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Financing Status in the Cocoa Agribusiness Value Chain in Southeast Sulawesi

Haji Saediman
Halu Oleo University, Kendari
Corresponding Author: Haji Saediman saediman@yahoo.com

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A B S T R A C T

Access to finance is critical for developing agribusiness value chains, yet smallholder cocoa farmers face persistent financing constraints. This study assesses the current financing status along the cocoa agribusiness value chain in Southeast Sulawesi, Indonesia, highlighting the distribution of credit across upstream (on-farm) and downstream (trading/processing) segments. The research was conducted in Kolaka and Konawe districts using surveys, interviews, and focus group discussions with cocoa farmers, input suppliers, traders, processors, financial institutions, and government officials. Results indicate that on-farm cocoa production is predominantly financed through informal value chain-based arrangements, especially credit advances from village collectors and larger traders, while formal financial institutions concentrate lending on downstream actors. Smallholder farmers have limited direct access to bank credit due to collateral requirements, risk perceptions, and procedural barriers, and instead rely on traders' credit or family loans. Conversely, traders utilize bank loans to fund purchasing capital and in turn extend informal credit to farmers as a strategy to secure cocoa supply. Key recommendations include strengthening rural financial infrastructure, developing tailored credit products, expanding credit guarantee and insurance schemes for agriculture, and fostering linkages between formal lenders and farmer/trader networks.

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INTRODUCTION

Indonesia is the world's third-largest cocoa producer (after Côte d'Ivoire and Ghana), with Sulawesi Island contributing the majority of national output (Rosmawati et al., 2015; Syahri et al., 2020). More than 90% of Indonesia's cocoa is produced by smallholder farmers, and an estimated 60% of these farmers live below the poverty line (Schaad & Fromm, 2017). Farm households in Sulawesi, including in Southeast Sulawesi, predominantly contribute to cocoa production (Hoffmann et al., 2020; Lumampa et al., 2019; Ramadhan et al., 2021). Despite the crop's importance, smallholder cocoa farmers often struggle to obtain affordable credit for farm operations and investment (Muhardi et al., 2020). Small farmers generally lack collateral and are perceived as high-risk borrowers by banks, leading to chronic under-lending to agriculture. Many farmers are deemed "not bankable" under conventional lending criteria (e.g., due to informal land tenure, irregular incomes, and minimal credit histories). The resulting finance gap impedes farmers' ability to adopt improved inputs, technologies, and practices, thereby limiting productivity and incomes (Joshi et al., 2017).

In rural areas, the void left by formal finance has been filled by various informal and semi-formal financing arrangements (Mananty & Wulandari, 2023; Rasmikayati et al., 2025; Saediman et al., 2019). Farmers frequently turn to input suppliers, produce buyers, local moneylenders, and family or friends to meet their credit needs (Alam et al., 2025; Rosdiani & Wulandari, 2024; Saediman et al., 2019). These informal financing institutions offer easier access to credit than banks, but typically at higher cost or with conditions attached. For example, moneylenders may charge usurious interest rates, and traders providing advance payments may require farmers to sell produce at prices lower than market rates as a form of repayment. Such arrangements can create a cycle of dependency and hidden costs for farmers, ultimately eroding their profits and welfare (Romadhona & Zulfairah, 2023). Nonetheless, for many smallholders, these non-bank sources are the only realistic option to obtain timely financing for planting, inputs, or emergency needs.

Within the framework of agribusiness systems, financing must be understood not only at the farm level but across the entire value chain. A value chain includes all the interconnected stages from input provision and production to processing, marketing, and export, and each segment has distinct financing needs and capacities (Fauzi et al., 2021; Witjaksono et al., 2023). Recent approaches emphasize agricultural value chain finance (VCF) as an avenue to improve smallholders' access to credit by leveraging the relationships and transactions within the chain (Miller & Jones, 2010). In a value chain finance model, loans and credit can be provided to value chain actors or through the value chain itself (Joshi et al., 2017). Internal value chain finance occurs when chain actors finance one another (Joshi et al., 2017). External value chain finance, on the other hand, involves a third-party financial institution lending to a value chain actor based on the strength of that actor's commercial relationships (Joshi et al., 2017). By aligning financial services with the structure of the value chain, VCF products can be customized to agricultural cash flow

cycles and risk profiles, potentially mitigating risks for lenders and borrowers alike (Joshi et al., 2017). Indeed, value chain financing has been recognized as a strategy to aggregate the creditworthiness of small producers (through relationships with buyers or cooperatives), thereby making lending more feasible and scalable for formal institutions (Cuevas & Pagura, 2016; FAO, 2014).

However, effectively harnessing value chain finance requires an in-depth understanding of the chain's dynamics. Finance is often described as the "lifeblood" of a value chain, yet it can also be a critical bottleneck if not available in the right amount at the right time (DAI (Development Alternatives Inc.), 2008). Prior studies have noted that analyzing the financial flows within and between firms in a chain is essential for designing interventions that increase competitiveness and promote inclusive growth (DAI (Development Alternatives Inc.), 2008). In Indonesia and similar emerging economies, studies on agricultural financing indicate that formal loans tend to favor downstream agribusiness activities (such as trading and processing), whereas upstream producers rely more on informal mechanisms. For instance, a recent assessment of rice farming in Southeast Sulawesi found that financing was dominated by non-formal sources along the value chain, with traders playing a major financing role for farmers, while bank loans were channeled chiefly to rice mills and traders. Farmers in that study had insufficient access to formal credit and often preferred quick loans from informal moneylenders despite their drawbacks. These findings point to a structural gap in rural finance delivery between upstream and downstream, and underscore the need to develop more inclusive financial systems for agribusiness.

Given this context, this paper examines the financing status of the cocoa agribusiness value chain in Southeast Sulawesi, Indonesia. Cocoa is a strategic export crop and a key source of income for smallholders in this region (Saediman, 2015; Sari et al., 2019), yet it faces challenges of aging trees, pests and diseases, and low farm productivity (Geo & Saediman, 2019). Strengthening financial access for cocoa farmers is crucial to enable farm rehabilitation (e.g. replanting, inputs) and to improve post-harvest handling and marketing, which in turn affect product quality and competitiveness.

LITERATURE REVIEW

Access to financial services in the agricultural sector has long been studied as a determinant of rural development and farm productivity. The credit constraint hypothesis posits that smallholders with inadequate access to credit are unable to invest optimally in inputs and technologies, leading to suboptimal yields and incomes. For example, Guirkinger & Boucher (2008) found that limited credit access reduced the value of agricultural output by about 26% among Peruvian smallholders. Similarly, World Bank (2008) reported that the paucity of tailored financial instruments for agriculture severely limits small farmers' ability to compete and improve their livelihoods. Despite agriculture's acknowledged importance for poverty reduction and economic development (World Bank, 2008), formal financial institutions often

fail to serve rural clients effectively. In many countries, including Indonesia, commercial banks channel only a tiny fraction of their loan portfolios to agriculture, reflecting a combination of supply-side and demand-side factors. Banks cite high default risks, lack of collateral, high transaction costs, and information asymmetries as reasons for not lending to small farmers (Miller & Jones, 2010). On the demand side, smallholders may be discouraged by complex loan procedures, inappropriate loan products, or simply by physical distance from bank branches (Karyani et al., 2016; Saediman et al., 2019).

Indonesia's experience exemplifies these challenges. Kredit Usaha Tani programs in the 1980s–1990s (Saediman & Ohtaka, 1998) and the ongoing Kredit Usaha Rakyat (KUR) scheme attempted to increase formal credit to agriculture via interest rate subsidies and partial guarantees, yet outreach to independent smallholders remains modest (Panjinegara et al., 2023). Karyani (2012) notes that rural banks and microfinance institutions have not fully filled the gap either, resulting in a persistent finance gap for small farmers. Hastuti & Supadi (2005) observed that rural farming communities often face low accessibility to formal financing institutions, owing in part to rigid lending requirements and in part to farmers' own limited financial literacy. A consequence of this exclusion is the proliferation of informal credit systems in rural Indonesia (Aziz et al., 2024). These include traditional moneylenders (locally called rentenir), rotating savings and credit associations, input dealers offering goods on credit, and trader credit arrangements. While these can provide quick and convenient loans, they often come with onerous terms such as exorbitant interest or the obligation to sell produce at below-market prices to the creditor. Hastuti & Supadi (2005) caution that depending on such informal mechanisms can be detrimental to farmers' net incomes and perpetuate a cycle of poverty in rural areas.

In response to these issues, attention has turned to innovative financing models that leverage value chain relationships and alternative delivery channels. Agricultural value chain finance (AVCF) has emerged as both a conceptual framework and a set of practical instruments to improve the flow of funds in agriculture (DAI (Development Alternatives Inc.), 2008; Miller & Jones, 2010). The core idea of AVCF is to embed finance within the transactions of the value chain, thus harnessing existing linkages to reduce lending risks and costs. By lending to or through value chain actors, financial institutions can utilize chain information (such as buyers' contracts or delivery records) in lieu of traditional collateral, and can schedule repayments in line with harvest cycles (e.g., seasonal bullet payments or automatic deductions from sales proceeds) (Villalba et al., 2023). According to a synthesis by (DAI (Development Alternatives Inc.), 2008), integrating finance into value chain analysis is crucial for formulating upgrading strategies that boost competitiveness. Understanding "who finances whom" in the chain can reveal opportunities for sustainable financing models. For instance, a trader's advance to farmers might be scaled up or refinanced by a formal lender, or a processor's need for working capital could be met through a warehouse receipt system.

Trade credit (one actor providing goods or cash advances to another with delayed payment) is a common form of internal value chain finance. Studies in various countries have documented that input suppliers often extend input credit to farmers at planting, and buyers provide advances for crop production and harvesting (Adong et al., 2025; Pillai & Deshpande, 2024; Villalba et al., 2023). In Ghana, about 30% of smallholder farmers received some form of trade credit from buyers or input dealers, demonstrating that even in agriculture, which is typically seen as less intensive in trade credit than manufacturing, inter-firm financing is a vital practice (Dary, 2022). The advantages of trader credit include its familiarity and convenience as farmers and local traders usually know each other well and have established trust, and repayment can be scheduled at harvest when the farmer has cash (or crop) on hand (Murro & Peruzzi, 2022; Ninh & Kieu, 2019). In many cases, traders charge interest rates lower than those of village moneylenders, making them a relatively cheaper informal source. Moreover, from the trader's perspective, advancing funds to farmers helps secure a consistent supply of the commodity and reduces default risk, since repayment can be directly deducted from the crop deliveries. The following summarizes some of the pros and cons of such value chain financing between farmers and traders, as identified in prior studies and practice:

1. Benefits for farmers: (i) The lender is someone the farmer knows personally, which can build trust; (ii) Repayment schedules are aligned with the crop cycle (e.g., payment when the harvest is sold); (iii) Interest or implicit costs are often lower than borrowing from unrelated loan sharks.
2. Drawbacks for farmers: (i) Loans are usually short-term and may not cover long-term investment needs; (ii) The total cost of credit can be opaque (embedded in product prices or not explicitly stated); (iii) The farmer is obliged to sell to the lender, limiting their ability to seek better prices elsewhere.
3. Benefits for traders: (i) By financing farmers, traders ensure sufficient volume of produce, which helps keep their trading or processing operations profitable and meet buyer contracts; (ii) The arrangement lowers credit default risk for the trader, since they recover loans through crop purchases.
4. Drawbacks for traders: (i) Lending to farmers ties up the trader's capital, which might yield higher returns if used elsewhere (opportunity cost); (ii) There is always some risk that a farmer might side-sell to a competitor despite the advance.

Notwithstanding these pros and cons, informal intra-chain financing plays a crucial role where formal finance is absent. It often serves as the only option available for producers to obtain credit, thus enabling production that might not otherwise occur (Saediman et al., 2019; Yi et al., 2021). However, heavy reliance on within-chain finance can also limit the growth potential of the chain. Since the capital available informally (from traders, etc.) is finite and often insufficient to meet all producer needs, the chain may operate below its

optimal output due to a working capital shortage. Moreover, without external capital injection, farmers may not be able to invest in productivity enhancements (fertilizer, new trees) or expansion, keeping the chain in a low-investment trap. Recognizing these issues, development organizations and policymakers advocate for linking informal mechanisms with formal finance, for example, through partnership financing models where banks lend to farmer groups or agribusiness SMEs with credit guarantees, or through digital fintech solutions that reduce the cost of serving remote smallholders.

METHODOLOGY

The research was conducted in Southeast Sulawesi Province, Indonesia, focusing on the cocoa agribusiness value chain. Two districts, Kolaka and Konawe, were purposively selected as the study locations. These districts were chosen for their significant cocoa production and distinctive characteristics: Kolaka is a major cocoa trading hub with established export-oriented warehouses, while Konawe represents a substantial production area with many smallholders' cocoa farms. Together, they provide a representative picture of the cocoa value chain in the province, accounting for diverse geographic conditions and local policies. The selection also considered the districts' contribution to the region's agricultural GDP and the presence of ongoing government or private initiatives in the cocoa sector.

Within each district, key agribusiness sub-systems along the cocoa value chain were identified: input supply (e.g., agro-input kiosks), on-farm production (smallholder cocoa farmers), post-harvest processing (fermenting/drying at farm level, if any), and trading/marketing (village-level collectors and larger traders/exporters). A stratified approach was used to capture respondents from each subsystem. The respondents of the study fell into three broad categories:

1. Cocoa farmers and agribusiness actors at various stages of the value chain. This included smallholder cocoa farmers (on-farm producers), local village collectors (who buy wet or dry cocoa beans from farmers), large traders or wholesalers (often based in Kolaka town, purchasing in bulk and selling to exporters or directly exporting), as well as any local processors or grinding facilities. Farmers were selected via a mix of random sampling within known cocoa-producing villages and purposive sampling to ensure inclusion of both more advanced and more marginal farmers. In each district, farmer respondents were drawn from multiple villages. Meanwhile, traders and other chain actors were identified using purposive and snowball sampling through which initial key informants (e.g., from the agriculture office or farmer groups) pointed to major traders, who then helped identify other traders or relevant businesses.
2. Financial service providers who supply credit or financing to cocoa farmers or traders. This category included both formal and informal financiers: branch managers or loan officers from banks (e.g., Bank Rakyat Indonesia (BRI) unit offices, regional development banks, or rural

banks operating in the area), any microfinance institutions or rural credit agencies, as well as informal lenders such as moneylenders (rentenir), and importantly, traders who extend credit to farmers (since trader's function as non-bank lenders in this value chain).

3. Key informants from institutions related to agricultural finance and value chain development. This comprised officials from local government agencies such as BAPPEDA (Regional Development Planning Agency) and the District Agriculture Office, cooperative and enterprise agencies, and leaders of farmer associations or cooperatives. Additionally, officials from Bank Indonesia's local branch and commercial banks in the province were included. These informants provided context on policy, institutional support, and broader programs affecting cocoa financing.

In total, the study surveyed approximately 60 cocoa farmers (30 in each district) and 15 other value chain actors (including 5 village collectors, 4 large traders/export buyers, 3 input suppliers, and 3 small-scale processors or cooperative leaders). On the finance side, interviews were conducted with 5 bank officials (from different institutions), 3 microfinance or cooperative credit providers, and 5 informal lenders/traders known for providing farmer credit. Furthermore, 8 key informant interviews and 2 focus group discussions (FGDs) were held involving government officials, farmer group representatives, and traders. The FGDs (one in each district) served to validate findings and find out community-level perspectives.

Both primary and secondary data were gathered. Primary data collection employed multiple methods as follows:

1. Structured Interviews with Questionnaires: The researcher administered semi-structured questionnaires to farmers and other value chain actors. For farmers, the questionnaire covered farm characteristics, production costs, credit needs, past borrowing experiences, savings practices, and any participation in farmer groups or credit programs. For traders and processors, the survey asked about business scale, any credit extended to suppliers (farmers) or received from buyers/banks, interest rates or terms of such credit, and perceptions of financing constraints in the cocoa trade.
2. Key Informant Interviews: In-depth interviews were conducted with institutional respondents using open-ended guides. These interviews explored topics such as formal lending criteria for agriculture, government credit schemes available, observed obstacles in farmer lending, and any initiatives to promote agricultural finance. Traders who extend credit were also engaged in open-ended discussions to understand the informal credit arrangements in detail.
3. Focus Group Discussions (FGDs): One FGD in each district brought together a mix of farmers, local traders, and an extension officer to discuss community experiences with financing. The FGD format allowed participants to collectively map the "finance ecosystem" in the village – identifying where farmers get cash for inputs or emergencies, how

common each source is, and attitudes toward different lenders. It also served to cross-check individual survey responses and to probe sensitive issues (like informal interest rates or the role of middlemen) in a group setting.

4. Direct Observation: The researcher visited farms, local markets, and cocoa trading posts to observe firsthand the production and marketing process and any evidence of financing.

Secondary data were collected from documents and reports to complement the field information. This included statistics from the Indonesian Bureau of Statistics (BPS) on cocoa production and rural banking, reports from Bank Indonesia, and any relevant research publications or project reports on cocoa in Sulawesi.

The study employed a descriptive analytical approach. Quantitative data from the questionnaires were compiled and summarized using simple statistics. Given the sample size and exploratory nature, the emphasis was on qualitative and descriptive analysis rather than econometric inference. The various sources of evidence (survey, interviews, FGD, observation) were triangulated to map out the financial flows along the cocoa value chain and to identify recurrent themes regarding constraints and strategies. A value chain flow diagram was constructed to visualize how money moves between actors. This diagram highlights the linkages between farmers, traders, banks, and other financiers in terms of credit and product flows.

RESULTS AND DISCUSSION

Financing Flows Along the Cocoa Value Chain

Financing flows along the cocoa value chain is shown in Figure 1. Solid black arrows indicate product flows (cocoa beans moving from farmers to village collectors, to large traders, and onward to exporters/processors). Dashed arrows indicate financial flows in the form of credit. As shown, formal bank credit primarily flows to downstream actors (large traders/wholesalers), while informal credit (advances) flows from those traders to upstream farmers. Farmers generally sell cocoa to village- or subdistrict-level collectors, who then sell to larger traders in Kolaka (some large traders also buy directly from farmers via agents). Large traders often rely on bank loans to fund their purchasing capital and, in turn, extend credit advances to farmers to secure supply. This financing structure bypasses direct bank-to-farmer lending, effectively making traders the intermediaries of credit in the chain.

The field results confirm that formal financial institutions have minimal direct involvement at the farm level of the cocoa chain, whereas they are quite active at the trading level. Farmers reported that bank loans for cocoa cultivation are rare; none of the surveyed smallholders had obtained a bank loan specifically for cocoa farming. The reasons became evident in discussions: stringent collateral requirements (e.g., land certificates) and administrative hurdles preclude most cocoa smallholders from qualifying for bank credit. One bank officer in the region candidly noted that their agriculture loan portfolio consisted mainly of loans to traders and agri-businesses, not to individual

farmers, because traders can meet documentation and collateral norms whereas farmers often cannot.

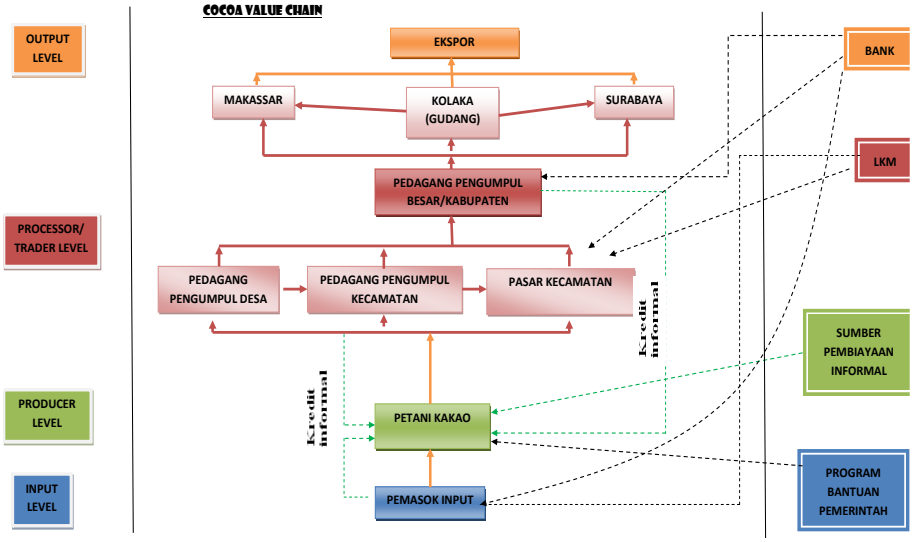

Figure 1. Financing Flows Along the Cocoa Value Chain

Instead, cocoa farmers fulfill their financing needs through informal arrangements, chiefly with cocoa buyers (traders). The majority of farmer respondents (approximately 90%) acknowledged a need for additional capital to fund their farm operations and improvements. Activities like purchasing fertilizer and pesticides, hiring labor for pruning or harvesting, and post-harvest handling all require cash outlays that their own savings cannot fully cover. About 50% of the farmers surveyed indicated that they had borrowed money in the past year for various purposes, including farm operational costs. The most common source of these loans was the village-level cocoa collector (18 collectors) who buys their cocoa. A smaller portion of farmers had ever borrowed from informal family/friends' networks or from the government pawnshop (which allows farmers to pawn gold or other assets for quick cash), but these were mentioned far less frequently than advances from traders. None of the farmers in the sample obtained credit from cooperatives or formal microfinance institutions, as such institutions for cocoa were either nonexistent in their area or not utilized.

Trader-provided credit to farmers usually takes the form of a cash advance given ahead of the harvest or during the planting season to cover input purchases. Notably, these loans are given without any physical collateral as the traders do not require land titles or assets as security. The only "guarantee" is a mutual expectation in which the farmer is expected to sell his cocoa harvest to that trader as a way of repaying the loan. In essence, the trader secures repayment by embedding it in the transaction: when the farmer delivers cocoa, the trader deducts some portion of the payment to settle the debt. Importantly, farmers reported that traders do not impose an explicitly lower price on the cocoa to recoup interest. The cocoa is purchased at the prevailing market price, and the loan payback is either in one lump sum at harvest or incrementally over several deliveries. The repayment mechanism is flexible. Some traders require that the loan be cleared upon the very next sale of cocoa (so the farmer brings cocoa, the trader buys it at market price, subtracts the loan amount and gives

the remainder to the farmer). Others allow the loan to roll over across multiple harvests; they do not insist on full repayment immediately as long as the farmer continues to sell to them. In fact, a common understanding is that the loan can remain outstanding indefinitely, provided the farmer remains loyal in supplying cocoa to that trader. This creates a strong incentive for farmer loyalty; by owing a debt, the farmer is morally bound to deliver produce to their creditor, which secures the trader's supply. From the farmer's perspective, the advantage is immediate access to cash without bureaucratic delays or collateral, and the ability to pay later when income comes in.

The typical informal interest rate on these trader loans is modest or even zero. In many cases, traders did not charge any separate interest; their benefit was assured through having the farmer's output to sell (and perhaps through slight quality or weight advantages). A few farmers mentioned that if they took a very long time (multiple harvests) to repay, the trader might subtly adjust the cocoa buying price down by a small margin to cover the opportunity cost, but generally, competition among traders prevented exploitative pricing. Indeed, competition is strong among cocoa buyers in Kolaka. The presence of multiple traders and even exporter buying stations (warehouses operated by export companies in the region) means farmers have alternative outlets. Thus, to retain farmer loyalty, traders have to keep their prices aligned with market rates and offer attractive terms (such as easy credit). One consequence is that farmers in Kolaka enjoy a relatively high farmers' share of the export price (Akiyama & Nishio, 1997), indicating an efficient marketing system where profits are reasonably distributed. This was affirmed by local price monitoring: the farmgate price tracked global price movements closely, with only a small margin taken by intermediaries.

On the input supply side, financing arrangements were also observed. Input suppliers (agrochemical kiosks) generally sell fertilizers and pesticides on a cash basis, because they themselves operate on thin margins and need turnover. However, some farmers reported that if they were short on cash, the cocoa trader who buys their product might advance money specifically for inputs, meaning that essentially the trader funds the input purchase and is repaid in cocoa later. Only a minority of farmers (just a few cases in the sample) obtained inputs on credit directly from the input shop, in which the shopkeeper gave fertilizer now and got paid after harvest. This practice was not widespread, likely because input sellers are not as well-capitalized as traders and may not trust individual farmers' repayment ability. More common was the scenario: trader gives cash to farmer → farmer buys inputs for cash from shop → farmer repays trader with cocoa. In effect, the trader finances both working capital and input needs.

Moving up the chain to post-harvest and marketing, our findings show that village- or subdistrict-level collectors serve as the first-line financiers for farmers, but they themselves are often financed by larger traders. A typical village collector might have a network of 20–30 farmers. To finance these farmers' advances and to purchase beans from them, the collector needs significant liquidity, especially at peak harvest times. Larger traders

(wholesalers) based in Kolaka often play a dual role: they not only buy directly from farmers (especially in nearby locations) but also act as a source of capital for smaller village collectors. It was reported that some big traders provide cash to smaller collectors, effectively entrusting them to gather a certain volume of cocoa. In exchange, the collector delivers the cocoa to the big trader's warehouse and settles the funds. The relationship can be formal (commission-based) or informal, but it indicates a cascading finance pattern: big trader → small collector → farmer, mirroring big trader → farmer in areas where collectors are bypassed.

Given these extensive outlays, large traders require large amounts of working capital. One prominent trader in Kolaka estimated that he had about IDR 500 million of his own money "circulating" at any given time as advances to farmers and collectors. This figure, if accurate, underscores how critical financing is to the trader's business model. To sustain and grow their trading operations, most traders do not rely solely on personal capital. Indeed, it was found that many large traders finance their operations through bank credit facilities. Traders reported having access to credit lines or short-term loans from commercial banks, which they use to pay farmers upfront. The banks, in turn, are more comfortable lending to these traders than to individual farmers because traders are registered businesses, sometimes with collateral, and have records of cocoa sales (often export contracts or receipts from exporters) that demonstrate reliable cash flow. Essentially, formal finance is reaching the cocoa sector indirectly from banks to traders, and traders to farmers. This value chain-based financing strategy leverages the relationship between traders and farmers to overcome the bank's difficulty in lending to many small, dispersed producers.

An important external development in Kolaka has been the establishment of exporter buying stations locally. International and national cocoa exporters have set up warehouses in Kolaka to source beans directly, rather than requiring all product to go through Makassar (the main export port). This shortens the supply chain and can improve efficiency, but it also intensifies competition for beans. One might wonder if exporters themselves provide any financing to secure beans (similar to traders' advances). According to an interview with one export company representative, the exporters generally do not provide direct financing to traders or farmers. Instead, they use price incentives to attract cocoa. In practice, the exporter's buying price fully follows the international price (minus a margin for quality and transport), and they might offer a slight premium or faster payment to traders who consistently supply large volumes. In one instance, it was noted that exporters allowed traders to store cocoa in the exporter's warehouse for up to one month without immediate sale if the trader felt the current price was too low. This effectively gives the trader flexibility to wait for a potential price rise while having the cocoa safely in storage, which is a kind of service incentive. However, the exporter did not advance cash to the trader; the trader still had to finance the purchase from farmers on his own.

The cumulative effect of these patterns is that cocoa farmers are indirectly benefiting from formal finance, but only through the conduit of traders. As illustrated in Figure 1, formal institutions inject credit at the midstream, and that credit trickles down informally to the farm level. This approach has been relatively effective in Southeast Sulawesi's cocoa chain under current conditions: farmers get the needed capital when they need it (from traders), traders manage to increase supply and can repay banks after selling to exporters, and exporters get the volume they need without having to micromanage thousands of farmers. Additionally, as mentioned, the cocoa marketing system is deemed efficient in terms of price transmission and margins (Akiyama & Nishio, 1997). Such a scenario validates a value chain finance model wherein lending to the aggregator (trader) is a viable proxy for lending to producers. In conditions like Kolaka with good road infrastructure, transparent pricing information, a culture of entrepreneurship among farmers, and competitive buying, this model can work well. Essentially, the credit risk is shifted: instead of many small risky farmer loans, the bank does one loan to a trader (who has business credibility), and the trader assumes the default risk of the farmers. The trader mitigates that risk by only lending to farmers he trusts and by keeping the repayment in-kind via cocoa sales.

Benefits and Limitations of Value Chain-Based Financing Strategies

The cocoa case in Southeast Sulawesi highlights a clear value chain financing strategy in action: channeling credit through trade relationships. There are evident benefits to this approach. It leverages local knowledge and trust; traders know the farmers personally, which banks do not, so traders are better positioned to judge who is creditworthy in their community (character lending). Traders also have a vested interest in the farmer's success (more cocoa equals more business for them), aligning incentives for the credit to be used productively (e.g., buying fertilizer to increase yield). Additionally, by tying credit to output, this method creates an integrated market linkage: farmers have a guaranteed buyer (reducing marketing uncertainty), and traders have a guaranteed supply (reducing sourcing uncertainty). This synergy can improve efficiency in the value chain and is one reason why farmers in our study generally delivered all their output to their creditor/trader, even if another buyer sometimes offered a slightly higher price. In this regard, the security of the relationship and the credit facility outweighed occasional small price differences.

From a financial institution's perspective, supporting such value-chain arrangements (indirectly) could be a pragmatic way to expand agricultural lending. Essentially, the financial institution finances the "aggregator" (trader or processor), who is less risky and then relies on the aggregator to on-lend to producers. This model is akin to the "anchor borrower" model in some value chain finance literature, where a bank lends to a lead firm that then supports small suppliers. If managed well, it can substantially lower transaction costs as the bank handles one relationship (with the trader) instead of dozens with individual farmers, and the trader handles the rest. As noted in the results,

certain conditions made this work well in Kolaka, particularly competition and transparency, which kept traders fair and prices good.

However, limitations of the current financing strategy must be recognized. First, it heavily depends on the trader's capacity and willingness. Not all traders may have the capital or inclination to provide advances. In areas where traders themselves are small or face tight margins, they might not finance farmers at all, leaving farmers with no credit. In our Konawe sample, which is less commercially dense than Kolaka, fewer farmers received trader credit, and those who did got smaller amounts. This hints that the model might be less effective in areas with less competition or where traders are not financially strong.

Second, the informal nature of agreements means there is little protection for either party if something goes wrong. For example, if a farmer's crop fails due to drought, floods, or other factors (Geo & Saediman, 2019; Saediman et al., 2020, 2021), (an informal agreement might be extended (trader waits longer for repayment), but if losses are severe, the farmer might default entirely and the trader has no legal recourse. In fact, the government has promoted farm insurance, but is only limited to few crops, especially rice (Laloi et al., 2024). Conversely, if the trader faces a business crunch, they could suddenly cut off credit to farmers without notice. In formal banking, such scenarios are handled through contract enforcement or insurance, but in informal deals they rely purely on personal relationships and trust, which, while strong, can be tested under stress.

Third, these advances typically cover recurrent costs but not larger investments. Farmers indicated that the amounts they could borrow from traders were relatively small and only enough to buy some fertilizer or cover family expenses in a pinch (often in the range of IDR 1–5 million). If a farmer wanted to, say, rehabilitate two hectares of cocoa by replanting, which might require a bigger lump sum and a multi-year payback, traders would not finance that. It is beyond the scope of their informal lending. Thus, without formal financial products stepping in for capital investment, there is a danger that the cocoa sector's necessary upgrading (e.g., replanting aging trees, investing in fermentation equipment) will not happen. Farmers are essentially caught in a short-term credit loop oriented around harvest cycles and immediate needs.

Another limitation is that informal credit can limit farmers' marketing choices. Even if not explicitly exploited by traders now, it could become a mechanism of control. The study's lessons learned noted that farmers sometimes choose a marketing channel (which trader to sell to) based not on best price but on where they can get advance cash. The short-term need for cash (liquidity crunch) dictates the sale, which might not always align with their long-term financial interest. Essentially, being cash-strapped can force sales at suboptimal times or to less competitive buyers. In a healthy financial system, farmers could borrow from a neutral party (like a bank) and then sell to whichever buyer offers the best price. In the current system, credit and sales are tied, which might reduce price competition under certain circumstances.

The findings also suggest an avenue for improving formal financial inclusion via mediated schemes. For instance, one of the "best practices" highlighted by respondents was the role of government agencies as mediators or facilitators between farmers and banks. In this regard, the Agriculture Office has occasionally helped by recommending groups of farmers to banks for participation in credit programs (such as the KUR or People's Business Credit). By certifying that these are bona fide farmers and perhaps providing some technical guidance, the agency can give banks more confidence to lend. Also, if extension officers can monitor loan usage (ensuring it goes to farm activities) and coach farmers on repayments, banks' risks are mitigated. This points to a potential strategy for tripartite partnerships between banks, farmer groups, and an intermediary (government or NGO) to expand credit access (Lestari et al., 2023; Reski et al., 2022). Such partnerships did not appear widespread in our study area for cocoa, but could be modeled on similar efforts in other commodities.

Comparatively, looking at the rice value chain study by Saediman et al. (2019), the cocoa value chain shows a very similar structural gap: farmers heavily dependent on trader credit, with banks favoring mills/traders. The rice study concluded with a call to continuously improve smallholder access to formal finance for boosting production and welfare. The present cocoa study reinforces that recommendation, underlining that the underlying issues are systemic across commodities. However, one aspect in cocoa is that the product is largely for export, and quality improvements (fermentation, etc.) could unlock higher value if farmers had the means to adopt them. The lack of finance is not only a social issue but a value chain competitiveness issue. Without better financing options, farmers stick to selling wet or unfermented beans immediately for quick cash (often required to repay those very advances). If financing were available to cover their cash needs, they might be able to ferment beans for a week and get a higher price, or store beans when the price is off-season low and sell later. Currently, farmers cannot easily do that because the advance system encourages immediate sale to the creditor.

CONCLUSIONS AND RECOMMENDATIONS

This study examined the financing status of the cocoa agribusiness value chain in Southeast Sulawesi and found a pronounced misalignment between where financial services are provided and where they are needed. Smallholder cocoa farmers (upstream) have very limited direct access to formal credit and instead rely on informal, value chain-based financing (primarily credit from traders) to meet their working capital needs. Downstream actors (traders, collectors), in contrast, are the main recipients of formal bank loans in the cocoa chain, and they channel a portion of these funds to farmers through advance payments. While this arrangement has enabled the cocoa trade to function and somewhat alleviated farmers' liquidity constraints, it is not an optimal or fully sustainable solution for inclusive agricultural development.

Financing the cocoa value chain in Southeast Sulawesi requires bridging institutional gaps and innovating beyond traditional banking models. A

combination of policy interventions (subsidies, guarantees, insurance), capacity building (farmer groups, financial literacy), and partnership-based financing can gradually transform the current system. The goal is a sustainable rural finance ecosystem where cocoa farmers can access timely and adequate financial services (credit, savings, insurance) to support their operations, buffer shocks, and invest in growth, without falling into debt traps or exploitative relationships. Achieving this will not only improve the welfare of cocoa farming households but also strengthen the entire value chain's competitiveness and resilience in the face of market and climate challenges.

It is important to note several limitations of the present study. First, the study did not examine the role of digital lending platforms or online microloans, which have become increasingly prevalent in rural Indonesia. Fintech-based credit services, including peer-to-peer (P2P) lending and mobile-based microfinance, may offer alternative avenues of financial access for smallholder farmers, particularly the younger generation. Second, the study did not include farmers engaged in partnerships with international cocoa companies, many of which operate directly in Sulawesi and provide embedded services such as training, input credit, or price premiums tied to certification schemes. These partnerships may influence financing behavior, investment decisions, and market orientation differently compared to farmers outside such arrangements. Capturing this segment would provide a more comprehensive understanding of financing dynamics and value chain upgrading in the cocoa sector.

FURTHER STUDY

Future studies could quantify how the current financing structure affects farm performance. Action research could be conducted to pilot alternative financing models in the cocoa chain. Comparing financing across different commodity value chains in the region could help isolate factors that are commodity-specific versus those that are systemic. Future studies should assess the extent to which cocoa farmers utilize or are excluded from these emerging financial services, including the risks and benefits they perceive. Incorporating the involvement of international cocoa companies in future research would help to broaden the analysis and strengthen the relevance of recommendations.

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