CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Causal Relationship Between Trade Credit and Bank Credit:An Investigation Of Non-financial Pakistani Firms

by

Sidra Afzal

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This article is dedicated to my family, my parents and sister.

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY
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CERTIFICATE OF APPROVAL

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Abstract

This study examines the causal relationship between the primary and secondary source of finance. Bank credit refers to the primary source of finance and Trade credit refers to the secondary source of finance. Trade credit refers to Trade credit supply and Trade credit demand. This study, based on the non-financial firms of Pakistan listed on the Pakistan Stock Exchange (PSX). There are 176 firms examined with 15 year observations from 2001 to 2015. Two Stage Least Square (2SLS) estimation technique is used to explain the causal relationship between Trade credit and Bank credit. Trade credit supply and Short term debt are determined at the same time, which shows the positive, but significant relationship between them. It also shows the complementary effect between the Trade credit supply and account receivables. Because firms indicate the Trade credit policy and focus on the secondary source of finance and also negate the primary source of finance. Trade credit demand and Short term debt show the negative and significant relationship between them. The negative and significant relationship indicates the substitution effect between the Short term debt and the account payable. Non financial firms of the Pakistan show that small firms prefer to use Trade Credit and large firms also offer more trade credit to the customers who faces finance problem. Small firms usually used the Trade credit as a source of finance to meet the needs of business.

Key words: Trade Credit, Bank Credit, 2SLS, Substitute and Complementary Effect.

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Abbreviations

TC	Trade Credit
BC	Bank Credit
TCS	Trade Credit Supply
TCD	Trade Credit Demand
STD	Short Term Debt
LTD	Long Term Debt
AR	Account Receivable
AP	Account Payable
TA	Total Asset
TD	Total Debit
TL	Total Liabilities
RE	Retained Earnings
LIQ	Liquidity
CA	Current Asset
INV	Inventory
SG	Sales Growth
LN	Natural Log
TS	Total Sales
SZ	Size

Chapter 1

Introduction

1.1 Background of the Study

The business cannot survive without the capital, it always needs capital to invest. Firms financing needs are of both short term and long term. Firms meet their need of long term finance from shares and bonds. For short term requirements, firms use TC and BC. These are the main sources of the short term funding for any type of businesses, because both are the dominant sources of the working capital. TC is used to purchase the raw materials and other useful inputs. BC consists of a loan, firm uses the loan to finance for new operations and also to meet the shortage of finance (Chant & Walker D.A ,1988)

Brealey at al. (2008) explain the sources of the capital, which are divided into the STD and LTD. The trade credit is considered for short term financing. TC is the largest short term source of financing for the well-developed financial markets all over the world (Petersen & Rajan, 1997). It is considered the best mean of the financing for the small and medium firms also.(Boyery and Gobert 2007).

TC has specific in nature, it does not belong to the any banking sector. TC is not controlled by any type of the authorities. It is shown on the both sides of the balance sheet as the account receivable (trade credit supply) and it is belonging to the current assets and account payable (trade credit demand) belonging to the current liabilities. So in this study the TC measures as the trade credit demand

and trade credit supply. TC used is also depending on the development of the country and also the financial system. (Demirguc-Kunt & Maksimovic, 2001)

TC is the source of the capital that are provided to the firms who are unable to increase the capital through the traditional channels. The objectives of the all the firms is to enhance their business to increase the profit for the future perspectives. TC expands the businesses and also to build the long term relationship between the suppliers and also the buyers. In the TC agreement, the supplier provides the capital to the buyers for the expansion of the business. When there is a comparison with the financial institutions, the suppliers are well known about the conditions of the market, which provides the benefits to the suppliers better than the banks and also the others institutes of the finance (Daripa & Nilsen, 2005).

Wal-Mart (2006) also uses the TC as it is beneficial when there is a delay in the payments and to get the purchases timely and without any type of loss. According the annual report of Wal-Mart in 2006, a high rate and standardized large buyer has account payables of short term funding three quarters of its total debt. According to the theories, the TC cycle consists of two way process between buyers and suppliers. To run the businesses the buyers need the goods or commodities, suppliers on the other hand, require the benefits to enhance his selling's to increase his market share. As the nature of the working of the suppliers is of same business, therefore it's very helpful for the suppliers understand the situations faced by the buyers.

TC has become a popular source of the finance, when firms are unable to get financial help from the financial institutions. In Pakistan the non-financial firms have also faced the problem of the shortage of the funds and they moved towards the TC agreements. In this it increased their utilization of resources and as well as the chances of their business expansions has been enhanced by the way of mutual agreements of the buyers and the suppliers.

The monitoring and controlling information are used and implement by the suppliers for the repayment purposes in different ways that are useful for the buyers. The terms and conditions of the TC differ for buyers to buyers. The suppliers are fully aware of the market conditions that have resell abilities of the product to generating the credit. The suppliers have full information as compared to the other financial institutions, for the control of the risk that are faced by the buyers.

Most of the businesses in Europe have been closed down because of the insolvency and other unpaid suppliers of the business. For many types of the business, TC can be considered as a source of finance for growth of companies. TC has also allowed the buyers to take the products now and to pay for the product at the later date. The time span for which the credit has given, can determined by the company, allowing credit, it is necessary that both the parties should agree upon the terms and conditions. This type of credit has given to encourage sales of the firms. The bank loans are not entirely forbidden, however, companies demand for less desirable alternatives as TC. The bank loan issued after completing the complicated procedure. One can only receive a bank loan after going through many difficult and time consuming terms and conditions. This is the main reason the small and medium sized companies prefer to use the TC (Deloof & Van 2011).

TC does not require any type of transaction charges between the two parties, so the transaction cost is also reduced in the TC. Petersen and Rajan (1997), when the goods are delivered to the customers by the supplier, the customers do not pay on the spot of receiving the goods. The suppliers offer the credit terms to buyers to pay after some period. TC is one of the most important sources of the short term finance, it is considered as the external source which the companies get from the suppliers.

TC builds the supplier and buyer relationship which has become an important part of todays business. Trade credit is the contract in which both the parties take active part to fulfill the contract. When the customers face the shortage of money or funds and also a problem of shortage of investment, they prefer to move towards the other mean of finance such as trade credit to fulfill their mutual interest. Trade credit is essentially a credit which is given to companies for acquiring more goods and services. It also minimizes the capital requirements of the companies and also helps to improve the core activities of the business. (Marotta 1997).

Marotta (1998), the TC importance differs from country to country. Most of the businesses used TC, especially those firms who are suffering from financial distressed. The industrial sector of many countries used the TC because these industries required the investment or the goods on the daily basis. The survey, conducted in the Finland, 9.7 percent of the receivables and 6.1 percent of the payables of the balance sheet. TC is considered as a main source of the capital in the business, companies of the United Stats.

Martinez-sola et al. (2012) explain the TC as an agreement between the seller and buyer, that permit the exchange of goods with payment on some conditions. According to Earlier Brennan et al., (1988), TC is the arrangement for the purchase of goods or services that does not require any immediate payment of cash. With the trade credit agreement, goods or services are issued by the supplier to buyer on specific terms and conditions, in which buyer agrees to pay at a later date. When the goods are delivered by suppliers, the specific number of days predefined, however these can be extended by the mutual understanding of both parties. These purchases do not involve on-spot cash payment.

The TC is the external source of funding of the corporate finance for a short time period. Trade credit term, that is used both for the demand and supply. TC gives benefits to both, buyers as well as sellers (Schwartz 1974). The firms use TC in two perspectives, one is accounts receivable and other is accounts payable. Firstly, accounts receivable are generated when funds are provided to customer in rendering goods and services on account. Secondly, accounts payables are created when funds are provided by suppliers, by providing goods and services. The firms determine its credit policy, according to the accounts receivable and accounts payable.Yang (2011) suggests that TC is one of the expensive variants of funding for the non-financial firms.

TC is a type of the short term financing and it is considered as a part of a balance sheet of the firms. In Japan, the fiscal year 2002 shows that the total trade payables were 13.7% and the total trade receivables were 16.6%. The ratio of the bank loans (short term debt to the total assets) was 15.7% respectively. To understand the relationship between the BC and TC, it is important to notice the decision of small and medium enterprises about the short term funding and the financial changes that affect the activities of the firms.

Cole & Wolken (1995) briefly explain the National survey of the Small Business Finance in 1995, it is noted that small businesses use 61% of the trade credit. Davey's survey summarizes that the smaller firms like the trade credit after the bank loan as a main credit source. During the survey, it is noted that loans were 90 percent and trade credit by the 58%. On the other hand, the large firms preferred to 73 percent of the commercial paper, 53 percent of the loans and finally 31 percent of the trade credit.

According to the Rustichini (2012) study, the behavioral and the cultural factors of the individual may also affect the firms financial decision, individuals while selecting the sources of the finance and also for the investment. Study of Sevdalis and Harvey (2015) also suggested that the preferences of the investors are also affected by the many factors like gender, religions, personality, social and cultural values. Frank and Maksimovic (2004) also explain that the trade credit is considered useful for buyers and also suppliers to meet their investing and financing needs during the inefficient financial markets.

The TC is considered as the informal source of the financing. Petersen & Rajan (1996) state that when there is a change in the monetary policy of the country, it affects that spending and borrowing capacities of the non-financial firms in the country. TC has many types of advantages ,like most of the firms get easily short term of finance without any formalities to get the loans. Getting the loans from other financial institutions that required a lot of formalities to get the loans. Thats why most of the newly firms that entered into market prefer to use the TC as a good source of the finance. Small and medium firms also prefer to use the TC as a source of finance.

1.2 Trade Credit Cycle

The TC is a two way procedure between buyer and supplier. The buyers always require goods to run their business in a better way because it is the need of the buyers business. The supplier on the other hand, require incentives to increment his sales and also to increase the market share. Supplier already involved in the business and he knows that which type of situations faced by the buyer (Schwartz 1974). In TC cycle, the buyer request for goods from the supplier on credit. By the mutual consent of both the parties, the supplier once agreed, delivers the goods on credit to the buyer upon some conditions. The buyer then pays back to the supplier the due payment upon which both the parties have the deal.

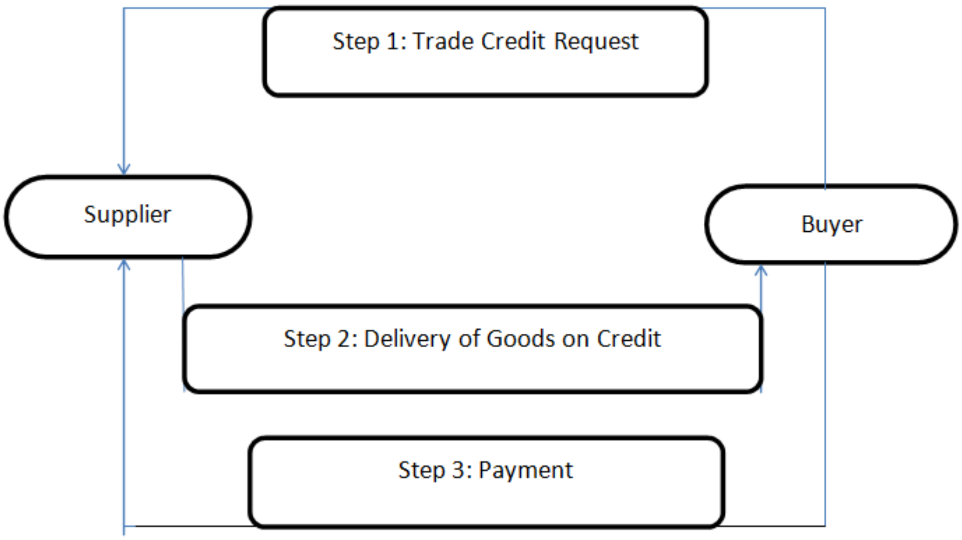

Figure 1.1: Trade Credit Cycle

According to the study of the Ahmed and Khalid (2016) trade credit mostly gives funds to those firms who are not able to raise the capital through the traditional channels. The basic aim of the firms is to increase their business and to make a profit and also to remain in the business for future prospective. The trade credit also gives the benefits to the supplier and the buyer to increase their business and also build strong and long relationships.

The supplier also gives the finance to the buyer as they want to capture their business. The supplier can get the better information about the buyer and product than financial institutions like banks. Instead of the financial institutions, suppliers use the information for checking and controlling the payment in the different way. Hence, the nature of the trade credit change from buyer to buyer.

The medium and the smaller firms face many restrictions in getting the external finance (Berger and Udell 1995). The owner of the small firms has clear insight of their company as compared to the external parties (Storey 1994). He also states that the financial mix of the UK firms stated that the TC is a source of the finance for any firm but more suitable for the medium and small firms. Many companies are using the trade credit to achieve the business objectives and also requirements.

Marotta (1997) stated that the importance of the trade credit that vary from country to country. In most of the countries the industrial firms prefer to use the trade credit. According to the survey of Finland manufacturing companies, firms have, on average, 9.7% receivables and 6.1% payables of their balance sheet items. The TC is a source of finance for many of business in the US and also the largest use of capital in the B2B.

1.3 Trade Credit Terms

Smith (1987) and Ng et al. (1999) explained that there are two terms of the trade credit. The first term is the simple net term. The supplier must require the full payment against the delivery of goods. The time period for payment specify in the contract. “Net 30” means the payment will have to be made within 30 days of the delivery of the product. If the buyer does not pay on time, the supplier will charge a fee for late payment. In some cases, the buyer considered a default if he fails to pay at the stipulated time.

The second term consists of the discount period and also the interest rate. Smith (1987) described as the term of 2/10 of 30 net. This term suggests that there is discount of a 2 percent, within the 10 days for payment. The supplier offers a discount to the buyer, if the payment is made before the specified time. When the buyer agrees to pay the amount of transaction within discount period the supplier will offer him less amount of the transaction. In this way, early payment will give opportunity to the buyer to get early delivery of product in the future. If buyer unable to pay within discount period, he has to pay the full amount within 30 days (Schwartz 1974).

Smith (1987) also states that this term of the trade credit shows the risk of the lending to the customers. The discount shows the financial difficulties of the firm otherwise high rate of interest will be charged. So, the use of the two-part terms of the trade credit indicated the early signal of the financial position of the firms.

Study of the Petersen and Rajan (1994, 1997) explained that the TC is a more expensive form of finance as compared to the bank credit. Due to the higher cost of the trade credit, most of the firms are still using it as a short term funding. Schwartz (1974) also suggests that the trade credit makes easier transactions between the suppliers and the customers and it also reduce the uncertainty about the deliveries of the goods and also the cash management efficiency.

Small and medium enterprises suffer from the non-availability of credits during the recession. External ways of the financing, provide an edge against this threshold and is necessary for their growth and also the expansion. According to the survey held in the 2005 of the Spanish data, those firms who are suffering from the credit constraint, there are issues arising on the trade credit as the source of the funding.

The financial institutions also give the signal that these SME's are well established and can be able to achieve the bank loan after that. In case of the tight monetary policies of the country, the firms use the mix of their external financing structures. This type of the financing mix affects the investment structure of firms which includes the interest rate of the monitoring during the time period.

Petersen and Rajan (1994, 1997) also describe the reason that why firms prefer to use trade credit instead of the alternative with low cost. They also argue that the trade credit is used by those firms who are unable to get financing from institutions, even it captured more cost than the bank credit. Trade credit is generally provided during the monetary crisis. While granting the trade credit, the rate of the risk of the supplier is less as compared to the issuance of the bank credit. Trade credit also gives many financial advantages to the suppliers, they assess the customer's financial performance and creditworthiness. They also evaluate the default of the customers efficiently.

1.4 Types of Trade Credit Agreement

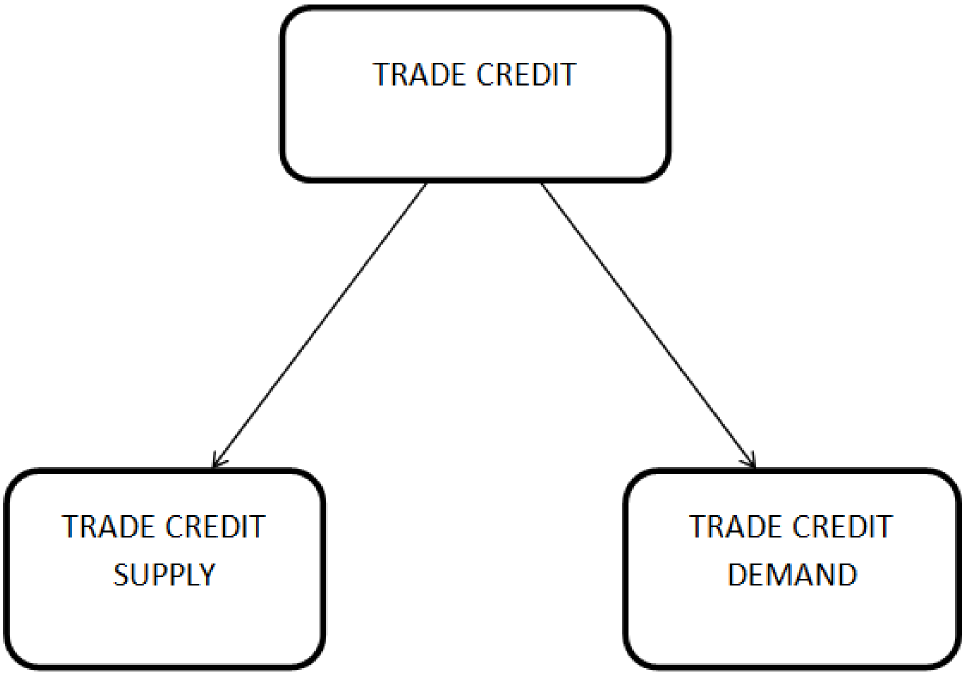

FIGURE 1.2: Trade Credit Agreements

Figure 1.2, explain the trade credit agreement, it is a two-way contract. Ahmed, Xiaofeng and Usman (2015) explain that, when the trade credit becomes a part of the assets side of the balance sheet, it is reported as account receivables. It is shown as account payables when it is shown on the liability side of the balance sheet. Accounts receivable is a proxy used for trade credit supply. Account payable is the proxy which is used for trade credit demand. Trade credit predicts the nature of the contract. The company's financial accounts include receivable and payable. Trade receivables are the major part of current assets. Accounts payable are the external funds, such as short-term debt.

At the same time, the supplier may be engaged in both relationships like a creditor and debtor (creditor for its customer and debtor for its supplier). So it looks like a chain formation between the suppliers and customers as one firm receives trade credit from its supplier and give trade credit to its customer and customer also provide it to the next customer and so on, this chain continues till product reach to the final consumer and after his payment, payment goes on to immediate one and ultimately all participants receive their payments and chain ends.

Many researchers have tried to describe the relationship of the TC and BC in different ways. According to the Meltzer (1960), the TC is used as a substitute of the BC. Burkart and Ellingsen (2004) mentioned that the TC and BC have a position as complementary.

TC and BC relationship explained through the substitute and complementary positions between them. When the TC and BC are substitutable for each other, it predicts there is a negative relationship between them. In this case, the firms are unable to get the funds from banks and they encourage to use the trade credit as the substitute resource of the bank credit. Petersen and Rajan (1997) find that firms who have weaker bank relations they use more trade credit.

When the trade credit and the bank credit are complementary, the positive relationship arises between them through the level of TC and level of lending by banks. The increase/decrease in TC usage is dependent upon the decline/rise in BC. So there is impact on small business of any contraction and expansion (Cook 1999; Ono 2001; Uesugi and Yamashiro 2008). The study of Ghosh (2015) indicates that the TC and the BC have complementary effect, the firms who have easy access to the BC could easily receive the more TC from the suppliers.

Beck et al., (2008) and Ge and Qiu (2007) conducted studies in the developing countries, the TC is the financial channel, that makes the major services more easy than the financial institutions. Berger and Udell (1998) and Acharyaa (2009) also propose the two methods of finance: TC and BC.

TC gives the opportunity to buyers to take their goods now and pay later. The scope of the TC may be determined by the mutual trust of the buyer and suppliers' company, and both parties are required to agree according to the terms. This type of credit promotes the sales. Banks loan is not completely ignored, but companies demand more desirable alternatives like TC. Bank lending takes more time and is more complicated. That is why medium and small firms prefer trade credit.

Trade credit helps the companies to create new investment plans and create new markets that are more productive for the company's success. In competitive environments, it is time saving and helpful for new companies to turn towards the trade credit. In the 1990s' US trade credit ratio average $ 1.4 billion across all countries (Rustichini 2012).

Financial institutions like the banks have proper check and balance system to monitor the financial conditions of the customers. Banks also have a proper risk assessment scenario to overcome the problem of the default. The banks also required the some sort of the security to pledged in case of the default of the customers.

The working capital can also be monitored by the financial institutions for the implementation of policies that are governed for the welfare and growth of the firms. The external sources of the financing are useful for the financial institutions which provides them a signal that firms are enhancing and promoting the course of action.

Yang (2011) described the financial behavior of the firms, causal relationship between the TC and BC during the financial crisis. The result shows that the TCD and BC are concluded, and they are negatively related to each other. It means that increase in BC may lead to decrease in the TCD, while BC and the TCS are determined and they are positively related. It indicates that an increase in the BC also to increase in the account receivables, that are the TCS.

1.5 Trade Credit in Pakistan

In the context of Pakistan, the TC is different from the corporate and also the other financial debts. First of all, most of the suppliers use that products that are not directly in cash in the transaction. Secondly the financial institutions like banks the TC has not served as the formal agreement between the seller and also the buyers. The relationship created between both the parties with the oral consent. Thirdly the nonfinancial of the Pakistan use the TC as a mean of finance. Most of the firms and also the different economies of the source of the finance TC is considered as the important source for all the level of firms.

Non-financial firms of Pakistan have faced the problem of financing. There is the need of the external finance for the firms solve the problem of the shortage of the finance. Most of the sectors are financed by the TC. The textile sector of the Pakistan is considered as the biggest trading sectors that are financed by TC.

The other sectors like motor vehicle, cement sector, chemical sector, sugar industry, etc are the sectors of the non-financial firms that are also financed by TC. On the other hand, banks always required the security on granting the credit. In this way, it becomes difficult for most of the customers to get the loans from banks and TC becomes the important source of finance in the Pakistan.

TC also increases the market value of the firms. TC is considered as indicator of the growth of the firm. TC also increased the customers of the firms that may lead to increase in the sales of the firms. In the TC agreement buyers have the ability to control the quality of the product in the market that are purchased by the customers. It increases the demand of the product also. TC is also considered as a source of increasing the revenue.

The trade credit has become a popular source of the finance if firms are unable to get financial help and it may also face the issues of liquidity. In Pakistan the non-financial firms have also faced the problem of shortage of the funds. The firms also prefer to use the TC as a source of the finance. It may also increase the business and also the better utilization of the business resource.

1.6 Supporting Theories

1.6.1 Transaction Cost Theory

In (1974) Schwartz, proposed the Transaction Cost Theory for the first time. He suggests that it reduces the transaction cost and the need for customer who want to hold high cash and also convert liquid assets into cash. The study also indicates that when the ownership of the goods and services are transferred from one party to another party, the transaction cost occurs.

Trade credit playing the important role in reducing the transaction cost of the firm. According to Ferris Transaction Theory (1981) he proposed that the TC reduces the exchange cost of products and services and hence the transaction cost may reduce due to trade credit motives. The theory further argues that in trade credit the transaction of the buyer and seller become regular and hence reduces the transaction cost of both parties. So, when transaction cost is reduced, it creates more holding power of receivables for the firm. Trade credit reduces costs as it makes the supplies of goods and credit financing from one point. Supply of goods on credit are also credit financing and both exist on one account.

Mian and Smith (1992) suggest that, the cost of transaction reduces when the supply of the goods and services are taken from the one point and it also increases the efficiency in exchanging and monitoring the relationship. The findings of Petersen and Rajan (1997) also proposed that the TC can be used by the firms for a cost benefit.

According to the Ferris (1981), TC also allows firms to reduce the transaction cost that are related with the payment of the product and also the verification of the product's quality before the payment. The customer has got the chance to verify the products before payment. If the products have low quality, there are chances to decrease in TC because the products are not according to the customer's demand, then the customer may also refuse to pay the price for the product.

In this way, TC plays a significant role in the quality of the product manufacturing and also gives more importance to the customer demand. The firms that offer the high quality of the products refers to more the TC because they have more confidence on their products and firms which have less trade credits mostly considered a low-quality product of the firms as they offer less time to verify the products to the customers.

In this scenario of the TC, firm's goodwill also accelerator. At that time, it also increases the sale of the firms. Most of the new customers are attached with the firms which are unable to purchase the products on the cash basis on the spot of the delivery of the products. These firms get from other firms on credit basis and after the product selling pay back to the firms, in this way the firms of the sales are also increased.

TC is considered as an important source of finance that decrease the cost of the transaction for the firms also. TC is also reduces the cost of the product and also the services while exchanging the products. During the TC, the transactions become regular between the buyers and sellers. If the cost of the transaction reduced, the firms have more capability power of the receivables.

In TC, if the payment is paid after the contracted date it increased the real cost of TC, mostly the suppliers not charge the late payment fees. However the issue of the late payment in the TC transactions differs across countries to countries and also industries to industries. This shows an extra degree of flexibility in the TC agreement when the issue of repayment arises. Suppliers have also the right to act legally against the buyers if the buyer do not repay at the stated maturity. Suppliers often decided to give the buyers extra time for repayment. The long term relationship between buyer and seller has to understand as late payment is concerned. The supplier has usually been more concerned about the late payment as compared to that of buyers, as the supplier is more focused about the buyer as well as his retention in the business (Storey 1994).

1.7 Problem Statement

BC and TC play an important role in the business financing. This study explains the causal relationship between the TC and BC. TC refers to the Trade credit demand and Trade credit supply. BC belongs to the Short term debt . This study also tries to explore the complementary and the substitution effect between the TC and BC by using the data of the nonfinancial firms of the Pakistan.

1.8 Research Questions

As per study regarding the trade credit there arise the questions which have to be answered as,

- How the short term debt effects the TCS ?
- How short term debt effects the TCD ?

1.9 Research Objectives:

As per the study regarding trade credit, there have some objectives to be fulfilled

- To find the relationship between the TCS and STD.
- To find the relationship between TCD and STD.

1.10 Significance of Study

TC and BC are considered as the sources of financing for small and large businesses. Khan, Bhutto and Tragar (2012) have investigated the TCD and TCS in the context of the Pakistan. They have worked on determinants of the TCD and the TCS in the Textile sector of the Pakistan. Internal cash flow, access to capital markets, KIBOR, growth rate and size were used in the study as independent variables. The results show that only access to capital markets, cash flow and size have a significant relationship. This is the first study that published about the use of the TC in the context of Pakistan.

Ahmed and Xiaofeng (2015) also study about the causal relationship between the TC and BC during the financial crisis 2008. The TCS, the TCD and net trade credit are used in the study as a variable. The results show that TCS and the BC have a positive and significant relationship. BC has negative, but significant effect on TCD. Net trade credit and the BC also have a positive significant relationship.

The previous studies in Pakistan have ignored the problem of the endogeneity between the BC and the TC and also substitution effect. There is no investigation in Pakistan, on the causal relationship between the BC and TC by using the nonfinancial firms of annual data.

The aim of the study is to explore the relationship between the TC and BC. This study also explains the behavior of nonfinancial firms of Pakistan towards the use of the BC and TC. To analyze the causal relationship between the BC and TC by collecting the data of nonfinancial firms of the Pakistan. To check the relationship between TCS and BC. It also checks the relationship between the TCD and BC and also the reverse effect of these variables. This study also tries to explore the complementary and the substitution effect between the TC and BC by using the data of nonfinancial firms of the Pakistan. The results of this study are reported in the chapter 3.

1.11 Scheme of the Study

This study is also organized as the follows. Chapter 2 briefly provide the literature review and also provides the hypotheses. The chapter 3 explains the data and methodology which used in this study. Chapters 4 reported the findings and also the discussion of the study. Finally, the chapter 5 gives the conclusion and future direction of this research.

Chapter 2

Literature Review

The chapter of this study covers the literature review of the BC and also TC. The findings and the past theories about the TC and BC have discussed. This chapter also covers the theoretical background and hypothesis of the study.

2.1 Theoretical Background of Trade Credit

This research also tries to analyze the relationship between the TC and BC in the nonfinancial firms of the Pakistan. This study also covers to answer the question, Why do the firms use the TC instead of the BC? Why do suppliers give credit to buyers when other financial institutions are existing to do?

Basically, there are two types of source of financing. One is the primary source of finance and other is the secondary source of the finance. The bank loans and financial markets are the primary source of finance. TC considered as the secondary source of the finance.

Williamson (1996), non-financial firms have different ways to generate capital for their businesses. Most of the theories also indicate that there are two main sources that generate the finance. The short term finance and the long term finance. Long term financing is generating more profit, but it requires huge amount of investment for the businesses.

The TC is the external source of funding of the corporate finance for a short time period. Trade credit term, that is used both for the demand and supply. TC gives benefits to both, buyers as well as sellers (Schwartz 1974). The firms use TC in two perspectives, one is accounts receivable and other is accounts payable. Firstly, accounts receivable are generated when funds are provided to customer in rendering goods and services on account. Secondly, accounts payables are created when funds are provided by suppliers, by providing goods and services. The firms determine its credit policy, according to the accounts receivable and accounts payable.Yang (2011) suggests that TC is one of the expensive variants of funding for the non-financial firms.

Short term financing is less profit generating but it gives edge against the crisis of the firms. If the customer faces risk, he should always prefer to move to the easy way of financing like short term financing because it is more attractive for customers (Yang 2011).

According to the theory of asymmetric information, it arises some of the issues in the market. Asymmetric information creates when one of the supplier fully informed about the product as compared to the other supplier in the same market. So, short term financing like trade credit is the other way to solve this issue.

Martinez Sola et al. (2012) explain that the TC is the agreement between the buyers and the sellers of the product and services. The seller provides goods to the buyer at some future payment terms and conditions. TC is an essential source of the finance for the small and medium sized firms.

According to Petersen and Rajan (1997), the use of TC is explained by three theories. First, the financial theory, the suppliers has an advantage against the financial institutions in gathering information and monitoring about their customers in the presence of information friction (Schwartz, 1974). Price discrimination theory is the second theory that explained the use of trade credit. It gives incentive to supplier to make extra sales.

Price discrimination gives opportunity for suppliers to provide the facility of payment to both the customers and the suppliers. The customers who make an early payment are given the discount and who delay in payment gives the facility of extended contract through the term and conditions of trade credit contract. Firms are able to discriminate price easily because the strong customers may pay early without any delay against the customer which is weak (Petersen and Rajan 1997). The third theory is the Transaction cost theory, which also indicates that the use of trade credit involves low transaction cost (Yang 2011). This theory is already discussed in the chapter 1.

Maksimovic (2008), states that the trade credit is essential for the seller and buyer where both the parties are interested to expand their businesses, when the financial markets are inefficient. Fisman and Love (2003) state that due to inefficient financial intermediaries, trade credit gives an alternative source of the finance. Which also gives the higher growth rates to the companies that can be beneficial for the users of the trade credit.

Emery (1984) states that firms use TC as a marketing tool who have a low level of sales because TC offers to increase the sales growth. Ahmed at al. (2014) also worked on factors of the trade credit in the context of the developing economy in Pakistan. They use different variables like liquidity, size, price, inventory and sales growth. They have applied three different models.

According to the theory of the TC, it is acting as the positive signal in the market as compared to the banks or other financial institutions. According to the Smith (1987) TC is considered as the cheaper external source of finance and it also offers the discount on the early payment also. Maksimovic (2008) states that TC is best both for the buyers and sellers, when both the parties want to expand their businesses. During the financial constraint, small and medium enterprises easily approached to the TC and get the loan as compared to the financial institutions.

Giannetti et al. (2003) argues that the trade credit provides the finance to the company externally and it gives a discount on every early payment. Jain (2001) also states that trade credit has a direct link to business and also the source of funding for the companies.

Non-financial firms have their personal interest in the use of the TC because they have full information about the market. The firms also have the advantage against the financial institutions. They also utilize their resources efficiently to give more output to companies. Buch, Eickmeier and Prieto (2014) states that already established companies are more interested in the debt financing in the manner as developed countries are interested.

Elliehausen & Wolken (1993) study about the Federal Reserve Board shows that TC is about 20 percent liabilities of the non-bank, non-farmers, businesses and it has also up to 35 percent of the total assets. After that, Rajan & Zingales (1995) argue that all the American firms in 1991 have on average 17.8 percent of the total assets that represented by the TC. Kohler, Britton, & Yates, (2000) also states that 70 percent of the total STD, and 55 percent of the TC that are received by the firms in the United kingdom.

Study of Petersen and Rajan (1997) based on the American firms' data. They indicate that the TC, sales growth and age of the firm have a positive relationship among them. They also state that old firms offer more TC and the firms with high growth of sales also give more TC to increase their sales.

Study of Garcia-Teruel & Martines- Solano (2010a) based on the Europeans firms' data. They obtain the opposite results. They argue that the old firms have greater reputation among the partners of the business, no need to give TC to increase the partners. This is due to the relationship between the TC and sales growth that give the opposite results. After that they also investigate the different Europeans countries, they also obtained different results due to different economic situation and also the different financial systems. Maksimovic (2008),

According to the Marotta (1998), the TC importance, difference among the different countries and also assumed that the use of the TC is more in the countries who produced a large amount of manufacturing products, it is considerable difference between them.

Love and Fisman (2003) explained that, by using the TC, the growth rate of the firms is more than the firms without access of the TC. Summers and Wilson (2002) study gives that TC is used for the growth purpose and to increase sales of the firms that have financial problems.

Nilsen (2002) suggests that the TC use is directly linked to the monetary policy of the country. He argues that TC is considered as the substitution of the BC. His research also explained that the smaller firms are more dependent on TC during the monetary crisis because the TC is considered the alternative source of finance to raise the money. He also predicts that large firms always prefer to avoid TC that have more sources of getting finance. The research results are opposite of predictions, large firms are also using the TC even more than the smaller firms during the financial crisis period.

Love al. (2007) study describes the impact of the two financial crises in the emerging markets on the use of the TC by firms. While analyzing the publicly traded companies, they suggested that during the financial crisis, the trade payables use decreased. Love and Zaidi (2010) also explain the effect of the financial crisis of 1997 on the SME's from the four Asian countries. They suggest that, the trade receivables and trade payables both have decreased after the crisis. Questions et al (2012) also investigates the private Belgian firms and concluded the same results.

McGuinness and Hogan (2014) study on the private SMEs of the Irish. They also concluded that the trade receivables decreased and trade payables increased during the financial crisis. The study of Tsuruta (2014) also consists of the small firms of Japanese, study concluded that both trade receivables and the trade payables have decreased during the financial crisis.

Paul et., al (2008) suggests that the most important feature of the TC that differentiate from other sources of the finance, it is provided by the nonfinancial firms. Petersen and Rajan (1997) also indicate that the TC becomes an alternative source of the finance even it is costly, when capital is rationed.

According to the Wilson & Summers (2002), the TC also gives the advantage to the supplier. The TC is considered as the marketing tool also. TC also helps the supplier to start the new business and also build a better relationship with the customers. TC grants to the new entrants who faces the difficulty in accessing the loan from a bank.

Yang (2011) studies the TC and BC during and after the financial crisis. The results explain that the BC and TCD (account payables) are significant and are negatively related. It means that when there is an increase in the BC it may lead to decrease in the TCD(account payable). While the BC and TCS (account receivables) are positively related. It means that when there is an increase in the BC they may also increase in the account receivables. It shows the substitute and complementary effect between the TC and BC.

The study of Yang (2011) shows that the account receivables are increased after the crisis period and then decrease in the post-crisis period. So, the account payables are increased during the crisis and post crisis period

2.2 Theories of Trade Credit

2.2.1 Financing Advantage Theory

Financing theory states that implied interest rate and cost of alternative source of finance are the two main factors that affect the TCD. TC comes at a cost and has a substitute, when it has another financing instrument. Financing theory also assumes that demand for a service depends on its cost and that of its substitute. (Schwartz, 1974; Hutchinson, 1986 and Smith, 1987) suggest that TC would not be taken if there are better and cheaper alternative source of finance. Petersen and Rajan (1997) also indicate that the TC becomes an alternative source of the finance even it is costly, when capital is rationed.

According to Boot (2000), financial institutions focuses on the function of value creation while building a lending relationship. The good relationships provide the facility for the exchange of information because lenders always want to obtain all the information from the clients when they invest and borrower. Firms are also motivated to disclose all the information. Asymmetries information between small firms and bank decrease. Long term contracts are supported by the long term relationships. It may also increase the value of firms by reducing the requirements of collateral Petersen and Rajan (1997)

According to the Petersen & Rajan (1997), firms with the external financing prefer to use the TC. It means that when the firm has financial constraints, prefer to use the more TC. It also gives the advantage to the supplier while using the TC as the source of finance. The supplier can easily judge the financial performance of the buyer. It has less risk while granting the TC. The supplier also has a power to enforce the repayment by threatening the buyer to reduce the future supply.

Most of the firms are getting competitive advantages while using the TC. The offer of the TC for many firms which get the advantage of increasing the sales. When there is long lasting relationship between the buyers and seller then the buyer may have experience of the special treatment in the agreement. TC is also a marketing tool to strengthen the relationship between the buyer and seller (Smith, 1987)

2.2.2 Price Discrimination Theory

Petersen and Rajan (1997) give the price discrimination theory. It is stated that customers are of two types; one who makes a payment before the time of purchases and the other who delay in payment. Price discrimination gives opportunity for the suppliers to provide the facility of payment to both the customers. The customers who make an early payment are given the discount and who delay in payment gives the facility of extended contract through the term and conditions of trade credit contract which is generally 2/10 net 30; pay within ten days and get a 2 percent discount or pay in full after thirty days without discount.

This theory also indicated that market power can also be measured through the variables of price discrimination. Firms generate additional cash flow if they have a unique product and services to offering the extra units to the customers, who have a weak financial position on credit. Firms are able to discriminate price easily because the strong customers may also pay early without any delay except the weak customers.

This theory also supported the TC literature (Garcia-Teruel & Martinez-Solano, 2010a; Guariglia & Mateut, 2006; Delannay & Weill, 2004; Atanasova, 2007); Cunningham, 2004.

Asymmetric information is the main source of this advantage. This information related to the credit worthiness of the borrowers between the lender and borrower.

In case of the trade credit, as compared to the financial institution, the suppliers have the ability to collect the payment of the debt because the suppliers give the warning of stopping the supply of the goods and services to customers

2.2.3 Macroeconomic Conditions

Many researchers highlighted the use of the TC, that affected by the macroeconomic conditions and it cannot be ignored. According to Walker (1991) and Smith (1987) suggests that account receivables are settled on the basis of the economic conditions. The usage of trade credit has also increased in the deteriorating gross domestic products (Niskanen & Niskanen 2006). If the conditions of the country are not stable, the trade credit is extended and also increases in borrowing that make the trade credit better mean of the short term financing.

Trade credit is also a good source for young and small suppliers who newly entered into the markets. Smith (1987) suggests that uncertain product market can give a complete theory because suppliers have the advantage over the banks in the standard of the product quality of the buyers and customers. Due to this advantage, the suppliers can easily safe the buyers of the risk that are attached to the products.

2.3 Theoretical Background of Bank Credit

The bank credit has an important value for the economy. Bank credit is considered as an essential source of financing both for the small and large businesses. It is a form of short term financing, which makes use of bank borrowing.

According to Boot (2000), financial institutions focuses on the function of value creation while building a lending relationship. The good relationships provide the facility for the exchange of information because lenders always want to obtain all the information from the clients when they invest and borrower. Firms are also motivated to disclose all the information. Asymmetries information between small firms and bank decrease. Long term contracts are supported by the long term relationships. It may also increase the value of firms by reducing the requirements of collateral Petersen and Rajan (1997) .

Berger & Udell (1998) argue that suppliers and commercial banks give the facility of debt financing to U.S firms. Franks and Sussman (2005) give the same argument about the European companies.

The suppliers get all the information from the market and it also collect from the other supplier for the control of buyers. The sellers have complete information about the market and he knows that suppliers work as a productive input for the buyers. Suppliers collect all the information without any cost about the firm activities

Petersen and Rajan (1994). Small and medium enterprises face the problem of the finance and their project may also delay due to high rate of interest. Banks always focus on the high quality and strong financed firms where the rate of default risk is low. When the banks issue the loan to the buyers, they have a proper check on the system. Banks cannot grant loans to the riskier customer because banks know that they are unable to pay back the full amount.

2.4 Theoretical Background of Trade Credit and Bank Credit

The TC and the BC are the most important sources of the funding for any type of businesses. This study focuses on the financing mode of the non-financial firms in the economy of Pakistan. This study also explains the alternative source of funding for the firms. It also determines the trade credit and bank credit effect jointly.

Nieuwkerk (1979) described that trade credit has specific in nature, not belong to the bank sectors that's why it is not controlled by any authorities. It is mentioned on both sides of the balance sheet. Account receivable as the current assets and account payable as the current liabilities.

Demirguc-Kunt & Maksimovic, (2001) stated that the use of TC is also affected by the financial system development. It also described that when the financial system of the country is imperfect, the firms face the problem of financial access. Therefore, the source of finance needed is shifted to the suppliers who are the nonfinancial institutions. In this condition, the trade credit is considered as the substitution to the bank credit from the financial intermediaries. It also stated that there is mostly a negative relationship between the use of TC and the legal system of a country.

Non-financial firms have their personal interest in the use of the TC because they have full information about the market. The firms also have the advantage against the financial institutions. They also utilize their resources efficiently to give more output to companies. Buch, Eickmeier and Prieto (2014) states that already established companies are more interested in the debt financing in the manner as developed countries are interested.

TC builds the supplier and buyer relationship which has become an important part of today's business. Trade credit is the contract in which both the parties take active part to fulfill the contract. When the customers face the shortage of money or funds and also a problem of shortage of investment, they prefer to move towards the other mean of finance such as trade credit to fulfill their mutual interest. Trade credit is essentially a credit which is given to companies for acquiring more goods and services. It also minimizes the capital requirements of the companies and also helps to improve the core activities of the business. (Marotta 1997).

According to the Alphonse et al. (2003) when there is an increase in the bank debt it may lead to decrease in the use of the TC of firms. Most of the authors are also explained that, the firms who have credit constrained and also facing the problem in accessing to the bank credit, they may prefer to use the TC.

Nilsen (2002) suggests that the TC use is directly linked to the monetary policy of the country. He argues that TC is considered as the substitution of the BC. His research also explained that the smaller firms are more dependent on TC during the monetary crisis because the TC is considered the alternative source of finance to raise the money. He also predicts that large firms always prefer to avoid TC that have more sources of getting finance. The research results are opposite of predictions, large firms are also using the TC even more than the smaller firms during the financial crisis period.

Schwartz (1974) states that monetary control is effected by the TC. When there is a period of monetary restriction, firms who have access to the other financial resources are also willing to offer the TC to the customers. Thess customers are also like to use the provided TC because the interest of the bank are higher than TC costs.

Study of Boyery & Gobert (2007) and Guarglia & Mateut (2006) suggests that TC is increased by the firms when there is problem in accessing the BC. Also, if the bank credit cost is high, they prefer to make the use of the TC.

Yang (2011), states that TC is an agreement, in which suppliers grants the credit to the customers. TC is measured by account receivables and account payables. Account receivables are referring to TCS that is unpaid claims of firms over its customers and account payables are referred to TCD, a firm use trade credit.

Previous study report that TC plays an important role by compensating when BC is not available. Petersen & Rajan (1997) argue that firms who have a weak banking relationship use more trade credit.

Meltzer (1960) was the first researcher, who suggests that the trade credit can be a substitute for the bank credit. Many studies explained that suppliers have an advantage against the other financial institutions when they supply credit to the certain segment of the market in the form of short term funds. Guarglia & Mateut (2006).

Asymmetric information is the main source of this advantage. This information related to the credit worthiness of the borrowers between the lender and borrower. In case of the trade credit, as compared to the financial institution, the suppliers have the ability to collect the payment of the debt because the suppliers give the warning of stopping the supply of the goods and services to customers.

Petersen & Rajan (1997) state that suppliers have low monitor cost and it also able to give the TC to the firms that have no access to the to the bank financing.

Many researchers explore the relationship between the TC and BC, which is caused by the information asymmetries. Jain (2001) gives the model of the TC where the supplier acts as the second source of the financial intermediaries between the borrowers and banks because of the low monitor cost of the supplier.

Petersen & Rajan (1997) use the variables of size and age of the suppliers' firm to access the credit. They also studied the constraints of the finance; they argue that old firms use more TC than the young firms. They also explained a significant effect when they use the size of firms for the access of credit. They find that the large firms use more credit than smaller firms. Small firms usually do not prefer more TC because they are ready to access to the banks for financial need.

Demirguc-Kunt & Maksimovic (2001) studied the manufacturing firms in different 40 countries and indicate that the TC use is considered the complement to the BC. He indicates that the suppliers play a role of financial intermediaries between the borrowers and banks.

Study of Love et al, (2007) also examines the behavior of the TC in the financial crisis. In this study, both the TC and the BC, which are looking as the external source of finance in the simultaneous equation. In the literature on the integration between TC and bank, few of the studies are considered that shows the causal effect between them. When the BC and TC both are endogenous and have causal effect, it is difficult to explain how BC and TC are determined jointly, Jain (2001)

Huang (2011) also finds that the TCS and the BC are the simultaneously determined and have negatively related. On the other hand, the BC and TCD have a positive relationship. This means that there is a substitute and complementary effect between the BC and the account receivables and account payables.

TC and BC relationship explained through the substitute and complementary positions between them. When the TC and BC are substitutable for each other, it predicts there is a negative relationship between them. In this case, the firms are unable to get the funds from banks and they encourage to use the trade credit as the substitute resource of the bank credit. Petersen and Rajan (1997) find that firms who have weaker bank relations they use more trade credit.

Carbo-Valverde et al. (2015) also explain that the substitution effect between trade credit and bank credit is dependent on the level of the financial constraints.

Yang (2011) studies the TC and BC during and after the financial crisis. The results explain that the BC and TCD (account payables) are significant and are negatively related. It means that when there is an increase in the BC it may lead to decrease in the TCD(account payable). While the BC and TCS (account receivables) are positively related. It means that when there is an increase in the BC they may also increase in the account receivables. It shows the substitute and complementary effect between the TC and BC.

The study of Yang (2011) shows that the account receivables are increased after the crisis period and then decrease in the post-crisis period. So, the account payables are increased during the crisis and post crisis period.

Study of Bellouma (2015) also shows that the problem of getting the bank loan, which has a positive effect on the use of the TC. It also describes the substitutability of the TC and BC. Ahmed and Xiaofeng (2015) also study on the causal relationship between the TC and BC during the financial crisis of 2008. The TCS and TCD and net trade credit are used in the study as a variable.

The results show that there is a positive and significant relationship between the BC and TCS (account receivables). It shows the complementary effect between them. It means that when bank credit are available, the more TC grants to the firms to increase their receivables (Yang 2011). It also shows that the TCS increase during and after the financial crisis. The results also explain that the TCD and BC has a negative and significant relationship. When there is an increase in BC and TCD decrease, it shows the substitution effect between them. Net trade credit and the BC also have a significant and positive relationship.

During the crisis periods, banks are unable to meet the financial needs of nonfinancial firms in the Pakistan. So the customers move towards the trade credit. After the two years of the financial crisis the financial institutions are able to meet the financial needs of the customers. It shows significant and positive effect on the BC (Ahmed and Xiaofeng 2015)

Study of Love et al (2007) also investigates the TC and BC after the financial crisis. The results explain that there is a negative relationship between the BC and TCD (account payable). It means that when there is an increase in the BC, the TCD may lead to decrease. The results also show the positive relationship between the BC and TCS (account receivables). It means that when increase in the BC also increase in the account receivables. So, the BC decreases after the financial crisis.

According to the study of Jimenez e, Lopezb & Saurinaa (2013) TC and BC are the two important sources of funding that has a signal between the supplier and buyer. Rodriguez, Carbo, Fernandez & Udell (2016) indicates that the supplier plays an intermediary role because of the lower cost. Small and medium enterprises face the financial problem, not access to the banks like short time period debt. TC plays an essential role in the financial policy of the firms. TC creates the investment opportunities for the businesses. Europeans firms considered the TCS is part of the balance sheet as a firm asset.

Beck (2008) and Ge & Qui (2007) stated that TC used as the external source of the finance for the underdeveloped countries because these are not able to access to the financial institutions, they also failed to fulfill the institutions' requirements.

According to the Bougheas et al., (2009) inventory management model stated that liquidity, size of the firm and inventory are used to determine the TC level. The goods are produced by the producers, sometime they sell the goods or retained the produced goods. The producers may also increase the account through the transaction of the trade credit.

Vaidya (2011) also suggests that sometime the seller can decrease the inventory of the finished goods by reducing the credit sales. In this way, the trade credit supply and the firm inventory show the inverse relationship.

Bougheas., et., al., (2009) states that firms with higher liquidity always prefer to lesser use of the TC. Boissay and Gropp (2007) study indicate that there is a significant and positive relationship between the TC and the liquidity. They argue, if liquidity is high, it indicates the high TC also.

According to the Niskanen and Niskanen (2006) TC is used by the firms to achieve its target growth. The sales of the firms are the important determinant of the growth. A firm which wants to increase its growth, it must increase the sales. It can also give more sales on the credit to attract the customers, which will result increase in the sales of the firm. Most of the firms are new and facing the problems in the business. They use the goods on credit, which received from the supplier, they also improve its sales supplier.

TC is considered as the substitute for the BC. It shows the significant and positive relationship between the TCS and BC. BC increases the supply of the BC (Mateut and Mizen, Bougheas 2009); Ogawa (2011) while it decreases the demand of the TC also (Ferrando and Mulier, 2012). The credit rationing indicates the substitution between the TCS and BC (Danielson and Scott, 2004; Couppey-Soubeyran and Hericourt, 2011).

Bank credit has also a complementary effect with the TCD. It shows the negative and significant relationship between the TCS and BC. This effect has also been proved by the Ono (2001), Zawadzka (2009), Vaidya (2011), Cole (2010) and Uesugi and Yamashiro (2006).

In the above discussion, literature tries to explore the causal relationship between the TC and BC. It also explains complementary and the substitution effect between BC and TC.

The following hypotheses have been developed from previous literature:

H1: There is a significant relationship between the TCS and BC.

H2: There is a significant relationship between TCD and BC.

Chapter 3

Data & Methodology

3.1 Data Description & Methodology

The chapter explains the source of the data from where the data have been collected for the study. It also explains that only data of non-financial firms of Pakistan have been collected. The companies who have complete data, selected for the working of this study. This chapter also provides the complete measurement of the variables. The methodology of this study is used to capture the impact of independent variables on the dependent variables.

3.1.1 Data Description and Sample

Population of this study consists of all non-financial firms of Pakistan that are listed on Pakistan Stock Exchange (PSX). Sample size for this study consists of the data of companies of non-financial firms of the Pakistan. It consists of 176 companies and from the year 2001 to 2015. The study includes firms from all sectors of Pakistan. These sectors include Oil & Gas, Steel industry, refinery industry, textile, Telecommunication industry, food industry, and cement industry etc.

Non-financial firms' data collected from Balance Sheet Analysis (BSA) and Financial Statement Analysis (FSA) which were published by The State Bank of

Pakistan (SBP). TC deals with non-financial sector that's why only data of non-financial firms were included in the study. Fifteen years' panel data have been collected for this research from the period from 2001 to 2015. According to the Crisostomo., Iturriaga, and Vallelado (2012) Panel data estimation technique is used when the sample size consist of both time series and cross sectional.

3.1.2 Estimation Method

Literature provides about the evidence of the relationship between TC and BC. This empirical design allows the estimation of the causal relationship between TC and BC. Biais and Gollier (1997) suggested that, firms who have weak relationships with the banks that rely more on the trade credit and also point up suppliers advantage that they get on the banks. Yang (2011) suggests that when there is an increase of the TC, banks can get easily information from the supplier about the borrowers of the TC.

It implies that it is quite possible to determine TC and BC jointly when they have caused to run in both the TC and BC directions. Previous studies indicate that they are independent of each other, but in this empirical design there is causation and endogeneity. When TC and BC both are endogenous variables in model, Ordinary Least Square (OLS) method could not apply for appropriate results between explanatory variables and error term in the presence of correlation.

Two Stage Least Square (2SLS), Limited Information Maximum Likelihood (LIML) and Generalized Method of Moments (GMM) are the techniques that are used to resolve the problem of correlations between explanatory variables and error term in the panel data during regression Ahmed, (2015). To examines the causal relationship between TC and BC, the study applies 2SLS technique (Sawa, 1969). 2SLS is the expansion of the OLS method. This technique is used when instrumental variables are in the model.

3.2 Distribution of Industrial Frequency Of Non-financial Firms Of Pakistan

Table 3.1: The Industrial Frequency Distribution Selected for study

No.	Sector	Frequency	Percentage
1	Textile	45	25.56%
2	Motor Vehicles and Auto parts	26	14.77%
3	Chemicals and Chemical product	22	12.5%
4	Sugar	20	11.36%
5	Other Manufacturing product	16	9.10%
6	Coke and Refined Petroleum products	12	6.81%
7	Fuel and Energy	12	6.81%
8	Other food products	10	5.68%
9	Electrical machinery and apparatus	7	3.97%
10	Cement	6	3.40%
	Total	**176**	**100%**

Table 3.1 shows that, according to the year 2015, 443 the total number of non-financial firms were listed on the Pakistan Stock Exchange (PSX). In this study only 176 firms data were used for the BC and TC. The textile sector of the Pakistan contains 25.56 percent of the total firms. According to the frequency table, it shows that textile sector is considered as the largest sector of the nonfinancial firms of the Pakistan that are using the TC. Study of Memon, Abbas, Ahmed (2015) also concluded that the textile sector of Pakistan contains the largest amount of the TC. Motor vehicles and auto parts belong to 14.77%, which is the second largest sector. The third largest sector was chemicals and chemical product which consists of 12.5% of the total firms in the Pakistan.

After that sugar sector contains 11.36 percent. Other manufacturing products belong to percentage of 9.10 percent. Coke and refined petroleum products and fuel and energy sectors consist of 6.81 percent of the total firms. Electrical machinery and apparatus groups belong to 3.97 percent. Cement sector contains only 3.40 percent of the total firms. The percentage of all the sectors are also mentioned in the below bar chart.

3.3 Percentage of Nonfinancial Sector of Pakistan

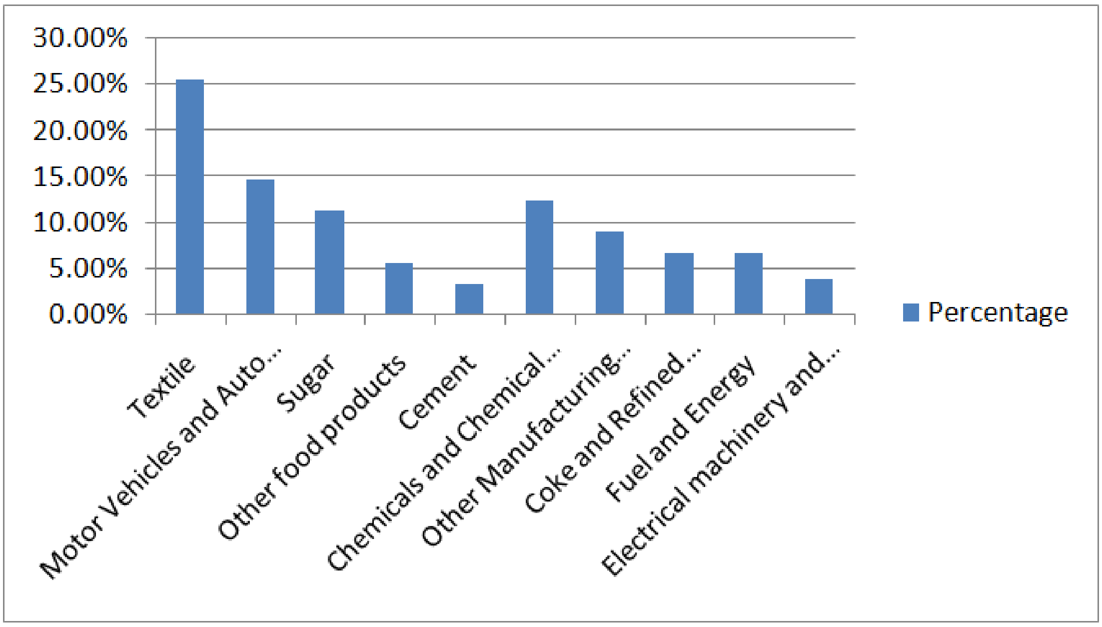

Table 3.2: Measurement of Variables

Variables	Name	Abbreviation	Variable Used As	Measurement	Sources
Dependent Variables/ Independent Variables	Trade Credit Supply	TCS	DV/IV	$\frac{AR}{TA}$	Petersan &Rajan (1997) Yangs (2011)
	Trade Credit Demand	TCD	DV/IV	$\frac{AP}{TL}$	Ahmed & Xiaofeng (2015)
	Short Term Debt	STD	DV/IV	$\frac{STD}{TD}$	Petersan &Rajan (1997) Yangs (2011)
Other Variables	Retained Earnings	RE	IV	$\frac{RE}{TA}$	Fabbri &Klapper(2008)
	Liquidity	LIQ	IV	$\frac{CA}{TL}$	Niskanen & Niskanen (2006)
	Inventory Turn Over	INV	IV	$\frac{INV}{TA}$	Yangs (2011)
	Sales Growth	SG	IV	$(Sales-sales_{t-1}/sales)$	Canto-Cuevas (2015), Palacin-Sanchez Vaidya (2011)
	Size	SZ	IV	LN(TA)	Canto-Cuevas (2015), Palacin-Sanchez Vaidya (2011)

The TC and BC are the dependent variables used in this study. The proxy used for the TC is TCS and TCD. STD used for the BC. The other variables included in the study are liquidity, retained earnings, size, inventory and sales growth.

Trade credit supply (TCS) is measured as account receivable to total Assets. Trade credit demand (TCD) is a measure of account payable to the total liabilities used by Ahmed, Xiaofeng & Mujtaba (2014) and also Yang (2011). BC is measured as STD. (STD) is calculated as short term debt to the total debt used by Ahmed, Xiaofeng and Yang (2011).

Retained earnings, liquidity, inventory, size and sales growth are the independent variables that are used in the study. Retained earnings (RE) are also referred as retained earnings to the total assets. Liquidity (LIQ) is also calculated as the current assets to the total liabilities are used by Niskanen & Niskanen (2006). Inventory (INV) is calculated as inventory turn over to total assets are used by Ahmed & Xiaofeng (2015b).

Sales growth (SG) was measured as the current year sales less last year sales divided by current year sales are used by the Vaidya (2011). The amount of sales growth shows that how much increase in the current year as compared to the last year. Size (SZ) is the firm size, and it is calculated as the natural logarithm of the total assets used by the Canto-Cuevas (2015), Palacin-Sanchez Vaidya (2011)

3.4 Model Specification

TC referred trade credit supply and trade credit demand. Bank credit referred to STD, so both can be written separately as below. The equation of the trade credit supply (TCS) and Bank Credit can be shown as

$$TCS_{i,t} = \beta_0 + \beta_1 BC_{i,t} + \beta_2 RE_{i,t} + \beta_3 SZ_{i,t} + \beta_4 Liq_{i,t} + \beta_5 SG_{i,t} + \beta_6 INV_{i,t} + \varepsilon_{i,t} \; \ldots.(1)$$

In Equation (1), TCS refers to trade credit supply (TCS) which is the dependent variable. BC refers to bank credit, which is the independent variable in the equation. RE is used as retained earnings, SZ refers to size, Liq is used to measure liquidity, SG refers to sales growth, INV as the inventory and the $\varepsilon_{i,t}$.

The equation shows the relationship between (TCD) and BC, which can be written as

$$TCD_{i,t} = \beta_0 + \beta_1 BC_{i,t} + \beta_2 RE_{i,t} + \beta_3 SZ_{i,t} + \beta_4 Liq_{i,t} + \beta_5 SG_{i,t} + \beta_6 INV_{i,t} + \varepsilon_{i,t} \quad .....(2)$$

In Equation (2), TCD is the Trade credit demand (TCD) which is a dependent variable. BC refers to the bank credit, which is the independent variable. RE refers to retained earnings, SZ is used for size of the firm, Liq refers to liquidity, SG is also used for sales growth, INV refers to inventory and the $\varepsilon_{i,t}$.

The relationship between BC and TCS can be explain through equation,

$$BC_{i,t} = \beta_0 + \beta_1 TCS_{i,t} + \beta_2 RE_{i,t} + \beta_3 SZ_{i,t} + \beta_4 Liq_{i,t} + \beta_5 SG_{i,t} + \beta_6 INV_{i,t} + \varepsilon_{i,t} \quad .....(3)$$

In Equation (3), BC is used for bank credit, which is the dependent variable. TCS refers to trade credit supply which is independent variable. Retained earnings, size, liquidity sales growth and inventory are used as the other variables in the equation and also the $\varepsilon_{i,t}$.

The equation 4, explain the relationship between BC and TCD. Equation can be written as

$$BC_{i,t} = \beta_0 + \beta_1 TCD_{i,t} + \beta_2 RE_{i,t} + \beta_3 SZ_{i,t} + \beta_4 Liq_{i,t} + \beta_5 SG_{i,t} + \beta_6 INV_{i,t} + \varepsilon_{i,t} \quad .....(4)$$

In equation (4), BC is used to measure the bank credit, which is a dependent variable. TCD considers as trade credit demand,which is an independent variable in the equation. The other control variables are retained earnings, size, liquidity, sales growth, inventory and the error term. Equations 3 and 4, are used to check the effect of BC on the TCS and TCD.

Chapter 4

Results and Discussion

4.1 Descriptive Statistics

Table 4.1 provides a summary of the descriptive statistics of the data. Descriptive statistics are used to explain the data in the study. Large data of the study can be easily summarized in the table. It includes all dependent and independent variables that are used in the study. This Study uses the three dependent variables which determine the TC and BC. TCD can be measured as account payables to the total liabilities.

The TCS can be measured as account receivables to the total assets. Bank credit can be calculated as the STD to total debt . The other variables used in the study are INV, which is the calculated by dividing the inventory turn over to the total assets. The SZ is measured as the natural logarithm of the total assets. LIQ is calculated with the current assets to the total liabilities. RE is used to calculate the retained earnings to the total assets. This study considered the short-term bank financing because TC is the mean of short-term financing and long term financing is less affected (Yang, 2011).

Table 4.1: Descriptive Statistics

	TCS	**TCD**	**STD**	**LTD**	**SZ**	**INV**	**LIQ**	**RE**	**SG**
Mean	0.1039	0.3103	0.4058	0.1507	8.3316	0.1941	0.4689	0.0163	8.2927
Median	0.0657	0.2398	0.4024	0.1096	8.1446	0.1795	0.4527	0.0023	8.2582
Maximum	0.7040	0.9991	0.9497	0.9655	12.8270	0.6711	0.9699	1.0000	12.4323
Minimum	0.0002	0.0000	0.0168	0.0001	4.4643	0.0000	0.0004	-0.8941	0.4150
Std.Dev.	0.1147	0.2553	0.1904	0.1496	1.3950	0.1338	0.2000	0.0973	1.5251

Descriptive statistics give the value of mean, median, maximum, minimum and standard Deviations. Mean is the average of the data values. Standard deviation measures the average distance from the mean. Minimum and maximum values in the table show the smallest value in the data and largest value in the data. Account receivables to total assets are used to measure trade credit supply. The mean value of TCS is 0.103978 with the maximum value of 0.704037 and the minimum value is 0.000221. Account payable to the total liabilities is the measure of the TCD.

The average value of the TCD is the 0.3103 with with a standard deviation of 25%. It has a maximum 0.9991 and 0.000 minimum values. This table shows that the average value of the TCD is more than the average value of the TCS. It means that the non financial firms of the Pakistan demand more the TC because they want to increase the TC also.

STD to the total debt used for the short term bank credit. The short term debt shows the 40% of the total debt contained maximum 0.9497 and minimum 0.0168 values. Standard deviation shows 19% of the total assets that are contributed by the STD .

Natural log of the total assets referred to the size, which is averaged at 8.3316 with maximum 12.8270 and minimum 4.4643 respectively. Standard deviation shows 1.3 percent deviation from the mean value. The average value of inventory is 19% of the total assets, with maximum 0.6711 and minimum 0.000 and its standard deviation shows 13 percent.

Current liabilities are used to calculate the liquidity. It explains that business can pay the short term obligations out of the current liabilities within a period of the one year. Its mean value is 46 percent and its standard deviation is 2 percent. The maximum value is 0.9699 and the minimum value is 0.004. The average retained earnings are 0.0163 with a standard deviation of 0.0973. The average growth rate is 8.2927 percent with a standard deviation of 1.5251 respectively.

4.2 Correlation Analysis

This explains the correlation among variables, dependent and independent variables. Pearson tests conducted to provide the strength and the direction of the relationship between IV and DV. The correlation coefficient value, ranges from -1 to +1. If the value of the coefficient is high, then the relationship is stronger between the variables.

For correlation, if the value is 1, it shows the perfect relationship between the variables. If the value is zero, it shows no relationship between variables. The coefficient sign provides the direction of the relationship of variables. The coefficient is positive, if there is an increase or decrease in the variables in the same direction. If one variable is increasing and the other is decreasing the coefficient would be negative.

TABLE 4.2: Correlation Matrix

	TCS	**TCD**	**STD**	**LIQ**	**INV**	**RE**	**SG**	**SZ**
TCS	1.							
TCD	0.1430	1.						
STD	0.3295	-0.0004	1.					
LIQ	0.4652	0.3979	0.3739	1.				
INV	-0.0333	0.1618	0.3283	-0.3071	1.			
RE	0.0472	0.0570	0.0627	-0.1149	0.1201	1.		
SG	0.0873	0.2029	0.0835	-0.0606	0.2041	0.0064	1.	
SZ	0.0435	0.0925	-0.0682	0.0467	-0.0575	-0.2473	-0.1397	1.

Table 4.2 shows the correlation analysis among all the variables used in the study. Trade credit supply (TCS) is positively correlated with TCD, STD, LIQ, RE, SG, SZ and negatively correlated with INV. Trade credit demand (TCD) shows the negative relationship with the STD,and positively related with the liquidity, inventory, retained earnings, sales growth and size.

The correlation between the TCD and LIQ is 0.39 which is highest among all the other variables in this table. STD shows the negative correlation with the size and positive relationship with all other variables. Inventory, sales growth and retained earnings have a positive correlation with liquidity and the negative correlation with the size. Inventory has positive with retained earnings and sales growth, but a negative relationship with the size. Retained earnings show the negative relationship with both sales growth and size. Sales growth is positively correlated with the size.

4.3 Panel Unit Root Test

Panel Unit Root tests are applied on the panel data structure because of the large observations. It is used to test the stationarity in the time series. This study has used the different measures to detect the unit root test in the data set (Levin, Lin and Chu 2002; and Shin 2003). Table 4.3 provides the results of the panel unit root test.

TABLE 4.3: Panel Unit Root Test

	Levin, Lin & Chu t*		**I m, Pesaran and Shin W-stat**	
Variables	**Statistic**	**Prob.**	**Statistics**	**Prob.**
TCS	-103.08	0.0000	-10.7354	0.0000
TCD	-41.773	0.0000	-4.48672	0.0000
STD	-5.4332	0.0000	-1.44803	0.0738
LIQ	-8.2485	0.0000	-2.68227	0.0037
SZ	-14.598	0.0000	-0.28776	0.3868
INV	2.33876	0.0000	-6.03283	0.0000
SG	-7.6649	0.0000	-4.87202	0.0000
RE	-115.29	0.0000	-46.045	0.0000

4.4 Results of Hausmen Fixed Effect Test

The hausmen test is usually used to decide between the random effect model and the fixed effect model during the correlation analysis. If the value of F-statistics and Chi-square of the cross-section is less than the value of 0.05, then the fixed effect model is used. In this study, the fixed effect model is used for the correlation analysis of the variables.

The effect of the TC and BC and the effect of the BC on the TC are discussed below.

4.4.1 Effect of Bank credit (STD) on Trade Credit Supply (TCS)

Table 4.4: Effect of STD on Trade credit Supply (TCS)

Variables	**Coefficient**	**Std. Error**	**t-statistic**	**Prob.**
C	0.0550	0.0327	1.6813	0.0929
STD	0.0781	0.0153	5.1025	0.0000
LIQ	0.1927	0.0179	10.7370	0.0000
SZ	-0.0075	0.0047	-1.5815	0.1140
INV	-0.2009	0.0263	-7.6347	0.0000
RE	-0.0087	0.0150	-0.5804	0.5617
SG	0.0034	0.0034	0.9911	0.3218
R-squared	0.7402			
Adj. R-squared	0.71036			
F-statistic	24.7412			
Prob. (F-statistic)	0.0000			

Table 4.4 reports the relationship effect between the bank credit (STD) on the trade credit supply (TCS). In this study, trade credit supply is the dependent variable. Accounts receivable to the total assets ratio are used to measure trade credit supply (TCS). The short term debt to the total assets is used for the calculation of STD.

The relationship between the STD and the TCS shows the significant and positive relationship. STD has a coefficient value of 0.055029 and p-value of 0.0000. It means that the 1 percent change in the short term debt would lead to 5.5 percent of change in the trade credit. TCS is significantly related to the bank credit (STD) which proved our hypothesis (H1). The positive and significant relationship shows the complementary effect between the trad credit supply and the short term debt. It means that when short term debt is available to the firms, they are able to grant the TC to the customers and also increase their receivables which has explained by Ahmed, Xiaofeng and Abdullah (2015).

Liquidity results show that the value of the coefficient is (0.192704) with the p-value (0.0000) which is significant. A positive sign of the coefficient shows that a one unit increase in liquidity, which would lead to the 19 percent increase in the trade credit supply. It means that firms have large amount of liquidity assets that are used for the purchase of the goods and services.

Size has negative coefficient value (-0.007534) with p-value (0.1140) which insignificant. According to the study of Niskanen and Niskanen (2006), smaller firms always want to use the trade credit because of the less opportunities for the investment. They have also indicated that the larger firms have less interested to use the trade credit. They always prefer to use primary source of finance like bank credit because it is easily available for these firms and they do not go to a secondary source of finance that is trade credit.

Inventory turnover to the total assets has the negative coefficient value (-0.2009) with the p-value (0.0000) which is significant. The sign of the coefficient is negative, which indicates that a one unit increase in inventory may lead to decrease of the 20% in the trade credit supply.

Retained earnings have a negative coefficient value (-0.0087) with p-value (0.567) which is insignificant. It means that the retained earnings have no effect on the trade credit supply. Sales growth shows the amount of the sales increase in the current years as compared to the previous years sales.

The coefficient value of sales growth is (0.00346), which shows the positive association between the SG and the TCS (Petersen and Rajan 1997). It means that increase in the supply of TC may also lead to increase in the sales growth. It is noted that the non-financial firms of Pakistan give more credit on the sales, which ultimately decrease in the inventory. This is also supported by the findings of the (Vaidya 2011)

The R-squared value shows that 74% variation occurred in the trade credit supply (dependent variable) are explained by independent variable bank credit (STD).

4.4.2 Effect of the Trade credit Supply (TCS) on Bank Credit (STD)

Table 4.5: Effect of Trade credit Supply (TCS) on Bank Credit (STD)

Variables	**Coefficient**	**Std. Error**	**t-statistic**	**Prob.**
C	0.5989	0.0521	11.4751	0.0000
TCS	0.2156	0.0422	5.1025	0.0000
LIQ	0.0869	0.0308	2.8189	0.0049
SZ	-0.0266	0.0078	-3.3733	0.0008
INV	0.4134	0.0432	9.5588	0.0000
RE	-0.0292	0.0250	-1.1675	0.2432
SG	-0.0143	0.0057	-2.4742	0.0135
R-squared 0.7244				
Adj. R-squared 0.6926				
F-statistic 22.8160				
Prob. (F-statistic) 0.0000				

Table 4.5 explains the relationship between the TCS and the STD. In this model, short term debt is the dependent variable and retained earnings, liquidity, size, inventory, sales growth are control variables. The coefficient value of trade credit supply is (0.25605) its p-value is significant with (0.000). Positive, but the significant relationship between the TCS and the STD, which secure hypothesis (H1). It shows that the firms with high amount of account receivables, demand more STD.

Liquidity results show that the value of the coefficient is (0.086928) with the p-value (0.0049) is significant. It means the firms have large amount of the liquidity assets that are used for the purchase of the goods and services.

Size shows the value of the coefficient (-0.02661) with the significance p-value (0.0008). Bougheas et al (2009) indicates that the significant but negative relationship between the size of the firm and the TCS. It means that large firms do not prefer to give out sales on credit.

Inventory to the total assets, explains the positive and significant relationship. The coefficient value (0.413486) with the p-value (0.0000). The positive sign shows that 1% increase in the inventory would lead to an increase of 41% TCS.

RE is the measure of retained earnings to the total assets. It shows a negative coefficient value (-0.029251) with p-value (0.2432) which is insignificant. SG is the sales growth, which has a negative and insignificant relationship.

R-squared value indicates that 72.44% of variation in bank credit is explained by the trade credit supply.

4.4.3 Effect of STD on Trade credit Demand (TCD)

TABLE 4.6: Effect of STD on Trade credit Demand (TCD)

Variables	Coefficient	Std. Error	t-statistic	Prob.
C	-0.3130	0.1291	-2.4244	0.0155
STD	-0.1375	0.0594	-2.3151	0.0207
LIQ	0.1185	0.0703	1.6839	0.0924
SZ	0.0630	0.0182	3.4480	0.0006
INV	-0.0210	0.1038	-0.2031	0.8391
RE	0.0248	0.0618	0.4012	0.6883
SG	0.0125	0.0131	0.9489	0.3428
R-squared	0.4716			
Adj. R-squared	0.4060			
F-statistic	7.1913			
Prob. (F-statistic)	0.0000			

This table reports relationship between the STD and the TCD. TCD is the dependent variable. Account payable to the total liabilities is used to measure trade credit demand. STD to the total assets are used to measure STD. The coefficient value is (-0.1375) with the p-value of (0.0207). There is significant and negative relationship between the STD and TCD. It also supports the hypothesis (H2) of this study. It indicates that when increase in the TCD it may lead to decrease in the STD. The negative and significant relationship indicates the substitution effect between the STD and the TCD. It has also discussed by the Ahmed, Xiaofeng, Usman and Abdullah (2015). Bougheas et al (2009) also finds that the account payable is considered as a substitute of the bank debt.

Liquidity to total liabilities shows the significant and positive relationship with the TCD. The positive sign of coefficient explains that one unit increase in the liquidity may lead to an increase of 11 percent in the TCD.

Size has coefficient value of (0.0630) and p-value of (0.0006). It shows positive and significant relationship with TCD. It shows the large firms as compared to the small firms, are more interested to get the bank debt (Long et al, 1993).

Inventory to the total assets indicates the negative and insignificant relationship with the trade credit demand. There is the positive and insignificant relationship of retained earning with the trade credit demand. Sales growth is the amount of the current sales which compared with the last year sales. Sales growth has the positive and insignificant relationships with the trade credit demand.

4.4.4 Effect of Trade credit demand (TCD) on Bank credit (STD)

TABLE 4.7: Effect of Trade credit demand (TCD) on Bank credit (STD)

Variables	**Coefficient**	**Std. Error**	**t-statistic**	**Prob.**
C	0.6332	0.0555	11.4063	0.0000
TCD	-0.0276	0.0119	-2.3151	0.0207
LIQ	0.1816	0.0312	5.8192	0.0000
SZ	-0.0282	0.0082	-3.4479	0.0006
INV	0.3680	0.0455	8.0810	0.0000
RE	-0.0345	0.0277	-1.2452	0.2132
SG	-0.0172	0.0058	-2.9233	0.0035
R-squared	0.7277			
Adj. R-squared	0.6939			
F-statistic	21.535			
Prob. (F-statistic)	0.0000			

Table 4.6 explains the relationship between the TCD and the STD. TCD is calculated by account payable to the total liabilities, and the STD to the total assets is used for the STD. The coefficient value of TCD is (-0.0276) with the p-value of (0.0207). It shows that negative, but significant relationship with the bank credit. It also shows that there is also a complementary relationship between theTCD and STD.

TCD and the BC relationship can also be determined by the volume of the trade credit and also the volume of the lending by the banks. The negative coefficient sign of the TCD shows that when there is an increase in the BC it may decrease the demand of the trade credit. This may also put an effect on the small business that are unable to expand businesses (Cook 1999 and Yamashiro 2008).

Liquidity and inventory entered as control variables have a positive and significant relationship with bank credit.RE is the measure of retained earnings to the total assets. It shows a negative coefficient value (-0.0345) with p-value (0.0000) which is significant. It indicates that firms use external finance if internal funds are insufficient for the use. SG is the amount of the sales of the current year as compared to the last year. It shows the negative, but significant relationship with the bank credit.

The R-squared value shows the 72.77% of variation in the bank credit (STD) are explained by the independent variable trade credit demand.

Chapter 5

Conclusion and Future Recommendations

The TC and BC are the most important sources of funding for any type of businesses. This study focuses on the financing mode of the nonfinancial firms in the economy of Pakistan. This study also explains the alternative source of funding for the firms. It also determines the TC and BC effect jointly.

This study tries to explain the relationship between the TC and BC. This study investigates the behavior of nonfinancial firms of Pakistan towards the use of BC and TC. It also analyzes the causal relationship between TC and BC, and also the use of TC and BC towards non-financial firms. Annual financial data of 176 firms have been collected from the nonfinancial sector firms listed on the Pakistan Stock Exchange for the period of 2001 to 2015.

TC refers to TCD and TCS. Bank credit refers to the STD. The TCD is measured by accounts payable to total liabilities. The TCS is measured by the account receivables to total assets. BC is measured by the short term debt to the total debt. This study also provides the evidence of trade credit and bank credit has a substitute and complementary effect.

After applying the Two Stage Least Square estimation technique, it is found that there is a positive and significant relation between TCS and STD. The positive and significant relationship shows the complementary effect between the account receivables and short term debt. It means that when short term debt is available for the firms, they are able to grant the trade credit to the customers and also increases their receivables which has explained by Ahmed, Xiaofeng and Abdullah (2015).

The results also explain the negative, but significant relationship between the TCD and the STD. It also shows the substitution effect between them. It means that increase in the BC may lead to decrease in TCD. The negative and significant relationship shows the substitution effect between the short term debt and the account payables. It has also discussed by the Ahmed, Xiaofeng, Usman and Abdullah (2015). Bougheas et al (2009) also finds that the account payable is considered a substitute of the bank debt.

This study also tries to explain the use of the TC in the non-financial firms in the context of the Pakistan. When the firms are unable to get the funds from the financial institutions. The non-financial firms of Pakistan face the problem of funds due to borrowing constraints. So the TC is the second main source of external financing, which helps the firms to solve the liquidity problems. However, TC is considered as the source of the short term financing as well as best mean to solve the liquidity problems of the risky firms.

In the light of empirical evidences, it is recommended that authority must try to improve the mechanism of the trade credit and also the small firms that are involved in the TC practices. It also provides the guidelines for the policy maker to develop and encourage the trade credit channel. It is also helpful to increase and promote the trade credit in our economy.

5.1 Limitations

This study has many practical implementations. This study also has some limitations. First of all, this study takes only the capitalized firms which are listed on the Pakistan Stock Exchange. This study collects only the data of nonfinancial firms of Pakistan.

5.2 Future Directions

This study explains the causal relationship between the TC and BC in non-financial firms in the context of Pakistan. The results should be generalized over all the industries of the Pakistan. The study uses the annual data of nonfinancial firms to check the causal relationship between the TC and TC.

Many other researchers can conduct the study by the addition of more variables and also the addition of the time period. The empirical support for research in the context of Pakistan has inspired future innovations, in research in this area and can be applied to other countries.

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