**SUPPLY CHAIN FINANCE: NEW HORIZONS**

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**Introduction**

Supply Chain Finance (SCF) is not a new phenomenon, however it has been given more importance by the business community since the financial crisis of 2008/09 because many organisations faced the lack of available funds due to the economic downturn. In 2012 Prime Minister David Cameron stressed the importance of cash flow as an enabler of growth when announcing a new SCF initiative:

 *“This Government is determined to back all those businesses who aspire to get ahead and take on more people. In the current climate, viable businesses can struggle to get the finance they need to grow - this scheme will not only help them secure finance and support cash flow, but will help secure supply chains for some of our biggest companies and protect thousands of jobs. It can be a win-win, with large companies and small suppliers both benefiting from this innovative scheme.”*

However, a research study conducted by R3 in 2016 identified that late payments are still an issue:

*“A survey of the insolvency profession reveals that late payment for goods or services was a primary or major cause of 23% of insolvencies in the last twelve months, while the failure of a supplier or customer was the primary or major factor in 20% of cases.”*

SCF solutions enable organisations to shorten their cash-to-cash cycles, improve their liquidity, enhance financial performance and build financially sustainable demand chain networks. Hence, SCF provides an opportunity to create a win-win solution for buyers and suppliers, a win-win-win for buyers, suppliers and financial providers or even a multiple-win (Templar *et al*., 2016). A recent study by Greensill (2018:5) estimates the accounts payable market:

 *“We believe it is in excess of $3.5 trillion and the volume of outstanding SCF assets at about $100 billion.”*

Therefore, there is a big question: how will SCF develop in the near future?

**Literature review**

Cosse (2011:33), defines the most common approach to SCF as a:

 “*buyer-driven payables solution, mainly referring to any types of reverse factoring solutions, supported by the appropriate IT technology”*.

Therefore, a typical SCF ecosystem consists of a four-party model which includes the supplier, the buyer, the supplier’s bank and the buyer’s bank. Figure 1 illustrates the four-party ecosystem model together with the three flows (financial, physical and information) that are present within the SCF ecosystem (Templar *et al*., 2016:151).

Seller’s bank

Buyer’s bank

Seller

Buyer

Information flow

Flow of goods and services

Financial flow

Figure 1: Four-party model and associated flows

Fairchild (2015) extends the SCF ecosystem further with the addition of the technology/platform provider and the Global Supply Chain Finance Forum (2016:8) includes the technology platform provider in their SCF definition:

*“Supply Chain Finance is defined as the use of financing and risk mitigation practices and techniques to optimise the management of the working capital and liquidity invested in supply chain processes and transactions. SCF is typically applied to open account trade and is triggered by supply chain events. Visibility of underlying trade flows by the finance provider(s) is a necessary component of such financing arrangements which can be enabled by a technology platform.”*

However, Camerinelli (2010) argued that there are more SCF stakeholders including consultants, logistics providers, credit card providers, associations and governments.

There is a considerable range of SCF instruments and Cosse (2011:42) classified these instruments by the components of working capital cycle (Days In Inventory [DII],Days Sales Outstanding [DSO] and Days Payable Outstanding [DPO]), reduce operational risk and costs as depicted in Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| **Reducing DSO** | **Increasing DPO** | **Reducing DII** | **Reducing Operational Risks/costs** |
| * Forfaiting/Discounting
* Factoring
* Distributor finance
* Trade receivable backed financing
* Pre-shipment financing
* Post-shipment financing
* Early payment discount programme
* Collateral management
 | * Reverse factoring /confirming
* Extended payment terms
* Purchasing card
 | * Warehouse finance
* Goods in transit finance
* Vendor managed inventory
* Financing of supplier’s inventory
* Trade acceptance discounting
 | * Cash management and e-banking
* Processing service/platforms
* Pre-shipment buyer credit risk protection
* Letter of credit
* Open Account
* Foreign Exchange and interest rate hedging
* Credit Insurance
* Investment financing
 |

 Source: Cosse (2011:42)

Table 1: Supply Chain Financial Instruments

The influencing factors which have an impact on the future development of SCF identified from the literature include technology (Auboin *et al.*, 2016), regulation (Deng and Lu, 2017 and More *et al*., 2012), people (Hofmann and Belin, 2011 and Martin and Hofmann, 2016) and industry environment (Canitato *et al.*, 2017, More *et al.*, 2012 and SCF Briefing, 2017) and are illustrated in Figure 2.

Figure 2: Factors influencing SCF Future

**Research method**

The justification for adopting a case study research approach to the study was based on Yin’s (2003:1) selection criteria:

*“In general case studies are the preferred strategy when how or why questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context.”*

The research study met Yin’s criteria as its aim was to investigate how SCF will develop in the near future. The focus of research study is the SCF ecosystem, which is a contemporary phenomenon set in a real-life context and the researcher has no control over SCF events. The study’s research method is depicted in Figure 3.



 Source: Adapted from COSMO Corporation, cited in Yin (1994:49)

Figure 3: Research Logic

Primary data was collected using semi-structured interviews. Nine SCF stakeholder types were identified by the literature:

|  |  |  |
| --- | --- | --- |
| * Buyer
* Supplier
* Technology providers
 | * Government
* Consultants
* Credit card providers
 | * Financial providers
* Logistics providers
* Associations
 |

However, it was not possible to gain access and insights from two stakeholder groups (government and credit card providers). The final interview set comprised of 7 stakeholder groups and 14 interviews were conducted (buyer [B], supplier [S], 3 technology providers [TP1, TP2 and TP3], logistic provider [LP], 3 consultants [C1, C2 and C3] and 3 associations [A1, A2 and A3]). The data was collected by face-to-face interviews (2) and by telephone interviews (12), using a structured set of questions derived from the literature review. Data capture was by interviewer notes (14) and supporting audio recordings (13). The data was analysed within stakeholder type by factor (technology providers by regulation), aggregated by factor (regulation by stakeholder groups) and finally by comparing the data collected with the literature findings by factor.

**Findings**

The analysis of the 14 interviews confirmed the 4 factors impacting on the future development of SCF (technology, regulation, people and industry environment) identified by the literature review. However, three additional factors emerged from the interviews, they were SCF implementation cost (A1), economic fluctuations (C2) and credit rating (C1 and C2).

The initial the model derived from the literatureillustrated in Figure 2 was then updated to include these additional factors and the revised version is illustrated in Figure 4.



Figure 4: New version of factors influencing on SCF development

The interview findings relating to these SCF development factors are now explored individually.

**Technology**

Advanced technologies such as the Block Chain (BC) and Artificial Intelligence (AI) will have a significant impact on the future development of SCF (A1, A2, A3, C1, C2, C3, FP1, FP2, LP, S, TP1, TP2 and TP3). New technologies will increase the efficiency of the transaction process (C3), improve and extend the scope of the supply chain (C1 and LP), provide the opportunity to develop new financial solutions (A1), generate a risk profile for individual transaction, personalise SCF solutions by transaction, and optimise the cost for vendors (TP3) and improve cash flow management and enhance business development (LP). According to stakeholder A3:

*“Artificial Intelligence and Block Chain are impacting on SCF and every other area in finance and business transactions”*.

BC will facilitate transaction information exchange between different parties (A2), by enabling all the key information in the financial or physical supply chain to be available anytime (A1), improve the tracking of documentation (C1), increase the reliability of data (FP2, S and TP1) increase data accuracy (S and TP1) make easier to share data (S and TP1), and secure and manage the flow of data (A1).

AI will significantly impact the decision-making process, decisions will be automated and only exceptions will be reviewed by humans, in relation to optimal payment terms, discount rates and when to take early payment (S). With AI, algorithms have the potential to carry out a more accurate invoice payment decision and help enterprises to reduce transaction costs and improve their working capital (TP2). AI can help establish a reliable, good operational system, which is robust and responsive to client’s needs (C1). AnAI system is built based on the data collected over time by technology companies, with AI the payment behaviors and payment decisions of individual suppliers will be based on several scientific and intelligent rules, which means it could be more likely to match supplier and buyer’s needs, and SCF programs will be more likely to be successful (TP1).

**Regulation**

Governments are placing a higher focus on paying faster (TP1), fair payment terms (FP1, S and TP1), promoting and protecting SMEs (C2). However, payment regulations will differ according to geographical location (A1, C1 and FP1). Regulation relating to advanced technology (FP2, LP, TP1, TP2) is an important theme, including block chain (increase visibility of transactions [A2 and TP2]) and electronic invoicing (S and TP1). Regulation relating to SCF relationships between the parties involved in the transaction (A1, A3 and C3) and need to be handled properly and ethically (A3) and with security and control of the SCF process (C3). In addition, regulation relating to payment terms will impact on the future development of SCF (FP1). Other regulation issues highlighted by the stakeholders interviewed were:

* accounting principles relating to SCF and debt (C1);
* the lack of a single SCF regulatory body for the entire ecosystem (C1);
* the impact of international trade regulations (TP3);
* and regulation to improve visibility of transactions (A2, C1, C2, TP1 and TP2).

**People**

The level of stakeholder knowledge (A1, A2, A3, C2, C3, FP1, FP2, LP, TP1, TP2 and TP3), skills (C1) and working/business experience (C2, FP1, FP3, S, TP2) is essential in achieving a successful adoption (A1, A2, A3, C2, C3, FP2, LP, S and TP2) and implementation (FP1 and TP1). The benefits of SCF experience, according to the supplier interviewed, can have a positive impact on financial performance:

*“People’s better working experience related to SCF equals better results, such as faster execution, higher adoption, and better working capital results.”*

The need to gain an understanding of the different organisational functions and perspectives (C1 and A1) such as finance, purchasing, operations and supply chain management is essential for SCF adoption. SCF stakeholders need an understanding of advanced technologies such as AI and where to apply them (S and C3).

**Industry Environment**

Two themes emerged from the analysis of the responses, first the need for internal functions within an organisation to work closer together when adopting SCF, and second, externally, the need for the development of closer relationships between banks and technology suppliers.

An effective SCF adoption/implementation requires all the departments to work together/cooperation (A1, A2, B, C1, C2, C3, FP1, FP3, S, TP1 and TP3). Departments identified by stakeholders which need to work together include treasury (S and TP1), procurement (A1, C1, C2, FP1, FP2, S, TP1 and TP3), finance (A1, C1, C2, FP1, S, TP1 and TP3), legal (FP1), credit approval and management (FP2), operations (A1) and information technology (C1, C2, FP1, FP2 and S).

Development of future SCF models will lead to partnerships/collaboration (*“a win-win situation for banks and technology providers”* [A3]) cooperation between banks and technology providers/ fintech’s (A1, A2, A3, B, C1, C3, FP3, S, TP1 and TP2). Stakeholder FP3 states that:

“*Banks have to make the partnerships with technology providers. Everything happening in the banking system today is driving block chain thinking, and collaboration with technology providers enables banks to gain advantages in the SCF market”.*

**Implementation Cost**

According to stakeholders A1 and A2 implementation cost is a factor relating to SCF adoption. A1 argues:

*“The cost of implementing SCF can be high, and SCF should be viewed not just an alternative way of financing, improving margins, but as well as securing the physical ‘end-to-end’ supply chain.”*

**Economic Fluctuations**

SCF adoption might be affected by economic fluctuations (C2). Some suppliers may have difficulties in paying debts to banks or other financial providers during global economic recession periods. Because of the market risk, SCF funders may hold neutral or even a negative attitude to the SCF adoption during economic downturn.

**Credit Rating**

Credit rating may affect future SCF adoption as well C1 and C2. The size of the SCF market is difficult to increase if the credit position of companies is negatively influenced when they implement SCF solutions. For example, many companies in Italy are not willing to purchase receivables because this will affect their credit position (C1).

**Discussion**

The research study indicated that there are number of enabling factors which will facilitate the further development of SCF, including advanced technologies, financial regulation, people and industry environment, which was consistent with the literature. However, implementation cost, economic fluctuations and credit rating were additional factors highlighted by some of the stakeholders. There was also a broad range of specific, or individually, challenges and opportunities for businesses from the different stakeholder’s perspective, as illustrated in Table 2.

|  |  |
| --- | --- |
| B | “The future challenge is about adoption. How to get business to understand what SCF means and what benefit they can receive from SCF.” |
| S | “In future, the main challenge SCF is how to manage system data because the future is more about data. Also, SCF is likely to be a way to strengthen a business supply chain.” |
| TP1 | “There are so many businesses in the world, and there are so many companies in the USA that still do the payment by cheque, the opportunities are how to impact these companies and optimise the way of companies being paid.” |
| TP2 | “The technology changes the way of business payment fundamentally. With advanced technology, companies can improve their finance, and it is easier for their customer to do business with them.” |
| TP3 | “The challenge is about price and the cost of SCF, how it can be attractive for people and how to find a new way to add value in the value chain with SCF.” |
| FP1 | “The main challenge is to keep up with the technical innovation, especially for the financial providers such as banks.” |
| FP2 | “The development of technology may change the payment method between companies, and the challenge is how to keep pace with the emergence of advanced technology.” |
| C1 | “One of the challenges is that there are so many different SCF platforms for suppliers to deal with.” |
| C2 | Opportunities are “technology development, advanced solutions such as cash flow forecasting, data management, or procure to pay solutions.” Challenges include “economic fluctuations, cost of funds and credit rating system.” |
| C3 | “How to make the SCF value more visible? How enterprises can recognise the value? |
| A1 | “One of the challenges is that the cost of implementing SCF can be high, and SCF should be viewed not just an alternative way of financing, improving margins, but as well as securing the physical “end-to-end” supply chain. Hence, SCF should not be isolated from the other flows within the supply chain: physical flow and information flow.” |
| A2 | Opportunity: technology providers have a huge amount of transaction data to show to financial providers. The risk of lending in the SCF market can be managed to be virtually at non-risk. Challenge: implementing SCF is very costly, companies are required to spend too much at the beginning, but the saving in the long term is quite small. |
| A3 | There will be more changes about business with advanced technology. The opportunity for SCF is that people from the whole world can be connected together and some financial programmes can be funded by a large number of individuals. |
| LP | The biggest challenge is the level of awareness and understanding of SCF, people’s misperception of SCF will cause damage to SCF adoption. |

Table 2: Future challenges and opportunities

The future challenges and opportunities for the adoption of SCF for both practitioners and academics, related to individuals’ and organisations’ perceptions of SCF net value. This may be impacted by the application of advanced disruptive technologies (BC and AI) will transform the accounts payables landscape in terms of efficiency (speed), effectiveness (data management and connectivity) and economics (new SCF products and cost reductions through economies of scale). Finally, SCF can be seen as an enabler of supply chain resilience and risk mitigation as it can improve the financial stability of members of the chain.

**Conclusion**

The study concludes that advanced technologies, future regulations, people and industry structure will all have significant impacts on the future adoption of SCF, which is consistent with the finding of literature review. The research study identified three additional factors influencing SCF, including the potentially high implementation costs; economic fluctuations including market risk; and, thirdly, the role of credit rating agencies and how these organisations determine the credit position of companies using SCF solutions to improve their financial performance. The study also confirms that SCF is still emerging and evolving, that the potential market is underdeveloped and that additional financing solutions will materialise in future with the development of technology. However, the main future challenges facing future of SCF, is, firstly, ensuring that SCF solutions can add value and, secondly, that SCF solutions keep pace with the development of new technologies.

The study recommends that practitioners focus on technology and regulation as the two most important factors in the development of SCF, while tracking the broader range of factors listed above.

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