

Viability of Implementing Direct Interest-Free Credit Clearance System in Muslim Countries

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Abstract

This study aims to examine the possibilities of implementing direct interest-free credit clearance (DIFCC) system, which is one of the viable alternatives to solve the problems of contemporary currency system. The DIFCC, which is based on a netting system, has been implemented successfully by several countries in the conventional setting, not to replace the current fiat money system, but rather as a parallel complementary currency. In this system, the distribution of credit as money will not be monopolized by the commercial banks, rather the distribution is on a mutual basis as long as there are products or services that can be offered to others among the members. As such, the system is fairer compared to the fiat money system and is free from the prohibited elements in Islamic finance such as riba, gharar and maysir as it requires exchange of real goods and services. In the context of the Muslim countries, the negative socio-economic effects of using the fiat money will not allow the countries to attain the objectives of the Shari'ah (maqasid al-Shari'ah). This study discusses the viability of implementing the DIFCC model which essentially applies the concepts of muqasah (net-off) and hiwalah (transfer), apart from assessing the Shari'ah-compliance of the model to be implemented as an innovative product in Islamic finance.

Keywords: monetary system; alternatives; mutual credit system; Islamic finance

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INTRODUCTION

This concept paper discusses the viability of implementing a Direct Interest-Free Credit Clearance (DIFCC) system in Muslim Countries. Complementary currency system has long been seen as a viable and practical solution to economic crises, especially in the time of illiquid markets. During the Great Depression in the 1920s, the well-known economist Irving Fisher proposed to President Roosevelt the implementation of complementary currencies as an 'emergency currency' in order to solve the situation of economic depression in less than one month (Lietaer and Belgin, 2011). Examples of complementary currencies are mutual credit, commodity currency (such as gold and silver), stamp money, paper scrip and commercial credit circuit (C3). The alternative currencies system, which is also known as 'free-banking' concept, was also supported by some well-known economists such as Friedman (1994) to address the issue of monopoly of currency by the government and commercial banks. While the fiat monetary system relies solely on paper currency, the alternative currencies system enable money to be supplied by the market forces since it allows for multiple currencies to exist in the market, hence producing a more stable economy by allowing the users with some choices of money in the market (Hayek, 1976). This paper is organized into five sections. The second section presents our literature review. The third section presents our discussion on the mechanics of DIFCC. Section four discusses the viability of DIFCC from an Islamic finance perspective, and section five provides some concluding remarks.

Literature Review

In this section we provide a review of contemporary literature with regarding to complimentary currency systems. It was suggested that the usage of complementary currencies solved the problem of shortages of money and improved local economies through the higher spending multiplier (Groppa, 2013; Adam & Mouatt, 2010; Lietaer, 2001; Jorim, 2001). According to Craig and Waller (2000), in several circumstances, complementary currencies are used to solve the problems of devaluation of domestic currency, unstable banking systems and restrictions of trade. Based on cross-country experiences, Pfajfar, Srgo and Wagner (2012) suggested that complementary currencies do not act as a substitute for the fiat money but rather it is used for stimulating further the local economy and assist local interests.

From the perspective of several Muslim scholars, gold (dinar) and silver (dirham) can be used as viable complementary currency in the current monetary system (Meera, 2009; Imran, 2007; Vadillo, 1991) Critics, however, asserted that it is quite impractical to use gold and silver as money in the current market as long as the existence of the legal tender fiat money remains (Hoe, 2012). In the context of modern economic setting, the Gresham Law states that bad money will chase the good money out

(Meera, 2009; Lietaer, 2001; Friedman, 1994; Bernstein, 1965). In fact, in Islam the means of exchange is not limited to these metals. Imran (2007) believes that the usage of ‘consumption commodities’² as money such as sugar is possible, especially in the event of shortages of gold and silver supply in the market. Meera (2013) suggests that the usage of credit clearance based on real money as a complementary currency, can be used as an alternative to the current fiat money system. In this context, the concept of credit is adopted just like the usage of ‘credit card’ among individual and ‘bank overdraft’ among business. Therefore, the implementation of direct interest-free credit clearance (DIFCC), which is a payment and netting system can be considered as one of the best alternatives to the fiat money system.

According to Blanc and Fare (2013), Martignoni (2012), Pfajfar, Sgro, and Wagner (2012), Blanc (2011) and Schraven (2004), currently the most popular community currency is mutual credit currency. Lascelles (2004) asserts that in the late twentieth century, there was a rise in the adoption of the mutual credit currencies by societies mainly due to the world-wide globalization. While capital flows to the country that offers the greatest potential return, the outflow of capital eventually leaves some of the local economies poor and undeveloped, thus encouraging local community currency.

Credit clearance can be considered as the best complementary currency based on the case of barter club called Nodo in Argentina (Pearson, 2003). In this case, the barter club did try various types of complementary currencies such as the double-entry cards, receipts, cheques, bonds and vouchers. Finally, the club settled on by the mutual credit system with a unit of accounts called “nodine”.

The mutual credit clearance system is also known as one of the most prevailing complementary currencies (Jorim, 2001) with the implementation of Local Exchange Trading Systems (LETs). LETs is applied in various countries but it is usually bounded locally. The system improved the local economy by increasing the local economic multiplier. Trade therefore is increased and it can mitigate unemployment problem (Lascelles, 2004). It is an interest-free system, which is a local credit issued by the network members.

Another current example of a successful credit clearance system is the Vermont Business for Social Responsibility (VBSR) Marketplace in the USA. This business-to-business credit clearance has existed since 2007 using paper script, but it

2. Based on the hadith: “Abu Said al-Kudri reported Allah’s messenger as saying: “Gold for gold, silver for silver, wheat for wheat, barley for barley, dates for dates, salt for salt. (when transaction is) like for like, payment being made on the spot, then if anyone gives more or asks for more, he has dealt in *riba*, the receiver and the giver being equally guilty.” (Sahih Muslim, The Book of Transactions:3852)

did not fully succeeded. Later, the system changed to the credit clearance system and it increased the number of participants and showed some progress economically and socially (Kirschner, 2011).

The WIR³ in Switzerland is another example of a successful mutual credit system. Lietaer (2001) claimed that WIR can be considered as the best community currency because it is one of the oldest continuous complementary systems in the modern western world. Initially known as WIR Cooperation, the system later changed its name to WIR Bank. The system was founded by two Swiss businessmen, who were influenced by German economist Silvio Gesell, who promoted the concept of free money and demurrage. At the initial stage, the system is interest free, but in 1952 the system relinquished the idea of free money by implementing interest charge in the system. According to Stodder (2009), WIR helped to stabilise the Swiss economy during recession by saving small and medium business during the Great Depression in 1929 from the risk of bankruptcy as the supply of money shrank. It is believed that the WIR Cooperation system still exists due to the collateral assets placed as pledge for each transaction (Jorim, 2001).

Direct Interest-Free Credit Clearance System: Definition, Modus Operandi and Issues

Definition and Concept of Credit Clearance System.

Direct interest-free credit clearance (DIFCC) is also known as ‘credit clearance system’, ‘nett-off’, ‘credit clearance’, ‘reciprocity exchange’, ‘collaborative credit’ or ‘mutual-credit system’. According to Greco (2013), credit clearing is “a process that enables reciprocal exchange without the use of conventional money or the need to take loans from the banks”. If implemented accordingly, the DIFCC can be the best system to return credit monopolized mostly by commercial banks to the public. The DIFCC, which is essentially based on a mutual credit system is actually practiced widely throughout the globe, particularly in the developed nations. Examples of the existing credit clearance system as a complementary currency are Swiss Economic Circle (WIR) in Switzerland, Fureai Kippu in Japan, Local Exchange Trading Systems (LETS), Time Bank, BerkShare in Massachusetts and Ithaca Hours in Colorado. It is obvious that Switzerland is famous for the oldest complementary currency in Europe operated by the WIR Bank (formerly known as WIR Cooperation) that was established after the Great Depression in 1927 and continued to remain operative until today.

There are two main types of mutual credit systems, namely the peer-to-peer system

3. WIR is an acronym for Wirtschaftsring means ‘economic circle. WIR was initiated after the First Great Depression by two Swiss businessmen; i.e. Werner Zimmermann and PaulENZ., who were followers of the economist Silvio Gesell.

and business-to-business system (Greco, 2001; Lietaer, 2001; Jorim, 2001). The former system refers to a group of members as an individual that is usually designed to provide social needs such as health care and education. An example of a peer-to-peer system is Fureai Kippu in Japan, which is created for social services such as to serve the elderly people in Japanese society. Most of this type of mutual credits is based on trust of the members, as each member believes to serve the other. Meanwhile, the business-to-business system refers to the group of business especially small and medium-sized businesses that are designed for trading purposes. The WIR in Switzerland is an example of a successful mutual credit system for business to business. According to Stodder (2009), the WIR contributes significantly to the stability of the Switzerland economy and the country's low unemployment rates as it provides "residual spending power that is highly counter-cyclical".

Modus Operandi of Credit Clearance System

The credit clearance system works by using pure accounting entries of exchange without any initial cash stock and central authority (Jorim, 2001; White, 1984; Fama, 1980; Black, 1970). The system requires all members to maintain an account with the central administration such as a clearing-house. Based on a self-regulating system, each member is allowed to utilize the credit as money supply within their credit limit. Thus, all the transactions are transferred between the accounts using a certain type of 'unit' of accounts that are agreed upon. Initially, the system uses a ledger or system of accounting for recording purposes, and provides some circulation notes among members. But currently, the computerized system is taking place either using the electronic card or the smart phone.

In the beginning of the system, each member is given a certain amount of credit. Then each member's account is credited (positive or increase balances) whenever a member is selling or delivering services to other members (Table 1). On the other hand, member's account is debited (negative or decrease balances) once the member buys goods or services from another member (Greco, 2009; Riegel, 1940). According to Riegel (1940), the previous transaction was used as money (i.e. unit of account) as it did not simply exist until it was accepted in the exchange between the buyer and seller. He believed that there are two factors in each transaction. The first factor is a buyer who issues it, and the second factor is a seller who accepts it in each transaction. This transaction will be operated within a group of community where the buyer in this system makes a promise that by issuing a monetary instrument. The buyer will redeem it in future through future sale of his goods and services. Thus, money in this system is backed by "the credit as surrendered value by the seller and potentially backed by the debit as possession's value by the next seller" (Riegel, 1940). In this system, money plays the role as unit of account, thus enable the system to operate merely on the

accounting system of debit and credit. All the bookkeeping of the ledger entries are administered by a middle entity such as the clearing house.

Table 1: Illustration of Direct Interest Free Credit Clearance (DIFCC)

	A sells to:	B sells to:	C sells to:	D sells to:	E sells to:	Total Credit Purchases	Balances after netting (at the end of the month):
A	-	200	150	300	50	700	+200
B	100	-	350	250	300	1000	-300
C	250	250	-	150	50	700	+200
D	300	150	150	-	300	900	0
E	250	100	250	200	-	800	-100
TotalCredit Sales	900	700	900	900	700	4100	-

Notes: 1. Transactions of credit sales and credit purchases among parties (in a month).

2. Numbers are reported based on currency value such as ringgit Malaysia (RM).

In this system, the credit outstanding can be considered as ‘money supply’ (Greco, 2009). The credit outstanding as money supply is reduced when someone buys something and increased when someone sells something within the system. Therefore, in this system the supply of money is flexible as it fluctuates whenever there is a trade among members (Blanc and Fare, 2013; Greco, 2009). Each individual might have negative or positive balances, but the total aggregate of debit and credit in this system must always be equal.

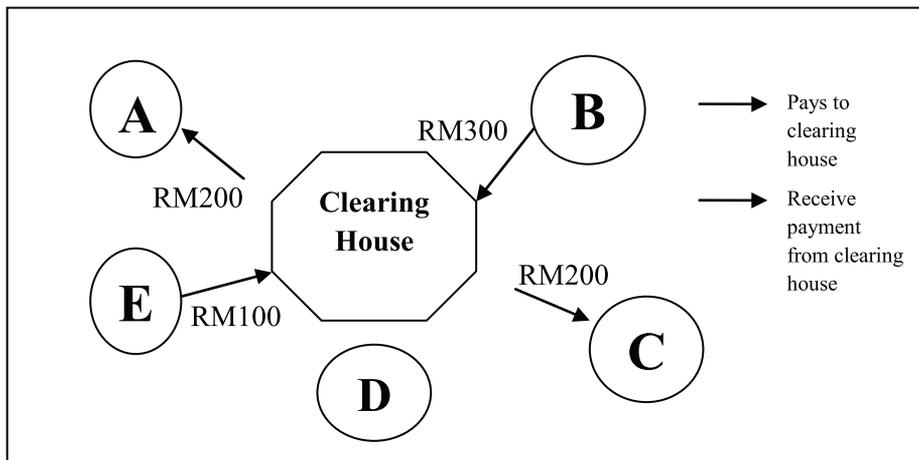
At the end of the month or any other short term period, the system nets off the debit and credit balances by the third entity such as the ‘clearing house’. Greco (2009) defined the netting system as “in multiparty clearing what you owe to one party can be cleared or netted against what some other party owes to you”. This type of clearing process is an accounting offsetting of the debits (occurring from purchases) against credits (occurring from sales). The goods/services that someone sells will pay for those that someone else buys. This transaction was explained by Bilgram and Levy (1914):

“If there were no money, any system of crediting sellers and debiting buyers would be fully competent to accomplish the work now performed by money.”

Therefore, a member might have positive balances when the sales are greater than the purchases within the group (Figure 1). Whereas the negative balances are the results of when the purchases by a member are being greater than the sales within the group. In

the example of multi-party clearance as in Figure 1, the balances can be settled by the members paying the differences to each other. Thus, the entire trade of RM4100 is settled with only RM400. Thus the total credit difference is RM400, will be paid by B (RM300) and E (RM100) to the clearing house. B and E will receive RM200 each. As for D, he will not pay or receive any payment as his sales and purchases are in equal amount.

Figure 1. Multi -party Clearance/Settlement of DIFCC



The balances might fluctuate as either positive or negative in the short-term period. It is believed that in a well-administered system, the balance of accounts will sum to zero in the long run (Greco, 2009; Jorim, 2001). As a result, in this system, the usage of third party's credit instrument such as loan from the banking system that carries certain interest charges can be avoided (Greco, 2009; Lietaer, 2001). This system shows that the group of sellers and buyers can utilize the credit among themselves. The clearing process has also been used for a long time among the banking system to offset claims of cheques among each other through the clearing-house (Greco, 2009). Thus, this settlement needs only transfer of small nett balances at the end rather than transferring the total amount.

3.3 Issues in DIFCC

Despite simplicity in its concept, there are several issues in the implementation of the DIFCC:

(i) Service costs

While all the credits issued by the members are free and without the involvement of central authority, the associated costs in implementing the system such as printing, bookkeeping and administrative expenses are paid for by the members. According to

Greco (2009), the system might charge an annual fee and ‘fee for services’ (Greco, 2009) such as charging a small fee for each amount cleared. This service cost is debited to the members’ accounts and credited to the administration accounts. According to DeMeulenaere (2006), account opening fee is the most common used by complementary currency system, followed by transaction fees, annual fees and “demurrage” fees.

(ii) Demurrage

Demurrage (negative interest rate) is promoted by Silvio Gesell (1929) who promoted the ‘free money’ concept in order to separate money’s medium of exchange function from its store of value function. The renowned economist John Maynard Keynes (1939) praised the Gesell’s idea by mentioning that the future generation will learn more from Gesell’s idea than adopting the Carl’s Marx’s idea (Jerome, 1998). Even Irving Fisher advocated Gesell’s idea of demurrage by verifying it in his books titled ‘Stamp Scrip’ (1933) and ‘Booms and Depressions’ (1932). Gesell believed that money should be used as a medium of exchange and not as a store of value. Whenever the negative interest rate (or sometimes referred to as “rust rate”) is implemented, money does not work well as a store of value. Furthermore, demurrage will reduce hoarding and encourage spending in the market (Greco, 2009, and Gesell, 1929) and encourage long term and sustainable investments (Seyfang and Longhurst, 2011). Therefore, the usage of demurrage will increase the velocity of money (Lietaer, 2001). For example, the WIR Cooperation implemented this concept in order to encourage the members to trade actively in the system, but discontinued in 1948 (Godschalk, 2012). Once the velocity of money increases, it will produce greater prosperity for all in the community (Gesell, 1929). Besides, Lietaer (2001) believed that the sustainability of resources and development are positively related to the demurrage system⁴. He believed that the demurrage fee of three to four percent per annum is effective for any mutual credit currency system. Thus, in the mutual credit system, the demurrage cost will be levied upon the credit (positive) balances in order to encourage the member to participate actively in the system. From the Islamic perspective, the concept of demurrage is almost similar to the concept of zakah, where its practical implementation issues can be an area for future research.

(iii) Cost to cover bad debts

According to Riegel (1940), the board of members (or administrators) should set up some amount of reserves against ‘losses’ (or in accounting terms as doubtful debt) from a small percentage range from 1\20th to 1\10th of a percent of sales per month.

4. It is believed that the impressive prosperity during the first European Renaissance, Pharaonic in Egypt and Islamic civilization is positively related with the implementation of the demurrage system (Lietaer, 2001).

Whereas, Greco (2001) believed that in order to cover the bad debt amount, the system must have the insurance pool or 'reserve for bad debts' that might be covered by the revenue of the system.

(iv) Interest charge

There are no interest charges since the middle person (such as a clearing house) would take no credit risk on the credits issued (Lietaer, 2001; Jorim, 2001; Greco, 2001; Riegel, 1940; Gesell, 1929) and acting only as administrators and bookkeepers. At the same time, only the members as traders (buyers and sellers) would be allowed to extend the credit and the clearing house would not be involved in the credit issuance. Lietaer (2001) believed that positive interest rate contradicts with sustainable use of resources and development. In the case of WIR Bank, however, the free-interest concept was abandoned in 1952 by allowing the implementation of low interest-rates on loans provided by the system.

(v) Balance limit and settlements

Each member is given a certain credit limit; i.e. how much credit each member is permitted to issue (for buying goods and services) before being obliged to cancel out an equal sum of debit (i.e. by redeem it through sales). According to Riegel (1940), the credit limit for each member is based on the "capacity to sell"; i.e. each member has a different capacity depending on the types of trade industry and profession. Riegel (1940) also believed that the "capacity to sell" should be determined by the actual exchange and not prospective exchange and can be determined through experience or estimation. Whereas, Greco (2001, 2013) believed that the credit limit for each member should be based on the rule of thumb that is one hundred days or three months average sales.

After netting off at the end of the period, the balances of the accounts will be presumably settled by cash or through transfer of financial claims or assets. However, Greco (2009) believed that if any member whose settlement balance is continuously negative would soon be declared insolvent. He argues that the cash settlement might be needed only to build confidence in the beginning of the system. Thus, once the system is strongly established, the balances might not need to be settled by cash but rather can be brought forward to the next period. Greco believed that the balances can be considered as 'money supply'. Therefore, an issue that arises here is whether the balances after the netting off can be considered as money supply in shari'ah. Thus this issue needs a further research. Whereas, Riegel (1940) believed that the credit should have no term, but should be in nature of a 'call credit'. This is because, the issuance of credit by each member is limited to the credit limitation given to each member at the initial stage of memberships.

(vi) Current vs. capital account

Greco (2009) believes that there is a possible approach to deal with the idle balances of debit or credit that could be carried over to the next period. The entire excess amount should be “cleared” to a capital account. The purpose of the capital account is to be used for the long term financing of the debit balances and investment in order to ‘save’ credit balances. Thus, the credit clearance system does not only provide the exchange system, but at the same time it can serve as capital market for capital formation (investment) and savings (as storage of value). This is quite a critical and controversial issue in shari’ah and even in conventional economics as to whether the credit and debit balances can be transferred and utilized by others. However, other authors such as Riegel and Gesell have no similar idea as Greco on this issue.

(vii) Unit of account

Unit of value (i.e. based on something real) is needed in order to have a long-term price predictability (Martignoni, 2015; Adam and Moutt, 2010). Collins, Schuster and Greenham (2012) assert that the usage of anchor money can help restoring trust in community, preventing ‘virtual wealth’, preventing instability and sustaining the ecology. The WIR in Switzerland, for instance, has direct convertibility with the national currency at the same unit (Lietaer and Belgin, 2011). Alternatively, Greco (2009) suggests that the national currencies can be used in the beginning of the system, and after the system runs smoothly, other types of unit of account should be used in order to avoid inflationary effects. For example, Mann (1998) proposed the usage of currency unit called “Riegel” to be valued with Consumer Price index (CPI). Basket of commodity can also be used as the unit of account (Greco, 2009; Lietaer, 2001). For example ‘Terra’ (The Trade Reference Currency) proposed by Lietaer (2001) is based on a basket of the nine to twelve primary commodities which is believed to be inflation-resistant. Another type of unit of account is the usage of ‘hour’. For example, the unit of account mutual credit system in Japan of “Fureai Kippu” is based on the hours of service rendered to an elderly person, while the “Time Dollar” is based on the hours of service as a unit of account (Katai, Shise and Kawakami, 2004). Greco (2009) also believed that the commodity standard such as the gold price and energy standard such as the kilowatt hour of electricity that might also be used as a unit of account in any type of mutual credit system. Most of the monetary reformists believe that the system should try to avoid the national currency as a unit of account because it is not based on any ‘value’ of thing (Greco, 2009, 2001; Meera, 2004; Lietaer, 2001) but it is a volatile as it depends on the demand and supply in the international market.

(viii) Collateral assets

A collateral asset is any property or any valuable assets that a borrower offers to lender

in order to secure a loan. Thus, if the borrower failed to pay loan reimbursement, the lender can seize the collateral to recoup its losses⁵. It is believed that the value of collateral assets is used only in a case when the members failed to clear up all debts within the system. For example, it is proven that the WIR cooperation (or now known as WIR Bank) can survive until today due to the implementation of collateral assets. The balances of each member are pledged with real estate assets, especially in the form of second home mortgage by the members (Greco, 2009; Lietaer, 2001). Meanwhile, Greco argues that the value of such collateral cannot be the basis for setting the debt limit on the account. He assists that the value of credit limit should be based on the average of sale value made by the members.

Advantages of Mutual Credit System

The mutual credit system has several advantages particularly in addressing the issues associated with the fiat monetary system. Firstly, this system is proven to be able to withstand recession. Lietaer and Belgin (2011), Stodder (2009), DeMeulenaere (2000) and Philips (1994) agreed that the mutual credit is a more readily available credit compared with the national currency especially during economic recessions. This is based on the experience during the financial crisis 2008, the mutual credit's users of TEM (Local Exchange Unit) in Volos, Greece, were able to trade goods and services even though there was decrease in earnings due to the shortages supply of Euros (Stuckatz, Summerson, Kiesgen, Ruß, and Klimaschewski, 2015; Lietaer and Belgin, 2011). Fesenfeld etc (2015) and Pearson (2003) believed that this system can solve the problems during the time of economic crises especially when the personal savings of the poor and middle class are frozen.

(i) Low cost of implementation

The system can easily be implemented by a small-scale society, using a ledgers' book and some board (Eisenstein, 2011 and Greco, 2009). In an advanced system, specialist software, such as the Community Exchange System (CES) software is utilized by varied users in seventy-two countries. It is believed that it is cheap in terms of transaction and management costs (Jorim, 2001). The advancement of a smart-phones by the online communities, offers a new capabilities to use this currency as a means of payments and transfer. Peruta and Torre (2012) predicted that the usage of smart phone will encourage the usage of this currency at higher rate for the following years ahead because it is cheaper and ease to use.

5. <http://www.investopedia.com/terms/c/collateral.asp>

(ii) Interest free

The system does not burden the users because it is an interest-free credit system. Ruddick, Richards and Bendell (2015) asserted that mutual credit or also known as collaborative credit can be considered as the best alternative compared with micro-finance mainly due to its free interest charge and credit can be created among members. Initially, all mutual credit systems are interest free (Lietaer and Belgin, 2011; Greco, 2009; Lascelles, 2004). Thus, the system will not burden the society as the supply of money in credit-form is cheaper compared with credit the conventional banking system (Fesenfeld et al., 2015 and Yen, 2011). Lee (1995) asserted that the mutual credit system can be considered as 'public service bank' without any interest charge that will promote local economy.

(iii) Easy accessibility

In this system, credit can easily be accessed by the society. According to Bendell and Greco (2013) and Greco (2009), in the current official monetary system, the distribution of money as credit is based on preferred access by the commercial banking system which requires collateral as a pre-requisite to lending. Thus, it is quite difficult for the poor to access credit in view of lower credit rating and lack of collateral (World Bank, 1997). On a contrary, in the mutual credit system, the distribution of credit as money is based on membership as long as the person has a product or service that can be offered to others. Thus, credit as money in this system, can be accessed easily by each member and is no longer scarce in the society (Ruddick, Richards, and Bendell, 2015; Greco, 2009; Lascelles, 2004).

(iv) Market-friendly

The mutual credit system is market-friendly since it matches the supply and demand (Gómez, 2010; Jacob, Brinkerhoff, Jovic and Wheatly, 2004; Jorim, 2001) especially to low-income society (Lasker etc, 2011; Seyfang, 2001, 2002, 2003). Through the regular publication of advertising, each member can be informed on what other members have to offer and would like to buy (Petri, Rana, Silaghi, 2010; Jorim, 2001). Peruta and Torre (2015) asserted that this system improves the efficiency of informal sector activity by attracting the low-income level, i.e. unemployed and retired people to join the system. First, this system can assist this group to overcome the double coincidence of wants and necessity by preserving their minimal consumption (Peruta and Torre, 2012; Williams, 1996; Seyfang, 2001, 2002, 2003; Ozanne, 2010; Lasker etc, 2011). Secondly, the system contributes to maintain and develop unemployed workers' skills in order to be employed in future or encourage development of self-employed (Gomez, Helmsing, 2008; William, 1996)

Even though credit clearance has proven to be one of the best types of complementary currencies, the system has some drawbacks, which are discussed in the next section.

Possible Obstacles in Implementing Mutual Credit System

There are several possible obstacles in the implementation of the mutual credit system. First is the issue of the ‘credibility’ of the system referring to the soundness of the system especially among the existing and prospective members (Jorim, 2001). There are possibilities that opportunist members exploiting the system by running up negative balances and quitting from the system. The case of over-issuing credit might also cause individuals, and finally the system to default on outstanding debts. For example, the collapse of Australian Baytown LETS can be associated with poor administrative practices (Jackson, 1997). Surprisingly, the system collapsed with a positive final aggregate balance of 2100 green dollars, due to several debtors’ withdrawal from the system. This problem can be identified as one of the real and most challenging to the mutual credit system as the system is depended on the credibility of its members.

Second, the issue of the intervention of the government and other authorities to halt the system as the power of money supply is not in the hands of the central authority such as government to control it (Greco,2009; Jorim, 2000). It is believed that the main external obstacle to implement this system is an approval of the authority such as a government (Greco, 2009; Jorim, 2001; Riegel, 1940). The government might halt the system because it is believed the system will threaten the current monetary system (Seyfang and Longhurst, 2012). This is actually happened in Germany in 1934 when the national-socialist regime banned the mutual credit of *Ausgleichskassenon*. The system is prohibited due to the reason of “abuse of cashless payments” (Godschalk, 2012).

Third, the issue of inadequate scale and scope of operation might also result in the system to be unsustainable. According to Greco (2009), there are several aspects of scale and scope. First is the failure to achieve critical size of the participant. This might be due to there are no varieties of goods and services provided by members in the system. Second is the failure to attract participants from all levels of the supply chain; from the production to the distribution circuit. According to Greco (2009), the levels of supply chain referred to the retailers, wholesalers, manufacturers, basic commodity producers, employees, and consumers. Lastly, is the failure in the system to gain cooperation among the mainstream business community. The system might need a wider geographical area in order to make sure that all levels of supply chain are included.

Fourth is the issue of “white-washer” by free-rider, which is referring to free-rider⁶ who intentionally leaving and joining the system with new identities. The white-washer exists in the virtual mutual credit system through internet (Saito and Morino, 2010). According to Feldman, Papadimitriou, Chuang, and Stoica (2004), there are two ways to prevent the white-washer. Firstly, by giving ‘irreplaceable pseudonyms’ that is a unique identification issued by central authority such as identification certificate (Castro, Druschel, Ganesh, Rowstron and Wallach, 2002), and secondly, by the imposing penalty to all new comers whether they registered are as genuine newcomers or as white-washers (Feldman, and Chuang, 2005; Feldman, Papadimitriou, Stoica, and Chuang, 2004). Penalising new comers can be an effective way to discourage the white-washer and will improve the system performance (Friedman and Resnick, 1998). However, this penalty might increase social cost if it is implemented in the system with high turnover rate⁷ (Feldman, Lai, Stoica, and Chuang, 2004).

Implementation of Direct Interest Free Credit Clearance in Islamic Finance

Unlike the other payment systems such as barter, short-term finance, and long-term debt, the DIFCC is almost never being implemented in Islamic finance. The implementation of DIFCC is possible based on the rules of *dayn* (short-term debt), *muqassah* (net-off), *hiwalah* (transfer of credit), *wakalah* (agency), *ujrah* (administrative cost) and *kafalah* (guarantor).

In the beginning of the system, each member is given a certain amount of credit that can be utilized for buying and selling of goods and services within a short-term period such as in a month. In this system, the member’s account is credited (as a positive or an increase balances) whenever a member is selling or delivering goods and services to other members. The account is debited (as a negative or decrease balances) whenever the member buys goods or services from another member. It is obvious that this concept is similar with the concept of short term debt (i.e. debt less than a year) in Islamic finance. Islamic scholars unanimously agree that the concept of *dayn* of short-term credit between each party is allowed as long as it is based on real economy transaction as reflected by the delivery of real merchandise or services. Thus, all transactions should be based on real goods and services and should not be a merely paper financial instrument’s transactions.

6. Free-rider can be defined as when a person in the system continuing as a member by acquiring goods and services from another members without intentionally to redeem the debt.

7. The rate of which members entering and exiting the system.

At the end of the month, the amount of credit and debit of member's accounts will be balanced off. Thus, the balances of accounts will be net-off between each member. The netting system in DIFCC is similar with the concept of muqassah in Islamic finance. The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) defines al-muqassah as obliterating a debt on the debtor, by the creditor, in exchange for similar debt. The netting-off is possible when parties (might be two or more person) has similar amount of debt that can be cancelled off between each other. Most of Islamic scholars emphasize that this concept can be applied as long as it is not involved the concept of riba (interest), gharar (uncertainty), and maysir (gamble). Furthermore, it is encouraged that this system be adopted in Islamic finance, because it based on the concept of taa'wun (cooperation) and encourage fairness in society. Furthermore, the users in this system will be less dependent on the commercial banking credit that attached with interest such as credit card and overdraft.

After the netting off, some member might have a similar amount of due and owe to different parties. Thus, the concept of transfer of debt can be applied to cancel off the credit amount among different parties. Furthermore, in certain cases, some party might certificate the debt amount and use it to buy some goods and services from another party within the system. Thus, the transfer of credit in this system is almost similar with the concept of hiwalah in Islamic finance. AAOIFI defined the concept hiwala-had-dayn as the transfer of debt from the transferor (muhil) to the payer (muhal'alayh). According to AAOIFI (Shari'ah No. 7, Clause 2), hiwalah is a legitimate and independent in order to facilitate payment and recovery, and it is not a contract of sale.

In this system, all transactions are maintained by a 'clearing-house'. The clearing-house is functioning as a score-keeper that maintains an account for each member against which credit or debits are recoded. The functions of clearing house can legally justify under the concept of al-wakalah (agency) and ujah (administrative cost). All the transactions might also use the kafalah as a guarantor for each debt.

In terms of shari'ah compliancy of the DIFCC, a survey done on Islamic finance scholars find that the scholars are unanimously agreed that the above transactions are shari'ah compliant based on the muqassah (net-off) and hiwalah (transfer of credit) principles. Most of them believe that there must be consent by all parties before entering the transactions. Some also emphasize that the contract must avoid the riba (interest), gharar (uncertainty), maysir (gambling) and zulm (injustice). As for the issue of clearing-house, the principle of wakalah bil-ujrah can be applied. The period of transaction and job description must be stated clearly prior the contract in order to avoid disputes by all parties such as by signing the service level agreement (SLA). Lastly, a respondent argues that all the parties should know each other. The participants must acknowledge from whom the goods and services are rendered by and the exact

amount of transactions and the credit balances. In the era of modern and advance telecommunication today, it is a non-issue to ensure the participants are familiar with each other's identity. The usage of e-account can be provided by the clearing house in order that each member knows the current credit balances utilized by each member.

Conclusion

This study finds that there is high possibility of implementing the direct interest-free credit clearance (DIFCC) system, particularly in the Muslim countries. The DIFCC is shown to be an effective mechanism that could help to solve the various problems of a fiat money system. The DIFCC system is fairer compared to the current fiat system since each transaction in the system involves real exchange of goods and services. The system is also shari'ah compliant as it is clear from the prohibited elements in Islamic finance. More importantly, the system has several advantages that can help the Muslim countries to achieve the objectives of socio-economic justice as highlighted in the maqasid al-shari'ah. In view of this, the authorities in the Muslim countries should provide their support in the implementation of this system so that the ills of the fiat money system can be solved and do not adversely affect the Muslim countries.

While the DIFCC has been widely adopted in the conventional economic setting and currently provide the alternatives to society predominantly in the developed countries, its implementation in the Muslim countries, which are largely developing countries would require the support from the authority as there are several obstacles in the practical implementations of the system.

Apart from enable the Muslim countries to achieve a more balanced economic growth, thus achieving the maqasid al-shariah, the implementation of the DIFCC model would also reflect continuous innovation in Islamic finance. The model, which essentially applies the contracts of muqassah (nett-off) and hiwalah (transfer), enables more meaningful participation of the economic units and greater economic activity on the basis of mutual cooperation and the spirit of brotherhood.

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Appendix 1

ZDIFCC: Accounting Illustration

This illustration shows the accounting treatment to the nett off for multiparty clearing with multiple transactions. In this case, Mr A, Mr B and Mr C, Mr D and Mr E agreed to have sales and purchases based on credit among them. All parties in this case, agreed that their direct credit clearance trading assisted by a clearing house. The maximum credit that can be utilized by each member is RM1000. The summary of total credit sales and total credit purchases are as following:

Dr <u>Mr A</u> Cr	
Total Credit Purchase RM 700 Receive payment from Clearing house RM 200 <u>Total RM</u> 900	Total Credit Sales RM 900 <u>Total RM</u> 900
Dr <u>Mr B</u> Cr	
Total Credit Purchases RM1000 <u>Total RM</u> 900	Total Credit Sales RM 700 Payment to Clearing house RM 300 <u>Total RM</u> 900

Dr<u>Mr C</u>		Cr	
Total Credit Purchase	RM	Total Credit Sales	RM
700		900	
Receive payment from Clearing house	RM		
200			
Total	RM	Total	RM
900		900	
Dr<u>Mr D</u>		Cr	
Total Credit Purchase		Total Credit Sales	
RM900		RM900	
Total	RM	Total	RM
900		900	
Dr<u>Mr E</u>		Cr	
Total Credit Purchases		Total Credit Sales	RM
RM800		700	
		Payment to Clearing House	RM
		100	
Total	RM	Total	RM
800		800	

DrSummary of Credit Sales and Credit Purchases		Cr	
Total Purchases By:		Total Sales By:	
Mr A	RM	Mr A	RM
700		900	
Mr B		Mr B	RM
RM1000		700	
Mr C	RM	Mr C	RM
700		900	
Mr D	RM	Mr D	RM
900		900	
Mr E	RM	Mr E	RM
800		700	
Total		Total	RM
RM4100		4100	
DrSummary of Clearing House		Cr	
Payment from:		Payment to:	
Mr A	RM	Mr A	RM
0		200	
Mr B	RM	Mr B	RM
300		0	
Mr C	RM	Mr C	RM
0		200	
Mr D	RM	Mr D	RM
0		0	
Mr E	RM	Mr E	RM
100		0	
Total	RM	Total	RM
400		400	

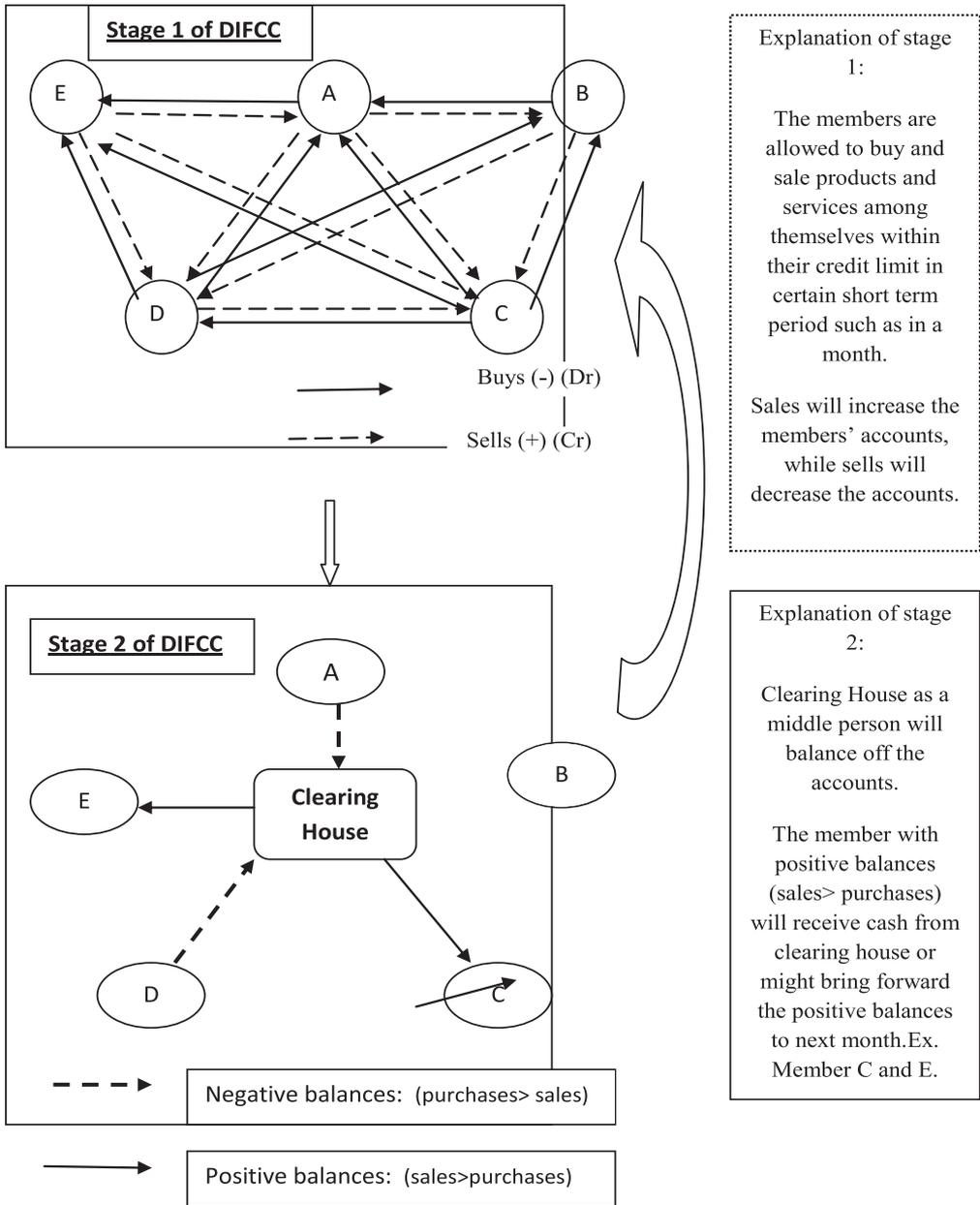


Diagram 1: The Flow of Direct Interest Free Credit Clearance (DIFCC)

Stage 1 is at the beginning of the month, followed by stage 2 –i.e. netting system- at the end of the month. Then, in the next month, the members will begin stage 1 again.