Increasing local financial institution investment in the off-grid solar sector

Lessons from East Africa

September 2018

Context

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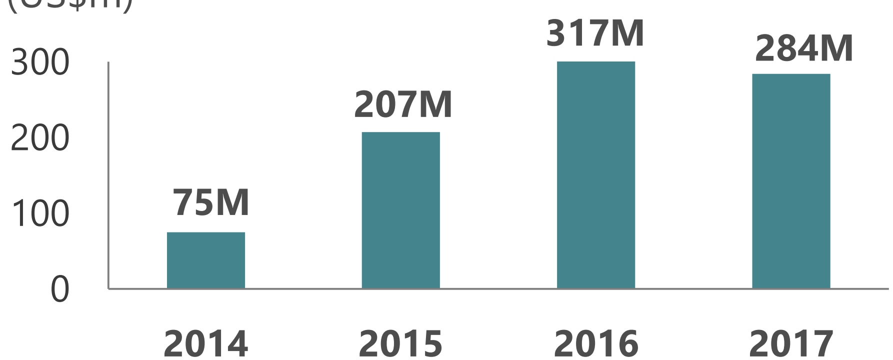
The OGS sector has seen rapid growth in investment, but a further increase in external financing is required to meet market demand

Increase in capital flows to OGS sector

- Investment in the sector doubled annually between 2012 and 2016, with **US$922m of cumulative funding raised since 2012**
- Instruments range from concessionary loans to return seeking commercial debt and equity
- Debt financing is increasingly dominant, making up 61% of investment in OGS companies in 2017

Investment in OGS sector (US$m)

Slowdown in investment in line with dip in sector sales

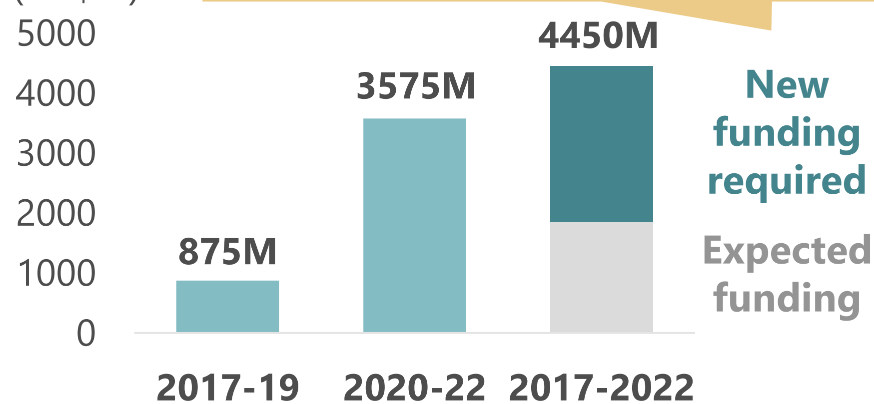


Large gap in external financing remains

- 87% of cumulative funding to date has gone to 10 market leaders
- Shell Foundation estimate **US$26bn investment required in OGS sector to achieve SDG 7**
- Investment primarily required for working capital to finance **consumer receivables and capex** for new deployments

External financing (US$m)

Top OGS affiliate co's will require US$2.5bn in new funding by 2022



Source: 1) Lighting Global & Dalberg: *Off-Grid Solar Market Trends Report 2018;* 2) Shell Foundation & Catalyst : *The Need to Disrupt Off-Grid Electricity Financing in Africa*

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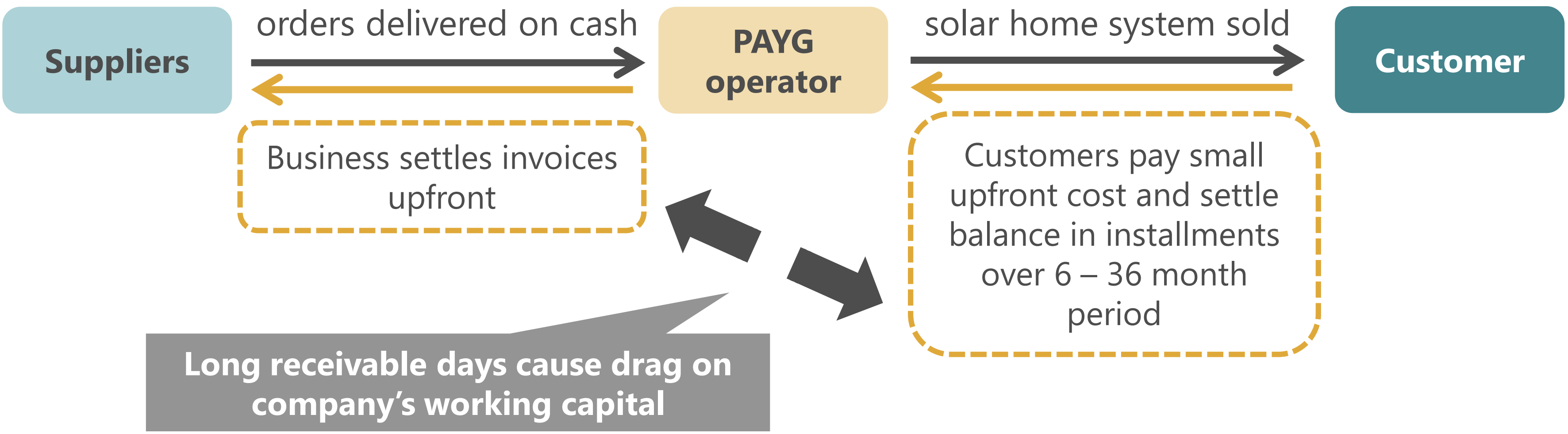
PAYG models require substantial external funds for working capital, but reliance on foreign currency investments creates FX risk

- OGS businesses operating a PAYG model are working capital intensive and require substantial financing to cover customer receivables, inventory costs and operations



- Historically most PAYG businesses have raised equity and debt investment in foreign currencies while receivables are in local currency, exposing business to significant FX risk
- Additionally, balance sheet financing exposes to PAYG companies to large credit risk; some starting to look at structured finance to get debt off their balance sheets and into Special Purpose Vehicles (SPVs)

Increased local currency debt financing is critical to enable PAYG companies to manage FX risk and secure financing for scale

Source: OCA analysis

OGS businesses in East Africa have received>$300M in debt financing since 2015, but investment from local banks is still limited

Debt investor	Company	Amount	Year
ElectriFI, TRINE	Azuri	US$20m	2018
Bamboo Capital Partners	BBOXX	US$50m	2018
responsAbility	Mobisol	US$12m	2017
Stanbic Bank, CDC, FMO, Norfund, Triodos, responsAbility, Symbiotics	M-KOPA	US$80m	2017
Banque Populaire du Rwanda (Atlas Mara)	BBOXX	US$2m	2017
SunFunder	SolarNow	US$2m	2016
Oikocredit	BBOXX	US$5.3m	2016
Packard Foundation, Ceniarth, the Calvert Foundation	Off-Grid Electric	US$45m	2016
OPIC	SunFunder	US$15m	2016
Commercial Bank of Africa	M-KOPA	US$4m	2016
responsAbility	Off-Grid Electric	US$18m	2016
SunFunder	d.light	US$2.5m	2016
OPIC, Rockefeller Foundation, MCE Social Capital	SunFunder	US$21m	2016

This report outlines the information gaps and other barriers to investment faced by local financial institutions, and outlines recommendations to catalyze local currency investment in the sector

Source: OCA analysis; all publicly available data

Stakeholder insights

We held consultations with a range of financial institutions in East Africa to understand barriers they face when investing in OGS

3 types of fin. institutions were interviewed:

3 large / regional banks

3 mid-size / local banks

3 micro-lenders

Key topics of discussion included:

- **Experience & interest** investing in OGS (and particularly PAYG) businesses in their countries of operation
- **Products**, structuring, and target customers
- **Pipeline** sourcing process
- **Risk assessment and due diligence** process, including key information requirements and challenges
- **Main barriers to local currency investment** in the OGS sector

Experience from previous and current engagements leveraged:

- Completed **over 50 engagements in the off-grid energy sector**, supporting the largest OGS companies in Africa to raise capital from a range of investors
- Manage the **Uganda Off Grid Energy Market Accelerator (UOMA)**, a neutral intermediary focused on scaling off-grid energy access in Uganda by providing local banks with extensive support to accelerate investment in off-grid energy through capacity building and technical assistance, as well as improving the enabling environment through research, communication and coordination

Large regional banks: **Many institutions have coherent OGS lending strategies focused on trade and receivables financing**

Overview: Regional banks interviewed have a clear understanding of the dynamics in the OGS sector in East Africa, and have or are working towards fully defined investment strategies. While theoretically offering a diverse range of OGS products, most lending has been via trade and receivables financing.

Off-grid solar strategy

Well defined regional OGS strategies:

- Energy teams centralized at bank HQ understand sector dynamics and have set regional investment strategies
- Bias towards larger OGS companies due to larger ticket sizes and multi-country focus

Focus on business lending:

- Interested in both household level and commercial off-grid energy businesses
- Do not typically provide consumer financing to individuals through micro-loans

Actively seeking de-risking arrangements:

- Perceive OGS (an particularly PAYG) businesses as high risk investments and actively seek guarantee facilities to reduce risk of lending

Financial products offered

Products offered to OGS businesses include:

- **Trade financing** for import and export transactions
- **Receivables financing**, usually in the form of debt across multiple transactions and requiring >50% collateral
- **Revolving loans and inventory financing** are sometimes offered if there is a first loss guarantee supporting transactions
- Innovations include **tripartite agreements** where guarantee is provided by foreign bank, and regional bank lends in local currency
- **SPVs and other off-balance sheet financing** instruments are being explored but are still uncommon

Source: OCA interviews

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Large regional banks: Challenge of finding businesses which meet disbursement criteria is exacerbated by inflexible facility design

Pipeline and due diligence

Pipeline is primarily sourced from:

- Multiple product teams actively sourcing pipeline relevant to their product offerings
- OGS businesses actively approaching banks to present business plans

Information used for due diligence and risk assessment:

- **Financial:** gross sales, default rate, portfolio at risk, repayment rates
- **Operational:** data on performance of recovery model, technical model, distribution model and service execution
- **Customer:** aftersales service, customer lifetime value, customer satisfaction
- Typically requested from OGS businesses, although some banks have had direct insight into repayment data as they hold mobile money accounts of PAYG customers

Key barriers to investment in OGS sector

Management challenges:

- Frequent changes in management teams
- Many companies have founders with limited experience of running a business at scale

Limited data transparency:

- Companies often provide inflated data on no. of connections which are difficult to verify
- Less of an issue in countries with government regulation where data is verified e.g. Rwanda

Maturity of sector:

- Regional banks still quite conservative, and few OGS businesses can meet criteria for disbursement (e.g. to borrow >US$2m banks expect level of sales which few businesses have)

Mismatched facilities:

- Stringent criteria on guarantees and credit lines limits lending – e.g. Lighting Global standards exclude component based systems

Source: OCA interviews

Large and mid-sized local banks: **Typically provide consumer financing and business lending at ticket sizes under US$2m**

Overview: Large and mid-sized local banks typically OGS businesses with less complex business and credit models, while many also lend directly to consumers via both general and dedicated loan products. This dual focus is in line with banks' ambitions to serve both business and retail customers.

Off-grid solar strategy

No dedicated OGS financing strategies:

- Banks interviewed have a focus on renewable energy but not specifically solar or off-grid

Target both business and consumer lending:

- More comfortable lending to OGS businesses with **less complex business models** where credit risk is more straightforward to assess, and at **smaller ticket sizes (max US$2m)**
- Also provide direct consumer loans

Innovative partnerships with OGS businesses:

- One bank interviewed has established a partnership where it can either provide OGS business with working capital facility, or the business provides the bank with solar home systems for cash which they then provide on credit directly to existing customers

Financial products offered

Products offered to OGS businesses include:

- **Working capital facilities** for less established business at smaller ticket sizes, often part-funded by DFIs (e.g. World Bank)
- Some lend to OGS companies via existing **SME lending products** – typically <US$1m and requiring 100% collateral
- **Lending limits determined by central banks' "Single Obligor Value"** which varies by country of operation e.g. US$0.5m in Uganda but US$7m in Rwanda

Products offered to consumers include:

- Some banks have dedicated solar loan products for existing customers, providing between US$25 to US$7,000 in financing for residential or businesses solar products

Source: OCA interviews

Large and mid-sized local banks: Poor data quality and limited internal technical capacity hinder effective due diligence process

Pipeline and due diligence

Pipeline is primarily sourced from:

- Recommendations rather than active pipeline development process for business lending, and frequently lend to existing business customers
- Customers with existing current or savings accounts for consumer financing products

Information required for due diligence and risk assessment process:

- Key financial, operational and customer metrics for business lending (e.g. sales, repayment rates, revenue per user, sales per agent) as well as audited financial accounts
- Business due diligence process typically not as stringent as regional banks, in part-due to limited internal capacity
- For consumer loans, require verifiable source of income and appropriate collateral

Key barriers to investment in OGS sector

Inadequate data quality and availability:

- Less established OGS businesses often lack automate or robust data collection systems
- Lack of appropriate financial and operational data hinders due diligence and investment appraisal process

Weak credit management systems:

- Smaller OGS businesses also have less robust credit management systems and controls, resulting in increased credit risk for lenders

Limited quality standards:

- Variable quality and durability of solar home systems in the market creates risk of default on consumer loans

Limited internal technical capacity in banks:

- Lack of expertise in OGS sector constrains pipeline development, due diligence process, and development of tailored OGS products

Source: OCA interviews

Small banks and MFIs: Primarily focused on consumer financing with minimal experience in lending directly to OGS businesses

Overview: Microfinance institutions (MFIs) interviewed had little to no experience lending to OGS businesses, with the majority focused on financing purchases of solar home systems for low-income customers via general personal loans or occasionally tailored solar lending products.

Off-grid solar strategy

No dedicated OGS financing strategies:

- Due to rural focus, most small banks and MFIs have strategies aligned to retail agricultural lending

Focus on consumer lending:

- In-line with microfinance institutions broader goals, providing inclusive financial services to low-income populations
- One MFI interviewed had limited experience in lending to smaller OGS businesses e.g. distributors

Opportunistic partnerships with OGS companies:

- Some MFIs have formed partnerships with companies to finance solar home systems, with agents selling from MFI branches

Financial products offered

Few microfinance institutions have tailored off-grid consumer products:

- MFIs have typically found no need to develop specific OGS products but report consumers frequently using regular loans to buy SHS
- Typically provide households with loans ranging from US$250-US$5,000, whereas entry level SHS can cost as little as US$100
- Opportunity for MFIs to support operators selling productive use solar due to larger loan sizes (typically US$500-US$2,000)

Challenging for MFIs to offer products at competitive rates to small OGS businesses:

- Due to high cost of capital, lending terms are often uncompetitive with up to 20% interest rate and with 100% collateral requirements

Source: OCA interviews

Small banks and MFIs: Barriers to effective consumer financing of SHS include and variable product quality and high transaction costs

Pipeline and due diligence process

Pipeline is primarily sourced from:

- Existing customers – where a tailored off-grid product exists it is typically given as add-on to loan already complete or being paid off
- Agent network, marketing, and recommendations for new customers
- Partnerships with OGS businesses

Information required for loan risk assessment process:

- Credit history from previous loans with MFI or small bank
- Verifiable sources of regular income e.g. records of agricultural sales receipts, wage slips etc.
- For tailored products, invoices from sale of solar home system
- Quantity and quality of collateral available e.g. moveable, immoveable and guarantors

Key barriers to investment in OGS sector

Competition from PAYG businesses:

- Due to high cost of capital, some PAYG businesses are able to provide consumer financing at lower prices and shorter tenors

Small loan sizes:

- Solar home systems purchased by low-income households can cost as little as US$100, and MFIs find it difficult to justify transaction cost for such small amounts

Limited quality standards:

- Challenging to provide loans for solar products which may not be operational for the duration of the loan payoff period

Low internal capacity:

- Limited understanding of the different stakeholders operating in the market and their financing needs hinder MFIs in developing suitable business and consumer lending products

Source: OCA interviews

Recommendations

Barriers to investment for local banks and MFIs include internal and external information gaps and broader industry challenges

Industry-wide performance data

Internal bank capacity

Management challenges in OGS businesses

Industry immaturity and perceived risk

Holding back the investment from local and regional financial institutions required for the OGS sector to achieve scale sustainably

Addressing information gaps in isolation will not be sufficient to catalyze significant local currency investment from banks

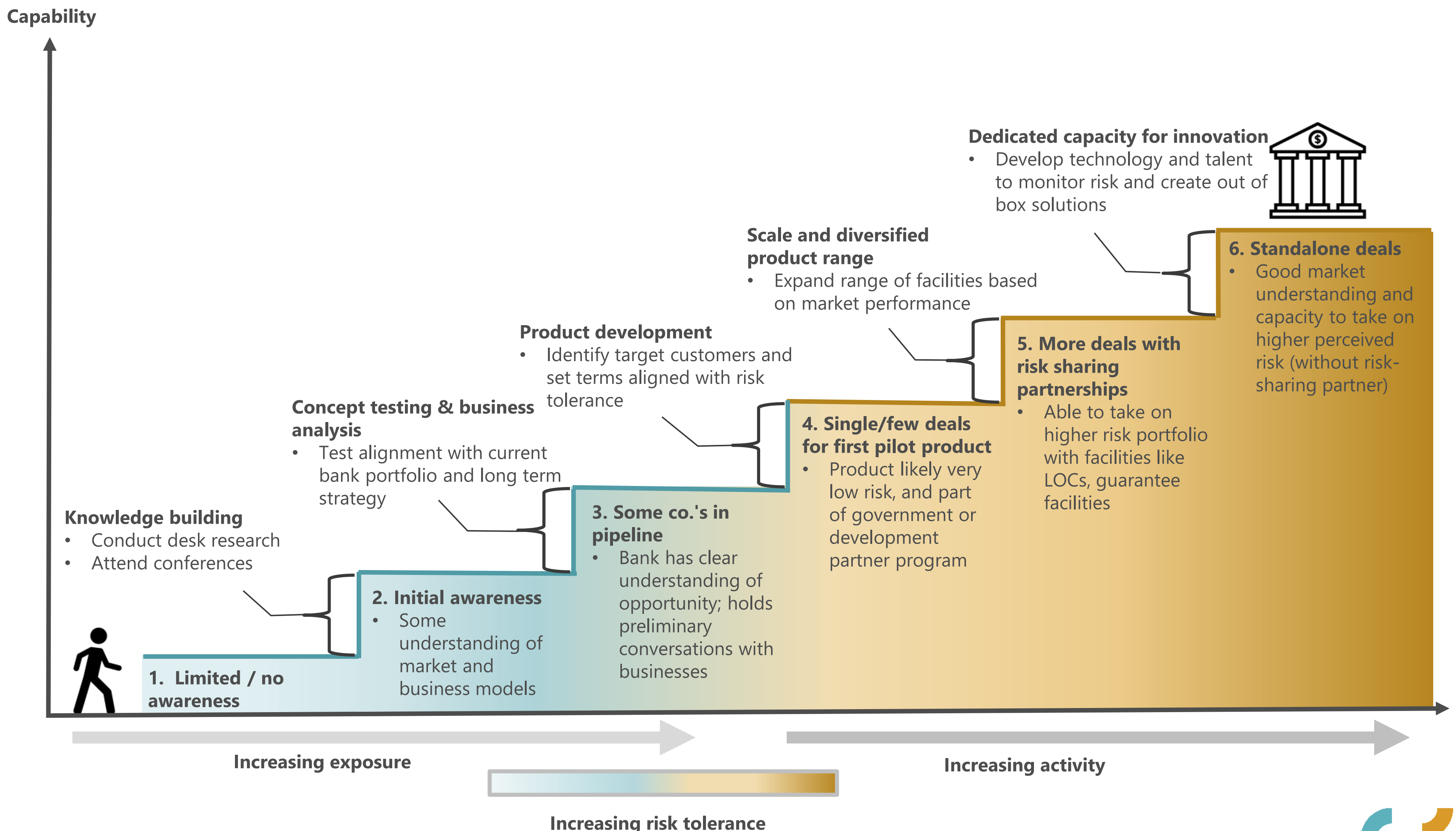
Source: OCA analysis

Internal and external information gaps could be addressed through improving financial performance measurement and targeted TA

	Information gaps	Recommendations for intervention
External	**Lack of transparency around financial and operational performance** for different OGS (and particularly PAYG) models	Develop an **industry-wide performance index** with standardized KPIs that can provide benchmarks against which banks can evaluate businesses
		Pilot technology platforms which provide banks with better insight into PAYG portfolio health for potential investees (e.g. Village Power loan portal)
	Limited or poor quality financial and operational **data collected** by some new and/or less established businesses	**Establish single repository for historical sales, operational, portfolio performance and deals data** to provide banks with easy access to information
Internal	**Limited internal technical capacity** and understanding of different OGS and PAYG models hinders development of tailored products, building effective pipeline, and conducting due diligence	**Provide TA** to help banks establish OGS lending strategies tailored to local markets and develop tailored business and consumer lending products
		Develop industry manuals outlining good practice for due diligence to ensure that banks are relying on right expertise and have visibility of the same data

Source: OCA analysis

Improving information flows and internal capacity will improve local financial institutions' risk tolerance and activity in the sector



 Source: OCA analysis

In addition to addressing information gaps, better coordination and de-risking mechanisms will be critical to catalyze local bank lending

	Challenge	Recommendation
1	**Local and regional banks are inherently conservative and many still perceive the OGS market as relatively immature**	More well-designed de-risking arrangements such as guarantee facilities and first-loss layers required
2	**Guarantee facilities which exist are frequently underutilized due to stringent lending criteria that do not match local contexts**	Provide forum for discussion between DFIs, local banks and OGS businesses to improve design of guarantee facilities
3	**Limited pipeline of bankable investments and heavy reliance on recommendations and existing customer base**	Establish matchmaking forums between investors and OGS businesses around specific financing needs
4	**High cost of capital for consumer lenders due to small loan sizes associated with solar lending products**	Support MFIs in segmenting customers and identifying viable distribution channels e.g. partnerships with SACCOs

Source: OCA analysis

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Kenya

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