2025 Trade and development report

Chapter III

The financial architecture of global food trading: New patterns and emerging risks

KEY FINDINGS

- Post-2010, major commodity trading firms have evolved beyond traditional trade intermediation, becoming critical nodes not only in supply chains but also in the financial networks that connect banks, capital markets and commodity producers.
- These new financial intermediaries have transformed the institutional framework of trade finance. They work in ways that could amplify, rather than contain, financial shocks.
- Today, income from financial intermediation represents more than 75 per cent of revenues for major food trading companies globally. The pricing of food and energy commodities increasingly reflects financial strategies over economic fundamentals.
- In 2024, at least 6 of the top 11 food traders actively engaged in financial securitization – a mechanism that amplifies liquidity but also increases leverage. The scale of this leverage creates risks that transcend traditional financial stability concerns.
- Overall, the post-2010 financial architecture of global food trading is underpinned by practices that create large international counterparty risks across at least 80 countries.

United Nations

Policy takeaways

- The financialization of food trading shows that reliance on firm-based supervision and self-regulation is inadequate to address evolving systemic risks. Regulating the current structure of commodity trading requires new approaches to crisis management that can address both operational continuity and financial stability.
- Rather than focusing primarily on leverage constraints among individual entities, policymakers need to address the systemic effects that leverage creates through its interaction with market structures, the information architecture and trading networks.
- Given the new landscape of systemic risk in commodity trade, regulators must modernize oversight to protect market stability. Non-transparent financial and tax avoidance techniques in commodity sectors should come under policy scrutiny, given concerns about illicit financial flows, financial and trade integrity, and resource mobilization. Competition policy tools and cross-market approaches must play a more central role in addressing the vulnerabilities created by concentrated market structures in commodity trading.
- The stakes in developing effective approaches to systemic risks extend beyond financial stability. They encompass the resilience of commodity markets underpinning global food and energy security, as well as transparent commercial outcomes in commodities markets, such as price discovery and risk management.

A. Introduction: The hidden foundation of global trade

Most trade finance is short-term debt.

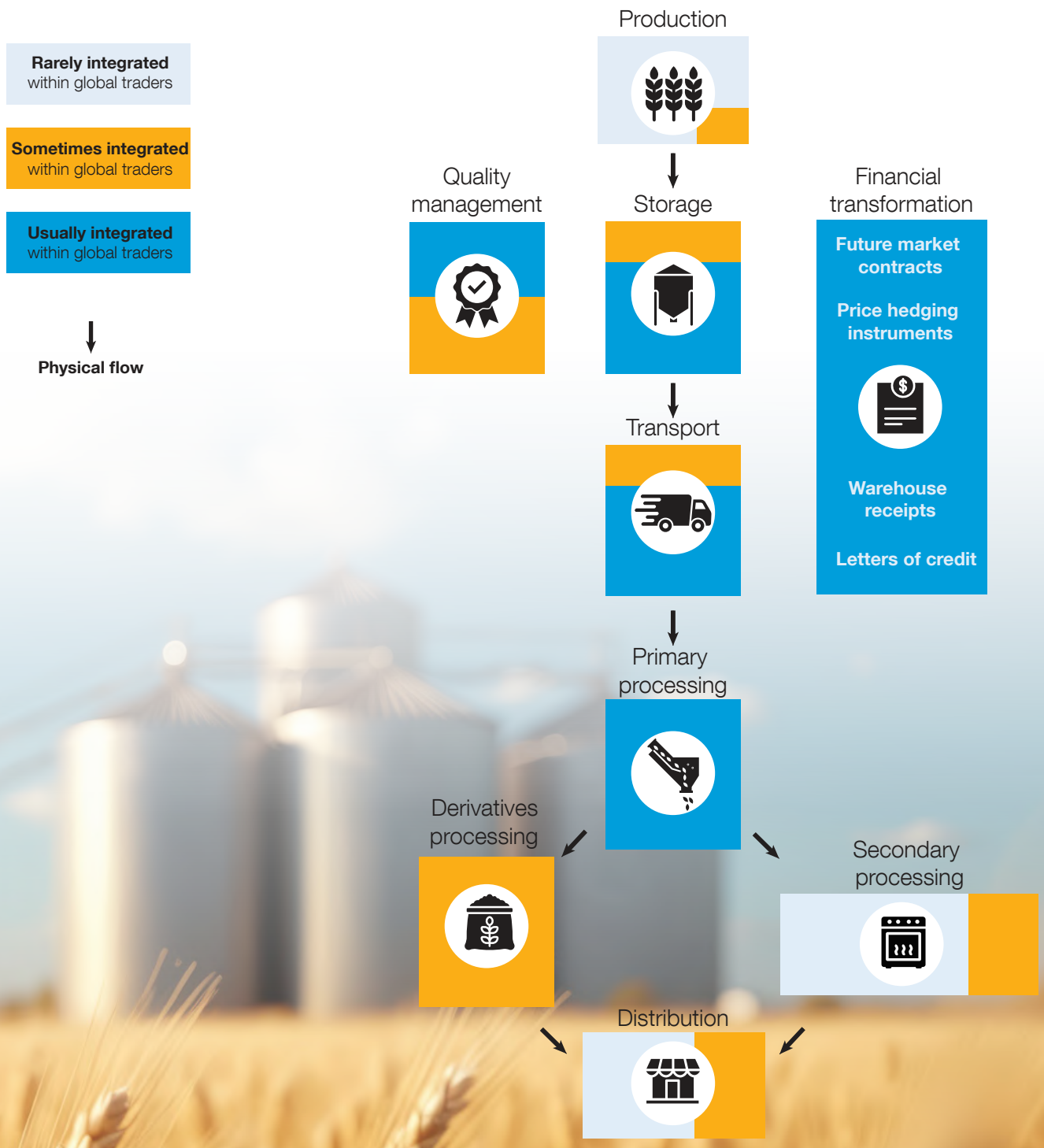
According to WTO, about 80 to 90 per cent of international trade is financed by some form of trade credit (trade credit and insurance guarantees).[20] Most trade credit takes the form of short-term debt, rendering trade particularly exposed to market shocks, changes in risk perceptions, financial fragility, crises and regulatory interventions affecting the global financial system. Global trade in essential commodities, such as food and energy, fundamentally depends on the availability of trade finance. Unlike trade in goods more generally, these segments are not organized around global supply chains, where larger firms extend credit to smaller firms, supplying intermediate inputs in a value added, internationally organized manufacturing process.

Instead, commodities trade is typically mediated by a handful of commodity trading firms that source, process and transport commodities to international buyers. Particularly in agriculture, a few large companies control much of the market, from owning physical inventory to trading, processing and retailing agricultural products (UNCTAD, 2016). Figure III.1 delineates the wheat supply chain, illustrating interactions among commodity traders, farmers, storage facilities, processors and end consumers as wheat moves from farm to table.

Unlike conventional supply chains where firms create value through physical transformation, commodity traders primarily generate value by aligning financial instruments with specific vulnerabilities inherent in the physical supply process. Each transition in the journey of wheat along the supply chain, for example, introduces distinct financial risks. These include seasonal production gaps, mitigated with futures contracts; storage risks, managed through warehouse receipts used as collateral; price volatility at processing stages, hedged via derivatives; and international transactions, secured by letters of credit replacing the need for direct bank creditworthiness. This financial architecture underpins the efficiency and stability of the global wheat trade.

[20] See more on trade finance at https://www.wto.org/english/thewto_e/coher_e/tr_finance_e.htm.

Figure III.1
From farm to table: Transformation of the wheat supply chain



Source: UNCTAD.

Note: Blue areas (essential physical control for global traders) represent activities traders must control to guarantee delivery on their financial promises. Yellow areas (enhanced physical control) such as processing and production relationships strengthen financial transformation reliability by providing guaranteed demand and supply.

Globally, food accounts for 87% of total agricultural export value.

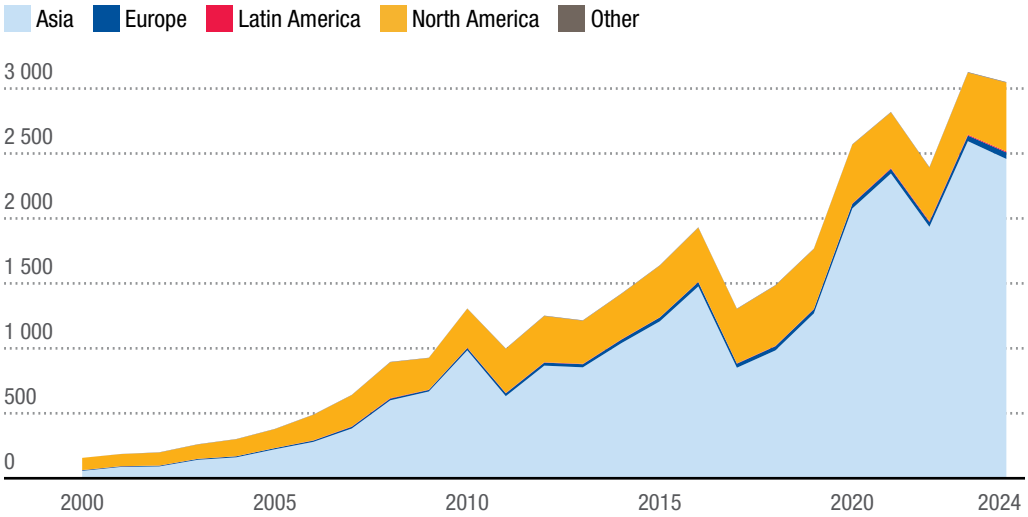
Currently, commodities represent around 34 per cent of global trade in goods. While energy products dominate, agriculture comprises around one third of global commodity exports, with food items accounting for approximately 87 per cent of total agricultural export value (UNCTAD, 2025b). In the universe of financial instruments that sustain the global commodities trade, commodity derivatives represent 4.6 per cent of all exchange-traded derivatives, with agriculture derivatives accounting for 1.4 per cent of total volume in 2024.[21] Most exchange-traded commodity derivatives are traded in Asia and North America (figure III.2). In Europe, commodity derivatives are predominantly traded over the counter, with this transaction type representing 77 per cent of the total notional amounts at the end of 2024 (ESRB, 2025).

Yet the importance of commodities for macroeconomic stability extends far beyond what such magnitudes might suggest. From the wheat that feeds the world's population to the metals that power renewable energy transitions, commodity trade flows constitute critical infrastructure upon which modern economies depend. When commodity markets are disrupted, the consequences can ripple through food systems, industrial supply chains and financial markets.

This was evident in past decades, which have been marked by recurrent commodity market disruptions, especially after 2008. While each crisis has exposed new concerns about the resilience of trade finance, post-crisis revisions have seen chronic data challenges and information gaps. Similarly, although each crisis sparked analyses of commodity market stability, regulatory

Figure III.2
Financial instruments sustain the global commodity trade, including agriculture
Exchange-traded agricultural derivatives, by region

(Millions of dollars)



Source: UNCTAD based on the ETD tracker database of the Futures Industry Association.

Note: The financial instruments traded on global exchange-traded derivative markets include futures and options. The agricultural assets included in this data are: soy meal, corn (maize), rapeseed (canola), sugar, soybeans, soy oil, palm oil (olein, palmolein), rubber, cotton, wheat, other fruit and vegetable products, pulp, eggs, beef, coffee, legumes, cocoa, pork, spices and nuts, rice, other oil and oilseed products, fibre board, dairy, block board, orange juice, lumber, potatoes, oats, other animals and animal products, seafood (shrimp, salmon), silk, sunflower, barley, jute, flaxseed, wool, other grain products, other agricultural products, sorghum, apple juice, other forest products, seed (sunflower), corn, dairy products, soyabeans and beans.

[21] BIS derivatives statistics.

responses have targeted symptoms rather than underlying structural vulnerabilities.

Such tendencies led to disjointed regulatory frameworks in the wake of the global financial crisis of 2008–2009. As this chapter shows, fragmented regulatory attention, a paucity of data and information, and joined-up regulatory domains leave the financial architecture of food trading subject to practices creating large international counterparty risks across at least 80 countries.

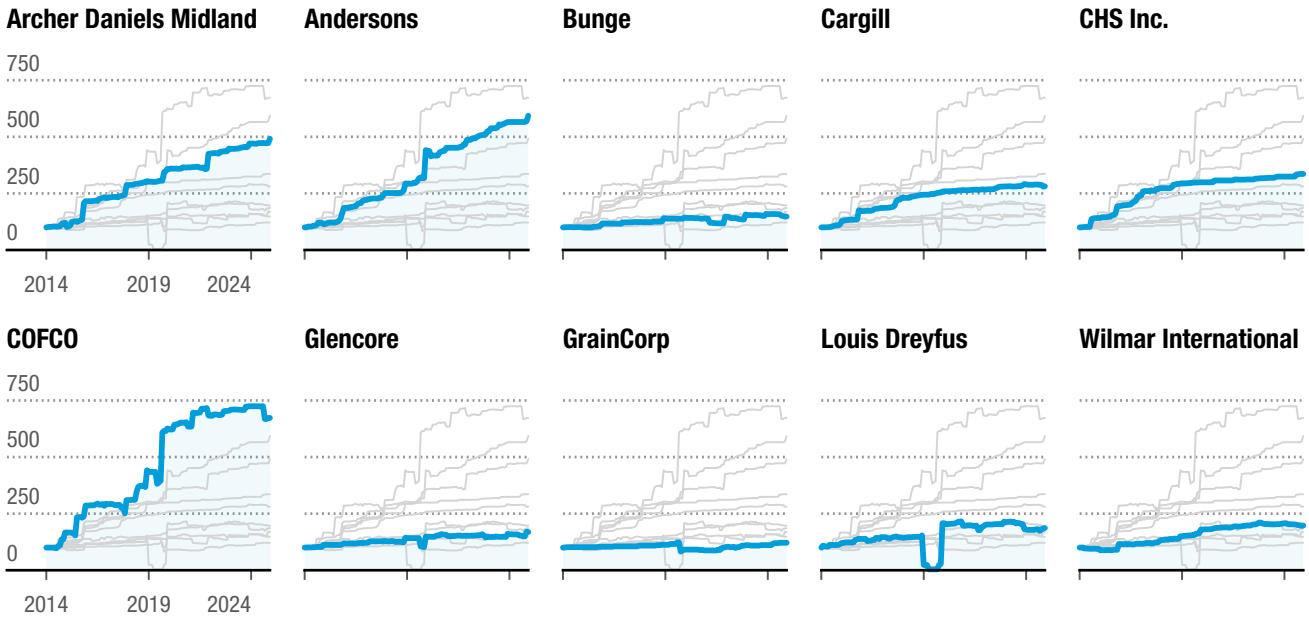
In a context of geopolitical volatility and policy uncertainty, these failings are particularly concerning. On the one hand, despite growing recognition of the importance of financialized commodity sectors to the global economy and development, this area of trade and finance remains non-transparent, whilst its regulation is fragmented. On the other, the few large companies that dominate commodity trading have continued to expand their footprint during recent years of market volatility. This has driven further concentration in the sector and the complexity of corporate groups themselves (figure III.3).

Even as food commodity prices retreat from their 2022 peaks, leading companies in the sector appear to be benefiting from market volatility. In 2024, gross profits for the industry were about $95 billion, below 2022–2023 levels, yet still 2.5 times higher than the average during 2011–2019 (Hook and Wilson, 2025). Leading private trading houses such as Trafigura, Vitol, Gunvor and Mercuria have collectively earned more than $57 billion in net profits since 2022. As one chief financial officer put it, his company's financial performance had "reached a new cruising altitude" (Farchy, Hunter and Rocha, 2025).

The financial architecture of global food trading creates significant risks for at least 80 countries.

Figure III.3
A few global food trading firms have expanded significantly in a concentrated global market
Growth of corporate groups

(Index, January 2014 = 100)



Source: UNCTAD based on Orbis.

Note: The figure shows the growth of corporate groups based on the number of subsidiaries estimated to be part of them on a month-to-month basis between January 2014 and December 2024.

Where trading firms own inventory and pursue financial innovations, trade financing transforms institutionally.

Performance is distinct from resilience, however, as chapters 1 and 2 show. In commodity trading, the distinction between the financial performance of individual companies and the resilience of the sector is especially important, for two reasons.

First, even on regulated commodity exchanges, a holistic assessment of the risk exposures of trading firms is not possible. For over-the-counter trades, the scarcity of reported data makes it particularly difficult to monitor large risk exposures. There are already cases where positions can become large enough that a materialization of risks can impact the functioning of a corresponding commodity market on a regulated exchange, as occurred during the nickel market suspension in 2023 in the United Kingdom (FSB, 2023a; Desai, 2023; Onstad, 2022).

Second, within commodity trading, financial innovation and engineering tend to be viewed as processes to improve competitiveness and efficiency. The business of food trading, however, is dominated by oligopolistic firms that have advanced their control partly through financial investments (BRICS Law and Competition Policy Centre, 2025). As this chapter shows, in the current regulatory environment, financial innovation in food trading is not aimed at enhancing efficiencies but is used to enable the wider transformation of food traders into financial intermediaries.

This chapter investigates key post-2010 transformations in the trade finance system within food commodity trading. It identifies emerging risks to financial stability and economic resilience. A major premise is that in an environment where trading firms own inventory and have access to financial innovations, trade financing transforms institutionally.

The analysis is structured on two levels. Section B examines recent shifts in food trading, revealing how financialization has fundamentally changed the role of the food trader. Unlike in the earlier bank-mediated model of trade finance, today, food traders have become financial intermediaries. Trade financing relationships have shifted from direct, transaction-level arrangements to a broader system involving traders, banks and capital markets. As a result, trade finance is now a complex, integrated system of financial intermediation, unlike the traditional, project-level financing model.

Section C identifies some key consequences of this institutional transformation in the wake of the Basel III reforms. Specifically, it finds that despite concerns over the nature and risks of financial intermediation in commodity trading, including those raised over the past few years by major regulators, the wider systemic implications of the new financial intermediation are underexamined. Drawing on available evidence and the lessons of prior financial crises, the chapter outlines risks to resilience stemming from these transformations. Section D identifies emerging development policy concerns.

The analysis draws on new analytical insights and evidence to support policy and research to address concerns about the resilience of financialized commodity trading. The data set used mainly covers companies involved in global food trading, although many firms operate across different sectors and assets. Many observations presented below are potentially relevant to energy traders and mining companies, on which data are more difficult to obtain.

B. Finance and the transformation of commodity trading

For decades, policy discussions about commodity market stability have evolved around two interconnected pillars. The first involves traditional trade finance – the letters of credit and other banking innovations that emerged over the twentieth century to enable international commodity trade. In this vision, banks serve as critical intermediaries, providing financial infrastructure so that buyers and sellers can operate across geographic distances and extended time horizons.

The second pillar encompasses the financial derivatives markets – the futures contracts, options and swap arrangements originally developed to hedge risks around agricultural commodities such as wheat and corn. These markets evolved as sophisticated risk management tools that allowed commercial actors to hedge against price volatility, currency fluctuations and other uncertainties inherent in international trade (e.g., Algieri, 2018).

The underlying theoretical foundation of policy debates is straightforward: Derivative markets pool risks among speculators who profit from price movements, effectively providing "insurance" to commercial traders who need predictable costs and revenues. This framework emphasizes the complementarity between the two pillars. Bank financing facilitates physical trade whereas derivative markets enable the hedging that makes it possible for buyers to pay spot market prices for future commodity deliveries. Together, they create a mutually reinforcing system that expands the resilience and capacity of international commodity trade.

Both assumptions about commodity market stability are flawed, however, as the next subsection shows, because they overlook the profound impact of structured finance. Today, commodity traders, acting as financial intermediaries, are reshaping the very fabric of trade credit and financial intermediation in commodities. Structured credit is increasingly used to link individual projects, centred on physical delivery, with banks and non-banking institutions, thereby expanding the influence of structured finance into individual ventures and the sector at large.

This evolution challenges the core pillars of the commodity trade, a process that is often downplayed. The rise of "structured finance" in the hands of traders has fundamentally altered the industry's foundation.

Commodity traders, acting as financial intermediaries, are reshaping trade credit and financial intermediation.

1. The financialization debate: Food speculation as a force of market disruption

Commodity market volatility has remained a persistent policy concern through repeated food crises (figure III.4).

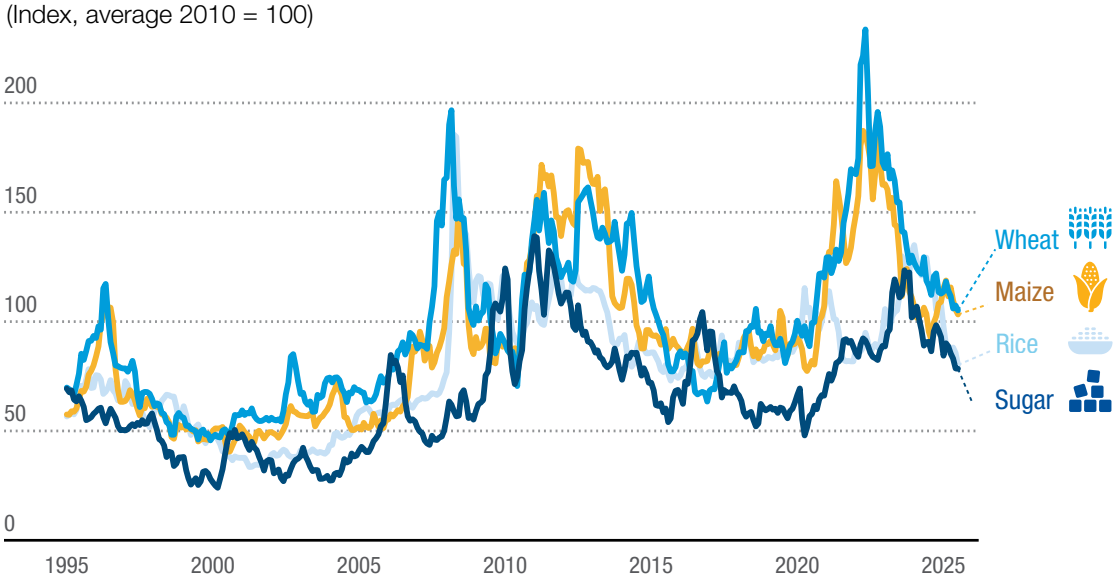
In the aftermath of the global financial crisis, it became clear that the financialization of commodity markets and the role of financial investors in them are "the new normal commodity price determination" (UNCTAD, 2011; Adams et al., 2020). Part of this normalization has emerged from a move away from viewing speculation (or indeed, volatility) as the primary cause of instability. Speculation and derivatives markets act more as amplifiers of instabilities, reflecting (and spreading) underlying fragilities rooted in the financialization of food trading (FSB, 2023a; UNCTAD, 2023). Two related issues are particularly relevant.

First, the last decade saw a major change in the organization of the food trading sector globally, with new players entering the market (Wion et al., 2024). In part, changing income patterns in the sector suggest shifting dynamics of concentration, with new entrants competing with the ABCD monopolies.[22] Crucially, important differences have emerged in the sector, particularly over the last decade. These reflect divergent patterns of financialization among trading groups. Prior to the end of the commodity supercycle in 2014, revenue growth was comparable across the major food trading firms. Trends have shifted in recent years, however, most notably in the established ABCD traders (figure III.5).

At first glance, income reports suggest that emerging players (ABCD+), many Asian, are closing the gap with the ABCD firms.

Figure III.4
Gyrating prices of selected crops point to concerning market volatility
Monthly prices, selected commodities, January 1995–July 2025

(Index, average 2010 = 100)



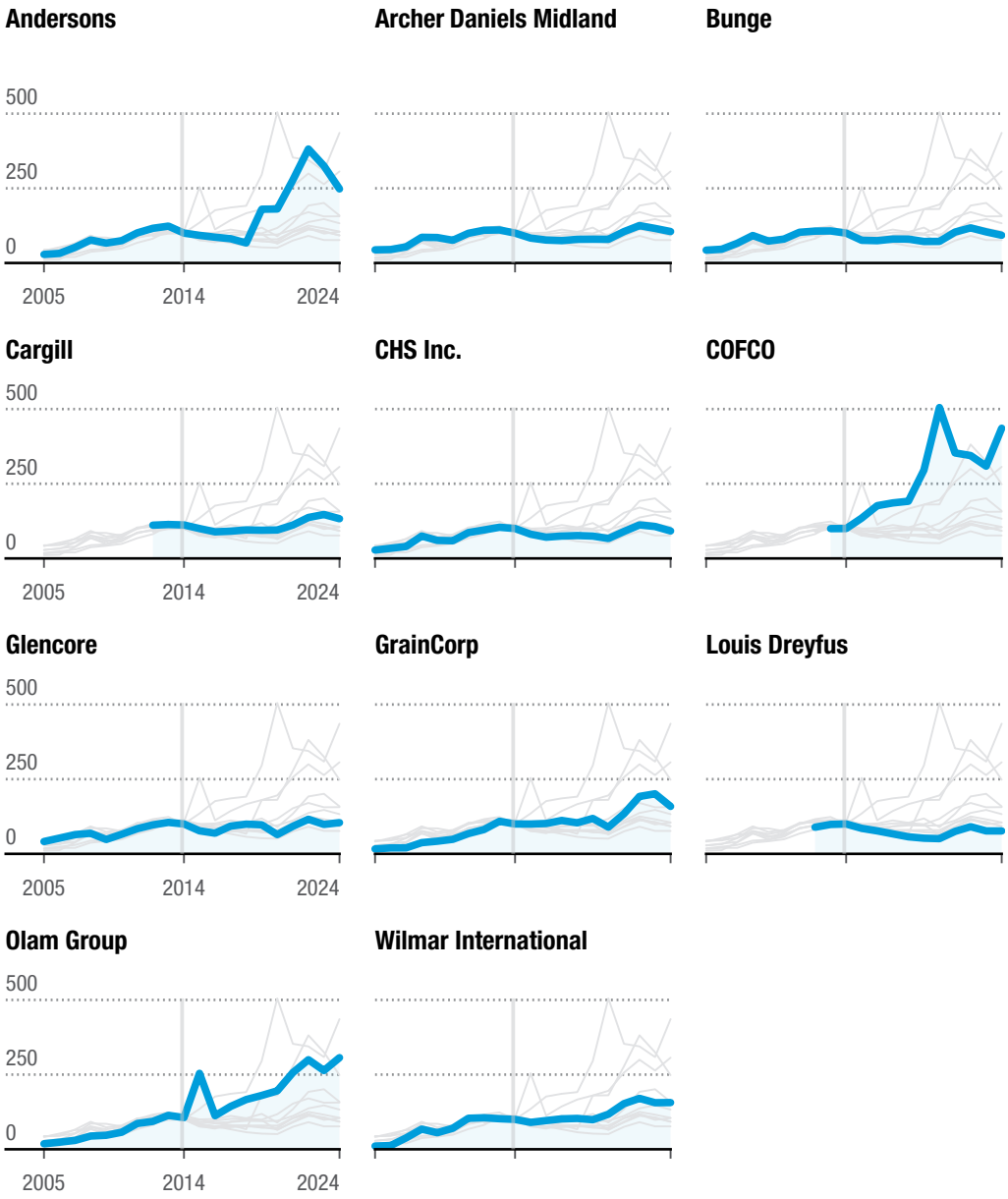
Source: UNCTAD based on the World Bank, The Pink Sheet.

[22] Comprising the four large food-trading companies that dominate the agriculture sector: Archer Daniels Midland (ADM), Bunge, Cargill and Louis Dreyfus Holding BV.

Figure III.5
After the commodity supercycle, income trends among global food traders start to diverge

Total operating revenue, global food traders

(Index, 31 December 2014=100)



Source: UNCTAD based on Compustat and Orbis.

Note: Where possible, data from publicly listed entities on Compustat were used for standardization purposes. For the state-owned trader COFCO, its publicly listed subsidiary, COFCO Joycome Food Limited, was used as a proxy given data was available on Compustat, and COFCO Corporation does not itself provide public accounts. For private traders, namely Cargill and Louis Dreyfus, data on revenue were taken from Orbis. Attempts were made to use financial reports produced by the global ultimate owner entity. The exception was Louis Dreyfus, the primary intermediate holding company of Louis Dreyfus Holding BV, which was used as a proxy. As reporting date for fiscal years can differ, the base year for each group was the reporting date closest to 31 December 2014 (the most common reporting date). Because trader revenues are sensitive to market volatility, results are presented on a calendar scale to preserve comparability around the moment of that year-end when revenues were reported. As a result, not all lines cross the x-axis at precisely the same moment in time.

Global commodity traders may be masking market concentration in how they measure and report performance.

This seems to indicate that market concentration in the United States and Europe has peaked. Yet this view is superficial.

These apparent shifts likely occlude deeper changes driven by the financialization of commodity trading. Large trading firms now generate income in ways that distort transparency, leveraging external finance and engineering tax-efficient earnings that rarely appear in official accounts. Instead of dissipating market concentration, the financing practices of global commodity traders may be masking it, based on fundamentally altering how they measure and report their performance.

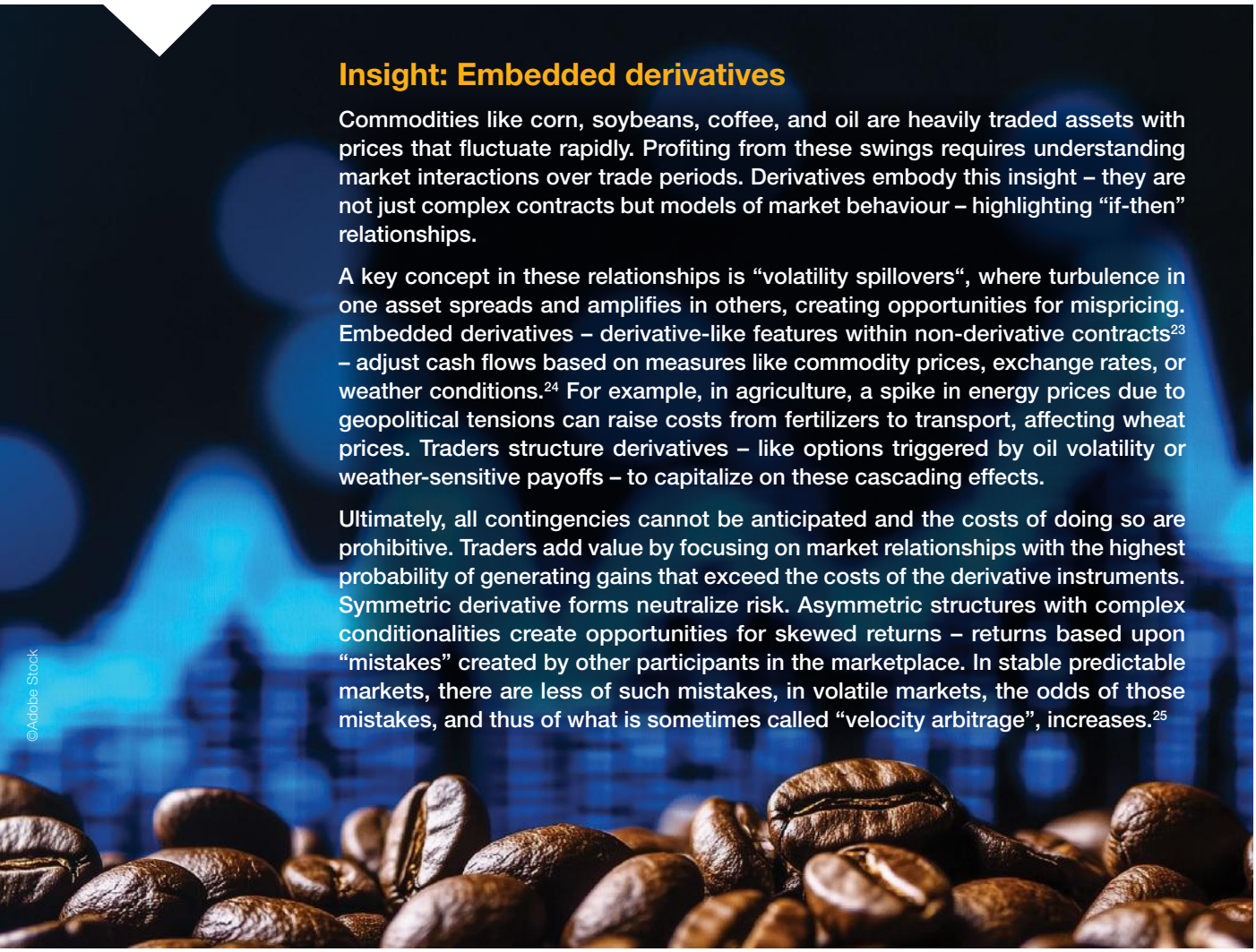
Second, the nature of income for the ABCD firms has undergone a fundamental shift, heavily influenced by derivatives. Accounting standards on derivatives lagged other regulatory reforms following the financial crisis. But by 2017, regulators began using Generally Accepted Accounting Principles (GAAP) in the United States and International Financial Reporting Standards (IFRS) in Asia and Europe to challenge the opacity surrounding derivative use by industrial firms. As these regulations took hold, a new, transformative picture emerged of how the ABCD companies generate their income and the role of financial derivatives in this process (see Insight).

Insight: Embedded derivatives

Commodities like corn, soybeans, coffee, and oil are heavily traded assets with prices that fluctuate rapidly. Profiting from these swings requires understanding market interactions over trade periods. Derivatives embody this insight – they are not just complex contracts but models of market behaviour – highlighting "if-then" relationships.

A key concept in these relationships is "volatility spillovers", where turbulence in one asset spreads and amplifies in others, creating opportunities for mispricing. Embedded derivatives – derivative-like features within non-derivative contracts[23] – adjust cash flows based on measures like commodity prices, exchange rates, or weather conditions.[24] For example, in agriculture, a spike in energy prices due to geopolitical tensions can raise costs from fertilizers to transport, affecting wheat prices. Traders structure derivatives – like options triggered by oil volatility or weather-sensitive payoffs – to capitalize on these cascading effects.

Ultimately, all contingencies cannot be anticipated and the costs of doing so are prohibitive. Traders add value by focusing on market relationships with the highest probability of generating gains that exceed the costs of the derivative instruments. Symmetric derivative forms neutralize risk. Asymmetric structures with complex conditionalities create opportunities for skewed returns – returns based upon "mistakes" created by other participants in the marketplace. In stable predictable markets, there are less of such mistakes, in volatile markets, the odds of those mistakes, and thus of what is sometimes called "velocity arbitrage", increases.[25]

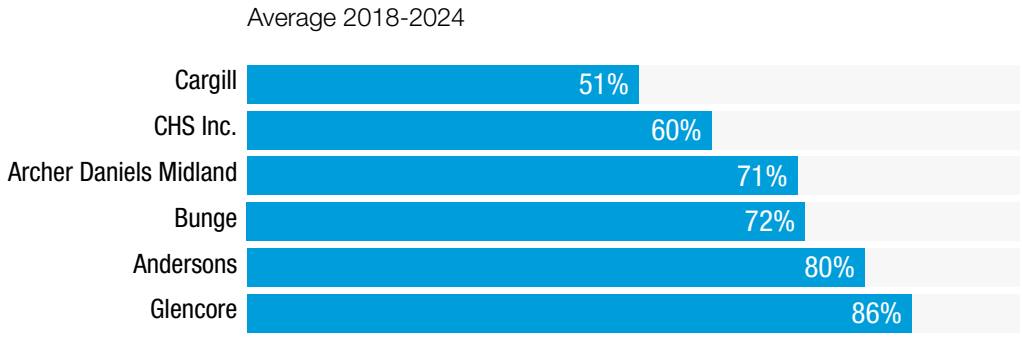


[23] See https://www.garp.org/hubfs/Whitepapers/a1Z1W0000054xFEUAY.pdf
[24] See https://www.tbs-sct.canada.ca/pol/doc-eng.aspx?id=32780&section=html
[25] See https://thehedgefundjournal.com/true-partner-volatility-arbitrage-and-tail-risk/

Figure III.6
As financial intermediaries, commodity traders have stepped beyond simply seizing opportunities from market volatility

Mark-to-market valuation of derivatives income as a share of total revenue

(Percentage)



Source: UNCTAD based on company annual financial statements.

Note: Data reflect derivatives and total income values from audited financial statements of major commodity trading companies (2018–2024), primarily under ASC 815 (GAAP) standards. ASC 815 disclosures enable identification of mark-to-market derivatives income within total revenues. Glencore's figures, based on IFRS 9, are approximated due to less precise reporting standards.

Commodity trading is often portrayed as a high-volume, "thin-margin" business, focused on transparent "cost-plus" pricing tied to spot market prices. But this view misses the core issue: Trader incomes build on gains from derivatives. These derivatives are not directly linked to the physical trade between buyers and sellers but to financial market prices, generated through the sale of contracts to external investors (e.g., Yang et al, 2025).

A critical element is structured finance and the multitude of ways in which traders use cash flow as collateral for external investors who buy financial instruments created by trading firms. The latter's engagement in financial markets is far from transitory, going well beyond opportunities presented by market volatility (Yang et al., 2025). Since 2018, income from financial intermediation has consistently accounted for 74 to 76 per cent of the revenues of the major food trading firms (figure III.6). Although aggregate data is not available for the sector as a whole, some companies have recorded more than 90 per cent of annual revenues from financial intermediation services.

The stabilization of this trend suggests a deep, structural integration of the food trading companies into capital markets. Generally, major changes driven by finance, technology, regulation and the rise of new players have transformed the sector. Dominant agrifood firms have the capacity to shape material conditions in food systems – from defining key technologies for food production to working conditions and the processing levels of packaged food (Clapp et al., 2025).

2. New financial intermediaries

Since 2010, commodity trading firms have expanded their engagement in a range of financial activities (trading, investments, securitization), having in practice transformed into the non-bank financial institutions (NBFIs), or shadow banks, that make up a growing share of the global

> Global food traders are swapping gains on physical trades for gains linked to the derivative markets more directly.

financial system. Recent data suggest that in 2023, non-bank financial intermediaries (NBFIs) held a 49.1 per cent share of total global financial assets. The size of the sector increased 8.5 per cent in 2023, more than double the pace of banking sector growth (3.3 per cent) (FSB, 2024). Such expansion raises prudential, financial stability and illicit financial flow issues, and adds to the concerns of anti-trust authorities. In addition, this growing power may make it increasingly difficult for local producers in developing countries to compete against large multinational enterprises that can exploit financial markets for pricing advantages. The eroding market power of local players could affect local livelihoods.

a) The new risk landscape

Many policy debates focus on financialization in terms of the influence of external financial actors on non-financial markets. Yet a crucial facet is often overlooked. Financialization also involves transforming existing economic agents into financial intermediaries, which introduces new risks and challenges to the resilience of the food commodity sector.

Global food commodity traders have become shadow banks.

The post-2010 financial reforms have mainly sought to mitigate risks of a "contagion" and enhance transparency. In addition to measures targeting leverage and financial derivatives, the reforms also saw wide-ranging controls on financial institutions, especially banks. Basel III reforms were specifically designed to address the sophisticated regulatory arbitrage strategies that banks had developed under Basel II.

Prior to the 2008 crisis, banks systematically exploited regulatory gaps through off-balance-sheet structures that retained economic exposure while avoiding capital charges. Jurisdictional arbitrage took place across different national implementation levels, and securitization techniques transferred assets while maintaining implicit recourse (Acharya, Khandwala and Oncu, 2013). The "originate-to-distribute" model allowed banks to circumvent capital requirements for credit risks they effectively retained; special purpose vehicles enabled regulatory capital relief without genuine risk transfer (Gorton and Souleles, 2007).

The Basel III framework fundamentally changed the economics of bank involvement in trade financing. It introduced leverage ratios, enhanced liquidity requirements and more stringent capital adequacy rules that have directly targeted pre-crisis arbitrage opportunities (BIS, 2017). Its success in constraining traditional bank-based regulatory arbitrage, however, inadvertently opened new opportunities for non-bank participants to assume financing functions under different regulatory regimes (table III.1).

Table III.1
Basel III has fundamentally changed commodity trading
Selected insights on impacts

Basel III requirements	Effects on banks	Impacts on commodity finance ($200 billion in 2023)	Overall impacts on the sector
Higher capital requirements	Banks must maintain higher-quality capital against their risk-weighted assets	For banks, commodity positions require dedicated capital allocation, raising the costs of facilitating commodity trades	Banks de-risk, withdrawing from financing commodity sectors
Liquidity coverage ratio	Banks must now hold sufficient high-quality liquid assets	Requires 100 per cent stable funding against illiquid assets	
Net stable funding ratio	Banks must now secure long-term, stable funding for commodity-related assets, effectively requiring dollar-for-dollar backing of positions	Increasing costs for unallocated commodity positions Reduction in the willingness of banks to finance commodity inventories Preference shifted to allocated, physical commodity holdings Potential reduction in overall liquidity in paper commodity markets	Non-bank intermediaries engage in the securitization of assets
Leverage ratio	The commodity trading ecosystem has historically operated with high leverage ratios, particularly in precious metals; Basel III requires more robust backing for commodity positions	Instruments with lower credit conversion factor rates face the additional burden of the non-risk-weighted capital requirement Many structured trade finance products and longer-term trade financing arrangements do not benefit from accommodations granted to traditional instruments; for banks, this has increased the costs of using derivatives	
Derivatives	Standardized Approach for Counterparty Credit Risk: Takes account of the creditworthiness of counterparties as well as sensitivity to the structure of derivative contracts	In the context of commodity trade financing, the exposure amounts of derivatives are included alongside lending exposures when calculating the leverage ratio	
Physical delivery	Transition from paper trading to physical delivery mechanisms	**Market participants are increasingly:** ▸ Investing in warehousing and physical infrastructure ▸ Developing more robust delivery protocols ▸ Enhancing tracking and verification systems ▸ Shifting from unallocated to allocated commodity positions	**A bifurcated landscape:** ▸ Traditional, short-term trade finance instruments have received some relief from the harshest proposed measures, while more complex or longer-term trade financing arrangements face the full weight of new regulatory requirements ▸ Banks face a more complex cost structure that favours simpler, more traditional instruments while penalizing innovation and complexity in trade finance products **New landscape for arbitrage:** ▸ A trade receivable held on a bank's balance sheet faces Basel III's full regulatory apparatus – risk-weighting, leverage ratios, liquidity requirements; the same receivable, properly "structured", transfers the location and responsibilities for it to other counterparties ▸ Trade financing, when pursued through an intermediary, becomes a different type of lending activity based on the creditworthiness of that group, not the particularities of the underlying trades themselves

Source: UNCTAD based on Zadeh (2023) and BIS (2017).

The commodity trading sector illustrates the evolution of regulatory arbitrage under Basel III. It has not disappeared but transformed into more sophisticated forms that work with rather than against the new regulatory framework (Awrey and Judge, 2020). Specifically, Basel III's constraints on banks have created arbitrage opportunities based on the insight that the same economic activity carries vastly different regulatory costs depending on institutional classification and jurisdictional placement (box III.1).

Box III.1
Understanding how Basel III changed trade finance

The introduction of Basel III reforms following the financial crisis significantly increased the costs of trade financing by targeting two key areas: traditional trade finance instruments and derivatives used for hedging (BIS, 2011).

Traditional trade finance impact: Letters of credit and similar guarantees historically received favourable regulatory treatment due to their short-term, self-liquidating nature and collateral backing. Under Basel III, however, two critical changes dramatically increased costs.

1. The leverage ratio was introduced as a new non-risk-weighted capital requirement that applied to all exposures regardless of risk profile. This meant that even low-risk trade finance instruments faced additional capital charges simply based on their size.
2. The credit conversion factor regime became more discriminatory. Previously, most trade finance enjoyed a blanket 20 per cent rate. Under Basel III, this favourable treatment became the exception rather than the rule, with rates varying significantly based on transaction specifics.

Regulatory arbitrage under Basel III has not disappeared but transformed into more sophisticated forms.

Derivatives impact: Basel III replaced the lenient Current Exposure Method with the more stringent Standardized Approach for Counterparty Credit Risk. This new framework considers counterparty creditworthiness and contract complexity, making derivatives, essential for hedging commodity price risks, significantly more expensive for banks.

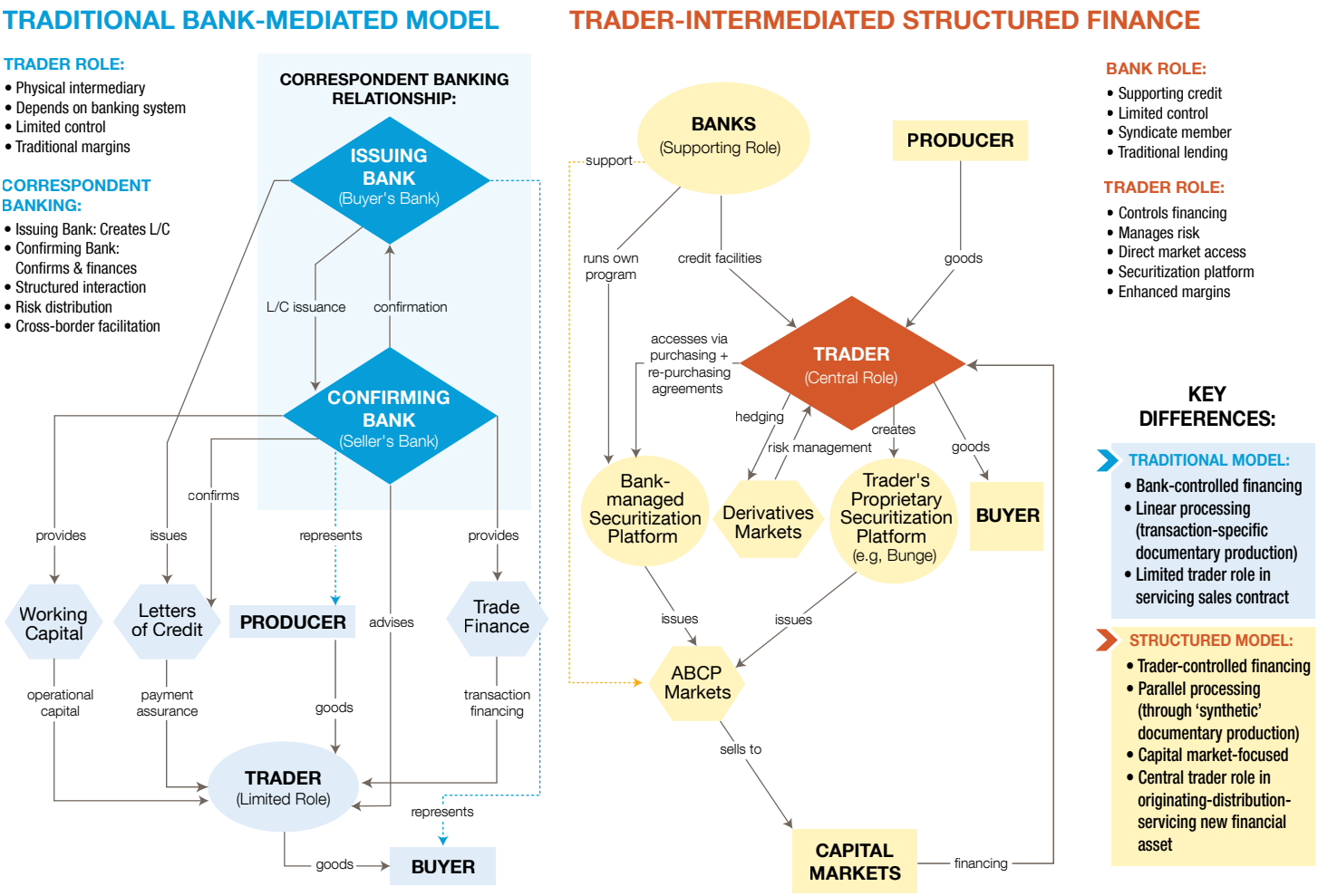
Market response and disintermediation: The regulatory changes have created powerful incentives for banks to reduce direct participation in trade finance. Rather than simply exiting the market, however, banks have found an alternative: regulatory arbitrage through disintermediation.

When trade receivables are held directly on bank balance sheets, they face Basel III's full regulatory burden. But when properly "structured" and transferred to other intermediaries, these same exposures can be moved off bank balance sheets entirely.

Commodity trading houses, particularly the concentrated ABCD traders in agricultural markets, emerged as ideal financial intermediaries. Unlike traditional NFBIs, these traders possess both global market reach and deep commodity expertise. They leverage "oversubscribed" bank credit through large revolving facilities to acquire physical inventories, then rapidly convert these commodities into structured financial products sold to external investors.

This approach has allowed banks to recycle credit at high velocity while transferring regulatory burdens to non-bank entities, fundamentally reshaping how trade finance operates in commodity markets.

Figure III.7
Large commodity traders act like banks – without Basel III regulation
Trade finance has moved from a bank-mediated model to a trader-intermediated system



Source: UNCTAD.

Note: This graphic compares a simplified commodity trade financing arrangement, using traditional bank-mediated financing through letters of credit, and the structured financing model of a major global commodity trader. The fundamental difference is that in a traditional arrangement, bank financing is transaction-specific, requiring documentary exchanges between banks at different stages of the transaction, which trigger the disbursements of funds between banks. In contrast, in a structured financing arrangement, banks are disintermediated from the trade transaction and instead allotted to the trader itself as part of a revolving credit facility. The trader uses this bank credit to acquire ownership of the inventory (which is not a necessary condition in commodity trading but a strategic one for major traders). Having ownership allows the possibility of securitizing trade receivables through the creation and issuance of a new financial instrument (a type of asset-backed commercial paper) that can be sold to capital market investors. Alternatively, the rights to cash flows can be assigned to banking partners (often through a combination of purchasing/repurchasing agreements linked to a structured loan arrangement). Banks may then monetize these assets through their own access to capital market and trade sale opportunities or may hold on to them for the trader, maintaining the structured loan arrangement until the trader seeks to reacquire the assets through a repurchasing agreement.

What has been characterized above as bank "de-risking" in fact entailed a wider transformation. Rather than simply withdrawing from trade finance, sophisticated market intermediaries, particularly large commodity traders, developed what amounts to a "synthetic banking" model (Blas and Farchy, 2021). As figure III.7 shows, intermediaries perform traditional banking functions (origination, risk assessment, servicing) while accessing external funding, such as from capital

Reforms created powerful incentives for banks to withdraw from direct trade finance relationships.

markets, rather than through deposit-taking. Yet these intermediaries may not be subject to regulatory classification under the Basel III framework.

As banks faced higher capital charges for trade finance exposures, traditional letters of credit became increasingly expensive. Enhanced reporting requirements under Dodd-Frank in the United States and the Markets in Financial Instruments Directive II in the European Union increased the compliance costs of derivative trading and off-balance-sheet financing arrangements. Together, these reforms created powerful incentives for banks to withdraw from direct trade finance relationships, particularly with smaller counterparties, counterparties from developing countries or forms of trade (such as agricultural commodities) where there is less ability to redeploy collateral (e.g., perishable food items) in the event of defaults.[26]

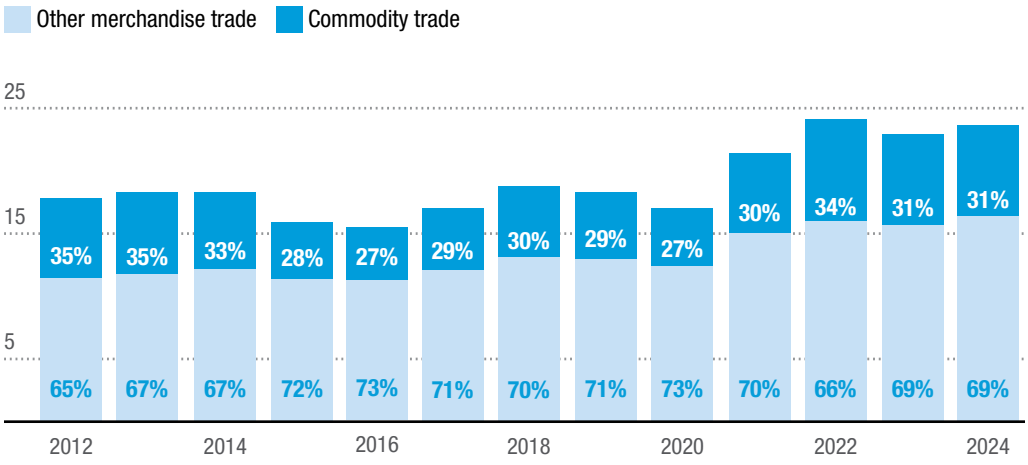
These processes manifest differently in various regulatory discussions. In some, they reflect "de-risking", evolving as a systematic reduction in correspondent banking relationships and trade finance provision (World Bank, 2015; BIS, 2020; FSB, 2017). In others, they appear as an increase in the trade finance gap, a measure of unfulfilled funding requests rejected by banks.

While global data for commodity trading are not available, estimates suggest that in 2022, the global trade finance gap reached $2.5 trillion, up 47 per cent from 2020 (ADB, 2023). The gap affects small and medium-sized business in the global South most profoundly, with unmet demand for trade finance in Africa and developing Asia estimated at $120 billion and $700 billion, respectively (DMCC, 2024).

Although both diagnoses tend to imply a growing lack of financing for trade activities, evidence does not confirm this. As figure III.8

Figure III.8
The share of commodity exports in global merchandise trade went down slightly over the past decade
Merchandise exports

(Trillions of dollars)



Source: UNCTAD based on UNCTADstat.

Note: Commodity are primary commodities, precious stones and non-monetary gold. Other merchandise trade is total for all allocated products, excluding commodity. Labels inside the bars correspond to the shares of total merchandise trade value.

[26] See Antras and Foley (2015) for a case study on how a large agricultural exporter in the United States continued to receive bank financing and even expanded during the financial crisis, even as its customers faced more restrictive financing terms.

shows, between 2012–2014 and 2021–2024, the total value of merchandise trade experienced substantial growth, although the commodity component expanded at a slower pace (UNCTAD, 2025b).

This paradox can be partly explained by general data scarcity. Despite the critical role of trade finance in supporting international trade, comprehensive macroeconomic data on trade finance remain severely limited. International organizations have repeatedly highlighted concerns around the absence of globally consistent statistics on bank-intermediated trade finance. The IMF noted as early as 2003 that "data on trade credit are not readily available, complicating efforts to carry out comprehensive empirical analysis", a concern repeated in efforts to define a framework for data collection (IMF, 2018). In 2014, the BIS confirmed that "there are no readily available data covering the global bank-intermediated trade finance market", a situation that has shown little improvement in recent examinations (Auboin, 2021).

Over more than two decades, this persistent statistical gap has stemmed from several structural challenges, including the removal of foreign exchange controls that previously captured trade finance information; the short-term nature of trade finance instruments that become aggregated with other banking flows; and the lack of standardized reporting frameworks across jurisdictions (Thedeen, 2025).

Yet the problems posed by trade finance, particularly since the Basel III reforms, go beyond the ostensible market for bank-mediated trade financing. They extend deep into the risk-prone area of financial intermediation. The use of NFBIs as consolidated "packagers" of assets pooled from a wide variety of external counterparties is a dominant trend in banking more generally (see Blas and Farchy, 2021; IMF, 2025). Trade financing, particularly commodity trade financing, is no exception.

After Basel III, large commodity traders developed "synthetic banking".

3. Structured finance: The role of securitization in food trading

In reporting on trade financing, traditional forms of bank lending such as letters of credit have long been in decline. By contrast, structured finance and other forms of "documentary trade financing" continue to grow (ICC, 2024). Rather than abandon trade finance entirely, banks have actively participated in financial innovations, where structured financing methodologies are critical. These have helped to counteract the constraints Basel III imposed on commodity trading (Thieffry, 2016, 2019).

The attractiveness of structured finance in trade financing is not new. The first uses emerged in the 1980s, when banks and commodity traders collaborated on innovations that allowed wheat exports to dominate access to United States Government export credit guarantee schemes. These programmes persisted into the 1990s. During the Asian financial crisis, they were the only source of international finance available for most Asian banks (ITFA, 2021). When the global financial crisis took off, structured finance was already an established option for financing commodity trades, particularly in agriculture (Winn, Miller and Gegenbauer, 2009).[27]

[27] These authors similarly defined structured finance as "the advance of funds to enterprises to finance inputs, production and the accompanying support operations, using certain types of security that are not normally accepted by banks or investors and which are more dependent on the structure and performance of the transaction, rather than the characteristics (e.g., creditworthiness) of the borrower".

Box III.2
How structured finance changes the flow of funds

Structured finance refers to financing techniques that repackage the rights to future cash flows, creating a new financial asset. These methods are not specific to trade finance in general nor to commodity financing in particular. At the core, their outputs take the form of a financial instrument – a highly detailed type of legal contract that allows the instrument to act as a financial asset (and thus also an asset that can be bought and sold).

Such contracts are designed around new forms of collateral, usually a future cash flow derived from a "receivable" (a debt obligation, such as a mortgage repayment, or, in a commodity context, the obligation of a buyer to pay for the successful delivery of a commodity shipment – a "trade receivable").

A primary objective of structured finance is to obtain funding in advance of the collection of a receivable. This is typically a type of debt, one where the collateral on a loan is not the creditworthiness of a particular counterparty and its financial standing. Rather, the aim is to "structure" the cash-flow obligation to allow the underlying receivable to become collateral that is "structurally decoupled" from the creditworthiness of the counterparty that "originated" the debt obligation.

Structured finance decouples collateral from creditworthiness through structured cash flows.

This "structuring" process can take two main forms. In securitization, receivables are transferred to legally separate entities (special purpose vehicles) that issue tradable securities backed by the cash flows from those assets. Alternatively, in asset-backed lending, receivables are "pledged" as collateral for loans, while the borrower retains ownership, creating a security interest through liens or charges that "ring-fence" specific assets.

Identifying the use of structured financing practices requires examining regulated disclosure documents, such as financial reporting offered by listed companies or even the reporting of private companies that accompanies public bond offerings. Such disclosures reveal the role of structured financing through different pathways.

Balance sheet changes: Companies must report when assets are removed from their balance sheets through "de-recognition" events, typically indicating asset transfers to special purpose vehicles in securitization transactions. They must also disclose when assets are pledged or restricted as collateral, which may indicate asset-backed lending arrangements.

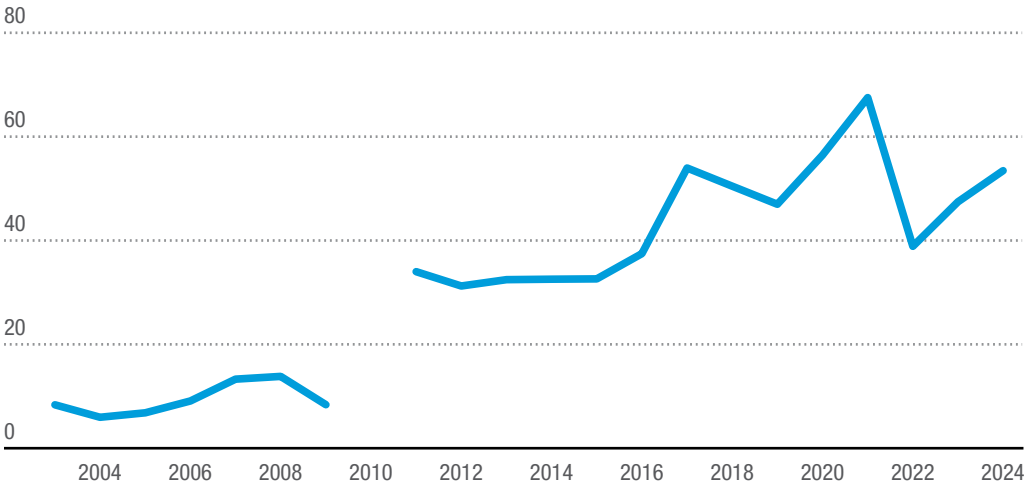
Derivative income patterns: When structured finance involves hybrid instruments containing embedded derivatives, companies must separately account for these derivative components under fair value accounting. Large, stable derivative income streams relative to traditional business revenues can indicate systematic structured finance activity, as distinct from volatile patterns typical of speculative trading or routine hedging.

Repurchase ("repo") agreement arrangements: Companies often disclose repo and reverse repo transactions within discussions of inventory financing or trade receivables arrangements. In repos, companies temporarily transfer assets to counterparties in exchange for cash, with agreements to repurchase at specified future dates and prices – functioning economically as secured borrowing using assets as collateral. These arrangements may appear in disclosures as "purchase and resale agreements" or "commodity financing facilities" rather than being explicitly labelled as repos, particularly when involving large volumes or when integrated into broader structured finance programmes.

Figure III.9
After Bunge changed its securitization programme, non-securitized trade accounts took off

Securitization (derecognized receivables) as a share of total trade accounts receivable, net

(Percentage)



Source: UNCTAD based on 10K filings (Securities and Exchange Commission).

Note: As part of its trade receivables securitization disclosure, Bunge reports the amount of "receivables sold which were derecognized from Bunge's balance sheet". This analysis compares this value relative to the net trade accounts receivable, which is reported in the working capital section of its liquidity and capital resources notes. Both are point-in-time, end-of-year descriptions of the balance sheet derecognition impacts of its securitization programme, relative to the net value of the remaining on-balance sheet value for the same time period.

Crucially, structured finance is not simply a "type" of trade financing, a mere option for how any international trade could be financed.[28] For the bank, intermediaries allow access to larger pools of deals. This can be "scaled" more efficiently if done in close collaboration with intermediaries. In commodity trade, these intermediaries are commodity trading firms, and, more specifically, a small, concentrated group of global traders.

Basel III reforms triggered a notable change in how this cohort used structured finance. For instance, Bunge, an agricultural commodity trader engaged in receivables securitization prior to the global financial crisis, restructured its securitization programme over 2010, rolling out a new programme the following year (figure III.9).

Other global food traders similarly introduced or restructured their structured financing programmes around the same time. For Bunge, the proportion of the group's net trade receivables "processed" through its securitization programme increased from typically less than 10 per cent before Basel III reforms to over a third in its first year of implementing the new rules.

Basel III reforms triggered a notable change in how this cohort used structured finance. Securitization has become a highly regulated activity since the global financial crisis, which centred on mortgage-backed securities. The mechanics of securitizing commodity receivables differ sharply from those of the mortgages or consumer loans that inspired post-crisis regulation.

[28] Much of the importance of structured finance has been far less visible precisely because these methodologies are embedded within private contracting arrangements between financial institutions and market intermediaries: Trade is being financed but privately and, from the bank's perspective, indirectly.

The significance of this structural difference becomes clear when considered alongside the concentration of global commodity markets. A small number of trading houses – ADM, Bunge, Cargill, Louis Dreyfus, CHS, Wilmar and Olam as well as global players in minerals and energy like Glencore and Trafigura – control substantial portions of global commodity flows across agricultural, energy and metals markets. Compliant reporting by these groups confirms that securitization and/or other structured financing approaches are widespread. Moreover, where derivative reporting is accessible, it suggests that global traders systematically employ programmes so large that derivatives have come to drive most profit and loss reporting.

For global traders, derivatives now drive profit and loss reporting.

Yet securitization works differently depending on the underlying nature of how cash flows are generated. When commodity traders securitize their trade receivables, they do not simply transfer rights to future cash flows; they also retain operational obligations to execute physical deliveries. Traders cannot fully "originate and distribute" (and forget about) investors, because the cash flows themselves only materialize through the trader's successful completion of underlying commercial transactions. Commodity traders remain operationally bound to performance outcomes that directly determine investor returns.

This difference in the role of the originator vis-à-vis the cash flows promised to investors underpins the idea, commonly evoked to distinguish commodities from other asset classes, that the safety of trade receivables lies in their short-term "self-liquidating" nature.

Structured finance involves private deals between institutions and intermediaries, often using off-balance sheet mechanisms.

Trade receivables do not liquidate themselves, however. Trading firms liquidate them through the operational fulfilment of service contracts with buyers. Rather than diverging, trader and investor interests are naturally aligned. This alignment extends beyond fulfilling commercial obligations into far more substantive involvement as the designer-in-chief of the embedded derivatives bundled alongside the instruments that package cash flow rights into marketable securities.

Across the food trading sector, such developments point to a profound consequence of regulatory reform. Rather than a retreat from trade financing, "de-risking" was a restructuring of how and with whom banks engage in trade financing. Evidence suggests that at least 6 of 11 global food traders examined here engaged in securitization schemes in 2024 (table III.2).

In March 2025, UNCTAD estimated the value of global merchandise trade at roughly $33 trillion in 2024. This implies that the value of "trade being financed" is between $23 trillion and $26 trillion, the majority paid for on an "open account" trade credit basis. Bank-mediated trade financing, where bank exposures are explicitly at risk and subject to Basel III regulations, is roughly 15 to 27 per cent of these estimates ($3.5 trillion to $7 trillion), based on recent filings in major trade financing industry reports. True bank exposure, however, is likely many multiples greater and obscured by financial intermediation practices common in the sector.

Banks are increasingly positioned as providers of short-term credit to traders via financial intermediaries. Traders then repay these loans using trade receivables as collateral for financial instruments sold to capital markets. While bank exposure correlates with trade volume, it is now technically classified as indirect, bundled loans to corporate entities rather than direct trade financing to individual counterparties.

As a result of these shifts, commodity trade is underpinned by practices that create large international counterparty risks across multiple jurisdictions. These remain unmonitored and thus could undermine systemic resilience to a singular systemic shock or compound crises.

Table III.2
How selected commodity traders use structured finance

Trader	Structured finance (methods reported)	Total revenues (billions of dollars, FY 2024)	Financial intermediation as a share of revenues (percentage)
ADM	Securitization	85.5	72
Andersons	Unclear collateralization	11.3	93
Bunge	Securitization	53.1	71
Cargill	Securitization + repos	160.0 (165 in 2022)	53 (2022)
CHS	No mention	39.3	57
COFCO	No mention	96.9	
Glencore	Unclear (subsumed within capital notes programme)	230.9	87*
GrainCorp	No mention	6.5	No mention
Louis Dreyfus	Repos	50.6	
Olam	Securitization	56.2	No mention
Wilmar	Securitization	67.4	No mention

Source: UNCTAD.

Note: Structured financing methods are derived from assessments of audited financial reporting documentation published on repositories (e.g., the Securities and Exchange Commission), company websites or as part of bond issuance funding prospectuses (e.g., the Luxembourg Stock Exchange). Derivative share calculations are explicit requirements of United States GAAP reports. IFRS standards allow for more ambiguous presentation that, depending on the group, can pre-empt making this calculation explicit. Financial reporting data snapshots are derived primarily from Capital IQ or Orbis, with reports from company websites used only when data are unavailable from standardized financial reporting data sets.

*Best estimate as IFRS-9 standards have less strict presentation requirements.

In 2024, 6 of 11 leading food traders engaged in securitization schemes.

C. Complexity, commodity markets and financial stability

The transformation of commodity trade finance documented in this chapter represents more than a sectoral evolution. It signals an institutional change in the system of trade finance and a fundamental shift in the distribution of systemic risk within the global financial system.

In the earlier, bank-centric model of trade finance, a commodity trading firm might never actually take ownership of inventory. Its role was to ensure the movement of commodities while generating documentation needed by banks.

In the new, trade-centred model of commodity finance, the traditional trade financing process has largely vanished, replaced by an integrated system where traders own inventory and are responsible for the financial management of trade. In this system, trade finance has become a system-wide framework involving traders, banks and capital markets, rather than

isolated transaction-level deals. Ownership and operational details blur, transforming trade finance into a networked architecture rather than a collection of financed projects.

In this context, regulatory responses to the 2008–2009 financial crisis have inadvertently created new categories of vulnerability. These operate largely outside traditional regulatory oversight while remaining deeply integrated into critical market infrastructure.

Such vulnerabilities have emerged as central concerns for financial stability authorities globally (FSB, 2023a, 2023b, 2024 and 2025; IMF, 2023 and 2025). They manifest through repeated market stress episodes and regulatory investigations that reveal the extent to which essential commodity markets have become dependent on complex financial intermediation structures.

1. The liquidity illusion: External dependence masquerading as creditworthiness

Financial stability concerns about commodity trader liquidity stem from a fundamental disconnect between apparent creditworthiness and actual resilience during stress periods.

The tension between micro-level safeguards and macrofinancial stability came to the fore during the global financial crisis, reaffirming Minsky's insights on how the financial fragility of economies may be driven by financial innovations (Minsky, 1982).

In the financial crises of the twenty-first century, studies have distinguished between funding and market liquidity. At a more general level, analyses have outlined the policy challenge of discerning the artificial liquidity of a booming financial market atop fragile economic foundations (Borio, 2000; Nesvetailova, 2010; Persaud, 2003).

Traditional financial analysis focuses on equity-based leverage ratios that capture balance sheet relationships at specific points in time, missing the flow dynamics that define modern commodity trading operations. More critically, these metrics fail to capture how structured finance enables traders to present apparent financial strength while operating with extreme dependence on continued access to external financing (box III.3).

This disconnect has profound implications for financial stability because it means that entities that appear financially robust to their counterparties may represent concentrated sources of systemic vulnerability. When traders' liquidity buffers consist primarily of unused credit facilities rather than internal capital accumulation, their ability to withstand market stress depends entirely on the willingness of financial institutions to maintain these facilities during periods when traders most need them – in other words, precisely when broader financial system stress might make such support problematic.

Box III.3
In global commodity trading, liquidity depends on banks, not capital buffers

Major commodity traders operate through liquidity structures that create massive contingent liabilities for the banking system while presenting an illusion of financial self-sufficiency. Analysis of these arrangements reveals how traders exhibit core characteristics of NBFIs through systematic dependence on contingent access to banking system liquidity rather than internal capital buffers.

ADM's financial disclosures as of 31 December 2023 provide detailed insights into how the world's largest agricultural commodity trader structures its liquidity management.[a] The company reports "total available liquidity" of $12.9 billion, comprising "cash and cash equivalents and unused lines of credit". This figure appears substantial and suggests robust financial buffers against market volatility.

Decomposition of this liquidity reveals a fundamentally different reality, however. Of the $12.9 billion in total liquidity, only $1.4 billion consists of actual cash and cash equivalents – a mere 10.8 per cent of reported total liquidity. Even this modest cash position is partially illusory: $500 million represents "cash held by foreign subsidiaries whose undistributed earnings are considered indefinitely reinvested" – essentially, tax-optimized accumulated profits locked in overseas structures. True liquid cash available for immediate operational use amounts to only $900 million, just 7 per cent of reported total liquidity.

The remaining 89.2 per cent of ADM's total liquidity consists entirely of unused credit lines – $11.5 billion of the company's total $13.2 billion in available credit facilities. This means ADM's entire liquidity buffer against market volatility depends on continued access to external financing rather than internal capital accumulation. These unused facilities represent massive contingent liabilities for the banking system – commitments that banks must honour on demand, creating the type of liquidity transformation risks that characterize NBFI activities (FSB, 2023b). This pattern echoes the pre-crisis shadow banking model documented by the Federal Reserve Bank of New York, where "contingent lines of credit" served as "liquidity backstops" that enabled non-bank entities to perform banking-like functions while operating outside regulatory frameworks (Pozsar et al., 2013).

Analysis of actual credit utilization patterns reveals the underlying operational dependencies that create systemic vulnerabilities. Of the $1.7 billion in credit actually used, $1.6 billion (94.1 per cent) flows through the company's accounts receivable securitization programmes. These "provide the Company with up to $3.0 billion in funding against accounts receivable transferred into the Programs and expand the Company's access to liquidity through efficient use of its balance sheet assets".

This pattern demonstrates that ADM meets virtually all its operational financing needs through structured finance arrangements rather than traditional credit facilities. The securitization programme operated at only 53 per cent of capacity on the reporting date but this reflects the high-velocity nature of these facilities rather than unused capacity. Trade receivables flow through such programmes continuously, with the $3 billion facility supporting far larger volumes of underlying trade activity through rapid turnover cycles.

The remaining $11.1 billion in completely unused credit facilities serves as ADM's primary buffer against market volatility and margin call requirements. This structure means that ADM's ability to withstand market stress depends entirely on the willingness of banking syndicates to maintain these facilities during periods when

Box III.3 (continued)

the trader needs them most but banks themselves might be facing financial system stresses.

ADM disclosures reference an additional $5.9 billion in "undistributed earnings of its unconsolidated affiliates" on top of 17.9 billion in "undistributed earnings of the company's foreign subsidiaries and corporate joint ventures". These values are notably excluded from the company's "total liquidity" calculation even though a small fraction of this "pool" of value was explicitly earmarked as a liquidity provision. It suggests that even larger pools of capital remain outside traditional liquidity metrics while potentially serving as additional buffers through complex affiliate structures.

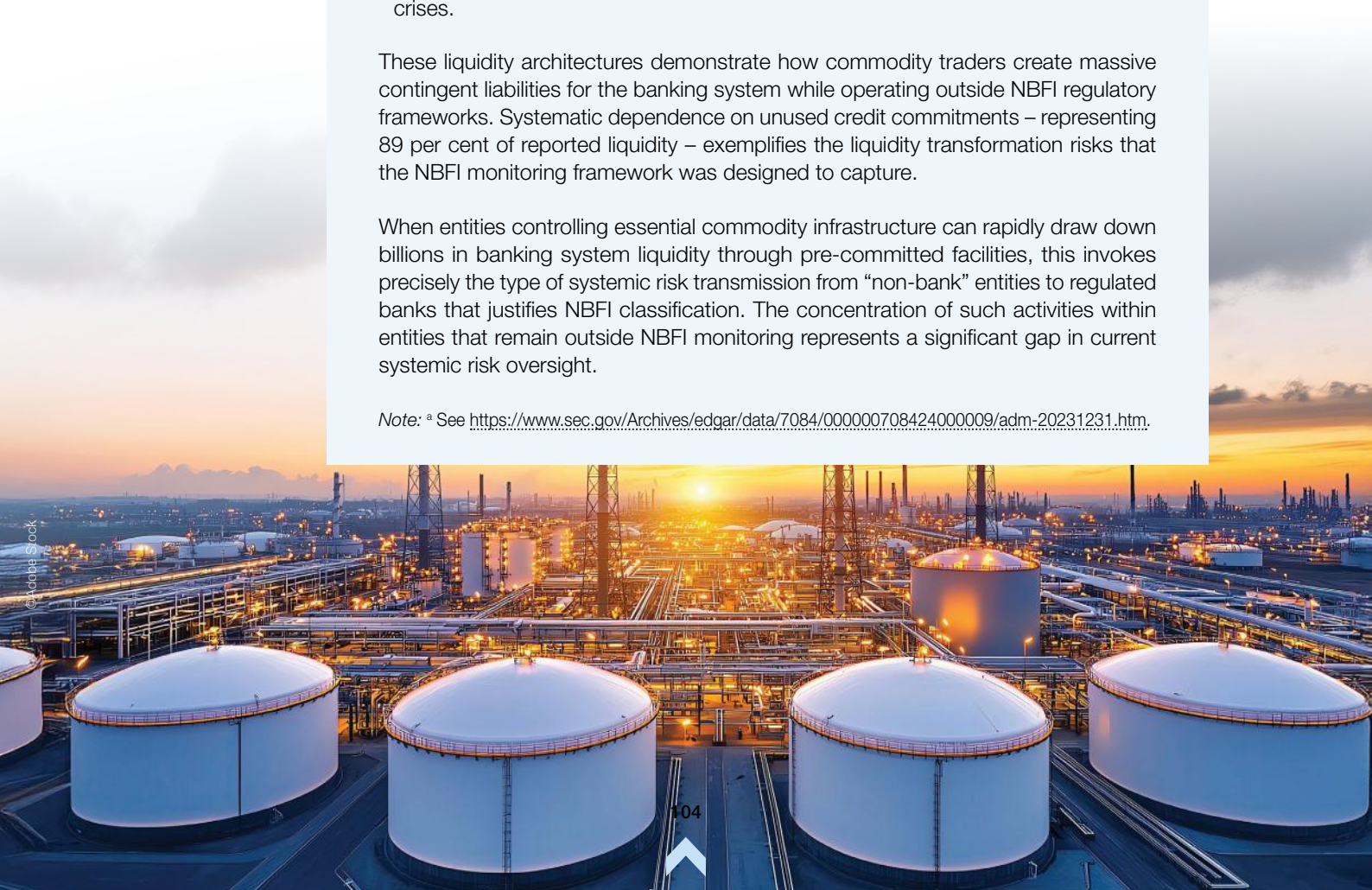
The liquidity policy revealed in ADM's disclosure illustrates several concerning dynamics from a financial stability perspective.

- **Procyclical dependencies:** When market stress requires additional liquidity, traders must rely on banking relationships that may be experiencing their own stress, creating the potential for procyclical credit contraction.
- **Concentration risk:** The small number of major banks that provides large credit facilities creates concentrated exposure to commodity trader creditworthiness across the financial system.
- **Opacity:** The high-velocity nature of securitization facilities and the complex affiliate structures holding additional capital limits visibility for supervisors into actual risk concentrations and liquidity dynamics.
- **Cross-border complexity:** Substantial pools of capital held in foreign subsidiaries create potential coordination challenges for financial stability authorities during crises.

These liquidity architectures demonstrate how commodity traders create massive contingent liabilities for the banking system while operating outside NBFI regulatory frameworks. Systematic dependence on unused credit commitments – representing 89 per cent of reported liquidity – exemplifies the liquidity transformation risks that the NBFI monitoring framework was designed to capture.

When entities controlling essential commodity infrastructure can rapidly draw down billions in banking system liquidity through pre-committed facilities, this invokes precisely the type of systemic risk transmission from "non-bank" entities to regulated banks that justifies NBFI classification. The concentration of such activities within entities that remain outside NBFI monitoring represents a significant gap in current systemic risk oversight.

Note: [a] See https://www.sec.gov/Archives/edgar/data/7084/000000708424000009/adm-20231231.htm.



2. The contagion architecture: How traders access external finance

Financial stability concerns related to commodity trading extend beyond individual trader creditworthiness, encompassing complex networks of counterparties that connect traders to the broader financial system. Three specific channels can be identified.

Channel 1: Direct banking relationships

The most visible form of financial system exposure comes through traditional banking relationships, but these have evolved far beyond simple bilateral credit arrangements. Modern commodity traders typically access credit through large banking syndicates involving dozens of financial institutions across multiple countries.

Major traders often maintain these banking relationships through subsidiaries as the key vehicles for acquired credit. Table III.3A presents the results of analysis of reporting by major food traders on banking relationships at the subsidiary level as of December 2024.

> Post-2008 financial regulations spawned new vulnerabilities in essential market infrastructure.

Table III.3A
Subsidiaries and networks of banking relationships allow large traders to expand their credit access
(Bank intensity ratio in food trading firms)

Trader	Trader's subsidiary holdings	External banking relations of trader's subsidiary holdings				Cohort
	As of December 2024	Subsidiary reporting banking relationships	No. unique bank names mentioned	Counterparty jurisdictions	Bank intensity ratio (Percentage)	
ADM	904	82	109	23	**25**	ABCD
Andersons	169	2	1	2	4	ABCD+
Bunge	438	35	63	16	**15**	ABCD
Cargill	949	91	126	25	**24**	ABCD
CHS	385	8	18	7	**21**	ABCD
COFCO	964	87	133	14	10	ABCD+
Glencore	869	70	76	17	7	ABCD
GrainCorp	68	3	5	2	7	ABCD+
Louis Dreyfus	190	26	41	15	**18**	ABCD
Olam	123	7	32	7	7	ABCD+
Wilmar	593	87	114	12	**15**	ABCD+

Source: UNCTAD based on Orbis.

Note: Bank intensity ratio is an unweighted measurement of total subsidiaries reporting banking relationships as a percentage of all subsidiaries in jurisdictions where this is reported in Orbis data service from Moody's. Subsidiaries from the United States and Brazil have been excluded as entities incorporated in these jurisdictions do not appear to have banking relationships captured by data suppliers.

Channel 2:
Shared investment networks

Beyond direct banking, traders access external capital by partnering with other companies and investors in joint ventures and affiliate investments. These arrangements allow traders to share costs and risks while accessing resources they cannot obtain independently. Traders participate in joint ventures and affiliate investments that often involve the same external partners, creating hidden connections between seemingly independent companies. Table III.3B describes the extent of distinct co-investors and jurisdictions participating in trader equity investments in affiliate and joint venture holdings.

Traders relying on unused credit face heightened risk if banks retreat during crises.

Table III.3B
External counterparties link companies that seem to be independent

Trader	External co-investors of trader's affiliate and joint venture holdings			Cohort
	Affiliates and joint venture holdings	Counterparty GUOs	Counterparty jurisdictions	
ADM	42	298	33	ABCD
Andersons	8	0	0	ABCD+
Bunge	10	40	16	ABCD
Cargill	78	964	41	ABCD
CHS	2	1 000	36	ABCD
COFCO	230	753	26	ABCD+
Glencore	241	1 309	52	ABCD
GrainCorp	12	108	8	ABCD+
Louis Dreyfus	40	112	27	ABCD
Olam	11	15	10	ABCD+
Wilmar	101	273	38	ABCD+

Source: UNCTAD based on Orbis.

Note: Co-investors entities were estimated by identifying the latest value of a trader's shareholding in an affiliate or JV investment, and then identifying the unique entities with holding information on or prior this point in time, going back through time in a chronological order until he residual amount of holdings not accounted for by the trader was reached. Entities that have ever been known subsidiaries of the group were excluded. This is tantamount to a 'maximum' extent of counterparty exposure. For each immediate counterparty, identification of ultimate owners (if known) were pursued and only these ultimate owner counterparties are used here to approximate the 'true' counterparty ultimately exposed to the trader's activities. Only currently active (June 2025) counterparties were used in calculations here to moderate recursive historical analysis.

Channel 3: Minority shareholders

The most complex and opaque form of access to external finance occurs through using minority shareholding relationships in group subsidiaries. These practices allow traders to multiply their effective borrowing capacity while spreading legal obligations across multiple countries and regulatory systems.

Table III.3C
Traders access critical external resources through minority shareholders
(Minority shareholders intensity ratio)

Trader	Trader's subsidiary holdings	External minority shareholders of trader's subsidiary holdings				Cohort
	As of December 2024	Subsidiaries with minority shareholders	Counterparty GUOs	Counterparty jurisdictions	Minority shareholding intensity ratio	
ADM	904	5	3	3	0.3	ABCD
Andersons	169	1	2	2	1.2	ABCD+
Bunge	438	12	16	10	3.7	ABCD
Cargill	949	11	20	10	2.1	ABCD
CHS	385	2	5	5	1.3	ABCD
COFCO	964	25	132	13	**13.7**	ABCD+
Glencore	869	24	35	17	4.0	ABCD
GrainCorp	68	1	1	1	1.5	ABCD+
Louis Dreyfus	190	8	7	1	3.7	ABCD
Olam	123	1	1	1	0.8	ABCD+
Wilmar	593	31	85	19	**14.3**	ABCD+

Source: UNCTAD based on Orbis.

Note: Counterparty analysis of Trader's group holdings is derived from Orbis. Minority shareholder entities were estimated by identifying the latest value of a trader's shareholding in a subsidiary, and then identifying the unique entities with holding information on or prior this point in time, going back through time in a chronological order until the residual number of holdings not accounted for by the trader was reached. Entities that have ever been known subsidiaries of the group were excluded. This is tantamount to a 'maximum' extent of counterparty exposure. For each immediate counterparty, identification of ultimate owners (if known) were pursued and only these ultimate owner counterparties are used here to approximate the 'true' counterparty ultimately exposed to the trader's activities. Only currently active (June 2025) counterparties were used in calculations here to moderate recursive historical analysis. Minority shareholding intensity ratio is an unweighted measure of the number of unique global ultimate owner (GUOs) counterparties as a percentage of total number of subsidiary holdings. There can be many entities which directly hold minor shares in a number of trader's majority owned subsidiary. We have reduced all these immediate minority shareholders to their unique number of global ultimate owners (or nearest equivalent) to better capture the extent of the 'true' counterparties involved. Jurisdictions represent those of the ultimate owners.

For highly financialized commodity trading groups, liquidity management extends beyond traditional financial metrics to encompass access to operational resources. These "hybrid" entities require not only credit facilities but also assured access to the physical infrastructure that enables their operations – sourcing relationships, storage capacity, transportation networks and processing facilities. Traders manage both forms of resources through complex subsidiary-level arrangements that remain largely invisible in parent-company reporting.

These arrangements take three distinct forms: credit facilities accessed directly by trader subsidiaries, external companies where traders acquire minority shareholding positions to secure operational access, and trader subsidiaries that offer minority stakes to external partners in exchange for resource commitments. The operational dependencies created by these distinct forms of external resourcing arrangements are documented through a counterparty exposure index (table III.4). This aggregates the frequency of use of subsidiary-level relationships by these three arrangements, by jurisdiction, for major global food traders.

Global food traders depend on resources from external parties across 80 countries.

The index reveals that global food traders depend on access to key resources from external parties spread across 80 countries. The data suggest significant variation in the composition of these relationships. While counterparties in countries such as Germany and Spain are largely contained to bank-based exposures, others, including in Canada, Singapore and the United States, show entirely corporate-based exposures, indicating different types of transmission channels through which distress could propagate.

The mixture of debt and equity relationships at the subsidiary level means that traders' practical liquidity management extends far beyond reported bank credit facilities, encompassing a multi-jurisdictional web of relationships that create potential contagion transmission channels. When regulators assess financial stability risks from commodity trading, focusing solely on parent-level bank credit exposures misses this subsidiary-level network of operational dependencies. Distress can propagate through it in both directions, from external counterparties to the trader and vice versa.

a) Implications for financial stability

The combination of these three financing channels creates several types of systemic risk that traditional banking supervision may not detect.

- **Hidden concentration risk:** While banks and other financial institutions may believe that they have diversified exposure to commodity markets, in fact, they are all exposed to the same core group of traders through different channels. A bank might lend directly to a trader, invest in the trader's joint ventures and provide credit to the trader's subsidiaries without recognizing these as related exposures.
- **Cascading effects:** When one major trader experiences financial stress, the impact can spread simultaneously through banking syndicates, investment partnerships and subsidiary guarantee structures. This means problems that start with one trader could quickly affect multiple banks, investment partners and other traders who share the same networks.
- **Resolution challenges:** Because these networks span multiple countries and regulatory systems, coordinating a response during crisis periods could be extremely difficult. Regulators would need to work across jurisdictions while addressing direct banking exposures, shared investment partnerships and complex corporate group structures simultaneously.
- **Regulatory blind spots:** Current financial stability monitoring typically focuses on direct banking relationships and may miss the extensive indirect connections that create additional transmission channels for financial stress.

The evidence above further corroborates how major commodity traders have evolved beyond traditional trade intermediation to become critical nodes in financial networks that connect banks, capital markets and industrial sectors in ways that could amplify rather than contain financial shocks during stress periods.

Table III.4
The extensive scale of trader integration in global financial networks means distress could spread from one to the other and back again

Economy	Counterparty exposure index	Direct bank-based exposures (percentage)	Corporate exposures (percentage)
China	395	33	67
Australia	107	9	91
United Kingdom	84	57	43
Indonesia	56	61	39
Russian Federation	52	27	73
South Africa	50	40	60
France	41	37	63
Ukraine	40	50	50
Germany	37	70	30
United States	33	0	100
Netherlands (Kingdom of the)	30	80	20
Singapore	30	0	100
Canada	28	0	100
Spain	28	82	18
Brazil	23	0	100
Malaysia	20	35	65
Peru	20	10	90
Virgin Islands, British	19	0	100
India	17	29	71
Mexico	17	82	18
Poland	17	65	35
Hong Kong, China	16	13	88
Colombia	13	85	15
New Zealand	12	58	42
Cayman Islands	11	0	100
Cyprus	10	10	90
Türkiye	10	90	10
Bermuda	9	22	78
Chile	9	0	100
Hungary	9	100	0
Switzerland	9	0	100
Japan	8	38	63
Namibia	7	0	100
Philippines	7	0	100
Serbia and Montenegro	6	83	17
Belgium	5	0	100
Bulgaria	5	80	20
Ireland	5	100	0
Norway	5	0	100
Portugal	4	75	25

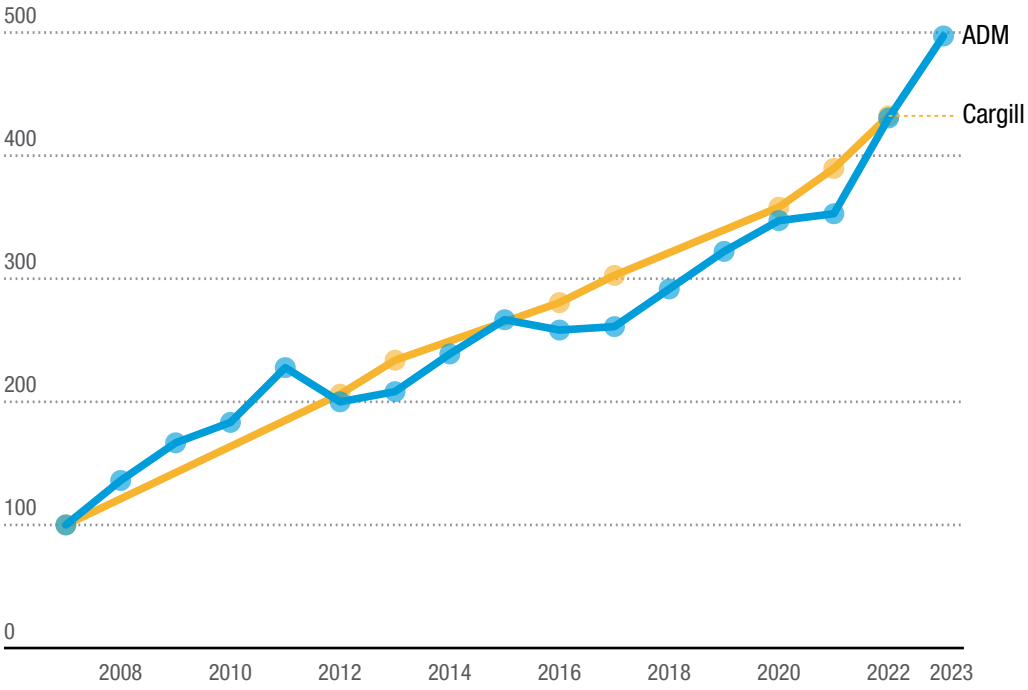
Economy	Counterparty exposure index	Direct bank-based exposures (percentage)	Corporate exposures (percentage)
Argentina	3	0	100
Austria	3	100	0
Congo, the Democratic Republic of the	3	0	100
Côte d'Ivoire	3	0	100
Ghana	3	33	67
Greece	3	67	33
Kazakhstan	3	0	100
Romania	3	0	100
Zambia	3	33	67
Italy	2	0	100
Jamaica	2	0	100
Jordan	2	50	50
Mauritius	2	0	100
Morocco	2	0	100
Papua New Guinea	2	0	100
Samoa	2	0	100
Sri Lanka	2	0	100
Thailand	2	0	100
United Arab Emirates	2	50	50
Viet Nam	2	0	100
Algeria	1	0	100
Burkina Faso	1	0	100
Congo	1	100	0
Denmark	1	0	100
Ecuador	1	0	100
Egypt	1	0	100
Kenya	1	0	100
Latvia	1	0	100
Luxembourg	1	0	100
Macao	1	0	100
Mauritania	1	0	100
Myanmar	1	0	100
Nigeria	1	100	0
Pakistan	1	0	100
Paraguay	1	0	100
Saudi Arabia	1	0	100
Sweden	1	0	100
Tanzania, United Republic of	1	100	0
Togo	1	0	100

Source: UNCTAD based on analysis of trader shareholding records from Orbis, as of December 2024.

Note: The counterparty exposure index represents a summation of the frequency count of jurisdictions involved in the counterparty analysis of banking, minority shareholding and co-investments by the ultimate owners involved in trader subsidiaries and affiliate holdings. These are divided between subsidiaries with direct bank-based exposure and corporate exposures that may include, indirectly, banks and other financial institutions. Blue shading indicates economies where bank-based exposures exceed corporate exposures.

Figure III.10
Unremitted earnings continue to grow
Growth in unremitted earnings of foreign subsidiaries

(Index, 2007 = 100)



Source: UNCTAD based on annual audited accounts.

Note: As Cargill is a private corporation, compliant financial statements are only available as part of public bond issuance prospectus documentation on the Luxembourg Stock Exchange (see https://www.luxse.com/).

b) Trading your cake and keeping it too: The profit extraction problem

The most concerning aspect of structured finance is that it socializes risks of distress.

From a development perspective, perhaps the most concerning aspect of the structured finance transformation in commodity trading is the way it enables the systematic extraction of capital from entities that interface with the financial system while socializing the risks of potential distress.

The generation of financial intermediation income documented above operates through regulatory frameworks that provide legal protections for systematic advantages, while the profits from these activities are captured through sophisticated structures that minimize both tax obligations and visible capital buffers.

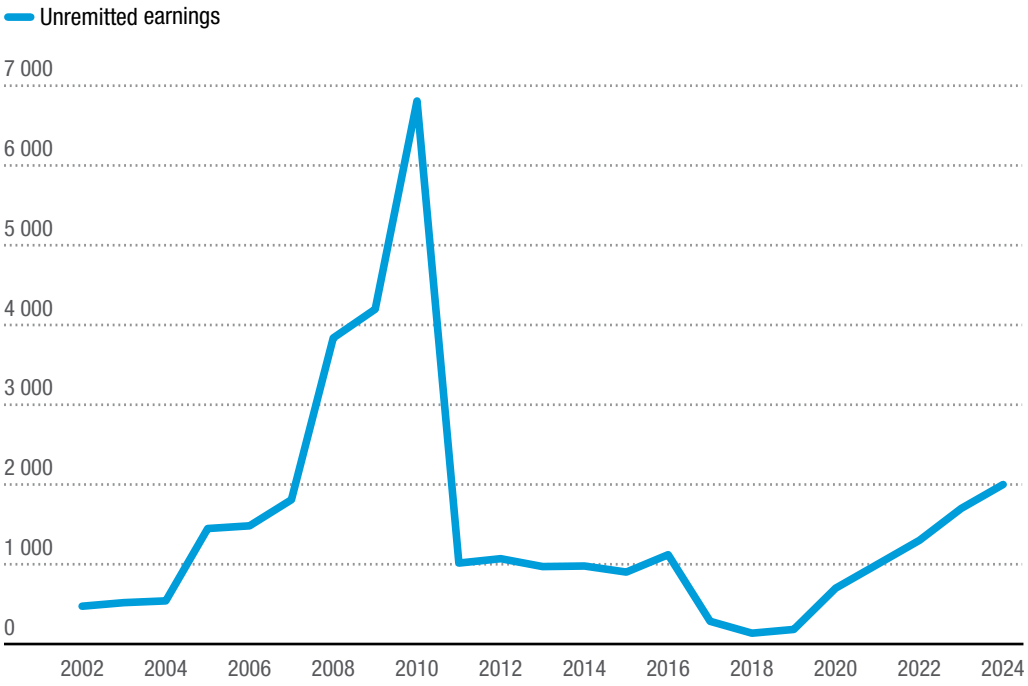
Maintaining large pools of capital in "undistributed earnings" of unconsolidated affiliates and "cash held by foreign subsidiaries" effectively extracts capital from operational entities (see figure III.10). These structures allow trading firms to keep lean balance sheets for tax purposes while hiding capital that could serve as a buffer in crises yet remain outside conventional resolution frameworks.

Large and growing pools of unremitted earnings persist despite external credit being positioned as the primary liquidity buffer. This indicates a strategic choice rather than a necessity, shifting immediate

Figure III.11
Unremitted earnings, locked away, may become a last resort in crises

Bunge's unremitted earnings in foreign subsidiaries

(Millions of dollars)



Source: UNCTAD based on company 10-K filings (Securities and Exchange Commission).

risks – such as margin calls – onto banks and markets, while resilience buffers are held offshore in complex structures that are difficult to access quickly. This creates a timing mismatch: Creditors face short-term risks while profits remain locked away for tax benefits rather than crisis resilience. Opacity around access and speed heightens the uncertainty of recovery from crises; some firms have a history of tapping into these reserves at scale when needed (see figure III.11).

The financial stability implications of this arrangement are particularly concerning. In short, the apparent creditworthiness of major commodity traders may systematically understate the risks these entities create for their counterparties.

When substantial capital buffers exist but are held in structures that may be inaccessible during stress periods, traditional credit analysis may significantly underestimate the probability and potential magnitude of losses that could be transmitted to the financial system.

> Operations with financial derivatives exploit legal protections to shield profits.

D. Conclusion and policy lessons

New financing channels hide risks of concentration, cascading failures and regulatory blind spots.

The analysis presented in this chapter reveals how the transformation of commodity trade finance has created new categories of systemic vulnerability. These require fundamental changes in how financial stability authorities understand and monitor risks in essential commodity markets.

The structured finance architecture that emerged in response to the post-2010 banking regulations has not eliminated systemic risk. It has, in fact, relocated and potentially amplified that risk through mechanisms that operate largely outside existing supervisory frameworks. Several issues pose particular challenges for financial stability policy.

First, commodity markets serve as essential infrastructure for global food and energy security. Disruptions in commodity trade financing can have immediate real-economy consequences that extend far beyond financial markets. The concentration of trade finance intermediation within a small number of global traders means that distress in these entities could simultaneously disrupt multiple commodity markets and geographic regions, potentially affecting global food and energy supplies during periods when such disruption would be most damaging.

Second, the structured finance techniques that enable modern commodity trading exploit gaps between different regulatory frameworks in ways that make coordinated oversight extremely difficult. Traders use interacting position-limit exemptions, securitization disclosure requirements and market abuse protections across multiple jurisdictions and regulatory domains to create systematic advantages that may be difficult to address through traditional entity-based supervision.

Third, commodity traders have evolved beyond traditional intermediation to become sources of systematic information advantages that may distort price discovery in essential commodity markets. When derivative income consistently represents 70 to 90 per cent of revenues for major traders, the pricing of food and energy commodities increasingly reflects the

optimization of financial payoff structures rather than underlying supply and demand fundamentals. This potentially undermines the economic signals that guide resource allocation in these critical sectors.

Finally, the complex subsidiary structures, offshore capital accumulation and multi-jurisdictional banking relationships that characterize major commodity traders create significant coordination challenges for authorities charged with resolution during stress periods.

The challenge for financial stability policy is to develop approaches that can monitor and manage these risks while recognizing the essential role that commodity trade financing plays in enabling global food and energy flows.

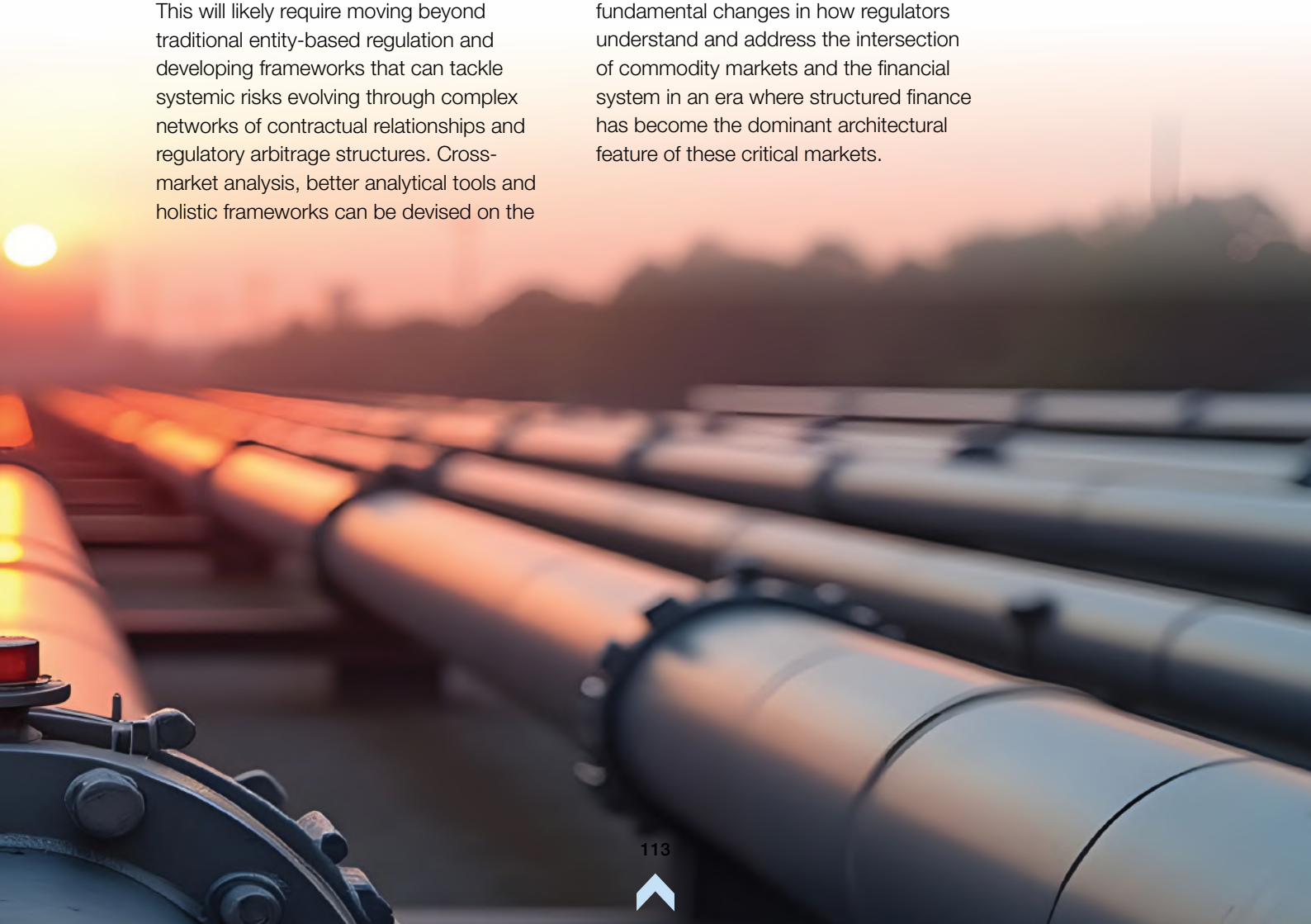
This will likely require moving beyond traditional entity-based regulation and developing frameworks that can tackle systemic risks evolving through complex networks of contractual relationships and regulatory arbitrage structures. Cross-market analysis, better analytical tools and holistic frameworks can be devised on the basis of existing models of systemic risk regulation and competition policy tools.

The legal but non-transparent financial and tax avoidance techniques outlined above should come under the radar of international organizations monitoring illicit financial flows risks. Closer multilateral policy exchange is clearly overdue.

The stakes of this challenge extend beyond financial stability to encompass food security, energy security, illicit financial flows and financial integrity, and the broader resilience of the global economy. As climate change and geopolitical tensions increase volatility in commodity markets, the resilience of commodity trade financing is increasingly critical for global economic stability.

Achieving this resilience will require fundamental changes in how regulators understand and address the intersection of commodity markets and the financial system in an era where structured finance has become the dominant architectural feature of these critical markets.

The resilience of commodity trade financing is increasingly critical for global economic stability.



References

Acharya V V, Khandwala H and Oncu TS (2013). The growth of a shadow banking system in emerging markets: Evidence from India. *Journal of International Money and Finance*. 39.

Adams Z, Collot S and Kartsakli M (2020). Have commodities become a financial asset? Evidence from ten years of financialization. *Energy Economics*. 89**.**

ADB (Asian Development Bank) (2023). *2023 Trade Finance Gaps, Growth and Jobs Survey.* Manila.

Algieri B (2018). A journey through the history of commodity derivatives markets and the political economy of (de)regulation. ZEF-Discussion Papers on Development Policy No. 268. Centre for Development Research, University of Bonn.

Antras P and Foley C (2015). Poultry in motion: A study of international trade finance practices. *Journal of Political Economy.* 123(4): 809–52.

Archer-Daniels-Midland (2023). Form 10-K: Annual report pursuant to section 13 or 14(d) of the Securities Exchange Act of 1934. Commission file number 1–44.

Auboin M (2021). Trade finance, gaps and the COVID-19 Pandemic: A review of recent and policy responses to date. Staff Working Paper ERSD-2021-5. WTO.

Awrey D and Judge K (2020). Why Financial Regulation Keeps Falling Short. *Boston College Law Review. 61:7.*

Basquil J (2020). Analysis: Hin Leong's "vicious cycle" of trade finance fraud. *Global Trade Review.*

BIS (Bank for International Settlements) (2005). The application of Basel II to trading activities and the treatment of double default effects. Paper for public consultation. Basel Committee on Banking Supervision.

BIS (Bank for International Settlements) (2006*). International Convergence of Capital Measurement and Capital Standards*. Basel Committee on Banking Supervision. Basel.

BIS (Bank for International Settlements) (2011). Treatment of trade finance under the Basel capital framework. Basel Committee on Banking Supervision.

BIS (Bank for International Settlements) (2014). Trade finance: developments and issues. CGFS Papers No. 50. Committee on the Global Financial System.

BIS (Bank for International Settlements) (2015). Margin requirements for non-centrally cleared derivatives. Basel Committee on Banking Supervision.

BIS (Bank for International Settlements) (2017). Basel III: Finalising post-crisis reforms. Basel Committee on Banking Supervision.

BIS (Bank for International Settlements) (2020). On the global retreat of correspondent banks. *BIS Quarterly Review.* March.

BIS (Bank for International Settlements) (2025). OTC derivatives statistics. BIS Data Portal.

Blas J and Farchy J (2021). *The World for Sale. Money, Power and the Traders Who Barter the Earth's Resources.* Random House. London.

Borio C (2000). Market liquidity and stress: selected issues and policy implications. *BIS Quarterly Review.* November.

BRICS Law and Competition Policy Centre (2025). *From Fields to Futures: Competition, Financialization and Digitalization in Global Grain Value Chains*. Moscow.

Clapp J et al. (2025). Corporate concentration and power matter for agency in food systems. *Food Policy.* 134.

Commodities Hub (2025). Trade finance: The cornerstone of global commodity trading. *Commodities Hub.* 4 February.

Desai P (2023). UK watchdog still probing LME nickel trading suspension. Reuters. 26 January.

DMCC (Dubai Multi Commodities Centre) (2024). *Future of Trade 2024*. Dubai.

Esmel A (2016). Food speculation: Between virtual . . . and reality. *American University International Law Review.* 31(4).

ESRB (European Systemic Risk Board) (2025). *EU Non-bank Financial Intermediation Risk Monitor.* No. 10. September.

European Commission (2025). Review of the functioning of commodity derivatives markets and certain aspects relating to spot energy markets. European Commission consultation.

FAO (Food and Agriculture Organization) (2009). The use of structured finance instruments in agriculture in Eastern Europe and Central Asia. Agricultural management, marketing and finance working document.

FAO (Food and Agriculture Organization) (2011) Lessons from the world food crisis of 2006–08. In: *The State of Food Insecurity in the World.* Rome.

Farchy J, Hunter A and Rocha P A (2025). Commodity traders still rake in billions as profit bonanza wanes. Bloomberg. 29 March.

FSB (Financial Stability Board) (2017). *FSB Correspondent Banking Data Report.* Basel.

FSB (Financial Stability Board) (2023a). *The Financial Stability Aspects of Commodities Markets.* Basel.

FSB (Financial Stability Board) (2023b). *Global Monitoring Report on Non-Bank Financial Intermediation 2023.* Basel.

FSB (Financial Stability Board) (2024). *Global Monitoring Report on Non-Bank Financial Intermediation 2024.* Basel.

FSB (Financial Stability Board) (2025). *Leverage in Nonbank Financial Intermediation: Final Report.* Basel.

Gorton GB and Soules NS (2005). Special purpose vehicles and securitization. Working Paper No. 05-21. Federal Reserve Bank of Philadelphia.

Hook L and Wilson T (2025). Commodity traders snap up assets and tighten grip on global supply chains. *Financial Times.* 2 April.

ICC (International Chamber of Commerce) (2024). *ICC Trade Register report: Global risks in trade finance.* Paris.

IMF (International Monetary Fund) (2018). Towards a framework for measuring trade finance. Paper for discussion. BOPCOM—18/05.

IMF (International Monetary Fund) (2023). *Global Financial Stability Report*. Washington, D.C.

IMF (International Monetary Fund) (2025). *Global Financial Stability Report: Enhancing Resilience amid Uncertainty.* Washington, D.C.

ITFA (International Trade and Forfaiting Association) (2021). *The ITFA Guide to Structured Letters of Credit.* Zurich.

Ma RR, Xiong T and Bao Y (2021). The Russia-Saudi Arabia oil price war during the COVID-19 pandemic. *Energy Economics.* 102.

Mader P, Mertens D and van der Zwan N (2021). *The Routledge International Handbook of Financialization*. Routledge International Handbooks. Abingdon, United Kingdom.

Minsky H (1982). *Can "It" Happen Again? Essays on Instability and Finance.* Routledge. Abingdon, United Kingdom.

Nesvetailova A (2010). *Financial Alchemy in Crisis: The Great Liquidity Illusion*. Pluto. London.

Onstad E (2022). UK regulators probe LME's halt to chaotic nickel trading. Reuters. 4 April.

Pelizzon L (2025). Adapting to change: Macroeconomic shifts and policy responses. European Central Bank.

Persaud A (2003). *Liquidity Black Holes: Understanding, Quantifying and Managing Financial Liquidity Risk*. Risk Books. London.

Pozsar Z et al. (2013). Shadow banking. *Federal Reserve Bank of New York Economic Policy Review.* December.

Sawyer M (2013). What is financialization? *International Journal of Political Economy*. 42(4): 5–18.

Thedeen E (2025). Fault lines in financial system could be exposed by regulatory arbitrage. *Financial Times*. 22 August.

Thieffry G (2016). Basel III and commodity trade finance: An update. *Journal of International Banking Law and Regulation.* 31(3), 124-132.

Thieffry G (2019). The Impact of the Latest Basel Accords on Commodity Trade Finance: An update. *Journal of International Banking Law and Regulation.* 34(7), 237-242.

Tvedt J. (2019). Commodity market flexibility and financial derivatives. *Journal of Commodity Markets.* 18.

UNCTAD (2009). *The 2008 Food Price Crisis: Rethinking Food Security Policies.* G-24 Discussion Paper Series (United Nations publication. Sales No. E.09.II.D.13. Geneva).

UNCTAD (2011). *Price Formation in Financialized Commodity Markets: The Role of Information* (United Nations publication. New York and Geneva).

UNCTAD (2016). Agricultural commodity value chains: The effects of market concentration on farmers and producing countries – the case of cocoa. TD/B/63/2. 14 October.

UNCTAD (2023). *Trade and Development Report 2023: Growth, Debt and Climate: Realigning the Global Financial Architecture* (United Nations publication. Sales No. E.23.II.D.24. Geneva).

UNCTAD (2025a). Policy insights: The role of tariffs in international trade. Global Trade Update. March.

UNCTAD (2025b). *The State of Commodity Dependence 2025* (United Nations publication. Sales No. E.25.II.D.33. Geneva).

UNCTAD and Arbeiterkammer Wien (2011). Price Formation in Financialized Commodity Markets – The Role of Information (United Nations publication. New York and Geneva).

United States of America, Committee on Homeland Security and Governmental Affairs and United States Senate (2008). Testimony of Michael W. Masters before the Committee on Homeland Security and Governmental Affairs and United States Senate.

Winn M, Miller C and Gegenbaurer I (2009). *The Use of Structured Finance Instruments in Agriculture in Eastern Europe and Central Asia.* FAO. Rome.

Wion A et al. (2024). The role of commodity traders in shaping agricultural markets. European Parliament, Policy Department for Structural and Cohesion Policies.

World Bank (2012). The global food crisis: A quick response, but long-term solutions: Bank efforts to offset price shocks reach nearly 40 million people in 47 countries. Publication 92644.

World Bank (2015). *Withdrawal from Correspondent Banking: Where, Why, and What to Do About It*. Washington, D.C.

Yang B et al. (2025). Commodity financialization and firm investment: Implications for market efficiency and economic stability in emerging markets. *International Review of Economics & Finance.* Volume 99.

Zadeh J (2023). Basel 3 compliance: Transforming commodity markets by 2025. Discovery Alert. 9 May.