

CHAPTER 03 - HYPOTHESES DEVELOPMENT

3.1 Chapter Overview

The current chapter focusses on building the relationship of selected determinants with WCM efficiency and estimating their probable effect. The existing literature has highlighted several studies wherein various determinants have been investigated for their relationship with WCM efficiency. In line to this, the current research attempts to accommodate the most vital determinants that might influence the WCM efficiency more than the remaining factors inclusive of a mix of firm-level as well as macro-economic determinants. Ability to create internal resources, tangible fixed assets, size, age, productivity, leverage, cost of external financing, interest coverage, structural capital, human capital, growth, gross domestic product, and interest rates are investigated for their probable relationship with WCM efficiency. Furthermore, the current study tried to capture the effect of productivity, human capital, and structural capital that have not been studied till now in relation to the WCM efficiency but have been signified as crucial for better performance in firms that could further hamper the liquidity levels in firms (Sapra and Jain, 2019; Bayburina and Golovko, 2009; Seth et al., 2020). Despite the effort to accumulate the most crucial factors influencing WCM efficiency, however there might be few of them that have been missed in the current research. However, as per the importance of the variables mentioned by the earlier researchers in the working capital domain, the current study selected above-mentioned firm-level and macro-economic determinants.

3.2 Probable Relationship of Selected Determinants with Working Capital Management

Efficiency

Most of the studies have focused on the individual effect of working capital components such as receivables days, payables days, and inventory days on the firm's performance (Goel and Sharma, 2015; Taleb, Zoued, and Shubiri, 2010). Furthermore, similar study by Deloof (2003) studied relation of receivables days, payables days, inventory days, and CCC with gross operating income (a proxy for profitability) using control variables as fixed financial assets, financial debt, sales, and growth in sales on a sample of 1,009 non-financial firms in Belgian for a period across 1992-1996. The results signified negative relation of receivables days, payables days, and inventory days with profitability. Later, Kieschnick, Laplante and Moussawi (2013) studied the empirical relation between shareholder's wealth and WCM efficiency through examination of US firms from 1990-2006. They claimed that the risk of bankruptcy, financial constraints, debt level, and future sales expectations of firms influence the value of cumulative dollar invested in net operating working capital.

Few studies have also analyzed the impact on liquidity levels considering the debt capacity of firms, such as, De Almeida and Eid Jr. (2014) analyzed Brazilian firms listed on BM&FBOVESPA from 1995-2009 regarding influence of growth in sales, debt burden level, competition, and expenses on WCM efficiency. Their results signified inappropriate working capital investment reduces the firm's value. However, rising financial leverage for financing extra working capital investment does not lead to reduction in the firms' value. Likewise, Ramachandran and Janakiraman (2009) studied the relation of profitability, denoted as earnings before interest and taxes (EBIT) with WCM efficiency in Indian paper industry during 1998-2006. Size of the firm, debt ratio, and fixed assets ratio were considered as the control variables and influence of

inventory days, receivable days, payable days, and CCC was checked on EBIT. Their results indicated satisfactory WCM in the selected industry wherein payable days and EBIT had a significant negative relationship. They also stated that firms with lower earnings wait longer to clear their dues and follow a decline in CCC. Studies investigating WCM efficiency or its components have somehow limited themselves to the firm-level determinants and that to determinants specifically under firm's control. Also, few determinants that are vital for firm's and employee's continual growth, for instance, research and development and staff welfare and training have been neglected. In line to this, following are the selected determinants along with hypotheses formulation utilized in this research:

3.2.1 Capacity to Generate Internal Resources

Since investment in working capital requires more funds, meaning higher financing to be borne by the firms or require firms to be able to generate more internal funds. In addition to this, asymmetric information creates conflict of interest among creditors and shareholders (Connelly *et al.*, 2011) implying a situation of credit rationing and rise in cost of external sources of funds (Baños-Caballero, García-Teruel and Martínez-Solano, 2010). In lieu of the preference to creditors in case of bankruptcy, such conflict leads to issues of underinvestment. Moreover, new debt issuance might earn incentives to the shareholders but at the same time increases the creditors' risk and for which they call for a higher risk premium. Therefore, as supported by pecking order theory (Myers, 1984), asymmetric information results into external source of funds to be costlier, which makes the firms to prioritize internally generated funds over debt and issuance of fresh equity. Firms' ability to create internal resources reflects liquidity levels, turnover, earning capacity, defaulting possibility (Abadi and Abadi, 2013). Theoretically, the presence of information asymmetry

among internal and external parties create rise in cost of external funds (Chauhan and Banerjee, 2018).

Wasiuzzaman and Arumugam (2013) studied working capital levels in Malaysian firms and found that firms with high information asymmetry needs more emphasis on internal resources. Their results also implied that firms have lower working capital in case of large asymmetric information level. Furthermore, Baños-Caballero, García-Teruel and Martínez-Solano (2014) investigated Spanish SMEs and found working capital investment to be sensitive to Spanish SMEs cashflows. The findings of their study suggested that level of working capital is lower in firms that are financially constrained. This extra financial burden of asymmetry and cash flow generating capacity might even lead to bankruptcy (Kieschnick, Laplante and Moussawi, 2013). Hence, a firm with less capacity to generate internal resources might be inefficient in WCM.

Also, Hill, Kelly and Highfield (2010) stated that incapacity of the firms to generate funds internally encourage them to opt for aggressive levels for working capital. Molina and Preve (2009) found that firms need to reduce its trade receivables when in financial distress. Furthermore, their study also showed a negative influence of cut in trade receivables on the firms' performance in scenario of financial distress. Precisely, firms with greater ability to create internal resources have higher working capital investments and provide larger credit period to its customers due to lower internal funds cost resulting into higher CCC and lower WCM efficiency (Baños-Caballero *et al.*, 2014). Similarly, Chiou, Cheng and Wu (2006) revealed a positive influence of ability to create internal resources on WCM efficiency. Based on the indications from previous studies, we anticipate a positive effect of ability to create internal resources on WCM efficiency by proposing the following hypothesis:

H1: There is significant association of CFLOW with WCM efficiency

3.2.2 Tangible Fixed Assets

Earlier studies have provided empirical evidence that tangible fixed assets impact the efficiency of WCM (Mathuva, 2014; Baños-Caballero, García-Teruel and Martínez-Solano, 2010; Elbadry, 2018). Due to limited capacity or sources of funds availability in firms, fixed assets investment and working capital levels contend with each other for financing, investment and growth (Seth, Chadha and Sharma, 2019). This finding was supported by Kieschnick, Laplante and Moussawi (2006), who found that CCC is negatively influenced by tangible fixed assets. In line to this, Sharma, Bakshi and Chhabra (2020), Salawu and Alao (2014), found a positive relation of fixed assets with WCM efficiency. Contrastingly, firms with large tangible fixed assets create less asymmetric information, have lower financial constraints, are able to raise funds at a lower cost, and which further increase current assets investment at a lower cost and a rise in CCC (Baños-Caballero, García-Teruel and Martínez-Solano, 2010). Later, Seth et al. (2020) found that a decrease in WCM efficiency is allied with consequent growth of NFA. Otherwise, in case of excessive working capital in firms, the unnecessary portion is to be redeployed in higher-valued uses such as fixed assets leading to a higher performance in firms (Aktas, Croci and Petmezas, 2015).

Owing to the mixed reasoning from existing studies, there is no clear indication on the direction of the relationship of tangible fixed assets on WCM efficiency but since it is significant in assessment of WCM efficiency, we propose the following hypothesis:

H2: There is a significant association of tangible fixed assets with WCM efficiency

3.2.3 Size

Large size firms have lesser informational asymmetry in comparison to small size firms, so the cost of funds decreases as the firms' size increases. Similarly, Chiou, Cheng and Wu (2006) found a positive effect of size on CCC implying that with increases in the size, the working capital

requirement also rises because the cost of investment in current assets falls. Likewise, Niskanen and Niskanen (2006) highlighted that large firms extend more trade credit to customers as these firms have several funding sources along with better access to capital markets and lower bankruptcy risk. Also, the liquidity position in larger firms is more in comparison to smaller firms due to their diversified operations (Baños-Caballero, et al., 2010). Precisely, large firms have more investment in current assets components which enhances the CCC and reduces the WCM efficiency. As per the empirical evidence available, firms' size influences WCM efficiency. Firms that are big in size invest more in working capital for achieving higher sales levels, or instead, large firms utilize their size to build on buyer–supplier relationship leading to lesser working capital investment (Kieschnick et al., 2006). Also, recent developments and technological advancements in the supply chain management systems make it easier for large firms to invest in such processes, coordinate among all players and manage each system carefully, especially, WCM efficiently (Seth et al., 2020). Smaller firms might find it difficult to implement such practices due to shortage of funds, expertise and resources.

Furthermore, as per the trade-off theory, smaller firms have a greater chance of getting bankrupt in comparison to large-size firms as larger firms are more diversified (Banos-Caballero et al.,2010). This in turn also influences the trade credit granted because large firms face intensified supervision from analysts so low information asymmetry is present, which further allows larger firms easier access to capital markets in comparison to small-size firms (Hill et al., 2010). According to Niskanen and Niskanen (2006), firms extend more trade credit if they have better access to capital markets and cash could be kept at a minimum. They found firms' size to be positively influencing trade credit extended. Further, low financial constraints, less information asymmetry and high borrowing power make large-size firms to accommodate flexible inventory

and receivables policy. Precisely, smaller firms incur the high cost of funds to invest in current assets, which results in lower inventory and account receivables. Additionally, small firms use trade credit from their suppliers as a source of financing due to higher financial constraints or limited sources of funds, which impact the CCC positively. Zariyawati et al. (2010) and Nazir and Afza (2009) found size to be negatively influencing WCM efficiency. Therefore, the considerations mentioned above leads to the following hypothesis.

H3: There is a significant association of size with WCM efficiency

3.2.4 Age

The current scenario in any economy or market is highly unpredictable. Older firms existing in such places are experienced in handling rapid changes. Further, older firms have expertise in terms of partners and employees in dealing with working capital requirements and preferably follow suitable working capital policies. Older firms, by virtue of their age, enjoy higher payables period from its suppliers and need not invest huge amount for inventories due to its easy availability and greater reputation. Age being one of the vital influencer in managing the working capital assist in terms of liquidity levels, financing options, credit facilities from suppliers, and development opportunities (Yazdanfar and Öhman, 2014; Moussa, 2019).

Earlier studies have examined firms' age and WCM efficiency together for estimating the underlying relationship but found mixed results. Niskanen and Niskanen (2006) explained that older firms are in a better position to avail external financing easily in comparison to new firms, so older firms incur a lower cost of funds for fulfilling working capital requirements. Similarly, Chiou et al. (2006) revealed a positive impact of age on the working capital requirement. As per the existing studies, older firms are a reflection of its quality, reputation, creditworthiness and are well known for their relationship with customers and suppliers (Cunat, 2007; Banos-Caballero et

al., 2010). However contrastingly, Mathuva (2013) investigated Nairobi firms and found nonsignificant relation among firms' age and inventory. Most of the researchers have mentioned the positive influence of age with WCM efficiency (Seth et al., 2019; Sawarni et al., 2020) as older firms have better bargaining power to avail longer period credit from their suppliers and in turn go for shorter receivables period from their customers by offering discounts on early payments (Sharma et al., 2020). This reduces the CCC for older firms and thus, makes firms efficient in managing the working capital.

Nastiti *et al.* (2019) investigated the contextual role of firms' age on the WCM determinants. Their study revealed younger firms to opt for shorter CCC for better WCM. Orobia *et al.* (2016) worked on identification of take-up rate of WCM routines as per the age and other factors. But their study found inconsequential effect of age for the possibility to commence WCM frequently in small-scale businesses. Conforming to this, Maheshwari (2014) found older firms reported lower CCC and were better in WCM due to lesser funds invested in current assets and easy availability of materials from suppliers on credit basis. Likewise, Seth *et al.* (2020) concluded that older firms have better access to external sources of financing along with adequate internal funds. Also, they enjoy extra benefits such as discounts on purchases, longer credit period, and delivery time from suppliers reducing CCC and consequently making firms efficient in WCM.

H4: There is a significant association of age with WCM efficiency

3.2.5 Productivity

Productivity reveals the working capacity of the firm denoting the sales done against wages incurred. Firms need to undergo several nonrecoverable costs for long-term sustainability (Seth et al., 2020). Such costs comprise creation of distribution channels, customized offerings, advertising, and, most importantly, recognizing the characteristics, inclinations, and requirements

of every type of customer. Therefore, adequate liquidity for financing such costs is required for excelling in the markets, and efficient WCM is a crucial task for firms' survival. Productivity represents larger sales against the wages paid by the firms (Seth *et al.*, 2020). High yield firms consist of ample liquidity which allows for fulfilling short-term and long-term obligations. This enhances the firms' flexibility in choosing conservative or aggressive working capital policies as per requirements. Also, this assists firms in adopting best practices for WCM and lessens the dependence on costlier external sources of financing leading to higher investments in current assets, greater opportunities, and an edge against suppliers in availing higher credit period and discounts (Raheman, 2012).

On the contrary, higher productivity is linked to greater sales against the workers' expenses. This leads to surplus cash availability in the firms and high liquidity levels for overall operations. Such favorable conditions allow firms to manage the working capital and its components efficiently, which creates less dependence on external financing, more investments, greater opportunities, higher bargaining power against the suppliers, being better than competitors in achieving customer demand and targets. Therefore, productivity influences WCM efficiency and firms' performance positively.

Habib and Huang (2018) examined the relation of working capital and productivity of Pakistani firms from 2009 to 2015. Likewise, Bellouma (2011) concluded that a lower CCC adds to higher productivity and performance by investigating export firms of Tunisia for 2001–2008. Chaney (2016) proposed that highly productive firms can generate cash flows internally due to higher sales and are better at financing foreign market entry costs. Meanwhile, less productive firms are dependent on costlier external financing, and it further depends on numerous factors such as size, goodwill, existing debt level, ownership structure and so on. Similarly, Seth *et al.* (2020)

observed a positive association of productivity and WCM efficiency in manufacturing exporters of India from 2008 to 2018. The existing literature has signified the vital role of productivity in firm's working capital performance and the same is highlighted through the following hypothesis:

H5: There is a significant association of productivity with WCM efficiency

3.2.6 Leverage

A high levered firm, for attaining funds from external sources, spends more in the form of risk premium as there is a higher probability of default in such firms (Hilal, 2016). Also, these firms spend most earnings on interest payments of existing debt. Hence, for levered firms, the funds invested in CCC are costlier in comparison to non-levered firms and the leverage in firms affect the funds' availability for WCM (Mahmood *et al.*, 2019). Consequently, benefits derived from debt issuance and hike in share prices cannot be enjoyed by levered firms due to limited funds availability. This further influence the current liquidity situation and firms' potential for future earnings along with inefficiency in WCM components.

Likewise, Sawarni, Narayanasamy and Ayyalusamy (2020) found an adverse impact of leverage on WCM efficiency by examining non-financial Indian firms. Moreover, Chiou et al. (2006) concluded that high leverage reduces measures of WCM efficiency. As financial decisions are affected by the level of debt on the firm, it influences the earning and investment opportunities. Since working capital is mainly related to short-term decisions and involves funds concerning day-to-day operations, the firms' leverage, or debt level influences the funds' availability. Also, as per the signaling theory, debt issuance reflects the financial condition of the firm, which further results into a positive reaction to the share prices (Kemper and Rao, 2013). So, a highly levered firm would not be able to enjoy the benefits of issuing more debts and a rise in share prices. This affects

the current cash holding position as well as the future earning capacity of the firms along with WCM efficiency. Furthermore, the firms' performance gets influenced.

Goel and Sharma (2015) concluded a negative association between leverage and WCM efficiency of manufacturing firms in India for over ten years. Relatedly, Naser et al. (2013) also stated the inverse connection of leverage with WCM efficiency by exploring the Abu Dhabi Securities Exchange-listed firms from 2010 to 11. Opposingly, Rimo and Panbunyuen (2010) revealed a positive association between leverage and WCM efficiency, inferring that a rise in debt level raises the length of CCC and sequentially lessens WCM efficiency. In addition, the existing studies suggested that while firms have high leverage, inadequate WCM results in less value to the shareholders. This affects future growth and firms' performance, possibly leading to bankruptcy (Seth et al., 2019). Therefore, differences in the levered capacity of the firms become, for an endogenous perspective to growth, one of the vital justifications for persistent differences in WCM efficiency and firms' performance. Therefore, the current study expects that leverage may hinder WCM efficiency and propose the following hypothesis:

H6: There is a significant association of leverage with WCM efficiency

3.2.7 Cost of External Financing and Interest Coverage

The WCM literature has progressed through several empirical and theoretical contributions wherein working capital investment deals with two contending sights. Firstly, high investment in working capital enhances the sale as the firm has more inventory to attain uncertain customer demands and adequate cash levels to provide credit facilities to the customers (Seth et al., 2019). Such liquid firms also avail early payment discounts (DeLoof,2003) and, therefore, add to the firms' performance. Secondly, since higher investment in working capital requires more funds, and hence, higher financing and related financial expenses are borne by the firms, which may lead to

bankruptcy (Kieschnick et al., 2013). Therefore, a firm with financial constraints might not achieve appropriate working capital levels and become inefficient in WCM. This influences the liquidity levels and performance of the firm in terms of sales and profitability (Seth et al., 2020b, c).

Moreover, ample studies have highlighted a direct relation of working capital investment with firms' performance. Also, the seminal work of Modigliani and Miller (1958) highlighted the financing and investment decisions to be independent; a large number of studies based on imperfections in the capital market have supported the relationship among these decisions (Hubbard, 2001). Despite the vital interconnections among various working capital components while examining their impact on the firms' performance (Kim and Chung, 1990), rare empirical evidence for the valuation effects of working capital investment and, more precisely, the probable impact of financial constraints on this relationship prevails. The current study uses two variables for measuring financial constraints that are the cost of external financing (CEF) and interest coverage (IC). Firms are considered to be financially constrained in the case of expensive external financing and lower IC (Whited, 1992). Hill et al. (2010) suggested considering firms' financing constraints while examining working capital behavior. They investigated 3,343 firms for a period from 1996 to 2006 and stated that expensive external financing encourages firms to opt for aggressive levels for working capital, whereas firms pursue conservative working capital levels in case of higher internal financing capacity.

Molina and Preve (2009) examined trade receivables as a component of working capital policy in financially constrained firms over a period from 1978 to 2000 and found that firms need to reduce their trade receivables when in financial distress. Furthermore, their study also showed a negative influence of the cut in trade receivables on the firms' performance in the scenario of financial distress. In this line, the availability of empirical evidence determines that working capital

levels and firms' performance are dependent on the financial constraints of firms. Precisely, an adequate system for handling financial constraints may lead to efficient WCM. Such WCM efficiency would further lead to better management of the cash levels, which in turn would assist the firms' performance positively. Likewise, Faulkender and Wang (2006) found that WCM efficiency in terms of cash holdings would add more value to the financially constrained firms. For further testing the vitality of the aforementioned evidence on financial constraints, the current study tests the following hypotheses:

H7a: There is a significant association of cost of external financing with WCM efficiency

H7b: There is a significant association of interest coverage with WCM efficiency

3.2.8 Structural Capital

India being a developing country differs in terms of nature and size of its manufacturing firms in comparison to manufacturing firms of a developed country (Goel and Sharma, 2015). The attractiveness of such firms mainly depends on their producing and operation costs (Manasserian, 2005). However, for long term competitive sustainance, firms must ensure procurement of updated technology and latest machinery for its operations and production processes. Yet, adequate investment in research and development (R&D) is treated as an expense, mostly in large scale firms.

Researchers have mentioned R&D spending as structural capital, which highlights firm's long-term ability for establishing intellectual properties, information systems, processes, competitive intelligence, and patents (Saarani and Shahadan, 2012). Structural capital also involves relationship value with stakeholders such as consumers, supplier, industry affiliates, and mostly emphasize on nurturing firm's ability by way of working philosophy and systems. Rehman

et al. (2012) investigated the influence of structural capital on the performance of the Pakistani banking sector in the year 2010 and found a positive relationship of structural capital efficiency with the financial performance as measured by return on assets and return on equity. Likewise, Alipour (2012) studied 39 Iranian insurance firms over a period from 2005 to 2007 and found structural capital to be positively affecting the insurance firms' performance as measured by return on assets. The results of this study implied that the internal systems of firms designed for capturing, storing and disseminating information and knowledge influence the firms' performance directly.

Phusavat et al. (2011) empirically examined the interrelationships among structural capital and performance of listed manufacturing firms in Thailand. The study suggested an increased role of structural capital for attaining long-term competitiveness and effective knowledge management. Muhammad and Ismail (2009) found a positive relationship between structural capital and performance of Malaysian financial sector firms for the year 2007. Similarly, Yusuf et al. (2020) found structural capital to positively affect the performance of listed Indonesian manufacturing firms from 2015 to 2017. However, a study by Shin et al. (2017) found that fabless firms in the semiconductor industry have a negative relation between R&D and firms' performance for a period from 2000 to 2010. The results stated overinvestment in R&D and a lack of value creation. Furthermore, several profit measures that denote firms' performance are in a way embedded in firms' working capital or short-term financial decisions (e.g., inventory, receivables, payables, cash, etc.) and also form a part of products and services offered to customers. Hence, the role of structural capital and working capital needs to be considered for firms' profitability and revenue generation.

Putting differently, structural capital forms a foundation for effectively utilizing the liquidity levels in firms to produce goods or meeting customer demands at the lowest cost, high-

quality standards and recent technology. Further, this enhances the brand image of firms in the eyes of customers, and in turn, the demand for the products and firms' performance increases. For transforming such vital information into potential opportunities, the following hypotheses are formulated:

H8: There is a significant association of structural capital with WCM efficiency

3.2.9 Human Capital

Human capital is widely noticed as a vital element in the firm's performance, but it is unkempt in the domain of WCM. Human capital is termed as the experience, expertise, knowledge, technical ability, training, and skills of the human resources (Rauch et al., 2005). An appropriate human capital base in a firm reflects extensive knowledge, competent analytic skills, superior management capability, better ability in dealing with complex issues, higher foreseeing power to analyze internal and external setting in an opportunistic manner (Devins, 2008). Since the above-mentioned aspects are crucial to overcoming the challenges in achieving higher performance in firms, human capital, thus, adds to the effectiveness in terms of technical modernization and change.

Titman (1984) formulated a human capital model for briefly examining the firm-level decisions wherein the firms' probability of getting bankrupt was linked with liquidity decisions. The author argued that in times of bankruptcy, laborers and suppliers forming specified goods are most susceptible to incurring huge costs. Mainly, a setting wherein firm-specific human capital is borne by the employees, the bankruptcy could perpetrate to a significant cost to employees (by lowering their human capital extent) and further impact the liquidity decisions in firms quantified as WCM decisions. During times of financial hardships, employees undergo a cut in their reimbursements to certify timely debt settlement. Furthermore, the employees get termination in

case of insolvency. (Chemmanaur et al., 2013). Moreover, during normal times, the contribution towards human capital inclusive of training and welfare activities would also get impacted by the prevailing levels of liquidity in firms. Nonetheless, a rise in human capital investment might affect the liquidity policies i.e., WCM and henceforth, firm's performance.

Oforegbunam and Okorafor (2010) examined 50 Nigerian entrepreneurs for estimating the impact of human capital development on the performance of small and medium enterprises (SMEs). The authors revealed performance of firms to be significantly manipulated by on-the-job training. Tran and Vo (2020) investigated Vietnamese economy for a period from 2011-2018 and indicated positive association of human capital efficiency with firm's performance. Watson et al. (2003) revealed that future venture viability can be assessed through human capital and it act as a considerate to enhance the venture success. Additionally, their results highlighted a positive effect on the venture's performance from human capital. Similarly, Bhagavatula et al. (2010) underwent examination of handloom industry of India for assessing the entrepreneur's competence to mobilize resources and identify growth opportunities. Also, an adequate human capital base assists the firms in analyzing liquidity conditions better than its competitors and adjust accordingly. These firms would actively work on the information processing and be well prepared for opportunity recognition. Transformation of such prospects favoring the firm would augment the efficiency of managing the working capital. Furthermore, this WCM efficiency leads to appropriate cash levels for surviving in times of uncertainties, fluctuating customer demands, lack of financing sources, or inadequate material supplies. Thus, the sales would be enhanced leading to a holistic rise in the firm's performance. Based upon the arguments discussed above, the following hypothesis is proposed:

H9: There is a significant association of human capital with WCM efficiency

3.2.10 Growth

Pecking order theory implies that firms anticipating higher growth opportunities require more capital investment and in turn more internal financing. This anticipation would make the firms to widen their short-term investments and cash holdings. Also, in high anticipation for growth opportunities, firms could pile up huge stocks of inventory that would outweigh trade-credit effects (Kieschnick et al., 2006). Several empirical studies have mentioned the positive influence of growth opportunities on efficient management of working capital (Nazir and Afza, 2009; Hill et al., 2010). Similarly, Blazenko and Vandezande (2003) found that rise in expected sales impacts the inventories positively, and Kieschnick et al. (2006) highlighted that CCC is positively influenced by future sales growth and suggested anticipation of a higher sales growth to be the reason behind the rise in inventories. Anticipation of high growth in a firm persuades credit period allowed to customers and credit period received from its suppliers along with investment in inventories (Baños-Caballero, et al., 2010). High growth firms pile up a huge stock of inventories to meet the future sales requirements as concluded by Blazenko and Vandezande (2003) in their study.

Similarly, Kieschnick, Laplante and Moussawi (2006) found a positive influence of expected sales on inventories. Further, high growth firms avail higher payables period from their suppliers due to their strong liquidity position and market hold. Similarly, Cunat (2007) implied firms with high growth have smaller CCC. Likewise, such firms extend more trade credit to its customers to enhance their sales during low demand situations which enlarge the CCC and further lead to inefficiency in WCM (Seth, Chadha and Sharma, 2019).

Hence, since the above considerations provide dissimilar conclusions about the relationship of growth with WCM efficiency, the expected relationship is inconclusive.

H10: There is a significant association of growth with WCM efficiency

3.2.11 Gross Domestic Product

A firm's financial health is signified through its annual statements such as journal & ledger balance, profit and loss (P&L) statement, and balance sheet, but in order to envisage the firms' whole performance, a correspondence among firm-specific and macro-economic influencers is required (Doruk and Ergun, 2019). GDP is one of the macro-economic indicators that can impact any firm's overall industrial climate and further its performance (Seth et al. 2020).

GDP is the total value of goods produced in an economy by firms and the individuals (both locals and foreigners) at a given period of time (Amadeo, 2018). Otherwise, it is the total production value of goods and services for complete year in the economy (Kenton, 2018). Generally, GDP forms business investments, government spending, personal consumption expenditures plus exports minus imports (Goel and Sharma, 2015). Furthermore, shifts in economic strategies pertaining to GDP leads to considerable change in the short-term financial components of firms such as cash levels, amount of debt, interest amount, purchasing power shifts in customer demands, and especially the working capital levels (Taleb et al. 2010). Ali and Khan (2011) advocated negative effect of inferior economic conditions on the working capital policies of firms. Banos-Caballero et al. (2010) examined determinants of working capital in non-financial UK firms and revealed the significant effect of economic conditions on CCC.

Mansoori and Muhammad (2012) examined Singaporean firms by investigating the effect of GDP on CCC. Likewise, Palombini and Nakamura (2012) investigated management of working capital in Brazilian firms and revealed negative effect of GDP on working capital measures. Lately, Qurashi and Zahoor (2017) studied impact of GDP on working capital and discovered GDP to be positively affecting the WCM in UK pharmaceutical firms. Additionally, their results highlighted

that growing GDP of a country reflects larger purchasing power with the customers which adds to the sales. For meeting such uncertain and huge demands, firms invest large amount in inventories making firms earning a competitive position in the market along with an upper edge on the suppliers. For such firms, suppliers offer credit benefits by way of credit purchases, longer credit period, discounts, additional financing sources, timely delivery of supplies etc. The above-mentioned advantages adds to the reduction in CCC and consequently, a rise in WCM efficiency occurs. Zariyawati et al. (2010) also examined Malaysian firm's management of working capital and identified GDP influence efficient management of working capital positively.

In line to the above-mentioned studies, the probable relationship of GDP and WCM efficiency can be answered with the following hypothesis:

H11: There is a significant association of GDP with WCM efficiency.

3.2.12 Interest Rate

Economies and markets characterized by fluctuating or uncertain macro-economic conditions such as mounting interest rates ends towards declining sales, low profit-margins, soft growth, lack of customers' demand, etc. (Enqvist, Graham and Nikkinen, 2014). Consequently, rise in interest rates moderates economic growth, limits the disposable income, upsurge borrowing costs and hence, limits the spending. During these times, firms need to adjust their working capital levels due to the less availability of internal sources of funds, costly external funds, and higher ploughing back of profits (Mathuva, 2014). Hence, the firms face difficulties in materializing receivables and inventories heading towards enhanced CCC and less efficiency in WCM.

Several prior researchers have determined their analyses on the difference in WCM efficiency across shifts in interest rates (Goel and Sharma, 2015a, b; Seth et al., 2019; Doruk and

Ergun, 2019; Seth et al., 2020). In times of soaring interest rates, firms need to change working capital levels as they face difficulty in utilizing internal sources of funds and ploughing back of profits for financing working capital (Smith, 1980; Mathuva,2014). An uncertain macroeconomic environment characterized by rising interest rates results into narrowing down of sales, slashed profit margins, a dearth of demand, fewer growth opportunities and so on (Enqvist et al., 2014). During such inflationary periods, the firms are not able to materialize receivables and inventories are tied up leading to a longer CCC. Thus, as per the empirical findings discussed earlier, the expected relationship between the interest rate and WCM efficiency is presented as per the following hypothesis:

H12: There is a significant association of interest rate with WCM efficiency

The current chapter offered hypotheses formulation of the determinants and their probable relationship with WCM efficiency. Although the literature on WCM has confined itself to mostly firm-specific factors regarding their effect on short-term liquidity management. This research has taken a step forward by incorporating a combination of firm-level and macro-economic determinants for investigation of their effect on WCM efficiency. Using such combination would offer accurate and exhaustive results that would be helpful for the financial executives, working capital managers, top-level authorities and other stakeholders. Additionally, the effect of productivity, human capital, and structural capital that have not been studied till now in relation to the WCM efficiency but have been signified as crucial for better performance in firms have been utilized.