

Green Trade Credit and Sustainable Firm Performances During COVID-19: A Conceptual Review

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Abstract

The modernization of the economic world creates environmental issues around the globe, to improve global problems such as global warming, inequality, climate change, hunger and poverty; it is necessary to improve sustainable performance. Mostly, the product manufacturers have a greater influence on the supply chain and the environment. Before COVID-19, the economy of Pakistan was belligerent but not collapsed; however, COVID-19 created a situation where most of the companies will go bankrupt. Pakistan is considered less developed financially, where extensive growth is predictable in the use of green trade credit demand by firms listed at the Pakistan Stock Exchange. Thus, the study analyzes the conceptual linkages between trade credit demand and sustainable firm performances through green credit by adopting the theory of RBV and also assesses the role and impact of COVID-19; further, suggest some policies to cope with COVID-19 challenges. Secondary literature is being reviewed after searching electronic databases like Scopus, Directory of Open Access Journals, Web of Science, ProQuest, ScienceDirect, Google Scholar and JSTOR. This study will help policymakers whenever they need to consider green trade credit decisions. Thus, buyers need to be proactive while adopting green trade credit to compete in this sustainable competitive marketplace.

Key Words

COVID-19, Green Trade Credit, Sustainable Firm Performance, Trade Credit, Green IT Capital, RBV

Introduction

Over the past few decades, the attention towards the sustainable performances in the supply chain has given the substantial growth of all published articles in international journals; this creates the need to review the literature in this domain (Gupta & Gupta, 2020; Hassini et al., 2012; Seuring & Gold, 2012). The practices in sustainability like in biofuels (Awudu & Zhang, 2012), chemical processing (Nikolopoulou & Ierapetritou, 2012) and food (Beske et al., 2014) have given the tremendous shift to review these specific industries (Rashidi et al., 2020). Moreover, the concept of sustainability within the supply chain has been examined well, which includes sustainable development in services and manufacturing (Gunasekaran & Spalanzani, 2012) design of the product from the viewpoint of the life cycle (Chiu & Chu, 2012) sustainable procurement (Giunipero et al., 2012), packaging (Zailani et al., 2012) and digital manufacturing (Chen et al., 2020).

Firms have an enormous effect on the economy and environment; it can be enhanced by fading the economic distress, inequality and climate change (Svensson et al., 2016). On the

other hand, White (2009) stated that the practices of sustainability now becomes the firm responsibility, it further will help the firms growth in the future; thus, this means that the firm performance is not only the one component that related to firms profitability but also it depends how firms impact on society and the environment (Pagell & Wu, 2009; Svensson et al., 2016). These findings are consistent with Senge et al. (2008) recommendations that they had given in their research and stated that when managers measure their firm's performance, they found that profitability is not the only element that defines firms' effectiveness.

Many empirical scraps of evidence display that the firms that involve themselves in the environment can improve their firm performances and promote sustainable inventions (Svensson et al., 2016). The era of the 1990s focused on the environment after the World Summit during the emphasis on sustainability; however, at the end of 1992, the Earth Summit has given the agenda for the global action plan for sustainable development, thus adding another social dimension to the agenda that was CSR. After 20 years, the third International conference Johannesburg Summit was

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arranged in 2012 came up with the objective for the business leaders to implement all social, economic and environmental dimensions of sustainability to reach their sustainable firm performances. Firms that involve themselves in parallel and diverse objectives need to be successful financially; they need to perform strategically and at the same time, be sustainable as well. For gaining competitive advantages, firms should develop sustainable practices, resources and capabilities. Although this is difficult for not-for-profit firms to be responsible socially, environmentally and economically at the same time, further, several firms still do not have awareness regarding sustainable practices and processes (Murthy, 2012; Svensson et al., 2016).

The firms that are facing social and environmental challenges need to undergo some cultural and transformational change; thus, so far, very limited study has done an investigation on all three dimensions of sustainability for measuring their firm performances, Svensson et al. (2016), associated with supply chain and trade credit. The current study proposes a conceptual and operational definition of firm sustainability which is as follows:

Conceptual Definition

It is an organization's efforts to manage its impact on earth's life and eco-systems and its whole business network. (Svensson & Wagner, 2012)

The current study has written the operational definition of sustainable firm performances as 'Sustainable firm performance is the direct approach that creates values in businesses and achieves long term shareholders objective by implementing opportunities and copes up with the threat that derives from social, economic and environmental development'.

Environmental protection agencies have applied strict policies of environmental protection. If any firm exceeds the use of carbon emissions, the firm gets a punishment. One of the examples of Chalco Shandong Co., Ltd, they exceeded the use of alumina, the company was charged a fine of 200,000 Yuan for creating pollution in 2008 (Cao & Yu, 2018; Zhou et al., 2015). Most energy sectors and industries are paying attention to shifting their supply chain to other alternative systems. Auto manufacturing companies are showing an interest in batteries rather than using an exhaust structure. Beverages, fashion and food industries are involved in sustainable processes and keep them as their brand strategy to address environmental concerns. Therefore, sustainable trade is only possible when buyer uses the fair value chain system. Thus, this increases sustainability in trade finance. One of the International Finance Corporation (IFC) worked with the University of Cambridge in launching the trade finance product that is sustainable shipment letter of credit (LC). A firm can avail benefits such as cost incentives, paper supply, soya beef, pulp and palm oil if they

involve in sustainability measures and provide evidence in their documents about sustainability.¹

Businesses and corporate sectors are now focusing on sustainability and environmental practices when making decisions related to finance. Moreover, a consumer also demands sustainable and ethical products that ultimately lead the industries and supply chain to get committed with corporate social responsibilities; it has given the industries the reason to involve themselves to consider the environment while making decisions related to finance and trade. All over the world, many banks have introduced the concept of green credit financing, which is a sort of financial service to support sustainable firm performances. Green credit financing helps in sustainable development goals to help the firm to invest more in green investment. Green credit financing has such characteristics that it is a hardcore condition for carbon emission. The main objective of green credit financing is to upgrade sustainable operations in firms and link the loan via monitoring loan standards. Traditionally firms use trade credit financing for solving their capital constraint issues (Chen, 2007). Trade credit is an overdue payment mode between the supplier and the manufacturer, where the supplier considers an investor and plays a part in providing products. The most widely used concept in the USA is trade credit financing, used by 60% of the firms in the USA to gain profits, and it is the second most prevalent option compared to bank finance (Chen et al., 2020).

However, due to COVID-19 profits were diminished cruelly, from 24 February to 28 February, just in a week, US\$6 trillion was dropped in a global market (Fahim et al., 2019). US\$6 trillion losses were experienced by the S&P 500 index in February 2020, whereas the largest companies of the S&P 500 index were experienced a loss of more than US\$1.4 trillion. Few losses were recorded due to the coherent assessment of investors but eventually, profits would drop just because of Coronavirus. Travel industries would mislay US\$113 billion if the situation persists. The Chinese tourism industries were critically squeezed, cancellation of flights, booking of hotels, all international events were canceled which has worth about US\$200 billion. Due to the massive lockdown in a country, the Chinese Government bans all factories through which the global supply chain is disrupted sternly as China is the largest manufacturer in the world and plays a major part in the world's economy. France, Iran and Italy issued stay-at-home policies just to stop the virus from spreading. This policy carries a large recession in developing countries, and the economists have a common belief that this COVID-19 would call recession globally (Ozili & Arun, 2020).

Thus, after thorough literature, the current study was able to develop the conceptual model based on trade credit, green credit financing, sustainable firm performances and COVID-19.

This article is further organized as follows: the second section contains the background of the research along with research objective and research question, whereas the third

Table 1. Summarization of Literature.

Author(s) (year)	Citations	Motive	Country Focus	Methodology	Findings
Schwartz (1974)	171	Capital access		Panel data	For increasing purchases firms leverage capital access
Ferri (n. d.)	153	Transaction pooling	USA	Panel data	Uncertainties of treasury can be reduced by trade credit
Emery (1984)	148	Credit information		Equilibrium model	Suppliers have advantages of information and collections
Smith (1987)	197	Non-salvage investment		Equilibrium model	Suppliers can protect their non-salvageable investments through trade credit
Brennan et al. (1988)	153	Price elasticity		Equilibrium model	For the price, discrimination suppliers use trade credit
Chant and Walker (1988)	22	Credit rationing	USA	Panel data regression	Trade credit serves as an alternative to bank loan
Wilner (2000)	120	Control protection		Equilibrium model	In financial stress, demand for trade credit increases
Jain (2001)	43	Credit information		Optimization model	Mostly suppliers and banks avail profit on buyers expense
Ono (2001)	21	Credit rationing	Japan	Panel data regression	Trade credit is the best alternative to bank credit
Masimovic and Frank (2005)	90	Collateral value	USA	Equilibrium model	Suppliers can gain benefit from collections
Huyghebaert et al. (2007)	11	Control protection	Belgium	Panel data regression	It serves as a benefit in beginning
Paul and Boden (2008)	61	Trade credit management	UK	Qualitative	It helps in improving financing costs
Chung (2012)	99	Inventory problem		Equilibrium model	Trade credit helps in solving inventory problems
Lou and Wang (2013)	66	Optimal trade credit		Equilibrium model	Seller may have an advantage for credit period
Boden and Paul (2014)	16	Creditable behaviour through a qualitative study	UK	Interviews	Trade credit serves as a relational activity
Jensen and Meckling. (2016)	189	Perishable inventory models		Qualitative	Extended work of Bakker et al. in 2012 by literature review
Gelsomino et al. (2016)	218	Supply chain finance		Qualitative	It provides a guide to both practitioners and researchers
Rameswari and Uthayakumar (2018)	6	Integrated inventory model		EOQ model	Buyers can use trade credit for competing in the market
Chen et al. (2019)	4	Reduce the default loss	China	VAR model	Trade credit helps in increasing order quantity and reduces product quantity
Xu et al. (2018)	12	Supply chain finance	USA	Quali/ quanti	It provides a bibliography from 1996 to 2016
Del Gaudio et al. (2018)	8	Trade credit and SME's		Qualitative	Extend the view of trade credit in SME's
Chanda and Kumar (2019)	2	Optimal ordering policy		EOQ model	The optimal policy is best to obtain through consumer decisions
Chen et al. (2020)	—	Inventory control risk		Demand model	Retail has the advantage to control default risk
Pattnaik et al. (2020)	5	Financial economic perspective		Bibliometrics	Review article from 1999 to 2019 and provides future research directions
Tiwari et al. (2022)		Explores the effects of deterioration and trade credit policy		Calculus method	The result for presented examples indicates that combining trade credit policies with imperfect quality items in the presence of deterioration leads to savings in the supply chain

Source: Modified table of Pattnaik et al. (2020) and Seifert et al. (2013).

section states the research novelty. Furthermore, Table 1 states the literature review of the study. The fourth section consists of the materials and methods of the study. However, the fifth section contains the discussion and results of the study; the sixth section discusses the economic challenges of COVID-19, whereas the seventh section is based on policies to combat COVID-19 challenges; finally the eighth section concludes the study.

Background of the Study

Research in trade credit is a vast domain that carries the attention of many scholars worldwide in the field of finance and banking with enormous contributions in economics, finance, production and operations, industrial engineering and business management. Many reviews on trade credit have been quantitative; however, the complete overview of the extant literature on trade credit is still unaddressed (Pattnaik et al., 2020; Paul & Boden, 2008). One of the examples of the most recent literature review has given by Pattnaik et al. (2020), they have covered material from the top most economics and finance journals from the period of 1999 till 2019, they missed the multi-discipline that is industrial engineering and production and operations, which has been covered by Pattnaik et al. (2020), they analyze 1,191 articles of Scopus. However, both research had some limitations and still needs to explain that are (a) conceptual analysis from the emerging economy is missing, (b) Social behavior of trade credit is missing and (c) the impact of green credit on firms performance, market performances and accounting performances still needs to analyze. Thus, this current study has taken one limitation and discusses green trade credit through green credit and sustainable firm performance, so that future scholars may work on the empirical analysis on the stated variables as the phenomenon is still new and not reviewed largely. The literature indicates that trade credit has enormous growth and a demanding topic, this is the most evolving topic, there were only 368 articles before the financial crisis of 2008; however, right after the financial crisis, the articles grew to 828, simultaneously, 74% growth rate of trade credit articles has been seen after the financial crisis of 2008; thus, the area has a vast domain and evolving fast (Pattnaik et al., 2020). An industry uses carbon emissions, the manufacturer may intend to capitalize on green technology for the reduction of carbon emissions and to meet requirements for green production. In recent years, the literature has grasped the attention to investigate the impact of green credit on government policies and corporate decision making, for example, one of the studies has been done on the impact of green credit on social welfare (An et al., 2021; Huang et al., 2019, 2020; Yang et al., 2019). Most scholars in operations management have given a significant amount of attention to reducing carbon emissions (An et al., 2021; Guo et al., 2017; Reefke & Sundaram, 2017). Few studies are focused on the impact of

green credit on efforts of a manufacturer for the reduction of pollution such as Kang et al. (2020), some other literature focused on the green credit under random and deterministic demand such as Fang and Xu (2020), another study relates with the threshold and constraints of green credit (An et al., 2021; Cao & Yu, 2018; Dash Wu et al., 2019).

There are no such values that exist for trade finance, which has the characteristics of 'greenwash'. Thus, if a company is issuing a green credit or green loan, there are some standards; however, there are no specific standards to meet the sustainable requirements for trade finance. It is not easy to copy and paste the same standards and apply them in trade finance. Hence, this sets the objective for the current study 'to analyze one of the dimensions of trade credit that link with "green" in detail'. The aim of the study helps in formulating the following research questions.

1. What is one of the dimensions of trade credit that links with 'green'?
2. Are green trade credit and sustainable firm performances conceptually linked with each other?
3. Does COVID-19 affect the relationship between green trade credit demand and sustainable firm performance conceptually?
4. What are the policies that help to cope with COVID-19 challenges?

The current study has some significance as follows: (a) it will create awareness regarding the sustainable firm performance, (b) it will also help buyers in making policies related to trade credit with the concept of green and (c) it will also help the supplier to assess buyer while providing credit to the buyer. Last, it will also help buyers and sellers to implement such policies that help to cope with COVID-19. The novelty of the research has been discussed in the subsequent section.

The Novelty of the Research

One of the studies analyzes the trade credit finance and green credit finance, where the authors were considered well-funded sellers and limited capital buyers who engage themselves in green investments in an indeterminate demand. In-depth analyses were conducted to see the difference between traditional trade credit finance and the new phenomenon of green credit finance, the study concluded that for achieving the win-win situation, the manufacturer can set some carbon emission-reducing policy by indulging in green financing; if the policies of carbon emissions are not so much strict, then the reaction of both supplier and buyers will be different. The government is responsible for imposing a penalty on strict carbon emission policy to promote green financing, which is ultimately profitable for the firms. The study compared social welfare with both the modes of financing which are trade credit finance and green credit finance; the results

were shocking that under restrictions of carbon emissions, social welfare is lower as compared to the without carbon emission just because of the limitations caused by carbon emissions. The study had some limitations that it believes that all information is known to supply chain members but in reality, asymmetry information exists which could be the future direction for scholars (An et al., 2012). However, Paul and Wilson (2007) already applied asymmetric information as a determinant of trade credit in one of their studies. Here, the question is what is asymmetric information? Scholars discussed the asymmetric information with the role of trade credit to product quality (Long et al., 1993; Paul & Wilson, 2007). The trade credit demand and the time that buyer takes to pay depends on how much confident the buyers are about the product/services quality that they have received. The trade credit provides the confidence to buyers to protect them against the risk associated with product quality; however, Lee and Stowe (1993); Smith (1987) argued that seller can put this risk on a buyer if the seller offers a price discount to the buyer at an earlier stage; hence, if a period is shorter, then it is more likely that the deficiency of product reveals to the buyer. Their study is supported by (Deloof & Jegers, 1996; Long et al., 1993). Thus, the current research found that asymmetric information is the determinant of trade credit demand and has already been explored well; however, the dimension analysis of trade credit is still needed to examine. Therefore, the current study fulfills this gap by discussing one of the dimensions of trade credit. The summarized literature related to trade credit along with the findings that has been discussed in Table 1.

Limited study on the trade credit has attempted survey research before; those who have attempted survey research had used the information that companies already documented in their financial annual reports (Danielson & Scott, 2004). Therefore, the current study has aimed to highlight the work on the trade credit and develop the new term green trade credit through green credit, so that future scholars can use it in their research for increasing the academic knowledge and it will also help practitioners in making trade credit demand strategies or to act maturely or rationally while taking decisions related with trade credit demand.

Materials and Methods

The adopted methodology to carry out this research was grounded on the suggestions given by Tranfield et al. (2003). The search was begun on electronic databases such as ScienceDirect, JSTOR, Web of Science, ProQuest and Google Scholar by applying all keywords. For the extensive search, the keywords like 'Trade credit', 'green credit', 'Sustainable Firm Performance', 'COVID-19 crisis', 'Financial crisis' and 'Global Warming' were used. We have targeted research papers from the year 1974 till 2022 of impact factor finance/sustainability journals. Duplicated

articles were then removed; furthermore, we observed if the journal aims were matched with our study scope. Then, we explored the titles of the articles that were relevant to our study context. Last, we scrutinized the abstract of the selected articles and focuses on the research objectives, questions and methodologies.

Discussion and Results

Since the virus spread all over the globe, it came in Pakistan when pilgrims of Pakistan came back from Iran; the numbers increased by 2000 fiercely on 31 March 2020. Confusions between the county's provincial and federal governments, insufficient resources and poor public health system increase the tensions in the country which suddenly gave economic fallout that has hit the country critically which can be predicted more severe in the upcoming months (Javid et al., 2020).

This COVID-19 pandemic brings the whole world to fight a war against it with an indeterminate future; this pandemic, unfortunately, impacted developing country Pakistan in three economic ways: unemployment will rise to 8.1%, and an expected turnover of employees from 12.3 million to 18.53 million, as the outcome of lockdown in the country. Through this lockdown, there will be a decline in disposable income of households; this can be turned out in decreasing the huge demand, through which the remittances also get decline and will get hit up to 10–50% due to which the expected aggregate demands will get declined, the expenditure consumption of private companies will be decreased by 4%–8%, due to which the lifestyle will get disrupted too. The multinational companies also shifting their products, process and corporate models, there will be a massive decline in FDI due to restrictions in tourism, retail, real estate, coal, automotive, aviation, luxury goods and oil and gas. Second, the sudden cease of manufacturing firm's activity will impact the supply chain and create a bottleneck in global chains. This pandemic causes dissimulations in inventory stocks which can further lead to the company closure, this is obvious that companies are not making profits but if this crisis persists, then employment and wages also will get decline which creates financial distress and instability in the financial markets (Ozili & Arun, 2020; Rasheed et al., 2021).

Last, the shocks of the economy of Pakistan are mainly due to financial markets, markets get disrupted and savings of households get declined through which consumption will greatly fall out. Because of the economic shutdown, a decline in the equity market has been observed, the higher interest rates bond markets already severely disturbed due to this inflation rises; thus, it creates difficulties to make most out of it for new companies with debt financing. Debt was increased by 68.8% of gross domestic product (GDP), Pakistan stock exchange equity market falls out, while there is a massive loss in forex reserves which is equal to dollar one billion. Payments of debt will also get due in the

upcoming months. The liquidity positions of investors soon get impaired, the massive fall in investments when there will be business closures, and thus, banks are reluctant to provide loans to the businesses. This pandemic may cause a 30–40% decrease in foreign direct investments during 2020–2021. Economy of Pakistan suffers a huge loss with 4.64% in GDP due to trade disruption. This could imply a loss of ₹700–800 billion in June 2020. The foremost reason for this economic fallout is the greatest hit in countries such as the USA, China, the UK, Japan and Germany, and 50% shares took part in Pakistan through these countries. The biggest automobile industry HONDA is struggling with anticipating a shutdown. Energy, airlines, basic material and automobile industries are expected to be the worst hit due to this COVID-19; the basic material industry foreign direct investments impacted dollar 40.49 million which is considered the biggest fall out ever. Thus, the current study has found that the COVID-19 crisis shakes the decisions related to debt financing which is trade credit financing.

In the recent few years, the increasing awareness regarding sustainable development, greening the businesses and environmental protection is the primary concern for many countries. In information technology (IT), the concept of environmental protection originally began in 2003 when the orders were given by the European Union (Chuang & Huang, 2015). In 2005, 128 countries for emission reduction signed a bond for the Kyoto protocol, thus through the above arguments, the current study believes that green concepts have a tremendous effect on sustainable development and the industrial environment. In the new era of the information economy, outdated factors such as land, labor and capital are now no longer the best way to achieve a competitive advantage for firms. Moderately, these factors are replaced with some technical skills such as IT capital and human capital which are considered as innovation and technical abilities (Chen, 2007; Chuang & Huang, 2015). Few researchers believe that for gaining a competitive advantage, firms remain need to involve themselves in IT capital. Despite having relation with the green concepts with IT capital, the IT capital has been ignored by several scholars (Chuang & Huang, 2015). Thus, to fulfill the gap, the new concept of green IT capital has been introduced by Chuang and Huang (2015); green IT capital is defined as an organizational competence and property that applies the green idea to the infrastructure of IT, IT management and IT staffs. There are three dimensions of IT capital (a) green IT infrastructure which consists of software, network and hardware which established under the greening concept; (b) green IT human capital which involves the knowledge and abilities of IT staff in getting green knowledge, how to consume energy in technology and provide pieces of training related to green IT to the IT staff and (c) green IT relational capital, it refers to the relationship between management and users with the aim of environmental protection while offering products/services (Chuang & Huang,

2015). Thus, the current study has taken green IT capital as the dimension of green trade credit demand and defined its operational definition as ‘Green IT capital is defined as the firm’s capabilities to achieve sustainable development through applying the concept of green on green IT infrastructure, green IT human capital, green IT relationship capital and green IT cost capital’.

According to the resource-based view (RBV) theory, by utilizing its capabilities and resources (such as invisible assets, knowledge, human resources and technology), a firm can maintain its competitive advantage in the market (Barney, 1991; Chuang & Huang, 2015; Wernerfelt, 1984). If a firm invests in IT and its implementation to create invisible value of the business; thus, both visible and invisible advantages can be raised by IT to the firms (Chuang & Huang, 2015). The RBV suggests that the IT resources of any business have benefits and firms grow by having their IT growth resources which are specificity, uniqueness, scarcity, ambiguity, irreplaceability, inseparability and excludability. Furthermore, it was observed that benefits where invisible and indirect costs associated with IT are greater than the direct IT cost and benefits that are visible, thus, IT can combine various firms’ resources and form new capabilities through which firm can gain its competitive advantage (Chuang & Huang, 2015; Davern & Kauffman, 2000). Therefore, this theory supports the dimension of trade credit demand that is green IT capital as shown in the conceptual research framework (Figure 1). Additionally, the RBV theory extended by Hart (1995) by adding natural resources that emphasize that product stewardship, sustainable development and pollution prevention lead the firm to have a sustainable competitive advantage. From the perspective of natural resource-based view (NRBV), the green external processes associated with the capabilities of product stewardship, firms develop those resources and capabilities that are unique and help in improving all social, environmental and economic performances (Hart, 1995; Huo et al., 2019; Vachon & Klassen, 2008). A green customer process involves product development, production and the delivery of the product; thus, its main objective is to put the downstream side of the supply chain green (Green et al., 2012). Therefore, this theory supports the current research and modifies the research model (Huo et al., 2019).

Economic Challenges of the COVID-19

Deepened Secular Stagnation

Since the last two decades, the economic performances are suffering through five trends: (a) advanced economies have been faced declined growth rate, (b) before the global financial crisis, the growth of total factor productivity also falls down, (c) many investments have insufficient returns, (d) global bond yields got declined tremendously and

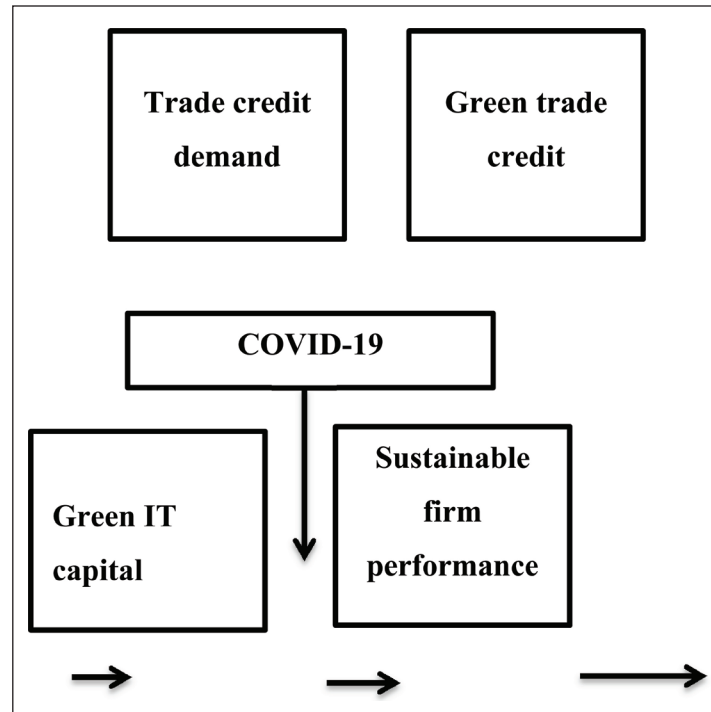


Figure 1. Conceptual Research Framework.

Source: The authors.

(e) despite having some significant monetary simplification, the economy falls near to deflation. All these trends are correlated with each other. The combined trends become the revitalization of secular stagnation which is called the longest slump in the economy globally. Through this pandemic, the secular stagnation may deepen, uncertainty may arise between both consumers and businesses which ultimately drop their confidence, now they become more risk averse and move towards more saving options during and after this pandemic.

Income and Wealth Inequalities

It has been observed that in the last three decades, the income inequalities have been decreased whereas it has been observed that within the country, income inequalities are heterogeneous. The advanced economies have set a trend that high income is mostly generated through high professionals. Additionally, wealth inequality is much larger than income inequality.

The shutdown due to COVID-19 has been hurt badly which results in the slow down or complete ban on many economic activities by the governments. The majority of governments in developing countries have been more controlled towards fiscal policies because of the lower tax revenues, and thus, they have been facing many issues to combat this pandemic as compared to developed countries. According to the IMF, 2020 policy tracker, many poorer

states are needy and in immense need of help at international levels. If the developing economies have been struggling with greater economic activities as compared to developed countries, then this may create inequalities in income between countries; furthermore, we may also see inequalities within countries too which may affect low-income households badly during this pandemic. Moreover, in this pandemic, we may see more digitization in production tasks due to the adaptation of new modes of work, the social distancing creates less reliance on workers for production and more dependence on remote work; this causes the internet technologies to replace workers meticulously.

Contraction of Global Trade and Investments

Since 2008, one of the foremost factors that are not favorable is the conflict between the trade of the USA and China, this conflict reduces international trade and creates uncertain policy in the trade market internationally, and most firms are now dropping foreign order and giving priority to domestic orders because of greater costs. The policy uncertainty restricts many firms to enter export markets due to the higher export sunk cost. Due to this global pandemic, a great debate came into existence to decide whether the global value chain considers best to form global trade shortly. Because of all circumstances, the global value chain called trade fragility needs to be

reassessed, thus, it is understood that more networks of production need to be more diversified moderately than clustered. The production efficiency reduces (between hospitals, states, and even in cities) as compared between countries. Thus, it is viable to build global resilience rather than to restructure the global value chain.

Policies to Combat Pandemic Crisis

Here the biggest challenge arises after debating above all consequences and economic challenges to determine some common ground that is the immediate need for combating these pandemic issues.

Three sets of principles are required (a) movement towards the protection of workers equally, no matter at which level they are working, (b) homogeneity is needed for social support, insurance, and best service quality, (c) Support for taxation in labor income along with the capital taxation. These three principles are mainly for making stable nation contracts within the society. When we go for the expansion of social contract at global level, the tensions will become more complex and will come up with more dimensions to be considered more practically, therefore, this area needs creative thinking.

Further, Structural reforms is an immediate need for boosting the economy and businesses, the monetary and fiscal trends already been organized to fight with economic slums before the COVID-19 hit; However, the heavy debts and inability of boosting investments, in the long run, structural reforms are required for the sustainability of economic growth. It has been observed that low business disbursement reduced investments and growth in those countries that have excessive rules and regulations, subsidiaries, licensing, trade defense and other hurdles, it is important to implement such structural reforms that help in shorten the recovery time and this will create more confidence that recovery will be sustained.

The current research has found that the structural reforms could help in taxation, infrastructure, financial systems, banking systems, industrial relations, flexible labor market, training and education, supply and energy and government bureaucracy, it all depends which is severely required growth by state economies. Despite the state differences, many states have been sharing a common theme, that is, to regain economic dynamism and to create a job engine.

In Australia, after this pandemic, Prime Minister Scott Morrison has planned to support structural reforms that are quite better for the economy. In India, Prime Minister Narendra Modi highlighted that there is an immense need for reforms for projects of infrastructure to recuperate the economy; furthermore, reforms that are necessary for corporate governance and credit markets are needed to create much better strength.

Furthermore, investments in activities related to research and development are crucial for increasing growth in

productivity and to cope with future climate and public health challenges. If firms may involve themselves in resource allocation and creative destruction, then they can create significant productivity. This significant productivity may become the key to a longer global growth and may raise human living standards which are compromised because of a pandemic. It has been observed that the Chinese Government is now taking advantage of this pandemic to lift its innovative activities called 5G, which includes artificial intelligence, vehicle charging stations, inter-city transport, industrial internet, big data centers and ultra-high power facilities.

Last, integration and global economic collaboration are equally important for fighting this pandemic and sustaining the global economy. The required most important element is 'trust' which is not only based on goodwill but must be based to cope with environmental challenges, reduction in poverty, climate change and equality. This whole world needs to implement a 'global social contract' inaugurated by the United Nations. This global social contract is based on the social contract between rich and poor countries to combat these pandemic challenges.

Conclusion

One of the biggest challenges that are facing all mankind and the planet is environmental degradation; the manufacturing firms are responsible for such environmental issues despite having the biggest contributor to economic growth and development. It has been found that for achieving sustainable firm performances buyers need to involve themselves in green trade credit. Many studies have been investigated on COVID-19 challenges (Javid et al., 2020; Ozili & Arun, 2020; Taskinsoy, 2020) but particularly neither any study has been done to see COVID-19 role between green trade credit and sustainable firm performances. Thus, this study has studied the conceptual linkages of green trade credit demand and sustainable firm performances; furthermore, current study has also studied the role of COVID-19 with its economic challenges concerning Pakistan and suggests some policies to cope with the pandemic challenges. The current scholars are working on an empirical paper on the above research framework within the Pakistan perspective (this is one of the biggest limitations of the current study); future scholars can modify the current research framework and can apply it to other countries to see its empirical impact in emerging markets.

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Note

1. See <https://www.hclaw.com/blog/trade-finance-and-brexitt/>

References

- An, H., Hardin, W., & Wu, Z. (2012). Information asymmetry and corporate liquidity management: Evidence from real estate investment trusts. *The Journal of Real Estate Finance and Economics*, 45(3), 678–704. <https://doi.org/10.1007/s11146-010-9284-x>
- An, S., Li, B., Song, D., & Chen, X. (2021). Green credit financing versus trade credit financing in a supply chain with carbon emission limits. *European Journal of Operational Research*, 292(1), 125–142. <https://doi.org/10.1016/j.ejor.2020.10.025>
- Awudu, I., & Zhang, J. (2012). Uncertainties and sustainability concepts in biofuel supply chain management. *Renewable and Sustainable Energy Reviews*, 16(2), 1359–1368. <https://doi.org/10.1016/j.rser.2011.10.016>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Beske, P., Land, A., & Seuring, S. (2014). Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature. *International Journal of Production Economics*, 152, 131–143. <https://doi.org/10.1016/j.ijpe.2013.12.026>
- Boden, R., & Yassia Paul, S. (2014). Creditable behaviour? The intra-firm management of trade credit. *Qualitative Research in Accounting & Management*, 11(3), 260–275. <https://doi.org/10.1108/QRAM-08-2012-0032>
- Brennan, M. J., MAKSIMOVICs, V., & Zechner, J. (1988). Vendor financing. *The Journal of Finance*, 43(5), 1127–1141. <https://doi.org/10.1111/j.1540-6261.1988.tb03960.x>
- Cao, E., & Yu, M. (2018). Trade credit financing and coordination for an emission-dependent supply chain. *Computers & Industrial Engineering*, 119, 50–62. <https://doi.org/10.1016/j.cie.2018.03.024>
- Chanda, U., & Kumar, A. (2019). Optimal ordering policy for short life-cycle products under credit financing with dynamic adoption in supply chain. *Journal of Management Analytics*, 6(3), 269–301. <https://doi.org/10.1080/23270012.2019.1614488>
- Chant, E. M., & Walker, D. A. (1988). Small business demand for trade credit. *Applied Economics*, 20(7), 861–876. <https://doi.org/10.1080/00036848800000012>
- Chen, X., Qi, L., Shen, Z.-J. M., & Xu, Y. (2020). The value of trade credit under risk controls. *International Journal of Production Research*, 1–24. <https://doi.org/10.1080/00207543.2020.1735657>
- Chen, Y.-S. (2007). The positive effect of green intellectual capital on competitive advantages of firms. *Journal of Business Ethics*, 77(3), 271–286. <https://doi.org/10.1007/s10551-006-9349-1>
- Chen, Z., Yuan, K., & Zhou, S. (2019). Supply chain coordination with trade credit under the CVaR criterion. *International Journal of Production Research*, 57(11), 3538–3553. <https://doi.org/10.1080/00207543.2018.1543966>
- Chiu, M.-C., & Chu, C.-H. (2012). Review of sustainable product design from life cycle perspectives. *International Journal of Precision Engineering and Manufacturing*, 13(7), 1259–1272. <https://doi.org/10.1007/s12541-012-0169-1>
- Chuang, S.-P., & Huang, S.-J. (2015). Effects of business greening and green IT capital on business competitiveness. *Journal of Business Ethics*, 128(1), 221–231. <https://doi.org/10.1007/s10551-014-2094-y>
- Chung, K.-J. (2012). The correct proofs for the optimal ordering policy with trade credit under two different payment methods in a supply chain system. *TOP*, 20(3), 768–776. <https://doi.org/10.1007/s11750-010-0164-6>
- Del Gaudio, B. L., Porzio, C., & Verdoliva, V. (2018). Trade credit, SMEs and short-run survivorship: What we know and what we would like to know. *Qualitative Research in Financial Markets*, 10(4), 346–362. <https://doi.org/10.1108/QRFM-02-2018-0014>
- Danielson, M. G., & Scott, J. A. (2004). Bank loan availability and trade credit demand. *The Financial Review*, 39(4), 579–600. <https://doi.org/10.1111/j.0732-8516.2004.00089.x>
- Dash Wu, D., Yang, L., & Olson, D. L. (2019). Green supply chain management under capital constraint. *International Journal of Production Economics*, 215, 3–10. <https://doi.org/10.1016/j.ijpe.2018.09.016>
- Davern, M. J., & Kauffman, R. J. (2000). Discovering potential and realizing value from information technology investments. *Journal of Management Information Systems*, 16(4), 121–143. <https://doi.org/10.1080/07421222.2000.11518268>
- Deloof, M., & Jegers, M. (1996). Trade credit, product quality, and intragroup trade: Some European evidence. *Financial Management*, 25(3), 33. <https://doi.org/10.2307/3665806>
- Emery, G. W. (1984). A pure financial explanation for trade credit. *Journal of Financial and Quantitative Analysis*, 19(3), 271–285. <https://doi.org/10.2307/2331090>
- Fahim, F., Khan, N. R., Ahmad, A., & Ali, A. (2019). Green human resource management and firm's environmental performance: Mediating role of employee commitment, green involvement and eco-friendly behaviour. *Paradigms*, 13(2), 18–25. <http://dx.doi.org/10.24312/1969130203>
- Fang, L., & Xu, S. (2020). Financing equilibrium in a green supply chain with capital constraint. *Computers & Industrial Engineering*, 143, 106390. <https://doi.org/10.1016/j.cie.2020.106390>
- Ferri, G., & Acosta, B. A. (n.d.). *Sustainable Finance for Sustainable Development*, 1, 64.
- Gelsomino, L. M., Mangiaracina, R., Perego, A., & Tumino, A. (2016). Supply chain finance: A literature review. *International Journal of Physical Distribution & Logistics Management*, 46(4). <https://doi.org/10.1108/IJPDLM-08-2014-0173>
- Giunipero, L. C., Hooker, R. E., & Denslow, D. (2012). Purchasing and supply management sustainability: Drivers and barriers. *Journal of Purchasing and Supply Management*, 18(4), 258–269. <https://doi.org/10.1016/j.pursup.2012.06.003>
- Green, K. W., Zelbst, P. J., Bhadauria, V. S., & Meacham, J. (2012). Do environmental collaboration and monitoring enhance organizational performance? *Industrial Management & Data Systems*, 112(2), 186–205. <https://doi.org/10.1108/02635571211204254>
- Gunasekaran, A., & Spalanzani, A. (2012). Sustainability of manufacturing and services: Investigations for research and applications. *International Journal of Production Economics*, 140(1), 35–47. <https://doi.org/10.1016/j.ijpe.2011.05.011>
- Guo, F., Liu, Q., Liu, D., & Guo, Z. (2017). On production and green transportation coordination in a sustainable global supply chain. *Sustainability*, 9(11), 2071. <https://doi.org/10.3390/su9112071>

- Gupta, A. K., & Gupta, N. (2020). Effect of corporate environmental sustainability on dimensions of firm performance—Towards sustainable development: Evidence from India. *Journal of Cleaner Production*, 253, 119948. <https://doi.org/10.1016/j.jclepro.2019.119948>
- Hart, S. L. (1995). A natural-resource-based view of the firm. *Academy of Management Review*, 20(4), 986–1014. <https://doi.org/10.5465/amr.1995.9512280033>
- Hassini, E., Surti, C., & Searcy, C. (2012). A literature review and a case study of sustainable supply chains with a focus on metrics. *International Journal of Production Economics*, 140(1), 69–82. <https://doi.org/10.1016/j.ijpe.2012.01.042>
- Huang, L., Ying, Q., Yang, S., & Hassan, H. (2019). Trade credit financing and sustainable growth of firms: Empirical evidence from China. *Sustainability*, 11(4), 1032. <https://doi.org/10.3390/su11041032>
- Huang, S., Fan, Z.-P., & Wang, N. (2020). Green subsidy modes and pricing strategy in a capital-constrained supply chain. *Transportation Research Part E: Logistics and Transportation Review*, 136, 101885. <https://doi.org/10.1016/j.tre.2020.101885>
- Huo, B., Gu, M., & Wang, Z. (2019). Green or lean? A supply chain approach to sustainable performance. *Journal of Cleaner Production*, 216, 152–166. <https://doi.org/10.1016/j.jclepro.2019.01.141>
- Huyghebaert, N., Van de Gucht, L., & Van Hulle, C. (2007). The choice between bank debt and trade credit in business startups. *Small Business Economics*, 29(4), 435–452. <https://doi.org/10.1007/s11187-006-9005-2>
- Jain, N. (2001). Monitoring costs and trade credit. *The Quarterly Review of Economics and Finance*, 41(1), 89–110. [https://doi.org/10.1016/S1062-9769\(00\)00063-6](https://doi.org/10.1016/S1062-9769(00)00063-6)
- Javid, H., Ali, S. M., & Javed, U. (2020). *Factional federalism, state capacity, and fiscal constraints: Pakistan's COVID-19 challenges*. South Asia @ LSE. <https://blogs.lse.ac.uk/southasia/2020/04/03/factional-federalism-state-capacity-and-fiscal-constraints-pakistans-covid-19-challenges/>
- Jensen, C., & Meckling, H. (2016). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Kang, H., Jung, S.-Y., & Lee, H. (2020). The impact of Green Credit Policy on manufacturers' efforts to reduce suppliers' pollution. *Journal of Cleaner Production*, 248, 119271. <https://doi.org/10.1016/j.jclepro.2019.119271>
- Lee, Y. W., & Stowe, J. D. (1993). Product risk, asymmetric information, and trade credit. *The Journal of Financial and Quantitative Analysis*, 28(2), 285–300. <https://doi.org/10.2307/2331291>
- Long, M. S., Malitz, I. B., & Ravid, S. A. (1993). Trade credit, quality guarantees, and product marketability. *Financial Management*, 22(4), 117. <https://doi.org/10.2307/3665582>
- Lou, K.-R., & Wang, W.-C. (2013). Optimal trade credit and order quantity when trade credit impacts on both demand rate and default risk. *Journal of the Operational Research Society*, 64(10), 1551–1556. <https://doi.org/10.1057/jors.2012.134>
- Maksimovic, V., & Frank, M. Z. (2005). Trade credit, collateral, and adverse selection. *Social Science Research Network*. <http://dx.doi.org/10.2139/ssrn.87868>
- Murthy, V. P. (2012). Integrating corporate sustainability and strategy for business performance. *World Journal of Entrepreneurship, Management and Sustainable Development*, 8(1), 5–17. <https://doi.org/10.1108/20425961211221598>
- Nikolopoulou, A., & Ierapetritou, M. G. (2012). Hybrid simulation based optimization approach for supply chain management. *Computers and Chemical Engineering*, 47, 183–193.
- Ono, M. (2001). Determinants of trade credit in the Japanese manufacturing sector. *Journal of the Japanese and International Economies*, 15(2), 160–177. <https://doi.org/10.1006/jjie.2001.0466>
- Ozili, P. K., & Arun, T. (2020). Spillover of COVID-19: Impact on the global economy. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3562570>
- Pagell, M., & Wu, Z. (2009). Building a more complete theory of sustainable supply chain management using case studies of 10 exemplars. *Journal of Supply Chain Management*, 45(2), 37–56. <https://doi.org/10.1111/j.1745-493X.2009.03162.x>
- Pattnaik, D., Hassan, M. K., Kumar, S., & Paul, J. (2020). Trade credit research before and after the global financial crisis of 2008—A bibliometric overview. *Research in International Business and Finance*, 54, 101287. <https://doi.org/10.1016/j.ribaf.2020.101287>
- Pattnaik, D., Kumar, S., & Vashishtha, A. (2020). Research on trade credit – a systematic review and bibliometric analysis. *Qualitative Research in Financial Markets*, 12(4), 367–390. <https://doi.org/10.1108/QRFM-09-2019-0103>
- Paul, S., & Boden, R. (2008). The secret life of UK trade credit supply: Setting a new research agenda. *The British Accounting Review*, 40(3), 272–281. <https://doi.org/10.1016/j.bar.2008.05.007>
- Paul, S., & Wilson, N. (2007). The determinants of trade credit demand: Survey evidence and empirical analysis. *Journal of Accounting, Business and Management*, 14, 96–116.
- Rameswari, M., & Uthayakumar, R. (2018). An integrated inventory model for deteriorating items with price-dependent demand under two-level trade credit policy. *International Journal of Systems Science: Operations & Logistics*, 5(3), 253–267. <https://doi.org/10.1080/23302674.2017.1292432>
- Rasheed, R., Rizwan, A., Javed, H., Sharif, F., & Zaidi, A. (2021). Socio-economic and environmental impacts of COVID-19 pandemic in Pakistan—An integrated analysis. *Environmental Science and Pollution Research*, 28(16), 19926–19943. <https://doi.org/10.1007/s11356-020-12070-7>
- Rashidi, K., Noorizadeh, A., Kannan, D., & Cullinane, K. (2020). Applying the triple bottom line in sustainable supplier selection: A meta-review of the state-of-the-art. *Journal of Cleaner Production*, 269, 122001. <https://doi.org/10.1016/j.jclepro.2020.122001>
- Reefke, H., & Sundaram, D. (2017). Key themes and research opportunities in sustainable supply chain management—Identification and evaluation. *Omega*, 66, 195–211. <https://doi.org/10.1016/j.omega.2016.02.003>
- Schwartz, R. A. (1974). An economic model of trade credit. *The Journal of Financial and Quantitative Analysis*, 9(4), 643. <https://doi.org/10.2307/2329765>
- Seifert, D., Seifert, R. W., & Protopappa-Sieke, M. (2013). A review of trade credit literature: Opportunities for research in operations. *European Journal of Operational Research*, 231(2), 245–256. <https://doi.org/10.1016/j.ejor.2013.03.016>
- Senge, P. M., Smith, B., Kruschwitz, N., Laur, J., & Schley, S. (2008). *The necessary revolution: How individuals and organizations are working together to create a sustainable world*. Crown.

- Seuring, S., & Gold, S. (2012). Conducting content-analysis based literature reviews in supply chain management. *Supply Chain Management: An International Journal*, 17(5), 544–555. <https://doi.org/10.1108/13598541211258609>
- Smith, J. K. (1987). Trade credit and informational asymmetry. *The Journal of Finance*, 42(4), 863–872. <https://doi.org/10.1111/j.1540-6261.1987.tb03916.x>
- Svensson, G., & Wagner, B. (2012). Business sustainability and E-footprints on Earth's life and ecosystems: Generic models. *European Business Review*, 24(6), 543–552. <https://doi.org/10.1108/09555341211270555>
- Svensson, G., Høgevold, N., Ferro, C., Varela, J. C. S., Padin, C., & Wagner, B. (2016). A triple bottom line dominant logic for business sustainability: Framework and empirical findings. *Journal of Business-to-Business Marketing*, 23(2), 153–188. <https://doi.org/10.1080/1051712X.2016.1169119>
- Taskinsoy, J. (2020). Malaysia: 'Crouching tiger, hidden dragon'. *SSRN Electronic Journal*, 1–48. <https://doi.org/10.2139/ssrn.3522206>
- Tiwari, S., Cárdenas-Barrón, L. E., Iqbal Malik, A., & Jaggi, C. K. (2022). Retailer's credit and inventory decisions for imperfect quality and deteriorating items under two-level trade credit. *Computers & Operations Research*, 138, 105617. <https://doi.org/10.1016/j.cor.2021.105617>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207–222. <https://doi.org/10.1111/1467-8551.00375>
- Vachon, S., & Klassen, R. D. (2008). Environmental management and manufacturing performance: The role of collaboration in the supply chain. *International Journal of Production Economics*, 111(2), 299–315. <https://doi.org/10.1016/j.ijpe.2006.11.030>
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171–180. <https://doi.org/10.1002/smj.4250050207>
- White, P. (2009). Building a sustainability strategy into the business. *Corporate Governance: The International Journal of Business in Society*, 9(4), 386–394. <https://doi.org/10.1108/14720700910984936>
- Wilner, B. S., Demarzo, P., Duthie, P. W., George, T., Kamien, M., Petersen, M., Richard, O., & Well, A. W. A. (2000). The exploitation of relationships in financial distress: The case of trade credit. *The Journal of Finance*, 55(1), 153–178.
- Xu, X., Chen, X., Jia, F., Brown, S., Gong, Y., & Xu, Y. (2018). Supply chain finance: A systematic literature review and bibliometric analysis. *International Journal of Production Economics*, 204, 160–173. <https://doi.org/10.1016/j.ijpe.2018.08.003>
- Yang, D., Chen, Z., Yang, Y., & Nie, P. (2019). Green financial policies and capital flows. *Physica A: Statistical Mechanics and Its Applications*, 522, 135–146. <https://doi.org/10.1016/j.physa.2019.01.126>
- Zailani, S., Krishnaswamy, J., Vengadasan, G., & Premkumar, R. (2012). Sustainable supply chain management (SSCM) in Malaysia: A survey. *International Journal of Production Economics*, 140, 330–340. <https://doi.org/10.1016/j.ijpe.2012.02.008>
- Zhou, Y.-W., Wen, Z.-L., & Wu, X. (2015). A single-period inventory and payment model with partial trade credit. *Computers & Industrial Engineering*, 90, 132–145. <https://doi.org/10.1016/j.cie.2015.08.003>

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