BRAC University

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BUS 400: Internship

Optimizing working capital and payment system through integrating financial and physical supply chain and the role of banks.

Submitted to:

Riyashad Ahmed

Assistant Professor

BRAC Business School

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Submitted by:

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Student ID: 14204021

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Optimizing working capital and payment system through integrating financial and physical supply chain and the role of banks.

Letter of Transmittal

08th May 2019

Riyashad Ahmed
Assistant Professor
BRAC Business School
BRAC University, Dhaka

Subject: Submission of Internship Report.

Dear Sir,
With due respect and sincerity, I am Md. Rashedul Hasan, Id: 14204021, BRAC Business School submitting my internship report on “Optimizing working capital and payment system through integrating financial and physical supply chain and the role of banks”, as a part of internship requirement.

I humbly expressing my gratitude to you for your support, guidance and direct supervisions throughout the entire course of preparing this report and the working experience on this report helped me to do a research on optimizing financial flow in the supply chain. I have tried my best to incorporate all the information, knowledge, experiences and learning to make the report more informative.

During preparing this Internship report, I have tried to follow your instructions to present a better picture of financial supply chain. However, I will be glad to clarify any incompatibilities that may arise.

Sincerely,
Md. Rashedul Hasan
ID: 14204021

Signature

Letter of Endorsement

That is to certify that Md. Rashedul Hasan is a student of BRAC Business School, ID: 14204021, Major in both Finance and Operations & Supply Chain Management, has successfully completed his internship at "Akij Group," and prepared a report on **"Optimizing working capital and payment system through integrating financial and physical supply chain and the role of banks."** under my supervision.

He tried his level best to develop a standard internship report by following my instructions. I wish him a prosperous and successful career.

Signature

Riyashad Ahmed
Assistant Professor
BRAC Business School
BRAC University
66, Mohakhali, Dhaka-1212, Bangladesh

Acknowledgement

It was an amazing experience to do internship in Akij Group. The successful completion of the report is a joint effort of many individuals. So, I am expressing my humble gratitude to everyone who is involved in making this report into a reality.

First of all, I would like to give my thanking to my internship advisor Riyashad Ahmed, Assistant Professor of BRAC Business School, for his constant support and guideline in preparing this report.

Moreover, I would like to express my special gratitude to my internship supervisor S. H. Md. Moktadir, Assistant Officer of Accounts and Finance Department of Akij Group. With his help and reference, I have given the access of various level of data in Accounts and finance department of Akij Group.

Furthermore, I would like to thank Md. Masud Rana, Deputy General Manager of Accounts and Finance Department of Akij Group, to let me work with him and giving the opportunities of facing more real-life scenarios in Corporate World. Without his help, I might be end up with meaningless internship experiences.

Besides, I would like to acknowledge that during my internship, I have got access to many necessary and important documents of Akij Group. Akij Group is not a public limited company and as for this reason, I did not have the permission to accrue and use any financial information and data in my internship report.

Finally, I would like to thank SK Sadi, General Manager of Accounts and Finance Department of Akij Group for his support during the preparation of internship phase. My successful completion of internship program in Akij Group would not be possible without the support of these amazing people.

Executive Summery

It is an unquestionable fact that supply chain has existed since different manufacturing organization have brought their product and services to the customers. The hypothesis of financial supply chain management is relatively a contemporary thinking in literature. The importance of financial supply chain management is gaining attention towards the scholars but only few researches have been directed towards a structural identification of financial supply chain management. Global financial crises played a major role to increase a steady interest in financial supply chain management over the past decades. Most of the organizations has witnessed the advantage and benefit of collaborative relations within and beyond their own organization. Many organizations have identified that, without the process of financial supply chain they can no longer compete in the current business environment. Link among organizations supply chain strategies and their general business plans are the key to achieve a successful financial supply chain management practice and to achieve the comparative advantage. This paper aims to demonstrate the concept of optimization of working capital with integration of physical and financial supply chain management and a review of theoretical research. The main goal of this paper is to provide a theoretical literature review of working capital optimization. Initially, this paper discusses about the main elements constituting the term physical and financial supply chain management and decode the meaning of the study. Moreover, organizations, suppliers and financing institutions collaboration in physical and financial supply chain management has given an emphasis. Afterwards, a standard review from different theoretical literature is provided to verify importance and significance of this study in contemporary management theory and provided constructive conclusion. Finally, practical recommendations are proposed to get the best out of the integration of physical and financial supply chain management.

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Organizational Overview

Introduction

During the late seventies Akij Group accrued Dhaka Tobacco Industries, at present named as Sheikh Akijuddin Limited after the decision of Government of Peoples Republic of Bangladesh to handover the tobacco factory to the state-run private sector. At present, Akij Group has signed an agreement with the Japan Tobacco Industries over the sale of Dhaka Tobacco Business. Dhaka Tobacco Industries, the tobacco component of Akij group was the second largest tobacco company of Bangladesh. Dhaka Tobacco Industries had hold about a twenty percent share of the cigarette market in the country and it was eight largest cigarette market in the world.

The production factory was on Morkun, Tongi. The factory was equipped with a modern cigarette processing unit with lot of investment on workers and machineries. More than 1200 workers worked in an environment friendly atmosphere to ensure delivery of high-quality products for millions of cigarette consumers. Dhaka Tobacco industries used to produce eight brands of cigarettes including Navy, Legend White, Five Star, Red & White, K2, Surma and Diamond. The company's factory could produce approximately one billion cigarettes per month. Navy was highly popular brand in Dubai and company could export one hundred million cigarettes in a month.

The inventory facility was world class with the specification of air-conditioned and moisture-controlled rooms for two years of storage solution. The processing of tobacco starts with the bales of tobacco which is sliced into uniform sizes and shapes. The different shapes of bales tobacco stored in the blending silos in precise proportion and after that it is moistened, cut and dried and fed into a conditioner using auto feed and finally cooled and stored in silos for further processing. After that, processed bales rolled through a steam roller for dry cutting and make it a lamina. At this point, the lamina mixed in a chemical added cylinder. A Molin's Plug making machine makes filters of lamina and make plugs of different length and dia. Quality test was controlled in Molmac Mark 9 machine equipped with system to remove outside materials from tobacco and also measure weight and density to maintain uniformity.

The well-disciplined environment and efficiency of this factory has caused man multinational companies to offer useful deal to manufacture product in order to supply the subcontinent. Dhaka Tobacco Industries had been contributing to the country's GDP and government reserve and also provided employment to the people since its start of business.

History of Akij Group

Akij Group Started its business with jute trading. Jute known as the golden fiber of Bangladesh, contributing significant amount in economy by earning foreign exchange. Akij Group diversified its business with seamless effort along with dynamic management and support from various clients. The group went into producing handmade cigarettes known as Akij Biri. It was a popular product among the low-income people. This product boosts an increase in revenue as well as made a significant contribution to the government reserve.

Akij Group is half a century old and for many years through business diversification it has established popular brand image and made a significant placement in industrial family in Bangladesh. Snice 1950 it stablished 26 big concerns with diverse activities and different products and progressing with tremendous pace in the industrial area of Bangladesh. A total number of 50057 people are employed by the group and cared for as members of the Akij family. The non-profit concerns are also involved in sustaining development of the country & for social welfare.

Mission and Vision

In this era of mass production, as it is very hard to stand out with one product, Akij Group focuses on making the best in all sectors. Any company's vision is actually the dream to which the company always strives to reach where it may become possible or not. Akij Group is not something different. Expanding the business in the abroad and becoming one of the market leaders internationally are the visions of Akij Group. The mission of Akij Group is to be the market leader through their best effort, suitable and competitive marketing strategy and the consumers support. Now they are in the position of challenger and their vision focuses on those missions, goals and objectives which will make them able to be the leader from the challenger to the leader in the market.

Board of Directors of Akij Group

These people are Body who represents the Akij Group.

SK. Nasir Uddin, Chairman AFBL

SK. Bashir Uddin, Managing Director, AFBL

Sk. Jamil Uddin, Corporate Director, AFBL

SK. Jashim Uddin, Corporate Director, AFBL

SK. Shamim Uddin, Corporate Director, AFBL

Achievements

Akij Group was awarded “National Export Trophy” for their extraordinary contribution to the export sector of Bangladesh for the fiscal year 2015-16.

Product Offerings

Dhaka Tobacco Industries had diversified product in Bangladesh as well as in the foreign market. Day by day Dhaka Tobacco Industries gained popularity among the people. Navy was the most popular and revenue generated product of Dhaka Tobacco Industries. The demand of Dhaka Tobacco Industries cigarette was too high in the foreign market. The products which were offered then by the company are given bellow:

DHAKA TOBACCO INDUSTRIES:

Products of Dhaka Tobacco Industries (DTI):

High Segment:

a) Castle Full Flavor

b) Castle Lights

Previously DTI enjoyed more than 10% market share in this segment.

Medium Segment:

a) Navy

Previously DTI are contributed 48% market share in this segment.

Lower Medium Segment:

a) Sheikh

b) Real

Previously DTI were enjoying more than 80% market share in this segment.

Low Segment:

a) Five Star

b) K-2

c) Surma &

d) Read & White

DTI's market share in this segment was about 50%. Previously, Dhaka Tobacco industries produced eight brands of cigarettes. They were - Navy, Legend White, Five Star, Red & White, K2, Surma and Diamond. The factory produced approximately one billion cigarettes per month. About a hundred million of Navy brand were exported to Dubai monthly.

Product Quality

Dhaka Tobacco Industries used to produce quality products. Their products contained following qualities:

- Excellent Taste.
- Top quality filter.
- Reliable.
- Positive aesthetics

1. Introduction of the study

1.1. Rational of the study

Economic crises and increasing complexity of global supply chain has increased demand among traders for opportunities to improve the efficiency of working capital by unlocking the cash in the financial supply chain. This matter put an importance to the improved integration of financial supply chain with the flow of physical goods and information. Physical goods and information were the primary discussion in the literature over the past decades and the importance of financial supply chain is omitted. In the modern globalized economy, high level of competition and poor financial condition forced organization to engage in an endless fight for cost reduction with the struggle to have the access for required fund to achieve their goal. To identify supply chain activities, it is necessary to identify financial supply chain management to maximize profit as a primary objective for the hole range of activities. Financial supply chain management optimize working capital and reduce capital cost through integrated relationships of trade partners. The below diagram shows the financial supply chain management pyramid in order to demonstrate simplified view of its main components.

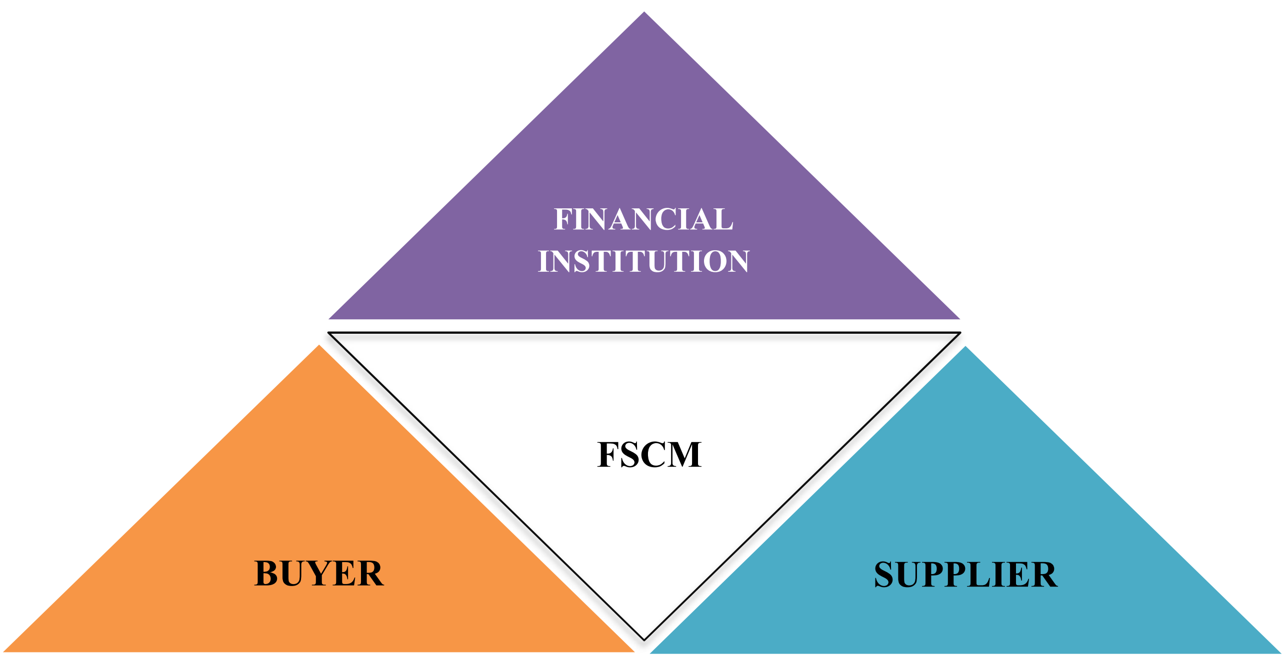

Diagram 1: The Financial Supply Chain Management (FSCM) Pyramid [26].

The supply chain is a concept of the flow of information, materials, payments and services from raw materials suppliers through manufacturers and warehouses to the end customers. Supply chain create value, deliver products, process information and give services to the customers. Supply chain management and activities consists on designing, organizing, planning and coordinating. These core activities included with purchasing, payment flow, materials handling, production planning and control, logistics and warehousing, inventory control, distribution and delivery. An organization competitiveness relies on the effectiveness of these activities through a clear visibility on their product and information flows by delivering the right product, to the right customer, in the accurate quantity, in the requested quality, at the appropriate place, at the looked-for time. The main focus of an organization is to find visibility in their financial supply chains involving the flow and use of cash throughout the physical network. The management of financial flows includes transfers of money, payments, payment schedules considering the inflows and outflows of cash are continuous through an organization's life span because such inflows and outflows depend on movement of goods and on market demand. The systematic non-synchronization of flows of cash with the transfer of products and services creates an impact on the ability of an organization to go with the operations effectively and to maintain and improve financial performance. The concepts of financial supply chain management stem from the initialization supply chain financing program from finance institution with new forms of payment terms and pay system among trade partners. External financial providers provide financial services to help to increase supply chain efficiency in the business competition. It minimizes the complexity of payments process and benefit large participants to reduce working capital cost. Moreover, it improves short term liquidity and preserve long term buyer-supplier relationship. The main fact is the informed view of financial flow that impact on an alteration in working capital management process across supply chain and on final cost. In the below diagram, the circuit of financial supply chain management is showed to demonstrate a simplified view of the main flows.

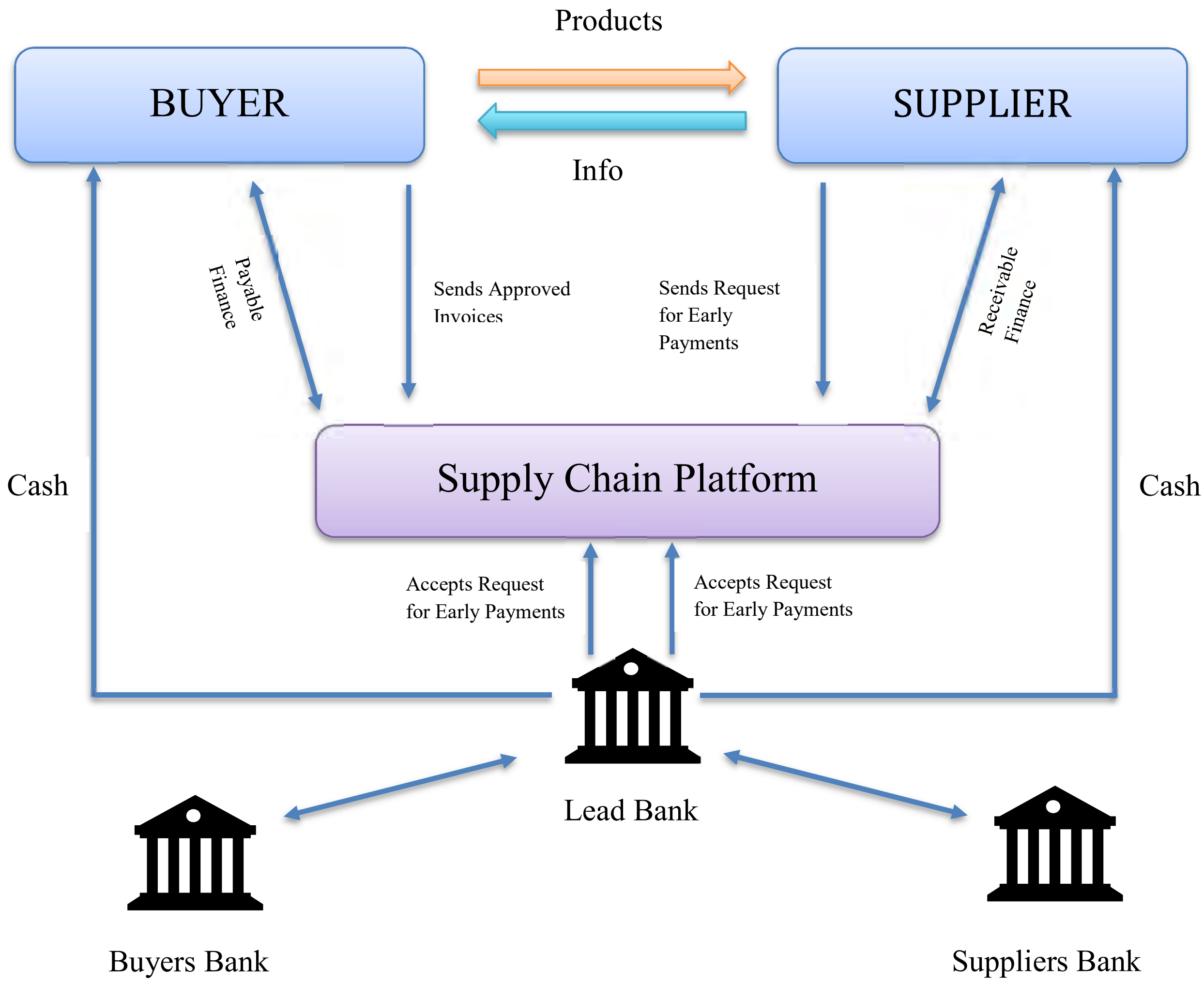

Diagram 2: The Circuit of FSCM [26].

1.2. Scope and Delimitation of Research

The research is limited in that it has provided a literature review of the working capital optimization concept by analyzing both theoretical and empirical research contributions. Further studies are required in order to identifying grey research areas and hopefully initiating a fruitful academic discourse on the subject to quantify the impact of banks' interventions on supply chain integration.

1.3. Objectives of the Report

The objective of this paper is to find out the challenge of optimizing working capital by reviewing fundamentals of working capital and financial supply chain management techniques through the problem of scheduling invoice payments, cash collection in order to improve working capital performances and the role of banks.

2. Literature Review

In the era of economic development, the rise of corporate globalization increases the demand for the minimization for labor cost, raw material cost, carrying cost of global enterprise package, cost of global enterprise network management, the concept of global supply chain came into being. Now in this modern world of globalization, Supply chain is an inevitable product for the economic development of business background. On the other hand, global outsourcing leads to higher transportation cost, longer lead time, bring the flow of working capital in the bottlenecks. So, these issues are arising the interest for low cost benefit and therefore many companies are highly interested for the opportunity of efficient model on financial supply chain management processing mode. Aberdeen (2006) indicates that terminal-terminal cost reduction method is worth exploring when competition between different companies in the same industry is more prominent. than individual companies. Different companies improved their competitiveness through optimizing and practicing financial supply chain which is equipped with in the form of automated trading process. There is a remarkable definition came from Gelsomino and others (2016) about Supply Chain Finance consisting two remarkable viewpoints, one is “finance oriented” concerning creditors liabilities and another one is “supply chain oriented” concerning working capital streamlining through records payable, receivable, inventories, and fixed asset financing. Sugirin (2009) emphasized the financial and supply chain management area because different type of companies may get introduced to different financial problem in the short or long run and financial supply chain management has increasingly been seen as a stable business off system approach. For example, incorporating supply chain finance improve the conditions of financing and payments among the large buyers and suppliers. Different customers from different industries require various needs and banks and third-party service providers face real challenges to meet the distinctive requirement. Wang (2016) elaborate that, business stream, genuine material stream, data stream and capital stream with the center of the inventory network control formulate the base of supply chain transaction structure and subtle elements of the exchange. These gives liquidity to providers through utilizing their purchaser's higher credit rating to achieve value-added process.

Buyers and suppliers both are very much concerned with the improvement of global supply chain complexity through optimizing the efficiency of working capital by enhancing the flow of cash to be circulate freely in the financial supply chain [1], [2], [3]. It indicates the need of effective integration of financial supply chains including the smooth flows of physical goods and information. As for this reason, banks have an opportunity to play a proactive role in integrating physical and financial supply chain to improve the working capital efficiency and buyers and suppliers are also putting pressure on their banks to play a proactive role [4], [5]. The flows of goods and information was the primary study in the supply chain literature over the past decades and the financial supply chain is largely ignored in the study [6], [7]. In all economic supply chain network, it is common that the financial supply chain running parallel to the flow of goods and information and its integration with the physical supply chain is an important and ubiquitous aspect of supply chain integration. Many of the literature highlighted the improvement of physical and financial supply chain and mentioned that financial services are rarely contribute to the supply chain integration [6], [7], [8], [9], [10]. There is a significant number of literature where some factors have been identified as to enabling supply chain integration: supply chain coordination [11], [12], [13]; inter- and intra-organizational collaboration [14], [15], [16], [17], [18]; information sharing [19], [20], [21]; and information visibility [22], [23], [24].

3. Methodology of the Research

This research is basically descriptive research. The models and the finding of this research is based on several secondary data and group discussion. The organizations executives, employees, are the target population on this research.

3.1. Data Collection Methods

3.1.1. Secondary Data

Books, internet data base, and research papers from different well renowned journals are used for the source of secondary data. With authority's permissions, some internal reports are also used as a source of secondary data.

3.1.2. Group Discussion

To get more real view of the physical and financial flow in the supply chain network a group discussion was conducted with several higher officials from Akij Group. Different financing techniques, implementation barriers and the possible ways of solutions were discussed on that group discussion.

4. Analysis and Interpretation of Data

Supply chain is a network of coordinated plans and activities of suppliers, manufacturers, distributors, retailers and warehouses to convert raw materials into finished goods inventory and creating develop products [25]. The most empirical studies of the supply chain management literature have been concentrated on the manufacturing contexts and physical distribution chains which is basically focus on the materials and product characteristic [9]. Conceptualization of the joining of Buyer and Supplier is an another characteristics of the supply chain literature for the past two decades and it has been developed and exemplify by the Supply Chain Council through Supply Chain Operation Reference (SCOR) model and acknowledged by academics and practitioners as a framework for economic supply networks and its integration with the physical supply chain is a ubiquitous and critical aspect of supply chain integration. Almost all the supply chain integration research is based on the exchange of the goods and flows of information, rather than financial flows or flows of cash. These matters have been recognized by Flynn et al. that supply chain can manage the transection of money, as well as materials, products and information. Through this matter, he successfully asserted three dimensions of supply chain integration. Initially, he identified customer integration which is between the manufacturer and the buyer. Following to that, supplier integration between the manufacturer and its supplier and finally internal integration refers to the organizational strategies, process and practices into collaborative and synchronized process.

To optimize the management of working capital along the supply chain there have been some recent attempts to model financial flows. A proposition has been made from Guille´n et al. (2007) about the analysis of the management of assets and the flow of cash along the supply chain. There is a similar model from Gupta and Dutta (2011) describing the circulation of money in the supply chain with a viewpoint of a supply chain partner collecting money from supplier downstream and making payments to customer upstream. Both these methodologies analyze supply chain performance consisting cash flow and equity management from the perspective of the relationship between buyers and suppliers but ignored considering the role of financial performance in managing payments.

Buyers and suppliers working capital and cash liquidity fall under crisis due to the time lags arise in the process of making payments for goods and services along the supply chain. Over the past decade, the economic recession and financial service crisis increasing pressure on service providers and manufacturers to improve the efficiency of working capital through release cash in the financial supply chain and thus both buyers and suppliers becoming increasingly demanding clients for the banks [4], [10]. The difficulty on the contraction of credit market for controversial sources of credit creating pressure on banks to help buyers and suppliers improving efficiency of working capital along the supply chain [3].

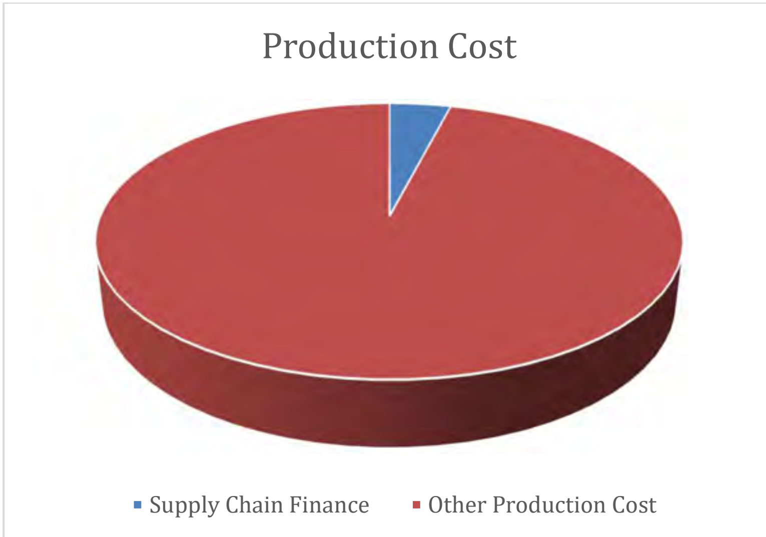

Diagram 3: Four percent of production costs are related to SCF [27].

4.1. Optimizing Working Capital

A company's successful operation process rely on the balance of cash inflows and outflows. Working capital plays a significant role to maintain a company's financial health and work as an important indicator to measure supply chain efficiency through maintaining optimal capital amount [28]. It is a continuous task for managers to involve in encashment and disbursement of cash flow activities and to ensure the availability of sufficient resources for optimal functioning [29]. Evaluating alternative and other sources of liquidity can contribute significantly to maintain and improve working capital performance and enable fund to supply chain to enable business continuity [30]. Transfer of products and services bring emerge of cash in the supply chain but does not give rise to an immediate collection or disbursement and its significantly impact the cash flow of a company. The time lag by the procurement cycle for getting raw materials, the production cycle converting raw materials to finished goods, commercial cycle transforming stocks into real sales creating structural non synchronization between physical flows and financial flows is common for a company. The lag between the suppliers disbursements and cash collection created by the result of payment terms granted to customers to pay their bill. These can be optimized through analyzing interception of financial flows, cash flow management, liquidity management, settlements and receivables control [31]. Effective management of inventory, cash collection from customers and payments to the suppliers reflects effective management of working capital. Improving cash flow through controlling working capital and strengthening internal financing capacity are the two main objectives of managing working capital. These two objective limits the dependence on external funding and liquidity risks. Reducing current assets and extending current liabilities reduce the capital tied up in a company.

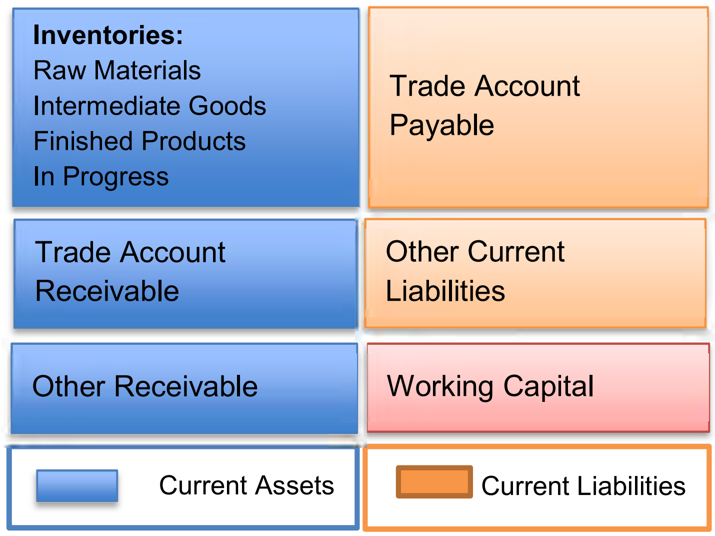

Diagram 4: WC = Current assets – Current liabilities [32].

Working capital (WC) is the algebraic difference between current assets and current liabilities, and reducing it reflects ability of the company to transform current assets (receivables) into liquidity to fulfill its short-term debts.

4.1.1. Cash to Cash Cycle Time

In case of the reduction of the amount accompanied with the release of cash in time reduce immobilized amount of money. Cash to cash cycle indicator measures a company ability to meet short term obligation and evaluate the time of money is immobilized as current asset. Richards and Laughlin in 1980 [33] introduced this cash to cash cycle. It has been described as “the average days required to turn a dollar invested in raw material into a dollar collected from a customer” [34]. It includes elements allowing working capital deep analysis.

C2C =DSO + DIH - DPO

- Reducing granted time for customers who are looking for prepaid solutions will increase receipts and reduce Days Sales Outstanding. This can be done through reducing customer cycle.
- Reducing Days Inventory Held without taking risk of the continuity production and distribution cycle through inventory management at an effective level, production planning and optimization of operations management.
- Payment of delay penalties or negotiation deadline will increase supplier cycle. This will increase Days Payable Outstanding.

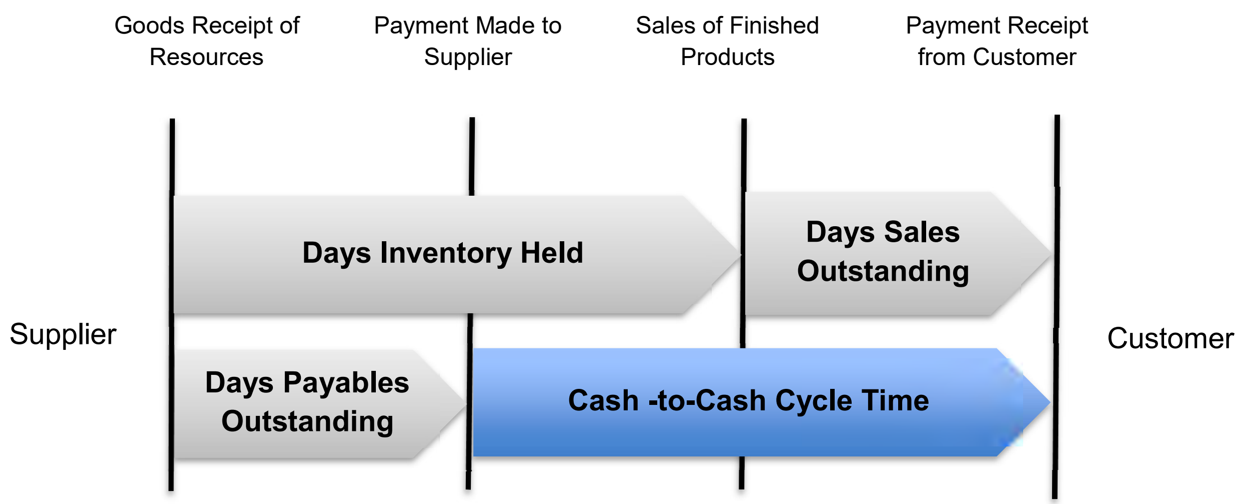

Diagram 5: Cash to Cash Cycle Time [32].

Both Cash to Cash cycle and working capital management improve cash by optimizing customer or supplier financing cycles. Most of the companies use three main supply chain strategies to improve their working capital. Commonly, companies manage inventories more efficiently or reduce the Days Sales Outstanding (DSO) and payment terms from customers or increase Days Payable Outstanding (DPO) by paying suppliers on later terms. There are two ways to finance working capital. In the first, the optional location of the external financing needs where the financial resources come from financial institution external to the chain. Finally, building an efficient internal market for capital where members of the chain themselves that provide them.

4.1.2. Collaborative Finance

The collaborative finance reduces cost of supply chain finance, avoid unnecessary cost of getting third party finance and increase profitability. It is an effective solution in supply chain for advance funding of working capital independent from traditional financial institution. It is secure terminology for financing supply chain improving trade credit negotiation and increase better relationship between seller and buyer. Substituting traditional external financing via commercial credit can result in smarter trade credit, better payments planning of suppliers and customers in order to advance working capital optimization and financing cost reduction during economic crisis and reduced liquidity in the market [35]**.**Customer and supplier both are dependent in a supply chain to achieve financial and operational goal and both has an impact on the performance of one another based on weight and circumstances. Therefore, poor collaboration will cause financial and operational turmoil. On supply chain, the supplier is a customer in his turn. Therefore, the overall scheme is as follows:

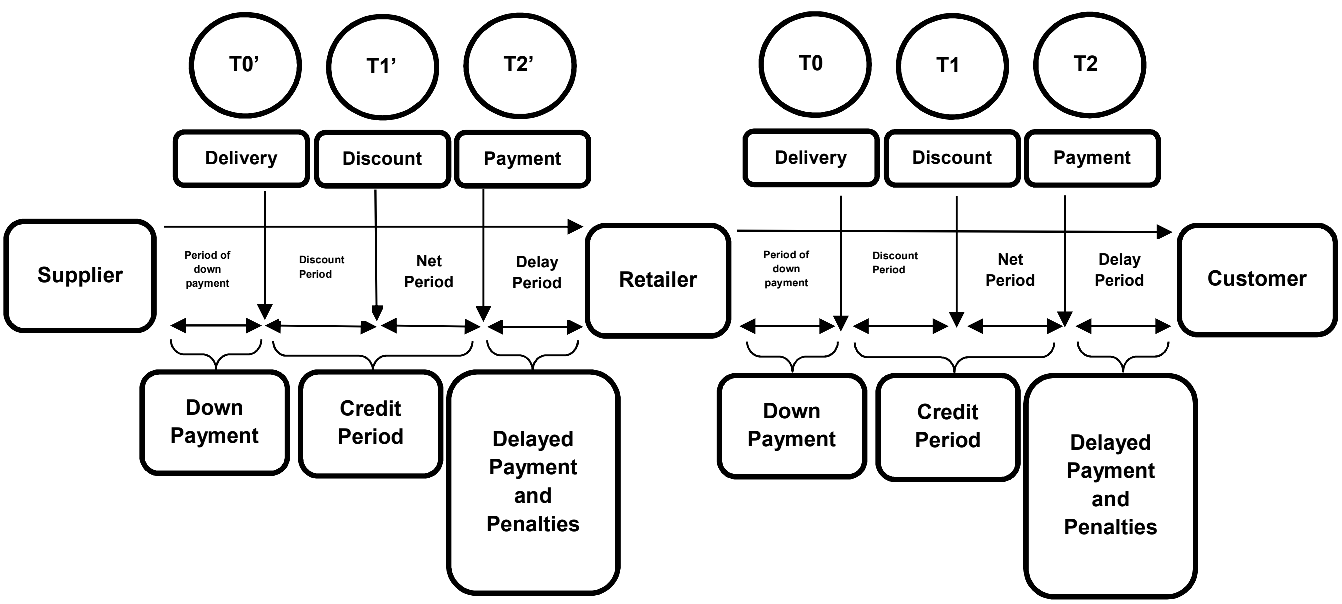

Diagram 6: Commercial Credits in a Supply Chain [32].

There will be no issue for commercial credit regarding the payment made on the delivery T0. On the other hand, an advance upfront payment can be made before the date of delivery. Through this, seller can be benefited by free credit between prepayment date and the delivery T0. In case of after delivery payment, buyer will be in credit period. During this period, he can decide to pay at the time T2 and get a free credit between T0 and time T2; or decide to pay at T1 before the due date and receive a discount. The buyer decision can be affected in terms of cost of credit and in practice he can:

- Pay at maturity date T2: buyer will earn free credit between delivery and payment
- Earn benefits from discount at the time T1 payment.
- The shortfall related to the waiver of discount can be earned between T1 and T2 payment period.
- The seller has to bear late payment penalties, if the buyer exceeds the time T2 as well as he is in arrears.

The supplier agrees early payments terms for his customers and offers them a discount for early payment. This term ensures suppliers liquidity. The customer also has the choice to pay bill at maturity or have a discount for early payment. But this operation may not be optimal and may create increased working capital, may increase costs of the chain or create a shortfall for the company. To avoid constraints related to supply forecast and for immediate funding, organization choose internal financing resources to finance the supply chain and operational process.

4.2. The role of banks

The Flows of goods and information running parallel in the financial supply chain. The order documents, shipping receipt and invoice needed to have reconciliation for identification of transection between buyers and suppliers bank. Bank have a direct relationship in processing payments through integration of information and financial flows. It is complex process of reconciliation because a single payment occasionally includes several invoices and receipts with discrepancies between buyers and suppliers as to the amount owned. Banks have an active role in integrating information, money and flows of goods and providing supply chain finance to buyers and suppliers for funding manufacturing, inventory management and handling goods for transit through to invoice.

This is shown in Diagram 7 which builds on the two buyer/supplier dyads shown in Diagram 6, in which the manufacturer is both a buyer of products from Supplier 1 and a supplier of products to Buyer 2. T1 to T2 is the manufacturer's production lead time; while T2 to T3 is the time manufactured goods are stored and handled prior to sale. When the manufacturer fulfils an order (O2) from Buyer 2, an invoice is sent to Buyer 2 and a payment order (P2) sent to Buyer 2's bank. Meanwhile the payment order (P1), covering purchases from Supplier 1, is sent to the manufacturer's bank as soon as Buyer 1 receives the invoice (I1). If the flow of money from Buyer 2 (M2) takes longer than that by which the manufacturer has to pay Supplier 1 (M1), the cash outflow either reduces the manufacturer's liquidity or the manufacturer can apply to the bank to finance the outflow on the basis of a trade finance or credit agreement. The benefit of the manufacturer involves in managing and balancing outbound and inbound payment based on manufactures credit agreements and manufacturers bank effectively synchronize these after receiving all the payments orders and invoices and manage and optimize manufactures liquidity and working capital.

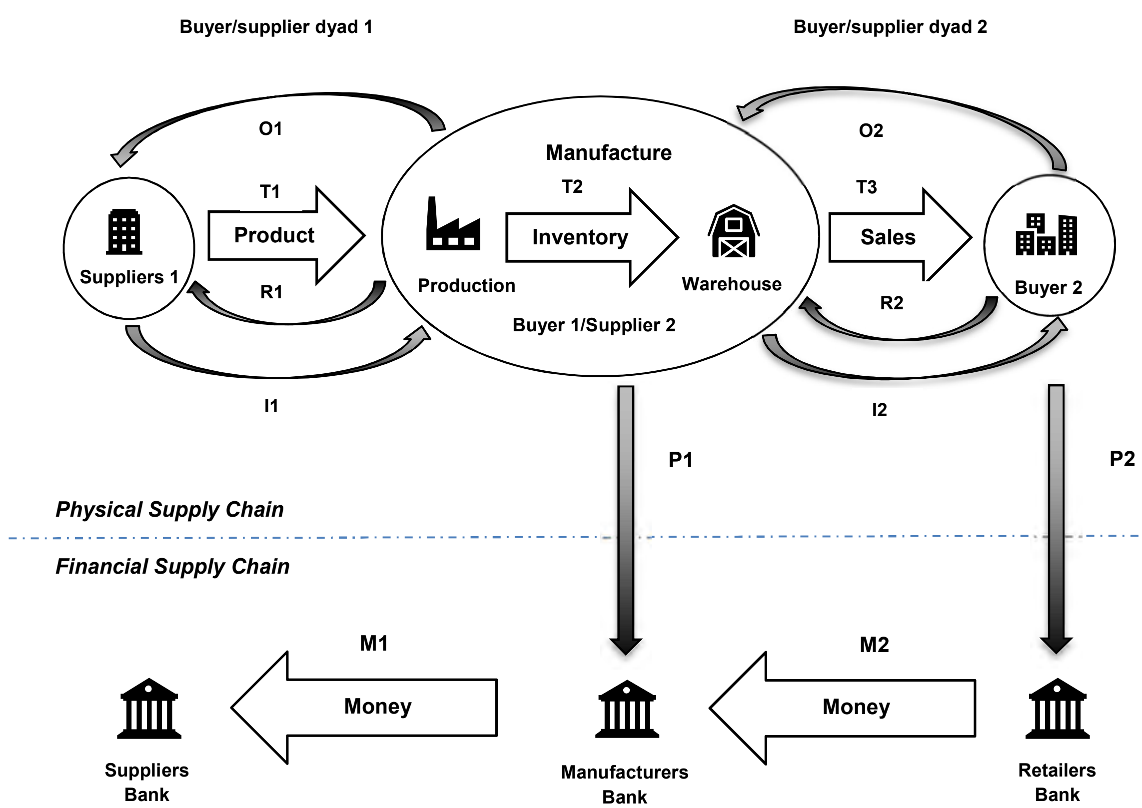

Diagram 7: Synchronizing physical, financial and information flows along the supply chain

(Keys: O = Order, T = Time, P =Payment Order, R = Receive, I = Invoice, M = Money)

Purchase order financing, letters of credit, open account, pre- and post-shipment financing, invoice financing, receivables financing, global asset-based lending, payables discounting and inventory financing are the rapidly growing range of financial services to the financing trade activities.

The Buyers and suppliers have two different perspective of financial process. To understand the physical and financial supply chain and the role of bank, it is important to distinguish the financial process of both buyers and supplier financial perspective. In terms of buyers “purchase to pay” is known as the financial perspective and on the other hand, “order to cash” is known as the supplier’s financial perspective. In buyer’s perspective, it starts with the supplier selection in terms of purchasing and receipt of goods, to payment for the good. In supplier’s perspective starts with customer acquisition and receipt of order through delivery, invoicing and receipt of payment. Silvestro and Lustreto (2014) proposed a model for physical and financial supply chain integration which is builds on Bear et al.’s process perspective [36]. This perspective made an explicit role of both buyers and suppliers bank in processing payments and providing supply chain finance including adjustment of risk as the order progress. This model has dual role of banks in integrating physical and financial supply chain. First of all, bank arrange payments through managing information and financial flow traversing the two processes. Finally, by offering range of supply chain finance products and services to finance various activities, purchases and sales during the process and these offerings differ between buyers and suppliers (Illustrated in Diagram 8). The trade finance and inventory management are the two main requirement of the buyers for supply chain finance. Legal and risk mitigation services as well as credit assessment may also require for issuing letter of credit or more finance services such as cash pooling, reserve factoring and open account [37]. The supplier may require credit with the bank for purchases and production long before they are paid for. They typically require pre and post-shipment finance, documentary collections, insurance and electronic invoicing services as well as may opt for factoring services or sell its invoices to a third party at a discount in exchange for immediate cash.

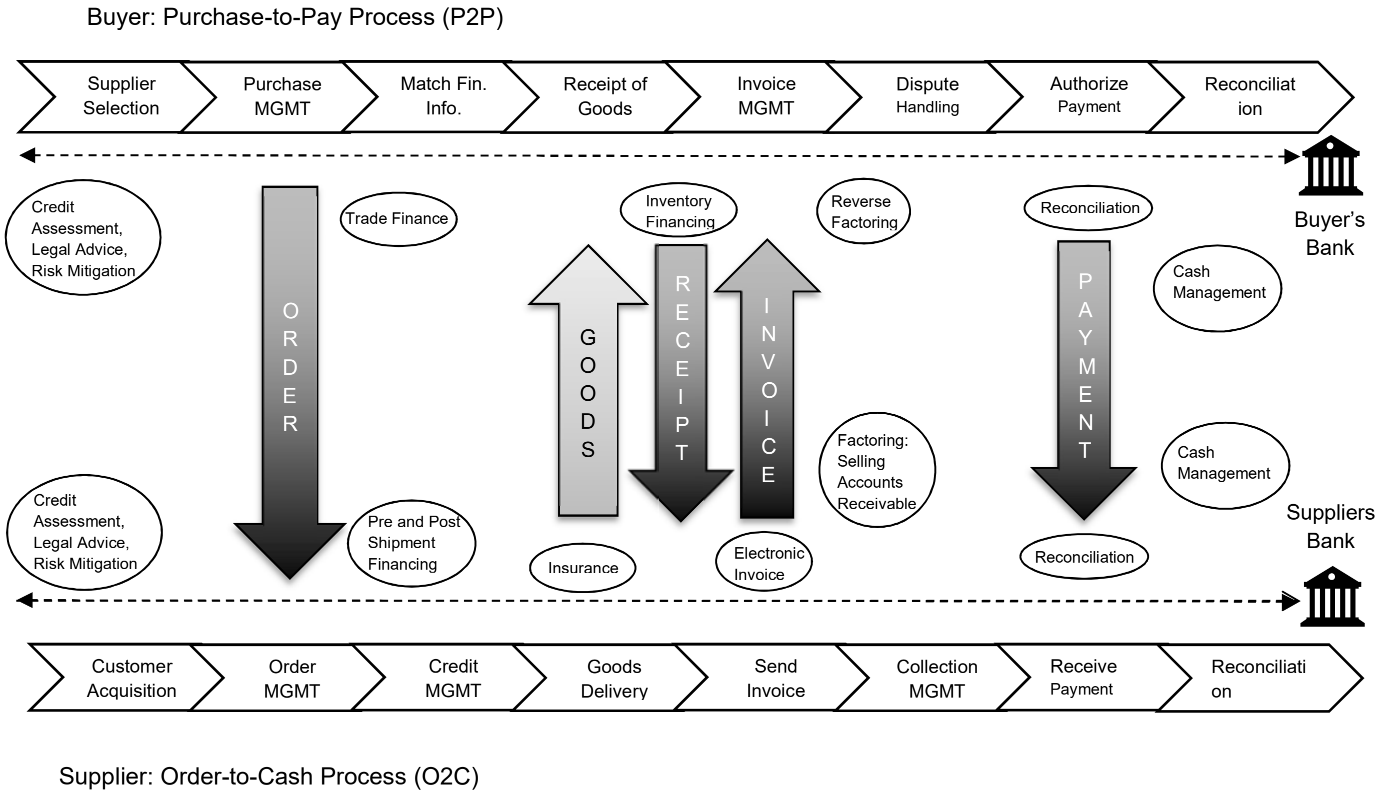

Diagram 8: The role of banks in contributing to physical and financial supply chain integration [36].

Information transparency along the supply chain is becoming a priority for buyers and suppliers because of complexity of global supply networks, spanning national boundaries, with widely differing financial technologies, platforms and regulatory frameworks [5], [10], [38]. These drives towards payment efficiency heighten the need for integration of banks' and their clients' information systems.

5. Findings of Study

In physical supply chain, the flow and use of cash is the important mechanism in the financial supply chain where flow of cash follows the transfer of products and services between supply chain players. It is a complex process to manage the flow of money from delivery of a product or receipt of a product. It does not give immediate rise or disbursement of a collection of money. This brings an impact on the working capital and put pressure on the companies to look for nearly the same visibility in financial flows. This analysis exhibited a number of ways to optimize working capital through physical and financial supply chain integration and demonstrated fundamentals of working capital and financial supply chain techniques. This will allow supply chain finance reasoning on commercial credits funding and will generate cash and minimize cost before considering short term borrowing. Bank has a major role to enable this integration process. Bank can invest in formulating models and advance technologies which can enables improved coordination and synchronization of activities along the supply chain. The objective is to allow a company optimizing its cash and minimize its financing costs through a smart schedule of its cash collections and invoices' payments.

The findings show that this field is relatively new and the growing research interest on this area basically centered on conceptual approach, mostly emphatical surveys and case studies and moreover main focus is given on manufacturing industry rather than bank contribution on integrating physical and financial supply chain management. The findings also show that banks can also contribute and support the buyers and suppliers by contributing to the enablers of supply chain integration.

6. Recommendations

Over the past decade, coordination of supply chain activities has become challenging due to the increasing complexity in the flow of funds at different points in the supply chain. In response to this challenge Bank can contribute to "internal integration" as well as inter-organizational SCI and also arbitrate and facilitate negotiations between corporate treasurers, buyers and suppliers so that all players are encouraged to "think and act as one" [13], [14], [18], [24], . It is possible when banks can contribute to the four enablers of SCI: information visibility, information sharing, supply chain collaboration, supply chain coordination and by processing payments faster and improving the management of working capital.

Information visibility: Electronic invoicing system opens a platform for payments automation which can simplify payment process as well as improve information transparency. Making information visible will increase supply chain motility by enabling buyers and suppliers to respond to environmental changes more quickly.

Information sharing: Electronic payment systems which are integrated with corporate clients' information systems will align customers with their clients in ERP systems for frequently identification purpose. It will imply receiving necessary documents on time to support financial flows including purchase orders and invoices and use these documents to effectively manage physical flow along the supply chain. This will also identify buyer's credit rating and a supplier's ability to secure trade finance and will facilitate supply chain performance as well as extend growth and profitability of individual players.

Collaboration: Reconciliation databases allows to update customer accounts in order to quickly follow up overdue amounts. This will minimize invoice disputes and enables timely resolution and improve transparency of collections processes, order and invoice. This process will benefit buyers as well as suppliers to place orders or receive goods because credit lines are promptly updated.

Coordination: Trade platforms can enable corporate clients to manage their trade-related activities including letters of credit, documentary collections, open accounts, and give real-time information on trade flows.

Effectively collaborating with supply chain partners in arranging SCF help both buyers and suppliers to optimize working capital. Different stakeholders within the client organization can have very different expectations and requirements [39], [40]. The treasury management's objective is to reduce conflict of interest between and those of other functional managers within the organization leading to an increase of internal integration which can in turn improved supply chain performance [41]. This implication will mediate between supply chain partners to identify the most appropriate source of finance and optimize working capital along the supply chain as well as with internal partners within their client organization. So that corporate treasurers work more effectively with the operations, supply chain and logistics managers in their own organizations.

7. Conclusion

This paper has explored supply chain interrogation, namely, the integration of physical and financial supply chains, and the role of financial services in facilitating such integration which is largely ignored in the literature. This paper showed physical and financial supply chains integration which recognizes the different perspectives of buyers and suppliers in managing financial and information flows, and identifies the role of buyers' and suppliers' banks in managing payments and providing SCF services and further suggests that banks can play a significant role in the integration of physical and financial supply chains. Mainly, this paper highlighted the methods of funding and optimization working capital.

To conclude, this paper proposes that the improvement or the optimization of working capital along the supply chain requires a holistic understanding of the flow of physical and financial resources across supply chain networks. This research suggests the developments in banks' payments systems and supply chain finance technologies are creating opportunities for banks to help both buyers and suppliers develop a more holistic understanding of the supply chain eco-system with the aim of enabling seamless supply chains.

8. References

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