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Cash Conversion Cycle and Profits Planning in the Commercial Firms

دورة تحويل النقدية وتخطيط الأرباح في المنشآت التجارية

Mounzer Mourhij [1]

[1] Associate Professor, Tishreen University, Faculty of Economics, Department of Business Administration,
Email: mounzer.mourhij@tishreen.edu.sy

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Abstract

This research dealt with the issue of the cash conversion cycle, and working capital management in an innovative way and different point of view, while addressing the issue of profit planning in the commercial firm by controlling and adjusting the product mix and the amount of capital invested in each product in addition to its turnover rate.

The research was based on a set of assumptions, and after reviewing the most important previous studies that dealt with the issue of the cash conversion cycle and its relationship with some other variables, the researcher conducted the necessary quantitative analysis and reached results indicating the possibility of determining the appropriate product mix to achieve the objectives of the commercial firm (required rate of return, or specific profitability rate).

Keywords :Cash Conversion Cycle, working Capital, Profitability.

ملخص

تناول هذا البحث موضوع دورة تحويل النقدية وإدارة رأس المال العامل بطريقة مبتكرة ومن وجهة نظر مختلفة مع التطرق لموضوع تخطيط الأرباح في الشركة التجارية من خلال ضبط وتعديل مزيج المنتجات وحجم رأس المال المستثمر في كل منتج منه بالإضافة إلى معدل دورانه.

استند البحث إلى مجموعة من الافتراضات، وبعد استعراض أهم الدراسات السابقة التي تناولت موضوع دورة تحويل النقدية وعلاقتها مع بعض المتغيرات الأخرى، أجرى الباحث التحليل الكمي اللازم وتوصل إلى نتائج تفيد بإمكانية تحديد مزيج المنتجات المناسب لتحقيق أهداف المنشأة التجارية (معدل عائد مطلوب أو معدل ربحية محدد).

الكلمات المفتاحية: دورة تحويل النقدية، راس المال العامل، الربحية.

1. Introduction

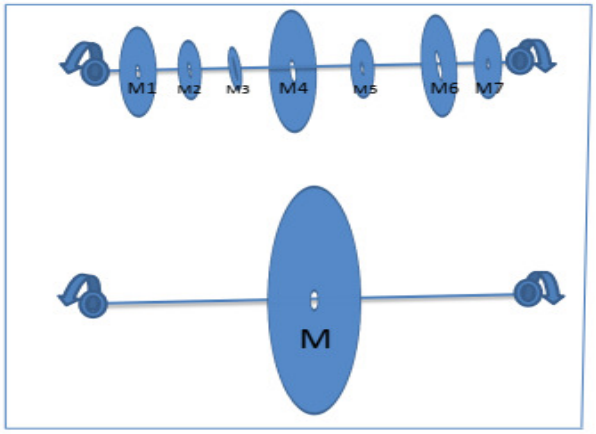
Apart from the studies that dealt with the cash conversion cycle and the management of working capital, the current study has dealt with this issue in an innovative manner and different view by studying the cash conversion cycle, seeking to plan the profits in the firm through controlling and adjusting the product mix and the amount of capital invested in each product as well as its turnover rate.

The researcher represented the mixture of products of commercial firm as a circular gears, the circumference or diameter of each corresponds to the capital invested in it, and the gears representing the product rotate around its axis at a certain speed related to the turnover rate of the product.

These gears were represented as a whole in the form of a single gear with a diameter/ circumference that represents the sum of the diameters/ circumferences of the gears representing the mixture of products, and it rotates around its axis at a speed that is the result of the speeds of the gears representing the aforementioned mixture of products.

The following Figure 1. shows the graphical representation of what was mentioned above.

Fig. 1. Graphical representation of firm's products.
Source: Figure prepared by the researcher.



2. Research objectives:

The aim of this research is to achieve the following:

1- To Determine and analyze the impact of each product of the firm's product mix on its profitability and management efficiency.
2- To adjust the mix of products, the amount of capital invested in each of them, and its turnover rate, in order to improve the performance and profitability of the firm as possible as.
3- To determine the combined effect of the most important part of the working capital that invested in commercial firm's product mix.

3. Research importance:

The research gained its importance through the importance of the topic it dealt with on the one hand, and the innovative method of studying and analyzing it on the other hand.

4. Conceptual framework:

The cash conversion cycle was addressed by Verlyn D. Richards and Eugene J. Laughlin in the year 1980 through their paper entitled "*A Cash Conversion Cycle Approach to Liquidity Analysis*" where it was proposed as an indicator of liquidity analysis and its effect on the profitability of the company. (Richards & Laughlin, 1980, p. 32-38)

While the working capital is known as the life blood of the organizations (Poojitha, 2019, p. 403), the cash conversion cycle is a very important component of working capital management and financial management because it directly affects the liquidity and profitability of the company. (Olorunfemi et. al, 2020, 109) The cash conversion cycle is one of the measurements of working capital management. (Telly & Ansori, 2019, p. 156)

Richards and Laughlin used the cash conversion cycle as an important metric to assess the effectiveness of the company's overall financial health. (Cristea & Cristea, 2018, p. 1) They operationalized the

concept of the cash cycle in the cash conversion cycle theory by analyzing the efficiency of corporate working capital management according to which effective management of working capital, i.e. a short cash conversion cycle will increase the firm's liquidity, profitability and value, while ineffective working capital management, i.e. A long cash conversion cycle will reduce the company's liquidity, profitability and value. (Oseifuah, 2016, p. 37)

Cash conversion cycle is a proxy for the net time interval between a firm's cash expenditures for purchases and its final recovery of cash receipts in terms of days. (Yazdanfar & Ohman, 2014, p. 445) Angahar and Alematu (2014) consider cash conversion cycle as the calculation of the period it will take between payment and collection of cash. (Olorunfemi et. al, 2020, 109)

Many researchers (Smith, 1980; DeLove, 2003; Ganesan, 2007; Watson and Head, 2007; Kieschnicket al , 2013; Boyce, 2014; Aktas, Crossi, & Betmisas, 2015) have demonstrated that efficiency in working capital management is crucial to achieving the goal of maximizing shareholder wealth because it directly affects the firm's risk, profitability and ultimately shareholder wealth. (Oseifuah, 2016, p. 37) Optimizing working capital reduces the firm's financial risks and improves its overall performance. Thus, working capital plays an important role in creating stable profitability and competitiveness. According to Ebben and Johnson (2011), working capital management has increasingly been measured by the cash conversion cycle. (Yazdanfar & Ohman, 2014, p. 449)

The profitability of the firm will always have a relationship with cash conversion cycle, which can show the firm how long it will take to change or return the cash out used for the operational activities into cash in. (Telly & Ansori, 2019, p. 157) According to the trade-offs between return and risk, shorter cash conversion cycle, and greater amount of capital may improve the profitability of the firm. Companies consider working capital management as a strategic priority to generate cash, and the cash conversion cycle is the key factor of a good working capital management. (Da Costa, 2014, p. 2) Shorter the time of cash conversion allows the firms to generate more sales from the amount invested, which shows that the business has utilized their resources to generate maximum profit. (Yasir et. al, 2014, p. 140)

The cash conversion cycle period is seen as one of the fundamental components of working capital management. (Nwude et. al,, 2018, p. 111) Therefore, to achieve their profitability enhancement, firms strive hard to bring their cash conversion cycle at optimal level. (Nwude et. al, 2018, p. 112) No doubt that larger cash conversion cycle damage the profitability as well as the future prosperity of any organization. (Yasir et. al, 2014, p. 141) The shorter period of cash conversion cycle associated with high return on assets because it improves the efficiency of account receivables, inventories and account payables. (Yasir et. al, 2014, p. 143)

In recent years, the cash conversion cycle has become an increasingly popular tool for analyzing a firm's cash management. (Ebben & Johnson, 2011, p. 382) Financial managers devote a significant portion of their time to cash management because one of the main fields of activity of business owners and managers is cash management and the cash cycle of firm. (Doğan & Kevser, 2020, p. 197)

5. Literature review:

There are many previous studies that dealt with the issue of the cash conversion cycle in the context of its relationship with some other variables in the firm, such as size, profitability, efficiency of working capital management, liquidity management, and others. Through the researcher's access to many sources that reviewed a lot of studies, he was able to present the following:

Dong and Su (2010) point out that even though a firm can make loss within different accounting periods, it cannot continue to persistently operate with inefficient cash conversion cycle management. (Olorunfemi et.al, 2020, p.109)

Skomorowsky (1988) illustrated how the cash conversion cycle may affect the firm's net income, Shin & Soenen (1998) find a strong negative relation between the length of the firm's cash conversion cycle and its profitability, Deloof (2003) finds that a firm's profitability can increase by

reducing the number of days in receivable conversion period and inventory conversion period. (Tan & Tuluca, 2019, p. 67)

Garcia-Teruel and Martinez-Solano (2007) investigated the effects of working capital management on profitability, Gill et al. (2010) found a significant positive relationship between cash conversion cycle and profitability. Uyar (2009) found that there was a significant negative correlation between the cash conversion cycle and the firm size, Moss and Stine (1993) examined the relationship between the cash conversion cycle and the firm size.

Charitou et al (2010), Qazi et al (2011), Congruently, Napompech (2012), Mansoori and Muhammad (2012), Anser and Malik (2013), Likewise, Panigrahi (2013), Fouz, Mehta (2014) examined the relationship between the length of cash conversion cycle and firm profitability. Some studies found that more efficient cash conversion cycles lead to higher returns in firms (Wang, 2002 and Stevens, 1996).

Javid (2014) has examined the impact of components of working capital management on the performance of firms, Yazdanfar and Öhman (2014) found a significant and negative relationship between cash conversion cycle and profitability, (Bagh, et al, 2016) found a negative The relationship between cash conversion cycle and profitability, Lyngstadaas and Berg (2016), (Naseer and Bibi, 2018) indicated that profitability was related negatively and significantly with the length of cash conversion cycle. Ebben and Johnson (2011) suggested that managers could increase firm profitability by reducing the cash conversion cycle.

Eljelly, 2004; Jose, 1996;) showed a significant and negative relationship between length of cash conversion cycle and profitability, (Hutchison, 2007) indicated a negative relationship between cash conversion cycle and profitability. Lazaridis and Tryfonidis (2006) found a negative relationship between cash conversion cycle and profitability, Garicia and Solano (2007) showed a negative relationship between cash conversion cycle and profitability of the firms operated in Spain, Falope and Ajilore (2009) found a negative relationship between cash conversion cycle and firm's profitability, Zariyawati (2009).

Several previous studies have measured the impact of working capital on firm profitability (e.g. Soenen, 1993; Padachi, 2006). (Yazdanfar & Ohman, 2014, p. 449) In addition to other studies like: D. P. Koumanakos, (2008), P. J. G. Teruel and P. M. Solano, (2007), M. Öner, Res. J. Polit. (2016), H. Nobanee, M. Abdullatif, M. AlHajjar, (2011), J. J. Ebben, A. C. Johnson, (2011), M. Muscettola, (2014). (Cristea1 & Cristea1, 2018, p. 1)

6. Research Assumptions:

(P_j): Selling price per unit of the product *j* = constant.

(C_j): Cost of purchasing per unit of the product *j* = constant

(S_j): Daily selling rate of the product *j* = constant.

($Q_j \geq 30\ S$): The available quantity of the product *j* covers the monthly demand volume.

The monthly sales value of the product *j*, plus a percentage (I) of the achieved net profit, is used to renew the quantities of the same product *j* at the end of each month.

The firm works 30 days a month, i.e. 360 days a year

7. Research Terms and Acronyms:

(Q_j): Is the quantity of the product *j*.

(P_j): Is the price per unit of the product *j*.

(C_j): Is the purchasing cost per unit of the product *j*.

(V_j): Is the value of the total product *j*.

$$V_j = Q_j \cdot C_j$$

(G_j): Is the growth rate of product *j*.

$$G_j = \frac{V2_j - V1_j}{V1_j}$$

(S_j): Is the daily sales rate from the product *j*.

(E_j): Is the net earning from the product *j*.

$$E_j = P_j - C_j$$

(r_j): Is the radius of the circle representing the product *j*.

(L_j): Is the circumference of the gear representing the product *j*.

$$L_j = 2.\Pi.R_j$$

(D_j): Is the duration, i.e. the number of days it takes for the gear representing the product *j* to make a full (360°) turn.

$$D_j = \frac{Q_j}{S_j}$$

(e_j): Is the speed of rotation of the gear that represents the product *j*, i.e. the number of degrees it rotates per day.

$$e_j = \frac{360}{D}$$

If the available quantity of the product *j* in month *(t)* is Q_{j_t}, then the total available quantity of the same product *j* at the beginning of next month *(t+1)* is equal to:

$$Q_{j_{t+1}} = Q_{j_t} + \frac{I.E_j.Q_{j_t}}{C_j} = Q_{j_t}\left(1 + \frac{I.E_j}{C_j}\right)$$

Therefore the growth rate of product *j is:* $G_j = \frac{V2_j - V1_j}{V1_j}$

As mentioned earlier in the introduction of this research, the invested capital in each product of the product mix is collected, and the total accumulated capital is represented representatively as a total gear (M) as shown in Figure 1. The radius of which is calculated, and therefore its circumference, speed of rotation, and other necessary calculations (Quantity of products, average unit price of the product, average unit cost....) according to the following:

$$\mathrm{Q} = \sum_{j=1}^{n} \mathrm{Q}_j$$

$$\mathrm{S} = \sum_{j=1}^{n} \mathrm{S}_j$$

$$\mathrm{P} = \frac{\sum_{j=1}^{n} S_j \, P_j}{S}$$

$$\mathrm{C} = \frac{\sum_{j=1}^{n} S_j \, C_j}{S}$$

$$\mathrm{e} = \frac{\sum_{j=1}^{n} S_j \, e_j}{S}$$

$$\mathrm{D} = \frac{\sum_{j=1}^{n} S_j \, D_j}{S}$$

8. Analysis and discussion:

In the context of analyzing the role and degree of influence of each product of the product mix in the commercial firm independently, the researcher represented each product as a circular gears whose radius and thus its circumference is related to the size of the capital invested in it, and the said gear rotates around its axis at a speed that represents its rotation rate in the firm. Accordingly, the gears representing the mix of products in the firm were represented by one aggregate gear whose radius measurement and thus its circumference is related to the measurements of the radii and circumferences of all the gears of the mix of products, and it rotates around its axis at a speed equal to the sum of the speeds of the gears representing the products, as shown if figure 1. above.

Based on determining a required rate of return or having a specific goal at a certain level of profitability, the most appropriate mix of products can be determined regarding the volume of capital invested in each product according to its turnover rate, and this mix is considered as the minimum requirements necessary to achieve the specified goals.

Performance Level = Product Gear Size × Rotational Speed

It is possible to work on improving performance by studying and evaluating the products and taking the appropriate decision, whether by introducing new products or dispensing with existing ones, and determining the size of the capital invested in them according to the turnover rate of each of them.

The financial health of the firm is linked to the efficiency in managing its assets and liabilities, and working capital comes at the forefront of that, and therefore the most important component of it, which is the cash conversion cycle presented by Richards & Laughlin, 1980. By shortening the duration of the cash cycle, the profitability and value of the firm increases.

While recognizing the need to provide an integrated mix of commodities in the commercial firm, it should be sought to select the commodities that are most in demand and therefore the most sold (the highest in turnover) and focus on them by achieving a balance between the volume of capital invested in them and their turnover rate.

9. The results:

It is possible to plan a certain level of profitability, monitor the results of sales of various products, and make the appropriate decision regarding the capital invested in each product and the mechanism for increasing its turnover rate.

The researcher points out that there are some reservations about the results that have been reached, due to the presence of a number of unrealistic assumptions that have been made to facilitate the research procedures and embody the idea and goal required of it.

Other researchers can drop some or all of these assumptions easily and complete the research by conducting other complementary research, which enables the study of some factors affecting the work of commercial establishments, especially inflation rates and their effects on prices and the method of managing working capital in commercial firms.

10. Conclusion:

In view of the importance of managing working capital, especially the cash, the management of the firm should strive to achieve the objectives of liquidity and profitability by investing the appropriate amount of capital, and seek to shorten the cash conversion cycle as much as possible.

This research dealt with the issue of cash management and the analysis of the components of an aspect of the cash conversion cycle in commercial firms in an innovative manner that included providing the required product mix and analyzing the degree of contribution of each product to the overall performance of the commercial firm, and following active management in selecting products and determining the amount of the capital invested in each of them according to its turnover rate in order to ensure the achievement of the minimum level of liquidity and planned profits in the commercial firm.

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