



Agriculture Value Chain Finance in Uganda: A Brief Review of Literature

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Abstract

Liberalization of global trade has presented an opportunity for sub-Saharan African economies to integrate into the regional and global value chains, secure stable markets for their agri-commodities, and increase the much needed private sector investment in the agriculture sector. However, for most African economies, realizing the opportunities associated with the integration of local agriculture value chains into the global supply chain has been more of a pipe dream. Moreover, the nature and organisation of agriculture value chains in most African countries, and the relevance of value chain integration in catalyzing access to finance through facilitating agriculture value chain finance remains largely unclear. This is in part due to the fact that, research evidence in this area is not only scarce but also remains fragmented across agriculture and access to finance related studies. This article briefly reviews the existing research literature relating to the relevance of agriculture value chain integration and agriculture value chain finance in the context of access to finance for the agriculture sector players in Uganda. The paper presents literature review findings, and identifies the knowledge gap which may be addressed in future research.

Subject Areas

Agribusiness, Development Economics, Banking and Finance

Keywords

Agriculture Value Chains, Agricultural Value Chain Finance, Agriculture Credit, Access to Finance

1. Introduction

Liberalization of global trade at the turn of 21st Century has opened new oppor-

tunities for developing economies to integrate into the global value chains [1]. For commodity dependent and predominantly agrarian economies of Sub-Saharan Africa, Uganda inclusive, this has presented a great opportunity for economic transformation of farming communities through integration of local agriculture value chains into the regional and global value chains, providing an opportunity for farmers to tap into larger markets. This further offers an opportunity for increased private sector investments in the agriculture sector, and enables the flow of finance across the agriculture value chains (AVC), often through agriculture value chain finance (AVCF) mechanisms, which requires organized AVCs as a pre-requisite [2]. However, despite the enormous opportunity offered by AVC integration and its role in facilitating AVCF for farmers in agriculture dependent economies like Uganda, where agriculture remains a major contributor to the national economy, employing over 80 percent of the country's population, contributing up to 23.7 percent of the country's GDP [3]; it is not immediately clear how and to what extent the local AVC is organized. Moreover, the impact of the local agriculture value chain organisation on AVCF and its relevance in leveraging access to finance for agriculture sector players remains largely unclear. This is mainly due to a lack of an organized body of research knowledge on the organisation and relevance of AVCs in facilitating access to finance for agriculture sector players, especially the smallholder farmers. This is further escalated by the fact that most of the research evidence in this area remains scattered across theoretical and empirical research literature that is often laborious to comb through. It is therefore against this backdrop that the researcher purposed to conduct this brief review of literature to consolidate the corpus of research knowledge on AVC and specifically AVCF, and to evaluate its impact on access to finance for the agriculture sector players in Uganda.

Background

The agricultural sector in Uganda remains a major contributor to the national economy. The sector is not only a source of food for the country's estimated population of over 40 million people but is also the major contributor of raw materials for the agro-based industrial sector, and accounts for up to 23.7 percent of GDP, and 31 percent of the country's export earnings [3]. However, despite the significant contribution of the agricultural sector to the national economy, the sector has continued to experience a relatively low level of private sector credit allocation from the mainstream financial sector. This has over the years prompted a number of strategic interventions by both the government and development partners to increase private sector credit flow to the agriculture sector through agriculture credit guarantee schemes, provision of seed funds, grant schemes, and agricultural insurance schemes among others [4]. Although these interventions have led to a considerable improvement in private sector credit allocation to the agricultural sector (**Table 1**), there remain lingering concerns over the low access to finance for agricultural production activities, which directly employs over 80 percent of Uganda's rural population [3], but remains

Table 1. Uganda's sectoral distribution of private sector credit (2015-2021).

Sector	Share of Credit Per Sector to Total Lending (%)						
	2015	2016	2017	2018	2019	2020	2021
Agriculture	9.3	9.8	11.3	12.2	13.0	13.2	12.3
Manufacturing	16.1	16.1	14.6	13.3	13.2	13.4	11.9
Trade & Commerce	19.5	17.9	18.9	19.2	21.0	21.1	17.5
Construction & Real Estate	23.2	23.6	20.5	20.1	20.0	20.4	20.4
Business Services	4.7	3.7	4.2	4.0	4.6	4.2	4.1
Household & Personal Loans	15.2	15.9	18.5	18.9	18.0	18.2	18.4
Other Sectors	12.0	13.0	12.0	12.3	10.2	9.4	15.4
Total	100	100	100	100	100	100	100

Source: Bank of Uganda Website: Annual reports (2015-2021).

relatively unattractive to lenders. Moreover, the overall growth of banking sector credit to agriculture production activities which is the most crucial agricultural value chain activity has continued to remain slower than expected. For example, in the pre-COVID-19 period between 2012 to 2018; credit to agriculture production activities grew by a paltry 1 percentage point, rising from 3 percent to 4 percent of the total agricultural credit [5].

The slow growth in access to agricultural credit in Uganda is largely attributed to demand-side factors associated with socio-economic characteristics of farmers, which include: the informal nature of agricultural activities, isolation of rural smallholder farmers, lack loan collaterals; and commercial viability of smallholder agriculture, among others [6]. These together with supply side factors such as lack of technical capacity and appropriate risk mitigation instruments continue to elevate the risk perceptions of the sector among lenders [6] [7] [8] [9]. Due to the significant contribution of the sector to the economy, a number of initiatives such as credit guarantee schemes, seed funds, grants and crop insurance schemes have been established by the government and donor agencies in order to increase credit flow to the agriculture sector [10]. However, the mixed results registered under these initiatives have led to chorus suggestions of value chain integration by experts as the key imperative for increasing access to agriculture credit. This is mainly because Ugandan agriculture sector is predominantly driven by smallholder farmers scattered across rural areas, acting in isolation, which constrains their access to agriculture credit on an individual basis. Thus, it is believed that agriculture value chain (AVC) integration presents the best opportunity for leveraging access to credit for rural farmers. The organized AVCs acts as percussors to agriculture value chain finance (AVCF), eliminates the risks associated with financing smallholders [11] [12] [13].

Moreover, the relevance of AVCF in scaling up access to finance for smallholder This position is backed by theoretical and empirical evidence from other

developing countries [14] [15] [16]. That notwithstanding, the research evidence in the context of Uganda remains fragmented across agriculture and agriculture finance related literature.

This paper presents a brief literature review, and synthesizes theoretical as well as empirical literature on the relevance of AVCF in catalyzing access to finance for farmers in Uganda, covering 2015 to 2021 timeframe. The paper commences with this introductory section, followed by a methodological approach, then presentation and discussion of main findings. The second last section highlights the gaps identified in the literature and suggests potential areas for future research in this field, and the last part presents the conclusions and opinions of the author.

2. The Literature Review Approach

2.1. Methodology

In conducting this literature review, research articles of high scientific value and influence on scholarly discussion in AVC and AVCF research in Uganda in the context to access to finance were searched manually and reviewed. The findings were logically synthesized in this report. The methodological approach for the study was adopted from [17] [18] [19]. It involved conducting a search through scientific databases such as Scopus, Emerald, Science Direct, and Google Scholar for articles matching the key-words search; agriculture value chains, agriculture value chain finance, and access to finance with suitable Boolean operators combinations to optimize the searches in the context of Uganda.

2.2. Search Approach

The key-words search terms were chosen based on related literature review studies conducted on similar topics and the authors' own research experience and views of agricultural value chain finance experts. The inclusion criteria included sources published within the last seven years, focusing on AVC and AVCF in the context of access to finance, in Uganda. Sources published before the last seven years, and articles which address the construct of agriculture value chain from agronomic point of view were excluded. To validate the findings, secondary information was obtained from official government reports and publications.

3. Literature Review

3.1. Agricultural Value Chains

The term Agriculture Value Chains (AVC) refers to the set of interrelated activities involved in delivering an agricultural product from its production to the final consumer in a manner that support investments, growth, and competitiveness of the value chain actors [20] [21] [22]. There is sufficient empirical and theoretical evidence regarding organisation, models, and relevance of AVC integration in the agriculture sector in Uganda. However, the primary focus of the majority of the AVC studies conducted in Uganda has tended to focus on other

constructs of AVC other than access to finance, which none the less features prominently as an outcome of the studies. That notwithstanding, alongside markets access, finance is the most important motive and outcome of AVC integration and requires to be treated as an objective rather than incidental. This view is backed by evidence from a number of studies that examined constructs related to access to agricultural credit/finance, which provides general consensus on the fact that AVC organisation is a percussor for access to agricultural credit [5] [6] [8].

3.2. Organisation of Agriculture Value Chains in Uganda

AVC integration in Uganda was initially more developed in the traditional cash crop sub-sectors such as, coffee, cotton, tea and tobacco, and sugar cane before spreading to other crop sub-sectors that gradually became commercially farmed such as vegetable oil seeds, sorghum, maize, rice, cocoa, barley, potatoes, as well as apiary, aquaculture, dairy sector, etc. The value chain structures and models in Uganda differ across sectors, but generally involve a group of interrelated actors, from inputs suppliers, producers, processors, and logistics service providers, who service a particular end market [23] [24]. The inter-relationship between the various AVC actors in the various sub-sectors in Uganda is defined by the market linkages between producers and buyers, which ranges from the least integrated to the most integrated AVCs as follows: 1) The spot market value chain, which is the least formal AVCs where the producers sell their commodities to the highest bidders [25]. This AVC organisation is characterized by volatile price discovery mechanism, and is subject to price volatility; 2) The outgrower or contract farming (CF) AVC model. This is the dominant value chain organisation in Uganda. This AVC organisation involves contractual arrangement to produce a commodity and deliver to a given buyer, usually at a pre-determined date and sometimes at pre-determined price [26]; 3) AV Organisation is built on long-term, business relationship between producers and buyers. This type of AVC organisation is characterized by close interdependency among AVC actors including farmers, farmer groups, input suppliers, logistic service providers, and off-takers [27]. It is predominantly observed in the traditional cash crop sub-sectors (cotton, coffee, tea, cotton) and plantation agriculture (sugar cane, cocoa), as well as in emerging sectors such as dairy, apiary, vanilla, etc; 4) AVC organisation involving capital investment by off-takers for the benefit of the producer [28]. This type of AVC arrangement in Uganda is common in plantation agriculture sector, where the producers are dependable and credible; 5) Lastly, there are the complete vertically integrated value chains. These are end-to-end integrated value chains with organized producers serving a defined market, with support offered to chain actors by internal or external service providers, including financial institutions. The hybrid forms of this type of vertical coordination in seen in the livestock value chains in Uganda [25]. Thus, agriculture value chain intergration in Uganda in general

involves transformation of relationships from a spontaneous buyer-seller relationship towards an integrated model, which improves the prospects for financing within the value chains and, the flow of external financing into the value chains.

The AVC integration across the different sectors in Uganda is shaped by the relevance of a specific AVC model in providing security for buyers or off-takers and the maximization of gains for the farmers, especially smallholders. Whereas the smallholders account for more than 80% of the country's agricultural output, they remain an economically risky group to deal with due to their socio-economic and demographic characteristics [24]. However, it is for the same reason that the smallholders constitute an important target group for national development agenda, as such, allocating sufficient resources to smallholder farmers is essential in increasing the socio-economic welfare of a large number of people, improving food security and driving economic development of the country [29].

To efficiently and securely direct private sector financial resource flow to the rural farmers, various forms of AVCs have evolved in Uganda, which mitigates the disadvantages arising from the socio-economic characteristics of smallholder farmers, ensuring their full participation in the AVC, and consequently enabling access to market and access to finance along the value chain, also known as Agriculture Value Chain Finance (AVCF). **Table 2** presents the organisation of agricultural production and marketing value chain in Uganda described in existing research literature [23] [24] [30] [31].

The producer led AVC models in Uganda are driven from the bottom end of

Table 2. Agriculture value chain organisation and models in Uganda.

AVC Model	Key Drivers	Reasons
Producer driven AVC	Small-scale producers, Farmer groups, farmers' associations, and farmer cooperatives. Large-scale producers.	Securing new markets, Obtaining higher market price for produce, To secure market position for producers.
Buyer driven AVC	Traders, retailers, wholesalers, and other AVC actors, Commodity Processors, Commodity Exporters.	To get assurance of supply, To secure higher supply volumes, To meet the interest of market niches.
Facilitator driven AVC	NGOs and donors, Governments and government agencies.	To minimise economic exploitation of the poor, Development at regional and local level.
Integrated AVC	Technical operators or lead firms, Supermarket chains, Multinational organisations.	Higher-value new markets, Good quality at lower prices, Monopolistic tendencies.

Source: Adapted from [32].

the chain, while the buyer driven AVC models are the precursors for agriculture value chain financing through contract farming [33] [34]. The facilitator driven AVC models in Uganda meanwhile are common in crop sub-sectors where technical operators have nucleus farms but obtain supply from outgrowers living at subsistence levels. The uneven power structures in facilitator driven AVC model leaves farmers vulnerable to exploitation, which prompts government and development agencies to come in to ensure smallholder producers get a fair economic gain from AVC arrangements models, sometimes through public private partnerships (PPP) arrangements like in the Kalangala Palm Oil project [35]. Lastly, the fully integrated AVCs in Uganda do not only connect producers but also others in the chain including parties such as input suppliers, intermediaries, processors, retailers, and service providers, including financial service providers but integrate many of these through ownership and/or formal contractual relationships [36].

3.3. Implications of Value Chain Organisation to the Agriculture Sector

The relevance of AVC intergration for the agriculture sector players in Uganda broadly lies in its ability to facilitate access to market, technology transfer, improving farm productivity and output, access to information, credit, and insurance, and enhances commercial viability of smallholder agriculture, turning farming into business [23] [37] [38]. The empirical evidence from existing research studies in Uganda indicates that AVC intergration is an enabler of value chain analysis allows chain actors and the supporting donor agencies, policy makers, and financial service providers to make informed choices [39]. Moreover, it increases access to market for small-scale farmers, and acts as a precursor to value addition, and can lead to significant increase in farmer's income [37]. That notwithstanding, it is generally observed that, access to market in AVCs is consequent to production, which is constrained by access to inputs. Hence access to credit both within and from outside AVCs tends to be a more pressing concern within AVCs in Uganda [40]. This makes, AVCF both a necessary condition and an outcome of value chain intergration [37] [38].

Linkages between actors in organized AVCs in Uganda are not limited to exchange of agricultural commodities and financial resources but also information and knowledge sharing. Information sharing, especially among farmer groups in is a key outcome in AVC intergration [36]. This includes sharing of production, market, and financial information, and presents an opportunity for technology transfer among farmers [33]. However, market and financial information sharing is an essential part of genuine partnerships development between value chain actors and can lead to improvement in access to credit or finance. The relevance of information in regard to access to finance in AVC players in Uganda is not limited to farmers, but extends to other chain actors such as agro-processors and logistics service providers [41]. This is due to the fact that besides the scarcity of agriculture credit, the source of funding within the various AVCs in Uganda

tends to vary with the level of value chain intergration [23].

The AVC organisation structures in Uganda are mainly facilitator driven, which primarily eliminates the challenges of access to market but inadvertently facilitates contract farming [26]. This eliminates price fluctuations and brings an element of certainty in agricultural production and enables farmers to effectively plan their production activities, which transforms smallholders into a bankable group. Facilitator driven AVCs inadvertently facilitates production by enabling access to inputs, extension services and access to credit for farmers [13].

The primary role of an AVC is to bring products to the final consumers, with value added to the product at each stage along the chain [42] [43]. Delivering agri-commodities quickly and directly to final consumer gives smallholder farmers important higher income earning opportunities. Thus, the benefits of AVC intergration for smallholders who contribute up to 80% of Uganda's agriculture production lie in market access [43] [44]. For example, a livestock value chain study conducted in Uganda found market access to be a crucial outcome of AVC intergration among farmers in the livestock sector [25]. However, importance of market access in an AVC somewhat circles back to access to finance for the chain actors, especially for the farmers, as availability of off-take acts as an enabler of end-to-end self-securing and self-liquidating AVCF facilities to AVC actors along the chain, enabling financial service providers to mitigate their credit risks [39] [40].

Last but not least, agriculture value chain intergration is essential for alleviating the disadvantages emerging from the socio-economic and demographic characteristics of smallholder farmers dispersed in the rural areas of Uganda [44] [45]. The impact of poor infrastructure, transport costs and isolation of smallholder farmers, leads to exploitation of farmers by traders on farmer's, which impact their welfare [44]. The isolated nature of rural small-holder farmers in Uganda results into significant variations in price, margins and creates local oligopsony as traders end up marking-up related costs to farmers. The challenges arising from farmers acting in isolation can be overcome through AVC integration. It does not only open access to market for farmers but has a role in ensuring food security [45], and can also lead to innovative nontraditional mechanism for providing agricultural credit for farmers, which re-enforces the central role of AVC intergration to access to both finance and market [44].

3.4. Agricultural Value Chain Finance

Agriculture Value chain Finance (AVCF) emerged strongly in Uganda over the last decade. It has been widely explored and recommended as a reliable method of providing credit to the agricultural sector [11] [12] [13]. The AVCF approach enables lenders to capitalize on the strength and relationships within the agricultural value chains responsible for bringing an agricultural product to its end users [46]. The nature interrelationship within an agriculture value chain and the ultimate objective of the process is usually termed as "from farm to fork". It

enables financiers to tailor their product offering to various points across the agricultural value chains in a manner that reduces credit risks for the lender and cost of financing for the participants. This is due to the self-securing and self-liquidating nature of the transactions. AVCF is considered to be the most suitable method for catalyzing credit flow to the agricultural sector in developing countries like Uganda, where agricultural activities are perpetually underfunded [47]. This explains why agricultural value chain finance approach has generated a significant amount of interest from government, policy makers, civil society organisations and development partners who have an interest in ensuring that Uganda's financial sector allocates more funding to agriculture to meet its financial needs and support the economic development of the country.

The fact that AVCF approach has the ability to mitigate credit risk for lenders, reduce borrowing costs, and overcome the challenge of lack of collateral among farmers, coupled with the fact that it can make agriculture a viable activity and turn farmers into businessmen [48]; has generated significant interests from economic thinktanks, government agencies, development partners, non-governmental organisations (NGOs) and various agricultural research institutes, as well as scholars.

3.5. Agriculture Value Chain Finance Instruments in Uganda

AVCF capitalizes on the understanding of production, value-addition, and marketing processes along an AVC to determine the financial needs of actors in the chain and how best to provide financing to those involved. There are numerous innovative financial instruments that are applied by AVCF providers in Uganda, which are adapted to the specific financial needs of the borrowers. **Table 3**

Table 3. Common agriculture value chain instruments in Uganda.

Category	Instrument
Product based finance	<ul style="list-style-type: none"> • Buyer/Trade credit • Inputs or supplier finance • Marketing company finance • The lead firm finance
Receivables backed financing	<ul style="list-style-type: none"> • Trade-receivables finance • Factoring • Forfaiting
Risk mitigation instruments	<ul style="list-style-type: none"> • Insurance products • Forward contracts • Commodity Futures
Asset collateralized financing	<ul style="list-style-type: none"> • Warehouse receipts (WHR) finance • Repurchase agreements (repos) • Lease-purchase
Financial enhancements	<ul style="list-style-type: none"> • Securitized instruments • Guarantees • Joint-venture finance (JVs)

Source: Adapted from [32].

presents a categorization of the financial instruments commonly used in AVCF in Uganda.

The above AVCF instruments are deployed on standalone basis or in combination. However, the application of the AVCF instruments is largely new and unfamiliar for both financial service providers and borrowers in Uganda [49]. This has sometimes created a restrained attitude towards agriculture finance among lenders.

3.6. Relevance of Value Chain Finance to the Agriculture Sector in Uganda

The application and relevance of AVCF in the context of Uganda remains an area that is not well-researched. However, substantive theoretical and empirical evidence can be adduced from the existing literature from other research studies that examined constructs related to AVC, to draw a meaningful conclusion. That said, the importance of AVCF as a method lies in its ability to offer financing solutions along the agriculture value chains, purely on the basis of the strength of relationships between the interrelated activities. This provides an opportunity for all the value chain actors to gain access to finance and benefits those with perpetually poor credit scores, especially the small-scale rural farmers involved in primary production [38] [50]. Thus, AVCF has the potential of turning the subsistence farmers in rural Uganda into businessmen and has a wide-ranging impact on both agricultural output and farmer's welfare [48].

The AVCF tools offer an opportunity to expand lending scope for financial service providers, and reduce costs and risk associated with agriculture finance. It is a useful tool for development of inclusive AVC, as it makes resources available for smallholder farmers, and enables their integration into higher value market opportunities. In a country like Uganda, where the majority of smallholder farmers often do not qualify for credit from mainstream financial institutions under traditional collateral arrangements. It is argued that AVCF enables financial institutions in the sugar sector in Uganda to lend to individual farmers without assuming their individual credit risks [11]. Therefore, AVCF has the capacity to overcome most of the constraints to actors in the agricultural sector, including access to credit by smallholders [41] [51].

It is notable that, AVCF techniques can be deployed in a manner that enhances poverty reduction, and can act as a tool for mitigating undesirable farming practices and climate risk in agriculture due to its targeted nature and strict structuring [44]. AVCF has the capacity to open up wide-ranging opportunities for farmers, thereby increasing agricultural output and unleashing marketing opportunities for farmers. This explains why emerging trends and innovations in AVCF in Uganda are geared towards policy imperatives like climate mitigation and green growth, gender mainstreaming, and eliminating undesirable practices like child labour in agriculture. Thus, AVCF is instrumental in mitigating financial risks agriculture along value chains in a manner which not only benefits the agriculture value chain actors, but also the financial service providers and society

at large through enhanced traceability produce and improvement in availability or quantity and quality of agri-commodities [13].

There is sufficient evidence from existing studies in Uganda to the extent that AVCF provides a potential solution to the challenges of agricultural credit from a financial sector point of view by alleviating the socio-economic characteristics of smallholder farmers. However, some AVCF products in Uganda have failed to take-off due to poor product knowledge, poor structuring skills among bankers, and lack of product awareness [49]. A number of financial service providers such as DFCU Bank, Centenary Bank Uganda, Pride Microfinance, and other local MFI's have made noticeable effort in application of AVCF techniques over the years and have provided good business cases for AVCF research covering agricultural finance in Uganda [21] [52] [53]. The conclusions drawn from such studies, including the discussions strongly supportive of AVCF as a tool that offers an opportunity to expand the scope, and reduce costs and risk associated with agriculture finance in Uganda.

The contractual nature of AVCF and transparent business practices among the value chain actors including financiers facilitates value chain analysis and facilitates risk mitigation. AVC has the capacity to create transparency in financial transaction, as the contractual clearly stipulate obligations of parties upfront between the lenders and the borrowers [13]. The benefits of AVCF approach to lenders however include both risk reduction and broadening their scope of lending to the hitherto non-credit worth segments. In that regard, the interest of the formal financial sector players in agriculture value chains in general and AVCF in particular primarily lies in its capacity to minimize the risks associated with lending to agricultural sector. However, value chain transparency also has relevance in terms of consumer protection for all parties from downstream activities to the final off-takers, as well as financial service providers. It is henceforth proper to note that, the relevance of AVCF in catalyzing credit to agricultural sector is rather a consequence of its potential to reduce credit risks for the lenders. The application of AVCF in financing agriculture is very crucial in leveraging access to finance for small-holder farmers in Uganda, who lack the capacity to first access markets due to small volumes of output, and secondly lack the knowledge to interact meaningfully with lenders on individual basis [49]. Therefore, it is important for lenders, and especially the commercial banks to leverage on the institutional arrangements that characterizes AVCF in order to reach such players, and also use AVCF as a way of extending formal risk management to the farmers at the grass root level.

4. Discussion Conclusion and Recommendations

4.1. Discussion of Findings

Theoretical and empirical evidence from AVC studies in Uganda is majorly focused on other constructs of AVCs other than access to finance, which nonetheless features as an outcome of the various theoretical and empirical studies. The

relevance of AVC intergration for the agriculture sector clearly lies in its ability to facilitate access to market, technology transfer, improving farm productivity and output, access to information, credit, and insurance. Hence, AVC integration enhances commercial viability of smallholder agriculture, increases access to market for smallholder farmers, and acts as a precursor to value addition, leading to increase in income among farmers. However, it is evident that, access to market in AVCs in Uganda is consequent to production, which is often constrained by access to inputs. Therefore, access to credit both within and from outside AVCs is a more pressing concern. This makes finance alongside market access, the most important impetus to AVC integration in Uganda according to theoretical and empirical evidence, which points to the fact that AVC organisation is a percussor to access to agricultural credit.

On a related note, most of the existing research literature on agricultural value chain finance (AVCF) in Uganda have largely focused on the external agriculture value chain finance. This may be attributed to the nature of concerns that pre-dominates the agricultural finance spectrum in the country, arising from historical trends of less credit allocation to the agricultural sector from the formal financial sector. The Commercial banks' lending to agriculture sector in Uganda has been historically low [5]. Despite the efforts of the government to catalyze lending to the sector through various avenues, credit allocation from the commercial banking sector still varies significantly along agriculture value chains. The undertones in AVCF studies in Uganda are reflective of the both-er-spot the country finds itself into regarding low commercial banking interest in agricultural finance making the focus of research studies on external value chains very much understandable. However, it is important to note that there are both internal and external agriculture value chain finance occurring simultaneously among the farming communities formally and informally [24] [38].

It is important to stress that, internal value chain financing, which is the lending activity that occurs within the agricultural value chains [13]. This accounts for the bulk of value chain finance activities within rural agricultural settings in Uganda, which is mostly focused on primary agriculture. This includes agro dealers or inputs supplier's providing credit sales to chain actors, the pre-production advances from main commodity offtakers in the value chain to the primary producers among others. The external value chain finance on the other hand occurs from outside the value chain and results from value chain interrelationships [54]. This includes credit issued by formal financial institution to farmers or their local cooperatives on the basis of offtake contracts with reputable buyers. This also includes advances to producers on warehouse receipts issued by an accredited warehouse. The separation of these two sources of finance is important for the purpose of appropriately estimating the amount of credit flowing to the agriculture value chains and consequently draws the right conclusions regarding access to finance for the agricultural value chain actors.

The evidence from existing empirical and theoretical literature also shows that integration of AVC is crucial for securing the income of small-scale producers

and enhancing access to finance from the formal financial sector through value chain linkages. This in general makes AVCF a suitable tool for agricultural credit as it reduces credit risk, presents relatively secure repayment options embedded in non-financial relationships within value chains. The linkage of financing activities to other activities within a value chain has the capacity to convince the formal financial sector to move away from the traditional lending approach, where landed collateral is preferred as form of loan securitization. This can play a major role in enabling small-scale players to secure funding that would otherwise not be availed to them through conventional financing approach.

It has also been established that, the successful application of AVCF tools in the various agricultural sub-sectors in Uganda is consequent to the level of organisation and internal efficiencies within agricultural value chains. Evidence from specific commodity value chains such as rice, dairy, coffee, potatoes and pig value chains in the country indicates that, the level of organisation and efficiency within a specific value chain mitigates the constraints that often exacerbate credit risks that scare away lenders from advancing credit to the agricultural sector. This therefore implies that AVCF as an approach is not the primary success factor in scaling up credit flow to the agriculture sector its-self but rather an outcome of organisation and efficiencies within value chains. This implies, even though lenders are well equipped with the relevant AVCF tools, certain factors within the value chains such as contracting habits, information asymmetry, quality management practices, coordination among the value chain actors, availability of markets for products, availability of extension service and technical assistance among others, will ultimately determine the successful application of their AVCF model. In that regard, value chain organisation and efficiency is the pre-requisite for the application of AVCF. It provides a firm foundation upon which credit from the formal financial sector can be availed along or across the chain.

Last but not least, the long-term relevance of AVCF in the context of Uganda needs to be evaluated from multidimensional perspectives (economic, social, environmental, and political) dimensions. This is because most AVCF initiatives in Uganda are somewhat government or donor-driven and subsidized programmes. This is crucial given that some commercial player driven AVCF initiatives in Uganda failed to take-off and achieve commercial viability [49]. The lessons drawn from such experience requires an empirical study to be conducted to evaluate the relevance of AVCF in Uganda in the context of the mainstream commercially financial sector players driven interventions. This will help to draw conclusion that AVCF indeed plays a role in increasing the level of credit flow to the agricultural sector in a commercially sustainable manner. This will provide evidence that can be relied upon to make argument for increase in the risk appetite of Commercial lenders to the agriculture sector.

4.2. Conclusion

In conclusion, despite the limited level of agriculture value chain finance specific

research in Uganda, evidence from agricultural value chain related research literature suggests that there is a great deal of interest in agricultural value chains in general and that AVCF can play a significant role in catalyzing credit to the agricultural sector players. Moreover, through value chain linkages, AVCF can play a greater role in scaling access to finance for smallholder farmers involved in primary agriculture, who are greatly disadvantaged by the traditional credit scoring system. There are equally some interesting developments in AVCF studies in Uganda. However, most of the existing research studies, as well as the successful agriculture value chain finance initiatives in Uganda are largely public sector or donor driven. This makes it challenging on the basis of the existing research literature to make a robust conclusion regarding the relevance of AVCF tools in catalyzing credit flows to the agriculture sector from the perspective of the mainstream financial sector players, though the relevance of AVCF is not questionable.

4.3. Recommendations

In view of the above findings and conclusion, of the study the researcher was compelled to make the following recommendations which are crucial to AVCF practice and for future AVCF studies in the context of Uganda:

The government and donor agencies need to involve the mainstream financial sector players, the regulators, and bodies like the bankers association in conducting upstream studies on the local agricultural value chains and the various value chain development initiatives. This is because most private commercial lenders in Uganda do not have the resources to conduct such studies to effectively understand the agricultural value chains. Thus, they would greatly benefit from early stage collaboration with donors, which can be beneficial in creating appropriate financial products that suit value chain actors' needs.

The internal value chains finance in agricultural sector is of significant importance in attracting external finance to agriculture value chains. Since external finance has well-documented benefits like access to higher volume and low cost credit, there is a need to conduct empirical studies focusing on internal agriculture value chains in Uganda. Such studies will benefit both the agriculture sector experts and rural development practitioners as well as financial sector actor players, who tend to use the existing value chain structures to channel credit across the specific commodity value chains.

Finally, most of the agricultural value chain related studies conducted in Uganda over the last few years have paid little specific attention to access to finance. Hence, whereas other areas of AVC organisation are well researched, AVCF itself has tended to come out as an afterthought. Therefore, for the debate on AVCF as a potential solution to credit constraints in the agricultural sector to gain some traction, there is a need for a more comprehensive study to evaluate the concept, application, and relevance of AVCF, especially from the financial sector point of view.

Conflicts of Interest

The authors declare no conflicts of interest.

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