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**Impact of Financial Development
and Credit Information Sharing
on Trade Credit Receivables,
Trade Credit Payables and Total
Trade Credit**

by

Ibtisam Shafique

A thesis submitted in partial fulfillment for the
degree of Master of Science

in the

Faculty of Management & Social Sciences
Department of Management Sciences

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*I want to dedicate this achievement my parents, teachers and friends who always
encourage and support me in every crucial time*



CERTIFICATE OF APPROVAL

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Abstract

The primary objective of the study is to explore the impact of financial development and credit information sharing on trade credit receivables and trade credit payables. For this purpose 180 listed manufacturing firms on Pakistan Stock Exchange have been selected, their data ranges from 2001 to 2015, which has been extracted from the respective company's official websites and annual reports. The dependent variable trade credit receivables and trade credit payables were used as outcome variable. The financial development has been indicated by the depth of financial institutions and by the depth of financial markets and the measure of credit information sharing has been taken from the World Development Indicators Online Database. These three variables have been taken as independent variables and short term bank credit, stock in trade, collateral, sales growth and profitability were used as control variables. To analyze panel data, fixed effect model has been applied. The statistical findings of the study indicate that development in financial markets has no significant impact on trade receivables, trade payables and total trade credit whereas development of financial institutions has positive significant impact on trade credit. That is, complementary hypothesis have been verified. Another finding of the study is that credit sharing information has positive impact on trade credit. With regards to control variables, our results are that short term bank credit, stock in trade and collateral has significant effect on trade credit. Policy recommendation of this research is that financial institutions should be encourage to extend more financing to private firms so that they can generate more trade credit. Another recommendation is that credit information sharing should also be promoted.

Keywords: Financial Development, Credit Information Sharing on Trade Credit Receivables, Trade Credit Payables, Stock in Trade, Sales Growth, Profitability, Collateral, Firm Size.

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Abbreviations

ARDL	Autoregressive Distributed Lag
CFOs	Chief Financial Officer
CRBs	Credit Reference Bureaus
EOQ	Economic Order Quantity
GDP	Gross Domestic Product
LMFs	Listed Manufacturing Firms
OLS	Ordinary Least Square
PCIBC	Public Credit Information Bureau Coverage
PSDP	Public Sector Development Program
SMEs	Small Medium Enterprises
VECM	Vector Mistake Rectification Model
ZTBL	Zarai Taraqiati Bank Limited

Chapter 1

Introduction

1.1 Background of Study

Trade credit is a significant component of corporate finance (Rajan & Zingales, 1995) and the companies use trade credit frequently for short term financing. Firms use it all over the world to fund their working exercises and development (Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001). For instance, in the UK, over 80% of business exchanges are done through credit (Wilson and summer, 2002). Also, in the US, 80% of selling is on credit. Mian and Smith Jr (1992) noticed that account payable are around 40% of absolute liabilities announced by the firms in United States. Moreover, the normal utilization of the trade credit by the firms is important in practically all nations. For instance, many bigger firms satisfy 15% of their financing needs from credit payables.

Trade credit is very dynamic tool for the financing growth. Trade credit is the credit in which suppliers allows you to buy without any payment at start and make later payment. At any time a firm can take consignment of goods, material, instruments without paying cash at the time of purchasing the firm are using trade credit. The trade credit's utilization is probably going to be affected by the degree of a financial development (FD) and credit information sharing (CIS) in a nation. Along with the expansion in the FD and CIS, supply of funds from the firm's financial sector to firm's real sector increases which reduce trade credit of

firms. Trade credit is the supplier and buyer relationship, which has become a basic piece of the present business. Trade credit arrangement is a cycle wherein the two players (supplier and buyer) participate to satisfy the contract. Because of the issue of liquidity or lack of investment, when customers feel loss and have no other opportunity to fulfill their financial requirements, the customer moves toward trade credit to fulfill their requirements.

In Taiwan, from total liabilities of manufacturing firm's trade credit receivables is 25

Previous knowledge regarding to the utilization of trade credit shows that TCP and TCR are the two aspects of the trade credit. Both TCP and TCR are similarly significant and are broadly affected by firms. Anyhow, they see the difference in the utilization of trade credit around nations. They use it highly in economies, which are less developed. The above contentions mirror the centrality of the trade credit corporate accounts. Due to widely use of trade credit it comprise the researcher to examine the factors that could be the source of expansion and execution of trade credit policies. Numerous researchers have effectively examined trade credit since the time of mid-twentieth century, and all of the studies have featured a few intentions and determinants of TCP and TCR by firms.

For instance, currently (Santos & Silva, 2014) additionally settled that bigger industrial firms fill in as a financial intermediaries and give credit to their clients who need admittance to credit markets. Later, (Maksimovic & Frank, 2005) featured the centre layer function of huge firms among financial organizations and little borrowers, especially in a ineffective financial market. Enormous and trustworthy firms approach market credit and, subsequently, go about as specialists of financially intermediaries and reallocate financial assets in trade for credit to their economically weak clients (Deloof & Van Overfelt, 2011).

In this manner, these organizations exist in a dominant situation to relieve the inadequate function of monetary delegates in less-created financial business sectors (Gibilario & Mattarocci, 2011). Firms offer it to decrease the ensured cost, even as selling an item on layaway indicates a sign regarding its quality (Baños-Caballero, García-Teruel, & Martínez-Solano, 2010). Providers offer an unprejudiced net

credit term when they are confronting notoriety and item quality acknowledgment. To credit is provided by many firms to decrease deviation issues. Biais and Gollier (1997) featured vendor's private data transmission to banks via trade credit, and it is useful for banks to control the antagonistic choice problem.

Even as trade credit isolates the shipment of products from money receipts, so suppliers can demolish the exchange expenses of charging and gathering from clients (Kohler, Britton, & Yates, 2000). Jain examined the convenient position of providers over the banks. His study noticed that providers have more and simpler admittance to data about the reliability of their clients than banks have. Providers have a bit of leeway over banks in authorizing an agreement (Cunat, 2007). Jain stressed that this bit of leeway of trade credit emerges principally when the item provided has the specific innovation and when it is exorbitant for a provider to locate an elective purchaser and hard for a purchaser to locate an elective provider. Niskanen and Niskanen (2006) set up that organizations will expand more trade credit, which has simpler admittance to the capital markets, and banks expand additional trade credit.

Delannay and Weill (2004) underscored that Trade credit payables can be modified by firms' size, development, benefit, and the influence. The firms can broaden less trade credit which pay a significant expense of obligation financing (García-Teruel & Martínez-Solano, 2010), though firms producing additional income from tasks expand increased trade credit. Profoundly productive firms are likewise expanding more trade credit which have strong liquidity positions (Vaidya, 2011). (M. Khan, Tragar, & Bhutto, 2012) realized that organizations utilizing additional inside financing broaden increased trade credit and move additional liquidity to their clients than different firms are doing. (Tsuruta, 2013) noticed the organizations give smaller trade credit to their clients than different firms which pay excessive interest expenses and confronting the liquidity deficiency.

Gibilaro & Mattarocci, (2011) explored that a reasoned condition occurs among trade credit given by the firms to their consumers and trade debt is utilized from the firms. Afterward, Yang established the complementary hypothesis of the trade credit. His study approved the credit redistribution of bigger firms by highlighting

the market credit channel. (Gibilaro & Mattarocci, 2011) recommended that TCP and TCR happen at the same time. They contended that organizations that get credit from providers give it to their clients. Kim and Shin (2012) uncovered the critical positive connection between providers' receivable speculation arrangements and accounts' payable approaches.

Trade credit is an familiar and unstructured type of credit. Firms can use it to fund their working costs. It doesn't need any attestation or evidence and includes no restoration costs. Even as no severe prerequisites exist concerning the revealing of past due trade credit (creditor liabilities) by administrative specialists or by the Electronic Credit Data Department (ECIB); in this way, firms regularly use it. The indirect cost of trade credit for purchasers is influenced moderately limited by the market interest rate. In this way, firms lean toward trade credit over bank credit.

It is very common to trade credit among financially constrained organizations. (Giannetti, Burkart, & Ellingsen, 2011) reported that organizations with internal financial limitations, (for example, inadequate incomes produced from tasks, feeble liquidity positions, an absence of guarantee and interior stores, and so forth) request more trade credit. New start-up firms put down little importance on fiscal reporting. These organizations utilize trade credit in order to flag their believability and communicate the private data of their providers to banks. Henceforth, banks utilize an association's exchange payable equilibrium as a sign of believability and reliability when stretching out credit to these little firms. In this way, trade credit decreases the uneven data issue among creditors and banks. It additionally gives an occasion to purchasers to test the nature of an item before paying and it is especially helpful in instances of new items (Deloof & Jegers, 1996). Firms use more credit from their suppliers that have a remarkable expense of debt financing (García-Teruel & Martínez-Solano, 2010), while firms producing more assets from interior activities and approach outsourcing depend less on trade credit. Bönnte and Nielen (2011) explored that creative SMEs utilize higher exchange acknowledgment to adapt to the liquidity issue. The nature of the financial structure is differently determined with trade credit financing (Couppey-Soubeyran & Héricourt, 2011).

The qualities of items impact trade credit financing by the firms. The firms utilize more trade credit than ordinary firms which utilize an item separation technique (Mateut, Mizen, & Ziane, 2011).

Guy and Mazra (2012) set up that the firms' supervisor's nationality, certainty, and organization are critical factors of TCR by the firms present in Cameroon. Molina and Preve (2012) Realized the organizations postpone instalments of trade payables during seasons of financial suffers. Among macroeconomic variables, those found to significantly affect the utilization of trade credit by firms incorporate monetary development, money related arrangements, fiscal emergencies, and cost of bank credit. Occasionally, (Fisman & Love, 2003) realized the trade credit applications of non-financial firms shift across ventures. They use little trade credit in enterprises with insubstantial inventories, although they use additional trade credit in businesses with actual reserves. (Fitzpatrick & Lien, 2013) noticed that the utilization of trade credit is almost increased in industrial and trading sectors. For quite a long time, firms did not perceive trade credit financing as a financial issue regarding consummate financial business sectors. In unspecified cases, because of financial marketplace contacts and failures, it got the consideration of researchers and fiscal legislators. In less-created financial business sectors, non-financial firms face credit proportioning from financial foundations because of more expenses of checking and liquidation (Jain, 2001).

Additionally, firms are more present to outer financial imperatives in nations with undeveloped financial frameworks, and as a result, they make use of trade credit in place of bank credit. Financial advancement lessens the transaction cost and info cost of debtors and creditors. It additionally expands the proficiency of the financial framework, and as a result, reserves were designated for more useful employments. Subsequently, the development in the flexibility of the market credit to assembling firms takes place (Rostow, 1974). Besides, because of prohibitive money related strategies and controlled money source, LMFs stretch out trade credit to help their financially restraints clients (Kashyap, Stein, & Wilcox, 1996). Peterson and Rajan (1997) expressed that providers assist their credit apportioned clients by stretching out trade credit to them. By following a tight financial related

approach set up, financially compelled firms request to increased trade credit from their providers (Nilsen, 2002). As showed by (Maksimovic, 2001) the size of the financial framework in a nation distinctly identifies the flexibility of trade credit.

Deloof and La Rocca (2015) proposed that the expansion in FD expands providers' admittance to formal credit. They may stretch out additional trade credit amazingly credit rationed clients. They recommended that an expansion in FD upgrades the credit restructurings of firms. As per the above conversation, it is closed, that FD assumes a critical part in credit redistribution and financing judgements made by firms. Financial advancement and privatization of Government-claimed banks began in the mid-1990s in Pakistan as a foundation of financial area developments (M. A. Khan & Qayyum, 2007).

All of these measurements brought enhancements in the deepness of the financial area in Pakistan. In the course of post-change time frame (2000-2010), the financial framework of Pakistan reformed extensively, as demonstrated by the expansions in FD. Notwithstanding these upgrades, Pakistan was as yet positioned in the middle of the financially less created nations in five back-to-back issues (2008-2012) as per the FD report distributed by the global Economic Forum. A pointer of the economical depth of financial establishments (private credit to Gross domestic product rate) has demonstrated an expanding pattern from 2000-2008 yet began to fall in 2009.

The foundation of credit libraries in both municipal society and private areas builds the CIS among money lenders concerning the financial soundness of borrowers. Credit libraries give data about the financial soundness of borrowers and cause a decrease in the data unevenness issue among borrowers and loan specialists. CIS decreases the hostile range issue in the credit market, and as a result, banks become all the more ready to stretch out credit to the private area. At the full-scale level, the foundation of credit data departments expands private credit within the sight of other advancement measurements at the national level (Miller, 2000). An examination directed by (Pagano & Jappelli, 1993) using a credit reporting firms shows that enhancements in CIS brought about expanded loaning and a diminished

default rate. Developments in CIS expand the organizations' admittance to the bank credit (Brown, Jappelli, & Pagano, 2009).

CIS in Pakistan has additionally improved in the course of the most recent few decades. During January 1992 the foundation of the Public Credit Information Bureau (PCIB) has proved it. As of now, in Pakistan, four credit registries are working, one of which is existing the public area. The other three registries are located in the private sector. The PCIB took Significant activities in the course of the most recent decade incorporate beginning on the virtual credit, revealing from April 2003, presenting required announcing of borrowers of 5M or more by financial foundations, protecting credit information for a very long time by every single financial establishment, an arrangement of negative and positive data, and inclusion of the two people and firms.

The best trade credit contract decides the conformation of a retailer's stock financing collection i.e., the measure of trade credit and bank advances that the vender uses to fund stock. In equilibrium, the functioning advantage related to trade credit orders that it is consistently a crucial piece of the retailer's stock financing portfolio, in any event, when the provider is less proficient in dealing avoidance than a bank. Going about as a risk sharing instrument, trade credit is the favored hotspot for retailer financing their stock, though bank advances are used individual as an enhancement. By difference, with high financing need, the retailer, confronting two patterns, finance inventory using a portfolio of cash, bank advances, and trade credit. This stock financing pattern is upheld by a starter observational test that we directed utilizing processed information.

Lastly, study model additionally uncovers that, in stability, the vender receives more trade credit when the chain benefit margin is high, and potentially when the retailer's market control is tough. The appropriation of trade credit associates the balance operative choices and gracefully fastens execution to the retailer's financial circumstance and financial contacts in the chain. Contrasted with the classic price only contract (Lariviere & Porteus, 2001), trade credit consistently prompts higher-request amounts, thus improving channel effectiveness and social government assistance. Also, the provider may likewise appreciate higher insignificant

profit margin overall revenue under trade credit, particularly when the retailer is economically powerless. Merging its effect on amount and edge, trade credit permits providers to even more likely exploit buyers' financial shortcomings. Purchasers, then again, may likewise profit by professional credit when they are not incredibly monetarily compelled. Likewise, while the provider consistently profits by being more proficient in overseeing trade credit default, retailers may lean toward a provider who is less productive in doing as such.

1.2 Problem Statement

In previous studies, most of the researchers have investigated trade credit in developing countries. For example Vaidya (2011) directed an investigation in India, Zhang (2011) explored in Thailand and Guy & Mazra (2012) mentioned objective facts of trade credit for Cameroon. It is important to note that the trade credit practices vary from country to country and similarly a huge difference exists among nations concerning the features of their financial system. The role of financial institutions is to offer loans to companies and consumers. Moreover, in the developing financial systems of underdeveloped countries, due to risk of credit failures and credit information sharing, financial intermediaries in which approaches are market constraint customers by providing them trade credit (Zapalska, Clark, & Shao, 2004).

The results of above mention studies cannot be generalized because complexity of financial institutions and depth of financial markets changes significantly from country to country. Because country specific studies offer a chance to examine with in country differences and minimize the problem of omitted variable bias. Thus, to check the implementation of theories TCP, TCR and TTC are essential in specific country studies. Concerning FD, Pakistan isn't financially developed among all the countries (World Financial Discussion, 2012), we saw generous development in TCP and TCR by LMFs during the time of this investigation. The above discussion of the utilization of trade credit in fewer development financial markets offer the inspiration for this study. Therefore, the examination is centered

on exploring the components that decide the utilization of trade credit and the contribution of FD and CIS.

1.3 Research Gap

Many of the earlier studies have concentrated on trade credit in advanced countries, whereas a very small number of studies have focused on trade credit of firms that are working in emerging countries. The financial system of Pakistan is not well-established and trade credit is generally utilized by the firms. Therefore this research gap has been filled in this study by using the data of a Pakistan that is a developing country.

Ahmed, Xiaofeng, and Khalid (2014) considered only the trade credit receivables of non-financial firms of Pakistan whereas they ignored behavior of trade credit payables. Moreover, to the best of our knowledge, behavior of total trade credit has not yet been explored anywhere and particularly in Pakistan. Therefore this study has filled this gap by analyzing the behavior of trade credit payables and total trade credit in addition to trade credit receivables.

1.4 Significance of the Study

The present research determines the impact of financial expansion and credit evidence sharing on trade credit receivables, trade credit payable and total trade credit. Based on the data of Pakistani listed manufacturing firms this study will provide the evidence about the trade credit receivables, trade credit payables and total trade credit influenced by the financial development and credit information sharing. The research is to address the study: influence of financial development and credit information sharing on trade credit receivables, trade credit payable and total trade credit. The major objective of this study is to provide an empirical evidence of the trade credit in the Pakistani listed manufacturing firms. Therefore, the following research questions are identified to measure the study:

1.5 Research Questions of the Study

Specifically the questions of this research are:

- What is the impact of financial development and credit information sharing on trade credit receivables?
- What is the impact of financial development and credit information sharing on trade credit payables?
- What is the impact of financial development and credit information sharing on total trade credit?

1.6 Research Objectives of the Study

Specifically the objectives of this research are:

- To examine the impact of financial development and credit information sharing on trade credit receivables.
- To examine the impact financial development and credit information sharing on trade credit payables.
- To examine the impact of financial development and credit information sharing on total trade credit.

1.7 Scheme of the Study

The present study includes five chapters. First chapter consists of introduction. Second chapter reviews the relevant literature on the topic. Third chapter explains methodology of this study. Chapter four presents the results and discussions. Chapter five contains conclusions and policy implications.

Chapter 2

Literature Review

TCR by firms is affected by the precision of data created by the monetary market including the improvements of monetary organizations (Fisman & Love, 2003); authorization of legitimate guidelines for the recuperation of late records. Van Horen (2007) explored that the trade credit utilization is higher in non-industrial nations in which institutional improvements are in the beginning phases.

FD builds the gracefully of the bank credit and the market credit to the firms. As a result, these organizations face little financing imperatives. Along with the expansion in FD and a decrease in monetary market defects, firms decline the trade credit utilization as the replacement for the bank credit (Couppey-Soubeyran & Héricourt, 2011). Their study gave observational proof of a huge negative connection among FD and the firms' utilization of trade credit. Moreover, in less created monetary business sectors, firms face credit apportioning from monetary foundations because of greater expenses of checking and liquidation (Jain, 2001).

They clarified that FD expands the flexibility of bank credit to the firms, and thus the trade credit utilization is diminished. In actuality, banking advancement Little and medium estimated ventures (SMEs) are more subject to the bank account and are more helpless against financing imperatives (Beck, Demirgüç-Kunt, & Maksimovic, 2008); (Stiglitz & Weiss, 1981), which expanded notably because of the ongoing financial emergency (Ryan, O'Toole, & McCann, 2014). Based on these circumstances, endurance can rely upon the activities of monetarily unconstrained

leasers and they can broaden extra trade credit or potentially loosen up instalment terms to their monetarily obliged partners. The monetary emergency, and the ensuing financial decline, prompted an expansion in firm exits, huge numbers of which were automatic.

Earlier investigations (Petersen & Rajan, 1997); (Casey & O'Toole, 2014); (Garcia-Appendini & Montoriol-Garriga, 2013); (Carbo-Valverde, Rodriguez-Fernandez, & Udell, 2016); (Ferrando & Mulier, 2013) uphold the vision that the trade credit can give valuable support to monetarily obliged firms. We likewise realize that the private firms are substantially more dependent on trade credit as compare to the public firms, as the last have better admittance to elective and less expensive wellsprings of subsidizing because of their posting status. Trade credit is a significant elective source to bank money (OECD, 2014), and is assessed to speak to around 33% of the obligation of US SMEs, giving as much outside account as bank advances (Berger & Udell, 2006). Taking all US non-monetary firms together, (Barrot, 2016) reported a trade credit to the bank advances proportion of three to one (Progression of Assets Records, 2012).

Trade credit is referred as an account given by providers to encourage the trade of merchandise and enterprises. Firms go about as monetary delegates by giving account to different firms involving both the time differential between the conveyance of merchandise and ventures and instalment, just as the corresponding limits took into consideration instalment in mass or before the instalment due date. Based on many archived focal points of trade credit as a wellspring of money is the level of monetary adaptability that it attends (Danielson & Scott, 2004), as well as the capacity to defeat monetary imperatives when the account from monetary foundations is inaccessible (Petersen & Rajan, 1997); (Schwartz, 1974).

Trade credit is the money given by providers to encourage the trade of products and ventures. Firms go about as monetary go-betweens by giving money to different firms containing both the time differential between the conveyance of merchandise and ventures and instalment, just as the relative limits considered instalment in mass or before the instalment due date. According to many recorded preferences of trade credit as a wellspring of account is the level of monetary adaptability

it attends (Danielson & Scott, 2004), as well as the capacity to defeat monetary requirements when money from monetary establishments is inaccessible (Petersen & Rajan, 1997); (Schwartz, 1974).

There are a few reasons that why more fluid firms stretch out trade credit in order to enable other compelled firms to keep away from monetary pain. To start with, more fluid firms might be persuaded to continue deals. Dependable connections have all the earmarks of being a significant factor for the trade credit expansion (Cunat, 2007). Second, providers regularly have less expensive admittance to back, and a relative bit of leeway in passing it on the trade credit utilization (Ng, Smith, & Smith, 1999). Thirdly, the utilization of trade credit takes into account item check and guarantee (Lee & Stowe, 1993) and (Long, Malitz, & Ravid, 1993), and the arrangement of trade credit can likewise be utilized as a screening system to measure purchaser default hazard (Mian & Smith Jr, 1992). Finally, providers frequently have a certain value stake in the exhibition of their borrower firms (Petersen & Rajan, 1997), so a more prominent motivator to help them during troublesome periods.

Trade credit is a significant wellspring of assets for both little and enormous firms far and wide (Petersen & Rajan, 1997); (Maksimovic, 2001). Numerous organizations use trade credit in both ways to fund their information buys (creditor liabilities) and offer to finance to their clients (records of sales). The customary clarification for the presence of trade credit is that trade credit assumes a non-financial job. That is, trade credit decreases exchange costs (Ferris, 1981), permits value segregation between clients with various credit-value (Brennan, Maksimovics, & Zechner, 1988), encourages long haul links with clients (Wilson & Summers, 2002), and even gives a guarantee to quality when clients can't notice item attributes (Long et al., 1993). All the more as of late, monetary hypotheses contend that providers have a loaning advantage over monetary establishments, because of better data (Biais & Gollier, 1997), bring down borrower's advantage (Burkart & Ellingsen, 2004), or a liquidation advantage (Fabbri & Menichini, 2010).

By and large, a fourth of complete resources for European nations is put resources into money due (Giannetti et al., 2011), but this sum is considerably higher on

account of European little and medium-sized firms (García-Teruel & Martínez-Solano, 2010). All these significant degrees of trade credit allowed by firms to clients can have significant ramifications for firm worth and benefit (Pike, Cheng, Cravens, & Lamminmaki, 2005). Pike also showed indistinguishably that the existence of market flaw suggests that trade credit choices can influence the estimation of the firm.

García-Teruel and Martínez-Solano (2010) studied the working capital impact on firms' productivity and investigate the effect of the days' records of sales, however, they don't zero in on interest in trade credit. He studied the investor abundance ramifications of corporate trade credit venture for an example of US recorded firms. Trade credit impacts on SMEs productivity stay unexplored, regardless of the moderately more noteworthy impact of records receivable on the resources of these organizations contrasted with enormous firms. Indeed, issues of deviated data and more noteworthy trouble in getting to capital business sectors mean that the trade credit is more concentrated in SMEs (Berger & Udell, 1998); (Petersen & Rajan, 1997). Numerous reasons lead providers to expand are numerous reasons lead edit upgrades association's deals and subsequently may bring about higher benefit. Meltzer (1960) stated that an essential capacity of trade credit is moderation of clients' monetary grindings, in this way encouraging expanded deals and piece of the pie development (Nadiri, 1969).

Notwithstanding settling financing erosions, trade credit can support deals by easing enlightening unevenness among providers and purchasers as far as item quality (Smith, 1987). As per this regard, the merchant's interest in trade credit encourages trade by decreasing vulnerability about the quality of items. Trade credit additionally empowers value segregation (Brennan et al., 1988) by fluctuating the time of credit or the markdown for brief instalment, firms may sell their items at various costs relying upon the interested flexibility of clients. From a drawn-out point of view, trade credit may give future benefits by building up and keeping up perpetual business relationships (Ng et al., 1999); (Wilner, 2000). Notwithstanding expanding deals, trade credit may build incomes through certain loan fees (Emery, 1984), or it might diminish working and exchange costs (Emery, 1984);

(Ferris, 1981). Notwithstanding, the arrangement of trade credit involves negative impacts, for example, default hazard or late instalment, which can harm a firm's productivity.

Schwartz (1974) built up monetary intentions in the utilization of trade credit. His study proposes that when credit is compact, monetarily stable firms can progressively provide additional trade credit to keep up their connections with more modest clients, who are "proportioned" from direct credit market interest. The merchant firm goes about as a monetary delegate to clients with restricted admittance to capital business sectors, consequently financing their clients' development. They believe that bigger firms to be greater known and have preferred admittance to capital business sectors over more modest firms, as far as accessibility and cost, and ought to accordingly confront fewer requirements when rising funding to back their speculations (Faulkender & Wang, 2006). Henceforth, the monetary intention foretells a positive association among broadening trade credit and the firm size (Schwartz, 1974); (Mian & Smith Jr, 1992); (Petersen & Rajan, 1997).

Emery (1984) centres around the operational intention, tending to the function of variable item interest in an association's work choices. As indicated by this, organizations may utilize trade credit to oblige variable significance, which thus could build a vendor's abundance for the decrease in working expenses. As request varies, merchants face two other options: possibly they can permit the offering cost to change so the market consistently clears or they can fluctuate the creation to coordinate interest. Either alternative is very expensive. On the off chance that the cost differs, potential purchasers face the very significant expenses of data look. On the off chance that creation fluctuates, dealers face amazingly high creation costs (Long et al., 1993). Along these lines, trade credit can help to flatten unpredictable interest by invigorating deals through loosening up trade credit terms in leeway request periods (Emery, 1984); (Nadiri, 1969).

Experimental proof likewise demonstrates a huge variety in trade credit terms both across and inside enterprises and once in a while even inside an organization (Klapper, Laeven, & Rajan, 2012); (Ng et al., 1999). The most well-known trade credit terms are net terms, which are basically sans interest advances, reached out

by providers to purchasers. For instance, under the expression "net 30," purchasers need to pay providers within 30 days of receipt issuance. Another kind of usually observed term is two-section terms. For instance, under the frequently utilized two-section terms "2/10 net 30," trade credit should likewise be paid off inside 30 days; notwithstanding, if it is paid off inside 10 days, a 2% markdown applies. Such varieties are likewise in a roundabout way upheld by Table 1, which features the inconstancy of trade credit use even inside a retail subcategory.

A few late works in the activities account interface writing look at the part of trade credit operational settings. (Babich & Tang, 2012) showed how to trade credit can be utilized to moderate a provider's ethical danger. They recognize that by binds the financing with actual trades; trade credit can manage the purchaser's artful conduct. They also identified that receiving trade credit may improve the productivity of firms who take part in value rivalry. Other related works incorporate (Devalkar & Krishnan, 2014) and (Yang, 2011).

Trade acknowledges is commonly viewed as a momentary casual financing instrument. Like the providers of institutional money (normally banks), the providers of the trade credit face the future default danger of clients. While banks can differentiate their dangers through an enormous client base, the providers of trade credit just have a similarly modest number of clients and can only with significant effort to enhance their dangers. In this manner, the client relationship assumes a significant function in contribution trade credit (Petersen & Rajan, 1997). Given contrasts in social standards and chronicled improvement, the degree of social trust is probably going to shift across locales and nations. Hence, the utilization of trade credit will change across areas and nations, contingent upon the social trust inside a locale or nation.

Firms are more reliable in the serious social-trust locales, and they will get more trade credit from providers. Similarly, providers in more concentrated social-trust districts will be forced to confide in different firms that are from a similar locale, and they will expand more exchange of credit. Social trust is actively related to the utilization and offering of trade credit. A meaningful level of social trust not just spreads the contribution and use of trade credit, however, will likewise signify

conversely connected with the overdue instalment of records payables. While trade credit allows customers to postpone instalments for some timeframe, the delay is a present moment (generally 3 months or less).

At the point when clients cannot pay the payables inside the ordinary credit time frame, the payables become late. The late conduct demonstrates an infringement of the contract, which dependable clients are less inclined to engage against. Consequently, reliable clients will pay their payables in a timelier way. We anticipate that organizations in serious social-trust regions will have less past due instalment of payables.

Furthermore, Wilson and Summers (2002) proposed that trade credit ends up being a major marketing apparatus. The rationale is that trade credit can fabricate trade connections in a present market, and new shareholders could buy performance even more effective when contrasted with building their influence after long stretches of strenuous work and advertising their items. Jain (2001) contended that trade acknowledges going about as a subsequent glimmer cover between the relationship of financial establishments and organizations. If there should be an occurrence of a wasteful monetary market, it hushes up helpful for buyers and providers to utilize this subsequent layer in order to meet their outer financing needs. The firms that have a less perfect connection with monetary establishments included more in credit exchanges and have adequate measures of trade credit in their asset report than the firms having great affiliation (Petersen & Rajan, 1997).

Ahmed et al. (2014) throughout the monetary emergencies of 2008 identified an identified relationship with trade credits with the bank advance, for the reason the information is collected from Karachi Stock Trade from the long stretches between 2005 to 2011. With the end goal of they employ fixed impact model for board information of just about 11040 Portuguese modern organizations, and by them 360 are enormous one and remaining are of medium or narrow size and they are in dominant part in example rate. They explored that vast organizations comfort monetary The Go-Betweens to their clients, and they additionally proposed that

credit is the dominant factor to build up the productivity of the organizations (Santos & Silva, 2014).

Another researcher Atanasova (2007) accepted the method for the use of trade credit and the institutional money for investigating the structure with the impact of the accessibility of the institutional advances on the interest of the trade credit. Along with the utilization of the examination work, he advised to sell noteworthiness trade credit and identified a connection with the growth of foundations. Furthermore, as per concentrates on the credit channel of money-related arrangement transmission, he sets up an augmented trust on the trade credit for monetarily watched firms.

Ferrando and Mulier (2013) examined the impact do the firm's utilization of the trade credit organization to achieve development? They employed over 2.5 million perceptions to the reason for 600 firms in 8 European nations during the time of 1993-2009 and saw the organizations to promote the device of trade credit to oversee development. In these communities, any place the trade credit recurrence for current, and the result is smaller, yet the general effect is more prominent than explicit. Finally, they identified that the all-out conditions of the monetary market matter for the significance of trade credit with the end goal of development.

There is an explaining study showing the utilization of gathered information from the field of firms in Kenya in the assembling area and for inters separated arbitrary examining method reused over a model of 81 assembling firms. They promote the poll to investigate the gathered information structure 71 manufacturing organizations in Nairobi's modern region and environs in Kenya. For this reason, Research; use ANOVA and relapse investigation strategies to test the system. The outcomes introduced a positive relationship among benefit and credit strategy for the assembling firms in Kenya.

Fisman and Love (2003) understood the effect for exchanges pay the impact of monetary delegate improvement just as industry development. They likewise found that enterprises with fuller reliance on trade credit can make the businesses a fuller reliance on the trade credit financing, which has higher paces about development in such nations that have more vulnerable monetary foundations. Also,

with the assistance of obstructions to progress acknowledge the access between existing firms, and they revealed that the higher part of impact which can report comes from development. Finally, they revealed that all out conditions of the monetary market matter for the significance of trade credit with the end goal of development. There is an expressive report indicated the utilization of gathered information from the field of firms in Kenya in the assembling area and for the reason separated arbitrary testing method reused over a model of 81 assembling firms. The essential results variable is a genuine development in valued added, payables in the 37 organizations for 43 unique nations, and by getting the information from the

Vaidya (2011) discovered components of trade credit. This work is planned particularly for the Indian setting. The experimental proof discretionary the solid proof found in the help for the stock administration thought process. The organizations which can give the more noteworthy admission to the credit of banks may offer less trade credit to their clients. I consider monetary area advancement as one of the main wellsprings of a near preferred position. Beck et al. (2008) examined the connection between the monetary turn of events and exchange from the economies of scale viewpoint. They find that an exchange has been influenced by the monetary zone.

A more evolved monetary area channel additionally sparing to the private area, encourage ventures with the utilization of outside financing so that organizations can conquer liquidity limitations. Zhang (2011) lead an examination on the connection between the monetary turn of events and financial development in China and the outcomes show that most pointers of financial improvement have a positive connection with financial development. Al-Yousif (2002) finds bidirectional causality between the monetary turn of events and Gross domestic product development for thirty non-industrial nations for the time of 1970-1999.

Lartey (2010) study the impact of monetary advancement on financial development for a board of 74 regions and locate that monetary improvement positively affects financial improvement, which doesn't fluctuate with the degree of a monetary turn of events. They research that since quite a while ago run connection

between the monetary turn of events, global exchange, and financial development for Cyprus. Results show that global exchange, monetary turn of events and monetary development are co-coordinated, and the Granger causality test shows that genuine pay adds to the development of a financial turn of events and worldwide exchange. A lot of studies have occurred led to identify the effect of fare on financial expansion and the positive impact of trade on financial development has been affirmed by a few researchers. Nonetheless, Pazim, Hanim, and Fadzim (2009) researches the legitimacy of fare drove development hypothesis for Indonesia, Malaysia and the Philippines by utilizing board information examination and locate no critical connection among fare and yield development. The presence of fare drove development is additionally broke down for Pakistan by (Shahbaz & Islam, 2011) who approve trade drove development speculation. Shahbaz and Rahman (2014) investigate the relationship among trades, monetary turn of events, and Gross domestic product development in Pakistan by utilizing the Limits testing as a way to deal with commix and the vector mistake rectification model (VECM) Granger causality test. Co-incorporation investigation affirms the long-run relationship.

According to the continuing exploration, the significant piece of money change cycle increment the company's deals and implementation for the reasons unknown. Be that as it may, the importance of stock makes considerable sense for the working capital management. It is the principal part of the money change cycle. As per that the important dissatisfaction of business is that the administrator isn't dealing with the working capital administration is a great manner (Blinder & Maccini, 1991). By improving the trade credit of the organizations, deals can increase (Petersen & Rajan, 1997). It permits the client to inspect the quality and amount of item. According to (Smith, 1987), he has done to affirm that the administrations contracted.

This assertion is additionally supported by (Deloof & Jegers, 1996). He upheld that giving trade credit, improves deals since it allows to client to achieve product quality before compensable. It likewise cooperative for the firms to creation long-haul relationships with their client (Ng et al., 1999). It permits a client to get items

at a season of little interest (Emery, 1984). Also, if we examine record payable more firms may accomplish great markdown for early instalment if the diminish provider financing (Ng et al., 1999), (Wilner, 2000). If we see the prior or more explores proceeding working capital administration, we inspect firms clarify that money transformation cycle and how they may influence its size.

Credit positively affects the horticultural turn of events and produces business openings in provincial regions (CBCR, 2004). I desire horticultural family models not just show that ranch acknowledgment for the restrictions of self-financing, yet also clarify the level of yield and the time stretch among data sources and supplies (Sadoulet & De Janvry, 1995). World Bank (2006) revealed that the entrance of smallholder ranchers to formal monetary administrations in rustic territories is inadequate despite the development in credit conveyance around the world.

Stark et al. (2006) clarified that agrarian creation comprises 40% of the credit saved populace in Honduras and Peru, with credit saved creation normal from 50% to 75 percent of the received input. Different specialists contemplated the effect of rural credit on farming profitability in various districts of the world (Chaudhry & Hussain, 1986) and found that agrarian credit had a virtually certain effect on farming efficiency. Most likely, agribusiness is the primary method for improving the financial states of the ranchers. Besides regard to agricultural nations, credit is a significant apparatus for expanding ranch creation (Okurut, Schoombee, & Van der Berg, 2005).

To perceive the function of credit markets in food creation around the world. In-region Pakistan, the influence of credit for expanding farming creation and reforming the financial states of the provincial families has been advanced by past investigations. For example, (Zuberi, 1989) identified that 70% of finished conventional credit was utilized for the acquisition of essential ranch inputs and inferred that increments in rural profitability can be illustrated by variations in the quantity of homestead data sources, for example, seeds, manures, and pesticides. He used a two-stage building model where the likelihood of assuming conventional declaration is operated out in the principal phase and we use the expected worth in the continuous instant to analyse the effect of compost usage per division of

land. (Chandio, Jiang, Joyo, & Rehman, 2016),(Chandio, Yuansheng, Sahito, & Larik, 2016) examined the effect of institutional credit, developed region, composts utilization, and water accessibility on wheat efficiency for the period between 1982 to 2011.

By exploitation the OLS strategy, the evaluations reveal that organized credit, developed territory, and water accessibility positively affect wheat profitability in Pakistan. Iqbal and Okada (2003) recommended that we should compel the proper wellsprings of credit to grow the horticultural credits for cultivating area, individually little scope ranchers. Another examination by (Iqbal & Okada, 2003) explored that rural credit plans dispatched by ZTBL had an essentially certain effect on agribusiness creation and pay of the country families.

Banks et al. (2007) analysed that horticultural credit assumed a significant function in farming turn of events. It causes smallholders to attempt new speculations and embrace new rural advances to upgrade farming profitability. The absence of admittance to formal credit negatively affects ranch creation and prosperity. Chandio, Jiang, Wei, Rehman, and Liu (2017) analysed the smallholder ranchers' admittance to rural credit in the Sindh area of Pakistan. Utilizing the probity model, gauges uncover that various financial components including family size, cultivating experience, off-pay, and accessibility of guarantee altogether impacted smallholder ranchers' admittance to credit farming. Chachar (2007) examined that horticultural credit is the necessity of the two smallholders and huge holders for creation and advancement.

Daripa and Nilsen (2005) expressed that exchange acknowledges arrangements go about as an approach to expand the deals too. As indicated by (Long et al., 1993), purchasers can check the nature of the products conveyed and can expand the deals before a definite instalment is made to the provider.

On account of India and Malaysia, Ang (2009) shows that credit control strategy adversely causes private capital arrangement in the two nations. The financing cost control emphatically impacts on private interest in the two nations. Be that as it may, high save and liquidity necessities contrarily influence private interest in India, and emphatically in Malaysia. Spatafora and Luca (2012) look at the

impact of exchange progression on private speculation in Fiji. They close a positive relationship between the two. There are a couple of studies on interest in Pakistan. For instance, Sakr (1993) shows that private speculation emphatically corresponds with Gross domestic product development; credit stretched out to the private area and government venture.

The private area yield, net capital inflows into the private area, the absolute wellsprings of assets, change in bank credit and the past capital stock is decidedly connected with private speculation rates in Pakistan (Majeed & Khan, 2008). Besides, the backhanded expense, obligation adjusting, and loan cost are contrarily connected with the private venture. Likewise, the Gross domestic product, home grown reserve funds, endowments, and government advancement uses (PSDP) are emphatically identified with private speculation (Haroon & Nasr, 2011). They inspect the determinants of public and self-governing speculation. They find that administration speculation adversely influences private venture, however, serves decidedly identifies with government interest over the long haul.

On account of Pakistan, a few investigations have assessed the private speculation work. However, they have disregarded to check the effect of exchange and monetary advancement on Private venture. This investigation uses the eminent information bases of exchange and monetary progression, for example, (Chinn & Ito, 2006) and (Wacziarg & Welch, 2008) to appraise the private venture model by utilizing the ARDL way to deal with co-integration. Chern et al. (2008) introduced partial increasing stock part size models for disintegrating things with fluctuating interest under the growing. Shukla et al. (2013) introduced a stock model for separating things with exceptional financing costs and inadequacies.

Kumar et al. (2013) presented a learning sway on a stock model with two-level accumulating and fragmented duplicating under expansion. Models of stock organization contain different limits. An issue is discernible in the standard models which can be grouped with the affirmation of the quantity of the financial sales and the proportion of the cash related creation In these models, the mentioning cost is treated as a consistent cost for each solicitation. This issue causes the amount of the monetary requesting in the exemplary model to have a few contrasts

in correlation with this present reality conditions. Pattnaik (2013) introduced a prompt financial request amount (EOQ) model for crumbling things consolidated with special exertion cost, variable requesting cost.

A critical part of trade credit study has zeroed in on the financing hypothesis of the trade credit (Meltzer, 1960), (Nadiri, 1969), (Schwartz, 1974). The hypothesis distinguishes trade credit as an instrument for vendors to assuage the supporting requirements that purchasers may conceivably confront. If purchasers need bank funding or different choices for credit, they might have the option to get trade credit from a provider association. The dealer may have improved or less expensive admittance to credit and might be eager to pass on preferred footing over would commonly be accessible to the purchaser by providing the trade credit. Numerous scientists have zeroed in on the trade receivables side of trade credit work to more readily comprehend the inspiration for merchants. Petersen and Rajan (1997) distinguish the augmentation of trade acknowledge by vendors as an instrument that can build deals development. (Gurbuz, Yanik, & Ayturk, 2013) give additional proof that the augmentation of exchange acknowledgment fills in as a path for fluid firms to share their admittance to money to monetarily compelled purchasers.

Ferrando and Mulier (2013) recognized the trade receivables strategy as a significant instrument accessible for firms to oversee development. They distinguish a positive connection between the augmentation of trade credit and investor abundance. Casey and O'Toole (2014) located that European SMEs depend on the augmentation of trade credit situations where they can't get credit from different loan specialists. Likewise, Barrot (2016) showed that limitations on the gracefulness of trade credit for French shipping organizations prompted an expansion in corporate default for those organizations.

The danger related to having an adequate income is significant and has been recognized by CFOs as a main factor in administrative dynamics (Graham & Harvey, 2001). The effect on dynamic has been connected to firm money strategies (Bates, Kahle, & Stulz, 2009), just as to bring down interest in capital consumptions, Research and development, and promoting (Minton & Schrand, 1999). Comparable outcomes are found in examinations identified with firms in Asia. For instance,

The increments in income instability as a supporter of expansions in real money property across eight East Asian nations. Moreover, Deesomsak, Paudyal, and Pescetto (2004) found that unpredictability of incomes is a factor in capital structure choices in the Asia Pacific district.

2.1 Supporting Theories

2.1.1 Working Capital Theory

The current financial crisis in the world lead researchers studies to highly widespread on working capital. For the business units management of proper working capital is vital benefit; therefore, businesses need to keep best degree of working capital to higher their values (Tauringana & Adjapong Afrifa, 2013).

Trade credit system is comprised of trade payable and trade receivable, which are important components of employed capital. Trade credit is such type of credit, increased by firms business to another, permitting the firms or customers to purchase goods from the manufacturers without paying any payment by check or cash.

According to the study of Ferris (1981), trade credit, a shorter period financing that is attached in equal judgment and value of the swap of goods, may exchange for money if the credit is moveable. First, trade credits minimize the cost of paying, though managing payments between producers and consumers. Secondly, credit terms are mostly equal to the credit superiority of the purchasers, so trade credit minimizes the helpful amount to the decrease-quality borrowers. Third, trade credit is also useful when the consumer has no evidence about the vendor. However, credit rationed or controlled firms want high trade credit in contrast to the companies, which have good liquidity or admission to financial intermediaries. Trade credit is equally important for collectively microeconomic and macroeconomic perspectives. Working capital for majority of Iranian companies is raised by trade credit. At the end of 2017, Looking at companies-level data, accounts owed is usually higher than 70% of obligations for half of the manufacturing firms.

As 92% of businesses use trade credit it shows how important trade credit is, and what a vital role it plays in businesses growth. There are few identification about trade credit, and even little on actual use of trade credit at the individual vendor and consumer level. From the time when trade credit act as an important outsource finance, companies must have detailed information of the pros and cons of trade credit (Mateut, Bougheas, & Mizen, 2006).

Modigliani & Miller, (1958) illustrated that under definite key suppositions the value of a company is independent from its financial composition. In a world in which capital markets function superbly Internal and external funds can be measured as the perfect replacements. No biased taxation and the fruitful action of the firm can be independent of its approaches of financing when there are no transactions or bankruptcy costs. At one time, if these foundational assumptions are moderated then capital structure can become pertinent. Besides, firms can find the limitations to their approach to the external financing, and also the costs of substitution procedures of external finance can be different. Undergoing such market discolorations, in order to reach an ideal capital structure, firms can strive to pick out the levels of debt and equity conductive.

2.2 Hypotheses

To fabricate research theories the investigation has isolated trade credit into two areas, for example, Trade credit Receivables and Trade Credit Payables.

According to the above conversation regarding the connections of FD and CIS along with the utilization of the trade credit, we created two specifications, for example, substitution hypothesis and complementary hypothesis.

2.2.1 Substitution Hypotheses

As indicated by these specifications, trade credit is taken as a proxy of a bank credit by the credit apportioned firms. Increment in the depth of financial institution and depth of financial market expands the flexibility of the bank credit to the

firms and as a result, they diminish the TCR or the other way around. Hence, firms increment the utilization of bank credit and decrease the TCR. CIS expands the entrance of firms to bank credit.

- Financial development and credit information sharing is negatively associated with trade credit receivables.
- Financial development and credit information sharing is negatively associated with trade credit payables.
- Financial development and credit information sharing is negatively associated with total trade credit.

2.2.2 Complementary Hypothesis

This theory features that organization that approach different wellsprings of assets use trade credit as a supplement of bank credit. It implies these organizations like to utilize a combination of all accessible wellsprings of assets to look for their ideal capital structure. These organizations increment the trade credit in order to seek after an ideal capital structure or the other way around. Hence, as per this theory, we anticipate the constructive outcomes of DFIs, DFM, and CIS on the trade credit.

- Financial development and credit information sharing is positively associated with trade credit receivables.
- Financial development and credit information sharing is positively associated with trade credit payables.
- Financial development and credit information sharing is positively associated with total trade credit.

Chapter 3

Research Methodology

3.1 Data Description

This chapter of the study offerings the data collection mechanism. The current investigation investigates the effect of the credit information sharing and financial development on trade credit receivables and trade credit payables. To check the effect, this examination analyze the data of financial firms of Pakistan from the time-frame 2001 to 2015.

The data is obtained from Balance sheet Analysis reports for financial characteristics of listed manufacturing firms. For CIS the data is obtained from world development indicators online database. For the indicators of FD the data is obtained from Pakistan economical investigations allotted by ministry of finance.

For a selection of appropriate sample of LMFs in Pakistan. The study considers 180 Non-Financial firms of Pakistan from the total of 443 firms by skipping the firms which are related to service business and also ignoring the firms which have missing data for variables for five or more than five repeated years. The study finished up with a dataset comprising 180 Non-Financial firms from Pakistan from 2001-2015.

They employed the study methods to catch the impact of independent variables (financial expansion and credit Information Sharing) on dependent variables (Trade

Credit Receivables and Trade Credit Payables and Absolute credit) Non-Financial firms of Pakistan.

3.1.1 Population, Sample Size & Data Sources

The objective population of the examination includes Non-Financial firms of Pakistan. At first, the investigation was cover the information of 443 Non-Financial Firms working in Pakistan from the year 2001-2015.

For a choice of the proper example of LMFs for this examination, the investigation considers 180 LMFs from 443 Nonfinancial firms by ignoring firms having a place with service business and overlooking firms which have missing information for factors for at least five than five successive years.

Sample size of the examination were 180 Non-Financial Firms from the various kinds of Listed Manufacturing Firms, for example, Materials, Sugar, Food Items, Synthetic substances, compound items, and Pharma, Assembling Firms, cement, Mineral Items, Engine vehicles and Car parts, Fuel and Energy, Data and Transport administrations, Electrical Hardware and Device, Coke and Refined Oil-based goods, Paper, Paper board and Items, Different administrations Exercises.

Sample size should be the delegate of the populace. Our secondary data consisted on 13 firms linked from the non-financial sector. The study analysis has been done on the basis of this data and findings will comprises on thesis outcomes between era of 2011-2015.

Sample size for this examination incorporates information of those Non-Financial Firms which give total data identified with this investigation. The collection of samples is chosen as the evidence of the accessibility of information. At last, in this examination, 180 Non-Financial Firms are chosen.

Board information is remembered for this investigation and information is gathered for Fifteen (15) a long time from the year 2001 to 2015. The current examination was dependent on optional information, which is as of now accessible and prepared for use.

TABLE 3.1: Division by Section

Sr. No	Section	No. of Firms
1	Textile	56
2	Sugar	22
3	Food Products	10
4	Chemicals, chemical products and Pharma	25
5	Cement	10
6	Mineral products	3
7	Motor Vehicles & Auto parts	10
8	Fuel & Energy	8
9	Information & transport services	6
10	Coke & Refined Petroleum Products	6
11	Paper, Paper board & Products	7
12	Electrical Machinery & Apparatus	4
13	Manufacturing Firms	13
	Total	180

3.2 Variable and their Descriptions

3.2.1 Trade Credit Receivables (TCR)

Trade credit is a short-range financing source, trade credit is instantaneously claimed by the organizations from their dealers and the organizations extended to their consumers (Burkart & Ellingsen, 2004). The study of (Ahmad, 2019) and (Vaidya, 2011) measures Trade Credit Receivables by using the ratio of trade payables to sales from the dealers. The greater ratio shows that an organization is using extra amount of credit by dealers, whereas a lesser ratio shows that an organization is using less trade credit from their dealers.

3.2.2 Trade Credit Payables (TCP)

Trade credit receivables of the organizations is positively inked to the trade credit payables of the organizations of their consumers. The firms which are agree with

their consumers on paying late payments also postpone their own payments to their sellers (McMillan & Woodruff, 2002). The whole process indicates that the collections behaviour of organization effects their payment activities. The study of (Ahmad, 2019) measures trade credit payables by using trade credit payables to sales ratio to their consumers.

3.2.3 Financial Development (FD)

The Previous studies said that financial development is defined by four characteristics of financial markets and financial institutions that are stability, efficiency, access and depth. This study is going to observe financial efficiency and financial depth from these of four characteristics because of the significant effect on trade credit. Whenever the financial depth is increased resultantly it expand the supply of bank credit to the organization. Due to this the organizations observe less credit constraints and claims quite less trade credit. The study of (Ahmad, 2019) measures DFIs by using private credit to GDP ratio and also measures DFM by using market capitalization to GDP ratio.

3.2.4 Credit Information Sharing (CIS)

CIS is a procedure where credit providers (banks, microfinance) exchange information on their outstanding loans and advances through credit reference Bureaus (CRBs). When CIS is improved it rises the admittance of organizations to bank credit and they are little dependent on trade credit. The study (Ahmad, 2019) measures the CIS by using public credit information bureau coverage (PCIBC) ratio. The PCIBC ratio is define those entities and organizations that are listed with CIBC as a proportion of the adult population.

3.2.5 Stock-in-Trade (ST)

These are the goods or equipment or any other inventory that an organization keeps for the purpose of trade. The traders point of view is that ST are very easy to

settle down. That's why the traders trade more credit to their consumer because they have advantage of settle down their inventory from financial institutions. There is negative relationship between trade credit and the level of stock in trade (Coupey-Soubeyran & Héricourt, 2011). The study of (Ahmad, 2019) measured stock in trade by the ratio of stock in trade to total sales.

3.2.6 Collateral (COLLAT)

Those organizations that have tangible assets can easily access to the bank credit and comparatively these organizations are always doubtful to the use of trade credit. The study (Ahmad, 2019) measure collateral value of organization by using the ratio of fixed assets (plant assets & machine) over total assets. The term collateral states to an asset that a lender accepts as a security for a loan.

3.2.7 Profitability (PRO)

Those organizations that are creating enough resources are depended less on trade credit. These organizations relate their cost of interior funds to their external funds. The firms which are listed generally they creating a strong profit and typically they use less trade credit (Kwenda & Holden, 2014). The study of (Vaidya, 2011) and (Ahmad, 2019) measures the profitability by using functioning profit margin (before devaluation, interest, and taxes) of organizations.

3.2.8 Sales Growth (SG)

Increase in sales growth increases the strength of an organizations and is positive value of suppliers and banks. Emerging organizations need resources to gain the benefits. The banks rejected the organizations which are facing a decrease in their sales for the delay of credit. Therefore, the organizations which are rejected use more trade credit since their traders to fulfil their liquidity problems. The study of (Deloof & La Rocca, 2015) and (Ahmad, 2019) give an important determinant

to sales growth of trade credit by an organizations and they measures sales growth by sales minus previous year sales divided by last year sales.

3.2.9 Short Term Bank Credit (SBC)

The organizations claims low trade credit which are receiving high short term bank credit from financial intermediaries which shows that the bank credit is a supernumerary for trade credit. The organizations never rely on a single source of funding they use a combination of financing methods. The study of (Ahmad, 2019) and (Vaidya, 2011) measures short term bank credit by short term borrowing divided by sales.

3.2.10 Measurement of Variables

Sr. No	Variables	Abbreviation	IV/DV	Measurement	Reference
1	Trade Credit Payables	TCP	DV	Trade Payables to Sales Ratio	(Ahmad, 2019)
2	Trade Credit Receivables	TCR	IV	Account Receivable divided by Sales	(Ahmad, 2019)
3	Depth of Financial Market	DFM	IV	Stock Market Capitalization to GDP Ratios	(Ahmad, 2019)

4	Depth of Financial Institution	DFI	IV	Domestic credit by Banks to Private Sector divided by GDP ratio	(Ahmad, 2019)
5	Credit In-formation Sharing	CIS	IV	No. of firms and individuals registered with credit bureau per thousand individuals	(Ahmad, 2019)
6	Short Term Credit	SBC	IV	Short term borrowing divided by sales	(Ahmad, 2019)
7	Sales Growth	SG	IV	Sales minus Previous year sales divided by last year sales	(Ahmad, 2019)
8	Stock Trade	ST	IV	Closing balance of stock in trade divided by sales	(Ahmad, 2019)
9	Collateral	COLLAT	IV	Net plant assets divided by total assets	(Ahmad, 2019)

10	Profitability PRO	IV	Operating profit plus depreciation divided by sales	(Ahmad, 2019)
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3.3 Estimation Techniques

3.3.1 Panel Data Analysis

Panel data set consist of both of time-series data and cross-sectional data. When panel data have same series of time explanations for each cross-section of variable it is known as balanced panel. When series of time observations differs among cross sections the panel is called as unbalanced panel (Gujarati & Porter, 2003). During other data analysis techniques, which consisting on time-series and cross-section data. In time series, one or more determinants were analyzed on one observation unit within a specific time period. In the duration of cross-section data is the examination of various units of examination in a single time period. In this study three different models were tested in panel data analysis.

3.3.2 Common Effect Model

A panel data model approaches most simple because it combines only time series and cross section data. In present research framework is not analyzed as time (t) and individual determinants, so it is expected that the attitude of corporate data is the similar in numerous periods. In this tool use of ordinary least square (OLS) tool or the least square techniques to measure the panel data model. Panel data regression equation is similar to ordinary least square, i.e:

$$Y_{i,t} = \alpha_0 + \beta_i X_{it} + \varepsilon_{it} \quad (3.1)$$

Where: Y representing the dependent variable,

X representing the independent variables,

Trade credit financing and trade credit payables utilized by firms is experimental to be dynamic and is likely to depend upon its past recognitions. Usually, firms use trade credit in agreement with their past recognized trade credit policy or they stress on the stability of their agreement concerning trade credit financing and trade credit payables. It suggests temporal dependency of trade credit financing and trade credit payables utilized by firms and imposes the use of dynamic panel model to switch for the dynamics of the procedure.

For this, study estimating the following three regression equations:

$$TCR_{it} = \beta_0 + \beta_1 SBC_{it} + \beta_2 SG_{it} + \beta_3 PRO_{it} + \beta_4 ST_{it} + \beta_5 COLLAT_{it} + \beta_6 DFI_{it} + \beta_7 DFM_{it} + \beta_8 CIS_{it} + \mu_{it} \dots \dots \dots (3.2)$$

$$TCP_{it} = \beta_0 + \beta_1 SBC_{it} + \beta_2 SG_{it} + \beta_3 PRO_{it} + \beta_4 ST_{it} + \beta_5 COLLAT_{it} + \beta_6 DFI_{it} + \beta_7 DFM_{it} + \beta_8 CIS_{it} + \mu_{it} \dots \dots \dots (3.3)$$

$$TCR_{it} + TCP_{it} = \beta_0 + \beta_1 SBC_{it} + \beta_2 SG_{it} + \beta_3 PRO_{it} + \beta_4 ST_{it} + \beta_5 COLLAT_{it} + \beta_6 DFI_{it} + \beta_7 DFM_{it} + \beta_8 CIS_{it} + \mu_{it} \dots \dots \dots (3.4)$$

The equation (1) provides the statistical impact of credit information sharing, depth of financial market and depth of financial institutions on trade credit receivables for the sample period (2001-2015) and it is assumed that credit information sharing, depth of financial market and depth of financial institutions has positive and significant impact on trade credit receivables, then credit information sharing, depth of financial market and depth of financial institutions interacted on trade credit payables to form another regression equation (2) and study assumed that

credit information sharing, depth of financial market and depth of financial institutions has positive and significant relationship with trade credit payables and finally credit information sharing, depth of financial market and depth of financial institutions are analyzed on Trade credit receivables and trade credit payables collectively to form regression equation (3) and it is assumed that credit information sharing, depth of financial market and depth of financial institutions is positively and significantly connected with trade credit receivables and trade credit payables.

3.3.3 Fixed Effect Model

The fixed effect model is differing from the common effect model, but still it utilize the ordinary least square principal. Fixed effect model study the effect variables over the course of time. It is also recognized as first difference model. Fixed effect model examines that each variable may have any effect on other variable or not, or is there any relation between endogenous and exogenous variables. Every entity has its own features and characteristics so it's not necessary that every independent variable can effect dependent variable. For instances independent variables have influence on return on assets or not.

In the study of single entity fixed effect, model is not varying over the time. In fixed effect model Even, a single entity should not be correlated with properties or else fixed effect model will not be appropriate. Fixed effect model describes that intercept is different for all cross sections. Fixed effect model determines that changes between individuals (cross section) can be accommodated from diverse intercept. In order to calculate fixed effect model with different intercept between individuals and dummy variable tool was used. Trade credit receivables and trade credit payables used by companies is likely to be contingent upon its past comprehension and is noticed to be dynamic. Usually, companies use trade credit in line with their earlier traditional trade credit policy or they stress on the stability of their contract regarding trade credit receivables and trade credit payables. It implies secular dependency of trade credit receivables and trade credit payables utilized by companies and requires the use of important panel model to controller for the dynamics of the procedure.

3.3.3.1 Redundant Likelihood Ratio Test

This test plays the role of decision maker between common effect analytical model and fixed effect model. If the F- stat and Chi-square of cross-section is less than 0.05 than fixed effect Model is used if P-value is insignificant than common coefficient model will apply.

3.3.4 Random Effect Model

In the results of random effect model intercept considered as error term and it does not with the cross sections (banks). This model explains the variation among the different banks. It offers following benefits.

- Random effect model has fewer parameters to estimate with comparison to fixed effect model.
- It provides the permission for additional independent variables with same number of observations.

General equation of random effect model:

$$Y_{i,t} = \alpha_0 + \beta_1(X)l_{it} + \beta_2(X)k_{it} + (V + \mu_{it}) \quad (3.5)$$

Where,

Y= is dependent variable like Return on assets, Total Revenue.

X= is the list of independent variables (Unit price of labour, Unit price of fixed assets and Unit price of loanable funds).

X (k)= explanatory variables are as (advances and income diversification). i =represent different banks t= shows the Time u= represent error term.

3.3.5 Hausman Test

This test is used to choose between random effect model and fixed effect model. If the F stat. and Chi-square of cross-section is significant or less than 0.05 than

fixed effect model is used. If p value is insignificant or higher than the range of 0.05 than random effect model is applied.

Chapter 4

Results and Discussion

4.1 Descriptive Statistics

Statistical behavior of data is captured by using the descriptive statistics. Descriptive statistics includes mean which provide the average measures of data, median which divide the data setting into two equal segments and it is the mid value of data set, standard deviation provides the information that how much the management of data from its mean value. Mean and standard deviation must be used together if used separately both will be meaningless. Positive and negative flow of data captured by using the skewness and kurtosis infers linked with the flatness of data spread. By using these statistical figures, we capture the acute inferences of study factors.

Descriptive statistics provide the summarized record of data. The mean is the measure of central tendency and deviation from mean is called standard deviation. **Table 4.1** reflect the descriptive statistics of dependent variable trade credit receivables (TCR) and trade credit payables (TCP), and three independent variables; depth of financial institutions (DFI), credit information sharing (CIS), depth of financial market (DFM) and other control variables ; short term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO). Descriptive statistics provided mean, median, standard deviation.

TABLE 4.1: Descriptive Statistics

Variables	Mean	Median	Maximum	Minimum	Std. Dev.
TCP	0.0767	0.0539	0.4918	0.0001	0.078
TCR	0.075	0.0421	0.7853	0.0001	0.0934
CIS	4.8264	4.242	8.207	3.285	1.448
DFI	3.0933	3.2565	3.4021	2.0598	0.3882
DFM	10.5008	10.9882	13.3101	6.5007	2.4361
COLLAT	0.515	0.534	0.9139	0.0416	0.1855
PRO	0.0336	0.0315	0.0981	0.0004	0.0187
SBC	0.3995	0.371	0.9825	0.0004	0.2013
SG	0.2276	0.1971	0.9948	-0.4485	0.2577
ST	0.0332	0.014	0.2897	0.0001	0.0488

Table 4.1 shows that trade credit payable has mean value 0.076 and it has standard deviation 0.078. Maximum and minimum values are 0.491 and 0.001. The mean value for trade credit receivables is 0.075 and standard deviation is 0.093. Standard deviation is used to measure volatility while mean value represents that average trade credit receivables is 7.5%. The minimum and maximum values are 0.0001 and 0.78 respectively. Credit information sharing has mean value 4.826 and standard deviation is 0.144. Maximum and minimum values are 3.402 and 2.059. Average values for depth of financial institution are 3.093 and standard deviation is 0.388. Minimum and maximum values are 2.059 and 3.402 respectively.

Mean value for depth of financial markets are 10.50 and standard deviation is 2.436. Maximum and minimum values are 13.310 and 6.500. Standard deviation is highest for depth for financial markets showing that financial markets are highly volatile.

Collateral has average value 0.515 and standard deviation is 0.185. Its maximum and minimum values are 0.913 and 0.041. Profitability has average value 0.033 and

standard deviation is 0.018. Maximum and minimum values are 0.098 and 0.0004. Short term bank credit has average value 0.399 and standard deviation is 0.201. Maximum and minimum values are 0.982 and 0.004. Sales growth has average value 0.227 and standard deviation is 0.257 while its maximum and minimum values are 0.994 and -0.448. Stock traded has average value 0.033 and standard deviation is 0.048 while its maximum and minimum values are 0.289 and 0.0001.

4.2 Correlation Analysis

Correlation analysis examined to check the power of relationship among study variables. The present analytical tool also deals with the way of linkage between research variables. Correlation analysis among variables indicates positive and negative relationship among different variables. Its range lies from -1 to +1. Low correlation between two variables shows low chances of multicollinearity while high correlations between two variables indicate high chances of multicollinearity.

The Pearson correlation coefficient shows the direction (with positive and negative signs) and level of association among variables. A value of Pearson correlation = +1 denotes a perfect direct association, a value = -1 denotes a perfect negative association and a value = 0 denotes that there is no association among variables and all are independent in their movement. However, (Saunders) stated that it is rare to reach a level perfect correlation among variables in the business study. Along with testing the association this analysis aims at the test of multi-collinearity issue among variables.

According to the study of (Kline, 2005) correlation between the variables should be less than 0.85 for the discriminate validity of constructs. Correlation analysis of the study variables is presented in table 4.2. These analyses demonstrate relationships between the variables moreover positively or negatively. The correlation investigation results represent the significant positive relationship between the study variables. The correlation analysis also provides the basis for hypothesized directions for the relationship between the study variables.

TABLE 4.2: Correlation Matrix

Variables	TCP	TCR	CIS	DFI	DFM	COLLAT	PRO	SBC	SG	ST
TCP	1									
TCR	0.0141	1								
CIS	0.0202	0.1075	1							
DFI	-0.013	-0.0202	-0.8868	1						
DFM	-0.0281	-0.1269	-0.5277	0.1738	1					
COLLAT	-0.2789	0.0101	0.1516	-0.1879	-0.004	1				
PRO	-0.0442	-0.0822	-0.1864	0.1813	0.097	0.5914	1			
SBC	0.2071	0.2021	-0.1411	0.2006	-0.0136	0.1796	0.4111	1		
SG	-0.0163	-0.009	0.1061	-0.1545	-0.0904	0.0238	-0.0112	-0.1422	1	
ST	0.0058	0.0393	-0.2391	0.2406	0.0747	-0.2079	-0.0932	-0.1103	-0.0504	1

Table 4.2 reports that all values are less than 0.85 so there is no serious concern of multicollinearity exists in data. All three independent variables credit info sharing, depth of financial institutions and depth of financial markets have positive correlation with trade credit receivables and trade credit payables having correlation coefficient (0.02), (0.03) and (0.02) and (0.24), (0.24) and (0.03). Among control variables stock traded has positive correlation with stock traded payables and stock traded used having correlation coefficient (0.11), (0.03). Collateral has negative correlation with trade credit payables and positive correlation with Trade credit receivables having correlation coefficient (-0.29), (0.07). Profitability is negatively correlated with trade credit payables with value (-0.25) and positively correlated with Trade credit receivables having correlation coefficient (0.02). Short term bank credit has positive correlation with Trade credit receivables with correlation coefficient (0.04) while it has negative correlation with trade credit payables having coefficient value (-0.14). Sales growth has negative correlation with Trade credit receivables and trade credit payables having correlation coefficient (-0.02) and (-0.07).

4.3 Impact of Financial Development and Credit Information Sharing on Trade Credit Receivables

Panel data has been apply in this study for diagnostic testing of variables. For panel data analysis, it is important to select appropriate model. For this purpose two different tests i.e. Redundant Fixed effect test and Hausman test are applied. To decide between common coefficient model and fixed effect model, fixed effect redundancy test is applied and to determine between fixed effect and random effect model Hausman test is applied. This study considers two dependent variables trade credit receivables (TCR), trade credit payables (TCP) and three independent variables i.e. depth of financial institutions (DFI), credit information sharing (CIS), depth of financial market (DFM) and other control variables ; short

term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO). Three separate equations have been run to check impact of depth of financial institutions (DFI), credit information sharing (CIS), depth of financial market (DFM) on trade credit receivables and trade credit payables. In third model both variables are used combinable as dependent variables for checking impact of depth of financial institutions (DFI), credit information sharing (CIS), depth of financial market (DFM)

Following tests are run to check relationship between depth of financial institutions (DFI) credit information sharing (CIS), depth of financial market (DFM) and trade credit receivables (TCR) along with control variables.

4.3.1 Redundant Fixed Effect Test

Null hypothesis results show that: Common effect is more appropriate,

Alternate hypothesis results show that: Fixed effect is more appropriate.

TABLE 4.3: Results of Likelihood Ratio Test

Effects Test	Statistic	d.f.	Prob.
Period F	4.224755	-114,232	0.0000
Period Chi-square	403.378207	114	0.0000

Above table indicated the results of “Redundant Fixed Effect Test”. Significant P values indicate that Null hypothesis is rejected which means fixed effect model is more appropriate over common effect model. Now Hausman test will be used to know appropriate model between random effect model and fixed effect model.

4.3.2 Hausman Test

Null hypothesis: Random effect is more appropriate

Alternate hypothesis: Fixed effect is more appropriate

As the significant result of Hausman test in above table indicates that Null hypothesis is rejected which means fixed effect model is more suitable for this study.

TABLE 4.4: Results of Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	15.511643	11	0.0103

Therefore, the study has conducted the fixed effect model to measure relationship among independent and dependent variables.

4.3.3 Fixed Effect Model

Fixed effect model is applied to check whether depth of financial institutions (DFI), credit information sharing (CIS), depth of financial market (DFM) and other control variables ; and trade credit receivables (TCR) has any significant relationship with each other. Moreover, it will also check relationship of short term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO). F-statistics predict the effect of the whole model. R square shows that how much change is explained in dependent variable due to independent variables. Modification or adjustments in other factors are shown by the adjusted R square statistics is all about the appropriateness of the hypothesis. **Table 4.5** explains relationship among all variables.

TABLE 4.5: Estimated Results for Trade Credit Receivables

Dependent Variable: TCR				
	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.4787	0.1343	-3.5658	0.0004
DFI	0.0641	0.0264	2.431	0.0155
CIS	0.0356	0.0075	4.7478	0.0000
DFM	0.0028	0.0021	1.3465	0.1790
SBC	0.1853	0.0295	6.2899	0.0000
SG	0.0192	0.0124	1.5504	0.1219
ST	0.5265	0.1383	3.806	0.0002
COLLAT	0.1246	0.043	2.8994	0.0040
PRO	-0.1932	0.3243	-0.5957	0.5518
R-squared	0.7223			
Adjusted R-squared	0.6026			
F-statistic	6.0357			
Prob(F-statistic)	0.0000			

Above table indicates that “depth of financial institution (DFI)” has significant relationship with trade credit receivables (TCR). ($\beta=0.06$, $p=0.015$) indicates that depth of financial institution (DFI)” has positive and significant relationship with trade credit receivables. Coefficient value 0.064 indicates that by one unit increase in depth of financial institution trade credit receivables increased by 0.064 units. Credit information sharing (CIS)” has significant relationship with trade credit receivables (TCR). ($\beta=0.035$, $p=0.000$) indicates that credit information sharing (CIS) has positive and significant relationship with trade credit receivables. Coefficient value 0.035 indicates that by one unit increase in credit information sharing trade credit receivables increased by 0.035 units. Depth of financial markets (DFM)” has ($p=0.179$) its mean depth of financial market insignificantly linked with trade credit receivables (TCR).

Among other control variables short term bank credit has significant relationship with trade credit receivables. ($\beta=0.185$, $p=0.00$) represents that short term bank credit has positive and significant relationship with trade credit receivables. Coefficient value represents that by one unit increase in short term bank credit trade credit receivables increased by 0.18 units.

Sales growth has insignificantly linked with trade credit receivables. ($p=0.121$) represents that sales growth has insignificantly linked with trade credit receivables. Stock in trade has significant relationship with trade credit receivables. ($\beta=0.526$, $p=0.0002$) represents that stock traded has positive and significant relationship with trade credit receivables. Coefficient value indicates that by one unit increase in stock traded Trade credit receivables increased by 0.526 units.

Collateral also has significant relationship with trade credit receivables. ($\beta=0.124$, $p=0.004$) indicate that collateral has positive and significant relationship with trade credit receivables. Coefficient value demonstrates that by one unit increase in collateral trade credit receivables increased by 0.124 units. Profitability has insignificant relationship with trade credit receivables. ($\beta=-0.193$, $p=0.55$) indicate that it has insignificant and negative relationship with trade credit receivables. Coefficient value indicates that by one unit increase in profitability trade credit receivables decreased by 0.193 units.

4.4 Impact of Financial Development and Credit Information Sharing on Trade Credit Payables

Following tests are run to check relationship between Depth of financial institutions (DFI) Credit information sharing (CIS), Depth of financial market (DFM) and trade credit payables (TCP) along with control variables (Short term bank credit (SBC), Sales growth (SG), Stock in trade (ST), Collateral (COL), Profitability (PRO)).

4.4.1 Redundant Fixed Effect Test

Table 4.6 shows the results of “Redundant Fixed Effect Test” for Depth of financial institutions (DFI) Credit information sharing (CIS), Depth of financial market (DFM) and trade credit payables (TCP).

TABLE 4.6: Results of Likelihood Ratio Test

Effects Test	Statistic	d.f.	Prob.
Period F	9.607543	-114,232	0.0000
Period Chi-square	626.144281	114	0.0000

Above table indicated the result of “redundant fixed effect test”. Significant p values indicate that Null hypothesis is rejected which means fixed effect model is more appropriate over common effect model. Now Hausman test will be used to know suitable model between random effect model and fixed effect model.

4.4.2 Hausman Test

TABLE 4.7: Results of Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	35.373154	12	0.0004

As the significant result of Hausman test in above table indicates that Null hypothesis is rejected which means fixed effect model is more suitable for this study. Therefore, the study has conducted the fixed effect model to measure relationship among independent and dependent variables. .

4.4.3 Fixed Effect Model

Fixed effect model is applied to check whether financial institutions (DFI) credit information sharing (CIS), depth of financial market (DFM) have any impact on trade credit payables (TCP) or not. Moreover, it will also check impact of control variables short term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO) on trade credit receivables (TCR).

F-statistics predict the effect of the whole model. R square shows that how much change is explained in dependent variable due to independent variables. Modification or adjustments in other factors are shown by the adjusted R square statistics is all about the appropriateness of the hypothesis. **Table 4.5** explains relationship among all variable

TABLE 4.8: Fixed Effect Model for Trade Credit Payables

Dependent Variable: TCP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.0475	0.1018	-0.4664	0.6411
DFI	0.0304	0.0202	1.5061	0.1327
DFM	0.001	0.0016	0.6197	0.5357
CIS	0.0083	0.0058	1.4418	0.1500
SBC	0.0397	0.0214	1.8517	0.0647
SG	-0.0037	0.0098	-0.3771	0.7063
ST	0.2981	0.1141	2.6121	0.0093
COLLAT	-0.0723	0.0319	-2.2694	0.0237
PRO	-0.081	0.2623	-0.3089	0.7575
R-squared	0.7079			
Adjusted R-squared	0.6151			
F-statistic	7.6265			
Prob(F-statistic)	0.0000			

Above table indicates that “Depth of financial institution (DFI)” has insignificant relationship with trade credit payables (TCP). ($p=0.132$) indicates that depth of financial institution (DFI) has insignificant relationship with trade credit payables. The depth of financial markets (DFM)” has insignificant relationship with trade credit payables (TCP). ($p=0.535$) indicates that depth of financial markets (DFM)” has insignificant relationship with trade credit payables. Credit information sharing (CIS)” has insignificant relationship with trade credit payables (TCP). ($p=0.150$) indicates that credit information sharing (CIS) has insignificant relationship with trade credit payables.

Among other control variables short term bank credit has significant relationship with trade credit payables. ($\beta=0.039$, $p=0.064$) represents that short term bank credit has positive and significant relationship with trade credit payables. Coefficient value represents that by one unit increase in short term bank credit trade credit payables increased by 0.039 units. Sales growth has insignificantly linked with trade credit payables. ($p=0.05$) represents that sales growth has insignificantly linked with trade credit payables. Stock traded has significant relationship with trade credit payables. ($\beta=0.298$, $p=0.009$) represents that stock traded has positive and significant relationship with trade credit payables. Coefficient value indicates that by one unit increase in stock traded trade credit payables increased by 0.29 units. Collateral also has significant relationship with trade credit payables. ($\beta=-0.07$, $p=0.023$) indicate that collateral has negative and significant relationship with trade credit payables. Coefficient value demonstrates that by one unit increase in collateral trade credit receivables decreased by 0.072 units. Profitability has insignificant relationship with trade credit payables. ($p=0.02$) indicate that it has insignificant relationship with trade credit payables.

4.5 Impact of Financial Development and Credit Information Sharing on Total Trade Credit

Following tests are run to check relationship between depth of financial institutions (DFI) Credit information sharing (CIS), depth of financial market (DFM) and

trade credit payables (TCP) along with trade credit receivables (TCR) along with control variables (Short term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO)).

4.5.1 Redundant Fixed Effect Test

Table 4.9 show the results of “Redundant Fixed Effect Test” for model Depth of financial institutions (DFI) Credit information sharing (CIS), Depth of financial market (DFM) and trade credit payables (TCP) along with Trade credit receivables (TCR).

TABLE 4.9: Results of Likelihood Ratio Test

Effects Test	Statistic	d.f.	Prob.
Period F	4.224755	-114,232	0.0000
Period Chi-square	403.378207	114	0.0000

Above table indicated the results of redundant fixed effect test. Significant p values show that Null hypothesis is rejected which means fixed effect model is more suitable over common effect model. Now hausman test will be used to know appropriate model between random effect model and fixed effect model.

4.5.2 Hausman Test

TABLE 4.10: Results of Hausman Test

Test	Sum-	Chi-Sq.	Chi-Sq.	Prob.
mary		Statistic	d.f.	
Period random		11.967687	12	0.0483

As the significant result of Hausmen test in above table show that Null hypothesis is rejected which means fixed effect model is more fitting for this study. Therefore,

the study has conducted the fixed effect model to measure relationship among independent and dependent variables.

4.5.3 Fixed Effect Model

Fixed effect model is applied to check whether Depth of financial institution (DFI), Depth of financial markets (DFM), Credit sharing Information (CIS) has any significant relationship with both Trade credit receivables (TCR) and trade credit payables. Moreover, it will also check relationship of Short term bank credit (SBC), Sales growth (SG), Stock in trade (ST), Collateral (COL), Profitability (PRO), and Trade credit receivables (TCR) as well as trade credit payables.

F-statistics predict the effect of the whole model. R square shows that how much change is explained in dependent variable due to independent variables. Modification or adjustments in other factors are shown by the adjusted R square statistics is all about the appropriateness of the hypothesis.

TABLE 4.11: Fixed Effect Model for Total Trade Credit

Dependent Variable: TTC				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.2987	0.1492	-2.0018	0.0458
DFI	0.0676	0.0294	2.2957	0.0221
DFM	0.0011	0.0023	0.487	0.6265
CIS	0.03	0.0085	3.529	0.0005
SBC	0.1156	0.0315	3.6737	0.0003
SG	0.0163	0.0143	1.1395	0.2550
ST	0.7123	0.1687	4.223	0.0000
COLLAT	-0.0053	0.0469	-0.1129	0.9101
PRO	-0.0466	0.3824	-0.1218	0.9031
R-squared	0.6679			
Adjusted R-squared	0.5643			
F-statistic	6.4470			
Prob(F-statistic)	0.0000			

Above table indicates that “depth of financial institution (DFI)” has significant relationship with total trade credit (TTC). ($\beta=0.067$, $p=0.022$) indicates that depth of financial institution (DFI)” has positive and significant relationship with total trade credit (TTC).

Coefficient value 0.067 indicates that by one unit increase in depth of financial institution total trade credit increased by 0.067 units. Depth of financial markets (DFM)” has insignificant relationship with total trade credit (TTC). ($p=0.05$) indicates that depth of financial markets (DFM)” has insignificant relationship with total trade credit (TTC).

Credit information sharing (CIS)” has significant relationship with total trade credit (TTC). ($\beta=0.030$, $p=0.0005$) indicates that credit information sharing (CIS) has positive and significant relationship with total trade credit (TTC). Coefficient value 0.030 indicates that by one unit increase in credit information sharing total trade credit (TTC) increased by 0.030 units.

Among other control variables short term bank credit has significant relationship with total trade credit (TTC). ($\beta=0.115$, $p=0.0003$) represents that short term bank credit has positive and significant relationship with total trade credit (TTC). Coefficient value represents that by one unit increase in short term bank credit total trade credit (TTC) increased by 0.115 units. Sales growth has insignificant relationship with total trade credit (TTC).

($p=0.05$) represents that sales growth has insignificant relationship with total trade credit (TTC). Stock traded has significant relationship with total trade credit (TTC). ($\beta = 0.712$, $p = 0.00$) represents that stock traded has positive and significant relationship with total trade credit (TTC). Coefficient value indicates that by one unit increase in stock traded total trade credit (TTC) increased by 0.712 units.

Collateral has insignificant relationship with total trade credit (TTC). ($p=0.02$) indicate that collateral has insignificant relationship with total trade credit (TTC). Profitability has also insignificant relationship with total trade credit (TTC). ($p=0.01$) indicate that it has insignificant relationship with total trade credit (TTC).

4.6 Summary of Results

TABLE 4.12: Hypothesis Summary

Variables	DFI	CIS
TCR	Positive significant	Positive significant
TCP	Insignificant	Insignificant
TTC	Positive significant	Positive significant
	DFM	SBC
TCR	Insignificant	Positive significant
TCP	Insignificant	Positive significant
TTC	Insignificant	Positive significant
	SG	ST
TCR	Insignificant	Positive significant
TCP	Insignificant	Positive significant
TTC	Insignificant	Positive significant
	COLLAT	PRO
TCR	Positive significant	Insignificant
TCP	Positive significant	Insignificant
TTC	Insignificant	Insignificant

Chapter 5

Conclusion and Policy

Recommendation

5.1 Discussion

This study is conducted to measure relationship between three independent variables; depth of financial institutions (DFI), credit information sharing (CIS), depth of financial market (DFM) and two dependent variables trade credit receivables (TCR) and TRADE credit payables (TCP). For the conformation of outcome and analysis accuracy study also included control variables i.e. short term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO). Three separate equations have been run to check impact of depth of financial institutions (DFI), credit information sharing (CIS), depth of financial market (DFM) on trade credit receivables (TCR) as well as on trade credit payables (TCP). Third equation is run to check impact of all independent variable on total trade credit (TTC). Panel data has been used in this study for diagnostic testing of variables for time period consists of fifteen years from 2001 to 2015.

In the first model of study relationship between depth of financial institution (DFI), credit information sharing (CIS), depth of financial market (DFM) along with other variables, short term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO) and trade credit receivables has

been checked. Depth of financial institution (DFI)” has significant relationship with trade credit receivables (TCR). Results revealed that “depth of financial institution (DFI)” has significant relationship with trade credit receivables (TCR). ($\beta=0.064$, $p=0.015$) indicates that depth of financial institution (DFI)” has positive and significant relationship with trade credit receivables. Coefficient value 0.064 indicates that by one unit increase in depth of financial institution trade credit receivables increased by 0.064 units. Credit information sharing (CIS)” has significant relationship with trade credit receivables (TCR). ($\beta=0.002$, $p=0.000$) indicates that Credit information sharing (CIS) has positive and significant relationship with trade credit receivables. Coefficient value 0.002 indicates that by one unit increase in credit information sharing trade credit receivables increased by 0.002 units. Depth of financial markets (DFM)” has insignificant relationship with trade credit receivables (TCR). ($p=0.179$) indicates that depth of financial markets (DFM)” has insignificant relationship with trade credit receivables. The results are in line with past studies of (Deloof & La Rocca, 2015) and (Niskanen & Niskanen, 2006) who found that the impact of banking development on company financing arrangements are secure by the use of trade credit.

Among other control variables short term bank credit has significant relationship with trade credit receivables. ($\beta=0.185$, $p=0.00$) represents that short term bank credit has positive and significant relationship with trade credit receivables. Coefficient value represents that by one unit increase in short term bank credit trade credit receivables increased by 0.185 units. Sales growth has insignificantly linked with trade credit receivables. ($p=0.05$) represents that sales growth has insignificantly linked with trade credit receivables. Stock traded has significantly relate with trade credit receivables. ($\beta=0.526$, $p=0.002$) represents that stock traded has positive and significant relationship with trade credit receivables. Coefficient value indicates that by one unit increase in stock traded trade credit receivables increased by 0.526 units. Collateral also has significant relationship with trade credit receivables. ($\beta=0.124$, $p=0.004$) indicate that collateral has positive and significant relationship with Trade credit receivables. Coefficient value demonstrates that by one unit increase in collateral trade credit receivables increased by

0.124 units. Profitability has insignificant relationship with trade credit receivables. ($p=0.01$) indicate that it has insignificant relationship with trade credit receivables. Significant impact for all control variable indicate that short term bank credit (SBC), stock in trade (ST), collateral (COL), are significantly controlling the relationship of DFI (depth of financial institution), DFM (depth of financial markets), CIS (credit information sharing) and trade credit receivables (TCR).

In second equation relationship between DFI (depth of financial institution), DFM (depth of financial markets), credit information sharing (CIS) and trade credit payables (TCP) have been checked along with other variables i.e. short term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO). Diagnostic test indicates that “depth of financial institution (DFI)” has insignificant relationship with trade credit payables (TCP). ($p=0.132$) indicates that depth of financial institution (DFI)” has insignificant relationship with trade credit payables. Depth of financial markets (DFM)” has also insignificant relationship with trade credit payables (TCP). ($p=0.535$) indicates that depth of financial markets (DFM) has insignificant relationship with trade credit payables. Credit information sharing (CIS)” has also insignificant relationship with trade credit payables (TCP). ($p=0.05$) indicates that credit information sharing (CIS) has insignificant relationship with trade credit payables. Results are found changed with past studies of (Brown et al., 2009) who found that improving in CIS helps the admittance of firms to bank credit and market credit, and finally facilitate their liquidity restrictions. Due to the improvement in CIS the firms received enough credit from banks and these firms depend less on trade credit. Later, comparable results were reported by (Doblas-Madrid & Minetti, 2013) and (Brown et al., 2009) who found that improvement in reputation of financial institutions and easy access to financial markets facilitates the trade credit payables terms for companies.

Among other control variables Short term bank credit has significant relationship with trade credit payables. ($\beta=0.039$, $p=0.064$) represents that short term bank credit has positive and significant relationship with trade credit payables. Coefficient value represents that by one unit increase in short term bank credit trade

credit payables increased by 0.039 units. Sales growth has insignificantly linked with trade credit payables. ($p=0.70$) represents that sales growth has insignificantly linked with trade credit payables. Stock traded has significant relationship with trade credit payables. ($\beta=0.298$, $p=0.009$) represents that stock traded has positive and significant relationship with trade credit payables. Coefficient value indicates that by one unit increase in stock traded trade credit payables increased by 0.298 units. Collateral also has significant relationship with trade credit payables. ($\beta=-0.072$, $p=0.023$) indicate that collateral has negative and significant relationship with trade credit payables. Coefficient value demonstrates that by one unit increase in collateral trade credit receivables decreased by 0.072 units. Profitability has insignificant relationship with trade credit payables. ($p=0.02$) indicate that it has insignificant relationship with trade credit payables.

In third equation relationship between DFI (depth of financial institution), DFM (depth of financial markets), credit information sharing (CIS) and total trade credit have been checked along with other variables i.e. ; short term bank credit (SBC), sales growth (SG), stock in trade (ST), collateral (COL), profitability (PRO). Results indicated that depth of financial institution (DFI)" has significant relationship with total trade credit (TTC). ($\beta = 0.067$, $p = 0.002$) indicates that depth of financial institution (DFI)" has positive and significant relationship with total trade credit (TTC). Coefficient value 0.067 indicates that by one unit increase in depth of financial institution total trade credit (TTC) increased by 0.067 units. Depth of financial markets (DFM)" has insignificant relationship with trade credit payables (TCP). ($p=0.626$) indicates that depth of financial markets (DFM)" has insignificant relationship with total trade credit (TTC). Credit information sharing (CIS)" has significant relationship with total trade credit (TTC). ($\beta=0.03$, $p=0.0005$) indicates that credit information sharing (CIS) has positive and significant relationship with total trade credit (TTC). Coefficient value 0.030 indicates that by one unit increase in credit information sharing total trade credit (TTC) increased by 0.030 units.

Among other control variables short term bank credit has significant relationship with total trade credit (TTC). ($\beta=0.115$, $p=0.000$) represents that short term bank

credit has positive and significant relationship with total trade credit (TTC). Coefficient value represents that by one unit increase in short term bank credit total trade credit (TTC) increased by 0.115 units. Sales growth has insignificant relationship with total trade credit (TTC). ($p=0.225$) represents that sales growth has insignificant relationship with total trade credit (TTC). Stock traded has significant relationship with total trade credit (TTC). ($\beta=0.712$, $p=0.000$) represents that stock traded has positive and significant relationship with total trade credit (TTC). Coefficient value indicates that by one unit increase in stock traded total trade credit (TTC) increased by 0.712 units.

Collateral has insignificant relationship with total trade credit (TTC). ($p=0.91$) indicate that collateral has insignificant relationship with trade credit payables plus trade credit receivables. Profitability has also insignificant relationship with trade credit payables and Trade credit receivables. ($p=0.903$) indicate that it has insignificant relationship with trade credit payables and trade credit receivables.

5.2 Conclusion

Trade credit rehearses shift basically from nation to nation & a huge variety exists among nations concerning the attributes of their financial frameworks. The vast majority of past examinations in this area have explored the connection among trade credit. The expansion in financial development and credit information sharing increment firm's admittance to market credit.

Many of the earlier investigations have focused on trade credit in established countries, while a very small number of studies are studied to the trade credit of firms that are working in emerging nations. The financial system of Pakistan is not well-established and trade credit is generally used by the firms.

In order to find the effect of financial expansion and credit information sharing on trade credit receivables and trade credit payables in Pakistan, we use a sample size of 443 non-financial firms listed in PSX. The study finished up with a data set of 180 non-financial firms of Pakistan by excluding the firms which have missing

data of five or more than five years and also ignoring the firms which are relating to trading and services business.

Results of our study lead towards the acceptance of complementary hypothesis. These complementary hypotheses assume that depth of financial institutions is positively connected to the trade credit receivables and trade credit payables and depth of financial market is positively associated trade credit receivables along with trade credit payables. Credit information sharing is positively related to the trade credit receivables and trade credit payables of non-financial firms. The acceptance of complementary hypotheses results in rejection of substitution hypotheses. Complementary hypothesis no. 1 has been accepted in which mostly proxies of independent variables positively linked with trade credit receivables. The various independent variables insignificantly linked with dependent variable trade credit payables so, we can say that complementary hypothesis number 2 is rejected. Complementary hypothesis no. 3 has been accepted in which mostly proxies of independent variables positively linked with total trade credit of non-financial firms.

The supply of market credit of firm increases due to increase in the depth of financial institutions (DFIs) and depth of financial market (DFM) which maximize the use of trade credit receivables. The access of firms to market credit is increased by CIS that's why firms can minimize the use of trade credit and use formal credit. Development of financial institutions increase the supply of bank credit to firms, and consequently the use of trade credit is increased. On the contrary, banking growth surges the supply of formal funds to firms.

5.3 Recommendations and Policy Implications

Results of this study further recommend that impact of financial crisis on development of financial institutions and financial market conditions are moved closer from monopolistic competition to the perfect competition. The distinguish modification in the situations of markets as well as sharing of credit information could largely be assigned to current policy authoritarian hindrance on the procession

of banking activities, reducing access to domestic private and foreign banks for gaining credit, and spreading the set independence to the bank supervisors. Furthermore need to check influence of macroeconomic variables and lending rates may also consist of to the study to conclusion the financial association in the worldwide financial crisis such as Covid-19 pandemic.

Policy recommendation of this research is that financial institutions should be encourage to extend more financing to private firms so that they can generate more trade credit. Another recommendation is that credit information sharing should also be promoted.

The straight Policy recommendation of this research is that financial institutions should be encourage to extend more financing to private firms so that they can generate more trade credit. The firms need to bring improvement in regulation and supervision of trade credit in which firms get credit facilities and use credit effectively. Financial markets should be developed enough so that financial and non-financial institutions can be grown easily. This should be carried on in future too in order to reduce the unanticipated consequences effects of any probable similar crisis and to increase the level of competition in the Pakistani manufacturing industry. Another recommendation is that credit information sharing should also be promoted. The more information is accessible to investors they can assess more obviously the creditworthiness of their possible clients, which eventually translates into increased access to finance and cheaper loans.

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