Strong suppliers use their bargaining power to force smaller, less powerful buyers to pay early. However, it can worsen the commercial relationship as working capital is shifted down the supply chain; buyers might face liquidity constraints because they have higher refinancing costs.

These traditional solutions tend to view working capital enhancement from a single perspective, either the buyer's attempt to defer payment/reduce payment size or the seller's attempt to accelerate cash collection—often pitting one side of the buy/sell transaction against the other.

Therefore, most companies focus only on their individual supply chain issues and take their own best interests into account rather than understanding the bigger picture and coordinating with their supply chain partners. As a result, they fall into the classic prisoner's dilemma (Flood 1952). The optimum solution to minimize capital exposure between buyers and sellers is to coordinate and cooperate, but because there is no coordination they work against each other and end up with a suboptimal solution.

Simply shifting the burden from one party to another can add significant risk to the supply chain, including customer loss, business continuity risk, supplier viability risk, material cost inflation, deteriorating support and a host of other issues. SCF provides an opportunity to collaborate and create benefits for each side of the transaction and improve working capital (PricewaterhouseCoopers 2009).

References

Bhalla VK (2005) Working capital management. Anmol Publications, New Delhi
Callioni G, de Montros X, Slagmulder R, van Wassenhove L, Wright L (2005) Inventory-driven costs. Harvard Bus Rev 83(3):135–140
Cheng NS, Cravens K, Lamminmaki D, Pike R (2005) Trade credit terms: asymmetric information and price discrimination evidence from three continents. J Bus Finance Account 32(5/6):1197–1236
Emery DR, Finnerty JD (1997) Corporate financial management, 2nd edn. Prentice Hall, Upper Saddle River
Farris MT II, Hutchison PD (2003) Measuring cash-to-cash performance. Int J Logist Manag 14(2):83–91
Flood M (1952) On game-learning theory and some decision-making experiments. RAND research paper
García-Teruel PJ, Martínez-Solano P (2007) Effects of working capital management on SME profitability. Int J Manag Finance 3(2):164–177
Hofmann E, Locker A (2009) Value-based performance measurement in supply chains - a case study from the packaging industry. In: Production Planning & Control 20(1):68–81
Hofmann E, Kotzab H (2010) A supply chain-oriented approach of working capital management. J Bus Logist (forthcoming) 31(2):305–330
Hofmann E, Maucher D, Piesker S, Richter S (2011) Ways out of the working capital trap: Empowering self-financing growth through modern supply management. Springer
Howorth C, Westhead P (2003) The focus of working capital management in UK small firms. Manag Account Res 14(2):94–111
Jose ML, Lancaster C, Stevens JL (1996) Corporate returns and cash conversion cycles. J Econ Finance 20(1):33–46
Mian SL, Smith CW (1992) Accounts receivable management policy: theory and evidence. J Finance 47(1):169–200
Moss JD, Stine B (1993) Cash conversion cycle and firm size: a study of retail firms. Manag Finance 19(8):25–38
Ng CH, Smith JK, Smith RL (1999) Evidence on the determinants of credit terms used in interfirm trade. J Finance 54(3):1109–1129
Pike R, Cheng NS, Cravens K, Lamminmaki D (2005) Trade credit terms: asymmetric information and price discrimination evidence from three continents. J Bus Finance Account 32(5):1197–1236
PricewaterhouseCoopers (2009) Demystifying supply chain finance—insights into the what, why, how, where and who. http://www.pwc.com/en_US/us/issues/surviving-the-financial-downturn/assets/supply_chain_finance.pdf. Accessed 09 Apr 2010
Rafuse ME (1996) Working capital management. An urgent need to refocus. Manag Decis 34(2):59–63
Rappaport A (1999) Shareholder value. Schäffer-Poeschel Verlag, Stuttgart
Reason T (2005) Capital ideas: the 2005 working capital survey. CFO Mag 21(12):88–92
Reider R, Heyler PB (2003) Analyzing sales for better cash flow management. J Corp Account Finance 15(1):15–25
Richards VD, Laughlin EJ (1980) A cash conversion cycle approach to liquidity analysis. Financial Manag 9(1):32–38
Ross SA, Westerfield RW, Jaffe J (2005) Corporate finance, 7th edn. McGraw-Hill, Boston
Scherr FC (1989) Modern working capital management—text and cases. Prentice-Hall, Englewood Cliffs
Shin H-H, Soenen L (1998) Efficiency of working capital management and corporate profitability. Financial Pract Educ 8(2):37–45
Shulman J, Cox R (1985) An integrative approach to working capital management. J Cash Manag 5(6):64–67
Soenen LA (1993) Cash conversion cycle and corporate profitability. J Cash Manag 13(4):53–58