Chapter 6
Capital Markets for the Financing of Clean Energy Access in Sub-Saharan Africa

After having presented various financial instruments and mechanisms available for financing clean energy access projects and companies, this chapter focuses on a key element enabling an efficient use of some of the schemes exposed in the previous section. Indeed, well-functioning capital markets not only increase the trust of potential capital providers, but also enhance financial flows among countries and actors.

This chapter explores different solutions strongly depending on capital markets, in particular the bond market, encompassing green bonds as well as alternative and emerging forms of bonds.

Furthermore, an entire sub-section is dedicated to carbon pricing and carbon finance, with a focus on sub-Saharan Africa. It includes an analysis of the current situation in the subcontinent, as well as the shortcomings associated with the implementation of carbon pricing and the use carbon finance.

Finally, this chapter aims at presenting the current status of capital markets and banking systems in sub-Saharan African countries, as well as potential solutions to strengthen and reinforce the trust of potential capital providers, domestic and international.

Financial regulations such as Basel III[1] or Solvency II[2] impose restrictions on certain types of capital providers, limiting investments in illiquid markets and risky

[1] Basel III (or the Third Basel Accord or Basel Standards) is a global, voluntary regulatory framework on bank capital adequacy, stress testing and market liquidity risk. This third instalment of the Basel Accords was developed in response to the deficiencies in financial regulation revealed by the financial crisis of 2007–08. It is intended to strengthen bank capital requirements by increasing bank liquidity and decreasing bank leverage.

[2] Solvency II is a Directive in European Union law that codifies and harmonises the EU insurance regulation. Primarily this concerns the amount of capital that European insurance companies must hold to reduce the risk of insolvency.

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securities. In this particular context, capital markets have a crucial role to play in the financing of clean energy access in sub-Saharan Africa, by improving liquidity, providing long-term financing and allowing the use of specific financial instruments.

6.1 Green Bonds

Green bonds are traditional bonds labelled as "green". Accordingly, those debt securities offer the opportunity to raise large-scale, long-term and non-banking financing for environmental-friendly and climate-related initiatives. Green bonds may be used to finance new projects or for refinancing purposes, focusing on mitigation and adaptation to climate change (IRENA, 2020a).

Currently, renewable energy is the dominant recipient of those fixed-income securities' proceeds, followed by energy efficiency and clean transport (Fig. 6.1). Thus, green bonds offer interesting opportunities for investors, especially large ones with experience in bond markets and willingness to invest in the clean energy sector.

Green bonds can be issued by public and private entities, as well as financial and non-financial institutions (i.e. sub-national agencies, national and local governments, development banks, commercial banks, private entities). Moreover, they can take different forms: project bonds, asset-backed securities,[3] revenue-back bonds, corpo-

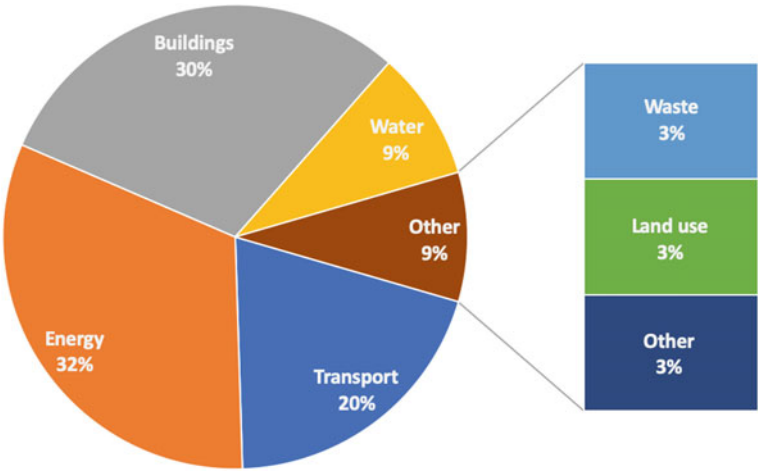

Fig. 6.1 Green bonds: use of proceeds (2019). *Source* Authors' elaboration, based on CBI (2020b)

rate bonds, subordinated bonds, Sukuk,[4] bonds with warrants, etc. Even though the US dollar and the euro are still overrepresented (accounting for more than 80% of issuance), green bonds were issued in 30 diverse currencies in 2018 (IRENA, 2020a).

This form of bond attracts different types of capital providers, ranging from institutional investors looking for sustainable investment opportunities and insurance companies willing to reduce their exposure to the climate risk, to commercially oriented investors. By providing access to "green" projects, it offers the possibility to diversify their assets under management (AUM). In addition, green bond investments usually positively impact the reputation of investors and issuers.

Even though the impact of the "green" label on the cost of capital is still not clear yet, it may increase confidence of investors as well as save costs and time during due diligence processes. Indeed, the "green" label is directly related to the specific assets or project(s) financed by the bond, not to the issuers, thus reducing the analysis requirements regarding environmental factors.

Three different ways exist to issue a bond labelled as "green":

- Self-labelling

This option is based on reputation and was mainly used for the first green bond issuances. Nowadays, investors may require stronger arguments to really trust the "green" label.

- Second-party opinion (SPO)

A methodology of assessment is created by external reviewers with experience in the environmental sector. Usually, the evaluation is aligned with the Green Bond Principles (GBP) and aimed at assessing the overall objectives and processes, without basing the analysis on a particular governance structure.

- Third-party opinion

In this case, the evaluation is based on external standards and released by an approved verifier, improving the independence and transparency of the assessment and allowing a clear taxonomy across the market. The use of a third-party opinion has a cost, but reduces complexity and may increase investors' confidence.

The Climate Bonds Initiative is an approved verifier providing unique and global standards for a broad range of sectors that can possibly be funded through green bonds. Regarding the energy sector, wind, solar, geothermal and marine energies can be certified, while hydro, bioenergy and electrical grids criteria are currently under development or due to commence.

[3] Pooling and securitization of small-scale projects/assets, increasing attractiveness for large capital providers and decreasing transaction costs.

[4] A Sukuk is an Islamic financial instrument, comparable to a bond in Western economies, that complies with the Sharia. As interest-paying bond structures are not permissible under the Islamic religious law, the issuer of a Sukuk basically sells a certificate and then uses the proceeds to finance a specific project that investors have direct partial ownership. This issuer makes a contractual promise to buy back the bond at par value at a future date.

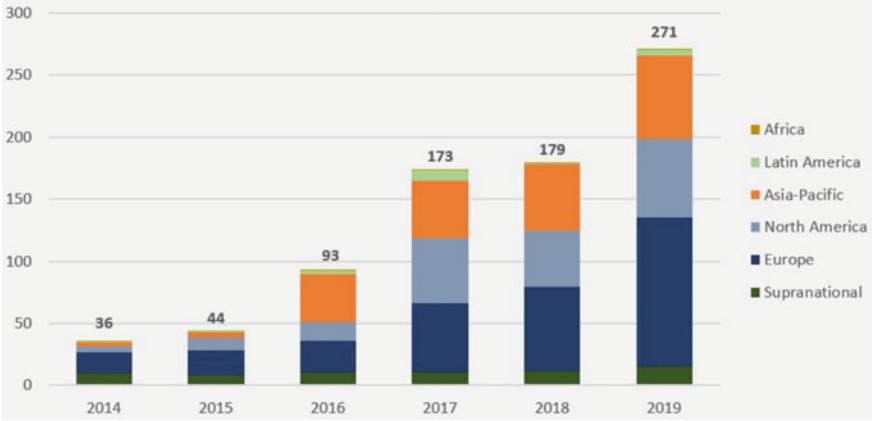

Fig. 6.2 Annual green bonds issuance per region, 2014–2019, USD billion. *Source* IRENA (2020b), based on data from the Environmental Finance Bond Database (subscription required)

The green bond market has been growing at impressive rates in emerging as well as industrialised countries over the last 10 years. In many cases, green bonds were even over-subscribed (The Economist, 2020). Even though the green bond market remains small compared to traditional bonds,[5] it reached over $50 billion worldwide in 2019 (CBI, 2020a).

However, the use of green bonds is still very limited in Africa, mainly because of underdeveloped capital markets (Fig. 6.2). Like the overall bond market, green bonds are catalysed by stock exchanges. Therefore, their deployment strongly depends on the development of the financial sector.[6] Moreover, additional market barriers include: lack of awareness of the benefits of green bonds, lack of clarity regarding guidelines and standards, shortage of projects, higher transaction costs compared to traditional bonds (IRENA, 2020a).

Public authorities can foster the use of green bonds for the financing of clean energy initiatives by establishing supporting policies, providing financial incentives as well as developing specific standards and guidelines. Furthermore, policymakers and regulators may review investment restrictions of institutional investors in order to increase financial flows to environmentally friendly projects.

Similarly, multilateral agencies and development banks have a strong role to play to unlock the potential of green bonds. They are particularly important for markets that are new to green bonds such as Africa, where the African Development Bank has issued more than 80% of the outstanding green bonds at December 2018 (Tiyou, 2019). Thanks to their high credit rating, they can issue such bonds with a lower cost of capital. Moreover, they may provide technical assistance and capacity building to public and private issuers.

[5]The global bond market is currently valued at around $100 trillion (IRENA, 2020a).

[6]For more details, refer to Sect. 6.3 dedicated to the development of capital markets in sub-Saharan Africa.

At a European level, the European Investment Bank (EIB) created the Project Bond Credit Enhancement Facility (PBCE), aimed at providing a subordinated tranche of debt and granting project guarantee facilities through a revolving letter of credit (EIB, 2012). Thus, it enhances the credit rating of bonds issued and help leverage more private investment in Europe. Something similar could be developed in the African continent, to encourage the use of green bonds in the continent.

In addition, sub-Saharan Africa could expand the experience of the Amundi Planet Emerging Green One Fund, a special-purpose investment vehicle developed in partnership with the International Finance Corporation (IFC) and created to finance SDG-linked debt in emerging markets. It uses a first-loss junior tranche to achieve credit uplift for countries' sovereign debts, thus possibly leveraging senior tranche private investors interested in gaining exposure to SDG investments (Hugman et al., 2020).

At the end of April 2019, for the first time in South Africa a private bank issued green bonds to finance four renewable energy projects, one wind farm and three solar farms (A21, 2019). Indeed, Nedbank planned to raise $177 million through green bonds. However, the operation generated close to $380 million in offers, an oversubscription explained by the bank's managers as an increasing investors' appetite for environmentally friendly projects (ibid.). The bonds were listed on the green segment of the Johannesburg Stock Exchange (JSE), highlighting the importance of solid capital markets to catalyse private investments in the clean energy sector.

6.1.1 Other Financing Opportunities in the Bond Markets

In addition to green bonds, other labelled debt securities exist that may be exploited to finance the access to clean energy in sub-Saharan Africa: social bonds, transition bonds, sustainability-linked bonds, SDGs bonds, etc.

Moreover, innovation is gaining the African bond markets, seeking untapped sources of financing and new ways of raising private capital. For instance, the government of Nigeria issued its first diaspora bond in 2017, raising $300 million (130% subscribed) for investments in local Nigerian infrastructures from Nigerians overseas. This success can be partly explained by an offering linked to development concerns (Benson, 2019) as well as an anti-corruption campaign launched by public authorities (Kazeem, 2017). Furthermore, Kenya became the first country to sell government bonds via mobile phones to its citizens in 2017 (BBC, 2017).

Both examples show the various opportunities to provide funding to development challenges, as well as the need to explore innovative tools attracting new sources of capital, such as diaspora remittances. Similarly, instruments like green Sukuk could fit into the energy strategies of many sub-Saharan African countries and help tackle energy poverty issues and climate change.

6.2 A Price on Carbon: Carbon Pricing and Carbon Finance as Sources of Capital

Many jurisdictions across the world have started to internalise the negative social and environmental externalities of conventional technologies and activities by putting a price on carbon through taxes or/and establishing emission trading systems (ETS), affecting costs of production and/or final prices.[7] A carbon tax fixes the price of carbon in an economy and is generally easier to implement (price-based instrument). Moreover, it generates additional revenues for public authorities. In contrast, ETS, also referred to as cap and trade systems, determine the maximum volume of GHG emissions in a specific territory by imposing a cap on different sectors (quantity-based instrument). If an entity emits more than the assigned amount, additional allowances can be acquired in an open market.

Those market-based schemes aim at correcting market failures using the "polluter pays" principle and achieving emission targets at a country or territory level. They can exploit possible behavioural responses and influence decision-making (potentially in a more efficient manner than command and control (CAC) mechanisms and subsidies), through their flexible and least-cost approach as well as the stimulation of innovation.

Even though they are gaining momentum globally, significant disparities across jurisdictions in prices and coverage dilute their efficacy and impose the implementation of border carbon adjustments that may affect trade relationships yet leverage other countries to participate in climate agreements.

Considering poverty eradication priorities and low energy intensity in many sub-Saharan African economies, it is difficult to justify a local implementation of such mechanisms. In addition, even though GHG emissions are currently low compared to other regions of the globe, they are expected to raise in the decades to come (CIACA, 2019). Therefore, the value of carbon pricing may lie less in the potential to curb actual emissions but more on prospects offered for expected emission growth.

Moreover, considering the prevailing socioeconomic circumstances in the majority of sub-Saharan African countries, the implications caused by the introduction of a carbon tax and/or an ETS would be difficult to bear. Both would need to be implemented gradually to give the economy the necessary time to adapt. Furthermore, complementary mechanisms[8] should be introduced in order to anticipate potentially negative consequences linked to carbon finance for market participants (carbon leakage, competitivity concerns, other impacts on trade and the labour market, decreased government revenues and availability of abatement opportunities), foster decarbonisation at a global level and address additional obstacles not targeted by such mechanisms (mainly non-price and financial barriers[9]). On top of that, the choice and design of such tools is highly important and needs (i) to be tailored to

[7] Please refer to Annex 5 for additional features associated with carbon taxes and ETS.

[8] Free allowances, tax exemption, support low-carbon investments with complementary policies.

[9] Additional initiatives can be implemented to address those barriers and create enabling environments, for instance: standard establishment, public green investment vehicles, R&D.

country-specific factors and macroeconomic conditions (such as GHG-intensity and trade exposure of the targeted sectors), (ii) to complement the overall (climate) policy mix as well as (iii) to consider barriers to implementation.[10]

In addition, a fully fledged ETS requires sufficient as well as dynamic supply and demand of carbon credits, currently not available in many countries across the region due to their relatively small economies. This may explain why there are currently no African emission trading systems. A carbon tax has been implemented in South Africa on all fossil fuels. A similar scheme is currently under consideration in Senegal and Côte d'Ivoire (WB, 2020).

Regional systems could represent an interesting possibility to access carbon finance in Africa as it allows significant trading volume compared to what is possible solely domestically. However, their implementation is challenging given the distinct legal frameworks across the continent. Nevertheless, institutions like the East African Development Community (EAC) could support those initiatives.

All of this implies the exploration of different approaches enabling the use of carbon finance for clean energy access projects located in sub-Saharan Africa. An interesting opportunity consists of using existing systems based on international markets. Indeed, developing countries usually have a comparative advantage in supplying the global market with carbon credits as emission reduction may potentially be achieved at a relatively lower cost. Thus, it offers the possibility to reduce the cost of compliance for entities located in industrialised countries. At the same time, it represents additional revenue streams for project developers in developing and emerging economies and associated investors, thus improving bankability and potentially leveraging private investments.

International carbon markets offer an attractive solution to channel new investments into the African energy sector and can help countries meet specific targets associated with clean energy access, share of renewables in the energy mix and emission reduction. Moreover, carbon markets are an interesting alternative to traditional international funding, especially public sources of capital coming from tax payers, currently under pressure due to austerity efforts in several countries. Indeed, international carbon markets are decentralised and do not require direct government budgeting, but rather private finance. However, the proper design, implementation and management of a carbon tax and/or an ETS are crucial to ensure well-functioning carbon markets and achieving the expected economic, environmental and social outcomes.

The relevance of carbon markets has been reaffirmed under the Article 6 of the Paris Agreement in 2015. Those market-based mechanisms are used for compliance with quantified emission targets placed in industrialised and emerging countries as well as on voluntary basis. Diverse set of systems were created for the trading of GHGs "pollution rights", corresponding to allowances, permits or credits. Two are

[10]Barriers to implementation and functioning include (non-exhaustive list): lack of political consensus on the role of carbon pricing, management of negative consequences caused by carbon pricing, market functioning (for ETS mainly), stakeholder engagement, change in legislation, administrative concerns, means and capacity to design and implement such mechanisms, market concentration and illiquidity (for ETS mainly).

particularly relevant for the financing of clean energy access in sub-Saharan Africa: Clean Development Mechanism (CDM) and voluntary carbon markets (VCMs).

6.2.1 Clean Development Mechanism (CDM)

The CDM[11] is a project-based and offset system focused on GHG emission reduction, that entered into effect under the Kyoto Protocol in 1997. It provides an opening for substantial international resource transfers as it allows entities in industrialised countries (Annex 1 countries) to purchase carbon credits from projects located in developing economies (non-Annex 1 countries). It has the objective to contribute to the reduction of global GHG emissions, while fostering the flow of financial resources for specific climate change mitigation projects based in developing countries. Regarding the scope of this book, fuel shift as well as renewable energy resources has traditionally been good sources of emission reduction credits through CDM projects (Fig. 6.3).

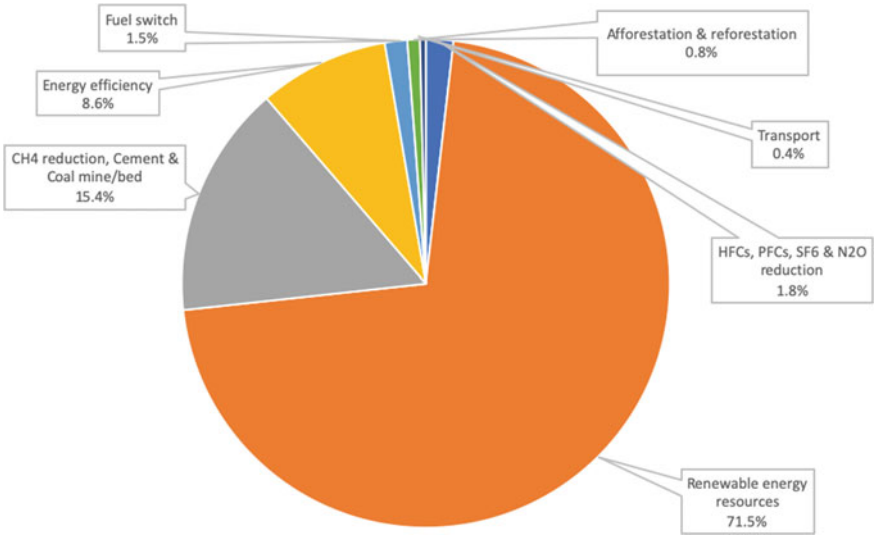

Fig. 6.3 CDM per project type. *Source* UNEP DTU Partnership (2020)

[11]For additional information: https://unfccc.int/process-and-meetings/the-kyoto-protocol/mechanisms-under-the-kyoto-protocol/the-clean-development-mechanism.

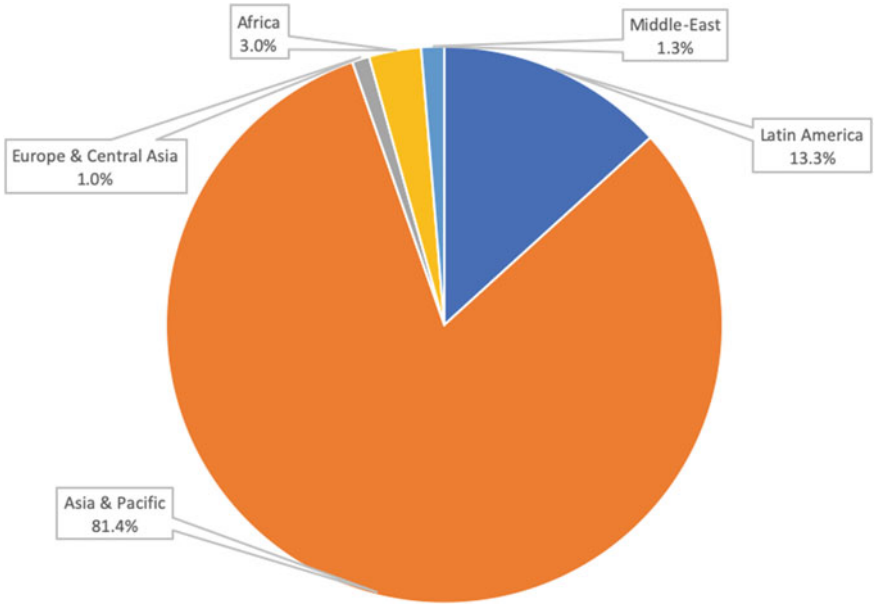

Fig. 6.4 CDM per region. *Source* UNEP DTU Partnership (2020)

6.2.2 Voluntary Carbon Markets (VCMs)

Voluntary carbon markets are similar to CDM with the difference that they are not regulated by the UNFCCC. Yet, different standards are applied. Renewable energy resources and fuel switching can be considered by VCMs (AfDB, n.d.). They are generally used by private individuals, companies and investors that seek to offset their carbon footprints and enhance their reputation.

Nowadays, Africa is participating in international carbon markets mainly using CDM. Even though those market-based instruments could help reach national clean energy access targets, the continent is still under-represented at an international level (Fig. 6.4).

6.2.3 Carbon Market Shortcomings

Accessing international carbon market mechanisms is highly demanding. Many actors have expended significant efforts and costs in accreditation, registration and monitoring. Processes are laborious and time-intensive, which increases transaction costs (AfDB, n.d.). Moreover, projects have to comply with specific and stringent requirements as well as carry out rigorous and burdensome reporting.

In addition, a favourable investment climate as well as adequate legal and institutional frameworks is necessary. Indeed, projects require upfront financial resources for construction and development, as carbon markets are result-based financing schemes, improving bankability of projects in operation.

Furthermore, uncertainties linked to the future of supply and demand for carbon credits as well as their price volatility may prevent a massive participation of investors. On top of that, project developers should carry out solid social and environmental assessment in order to decrease the potential reputational risk for participants, linked for instance to the displacement of indigenous communities due to the implementation of an energy project.

Finally, a solid pipeline of projects complying with the requirements of international carbon markets is needed, yet project developers may lack awareness about opportunities related to those mechanisms.

In order to realise the entire potential of carbon finance in African countries, multilateral agencies and development banks should support the public and private sector in the utilisation of those financial schemes. Moreover, countries can establish national institutional and administrative infrastructures for the identification and implementation of potential CDM and VCM projects.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) launched in 2018 a project in East Africa, aimed at strengthening capacities among public and private decision-makers regarding the use of international carbon markets (GIZ, n.d.). It focuses on sharing successful approaches and experiences of CDM projects, as well as piloting activities to utilise carbon finance mechanisms to achieve NDCs[12] implementation. Policymakers and regulators receive technical assistance to create an enabling environment and promote opportunities that carbon markets entail. Local private enterprises are provided with all necessary information related to entry requirements and procedures.

Initiatives at regional level already exist, with the mission to strengthen the capacity of member countries and foster regional approach towards international carbon market mechanisms and climate finance: the Eastern Africa Alliance for Carbon Markets and Climate Finance, the West Africa Alliance on Carbon Markets and Climate Finance.

6.3 The Financial Sector and Capital Markets in Africa

Every country has its own development needs. However, all regions at a global level need access to capital and long-term financing to support socioeconomic prosperity. It is generally accepted that the financial sector has an instrumental role to play in capital allocation and the financing of projects and companies (Levine, 1997). Therefore,

[12]Nationally Determined Contribution (NDCs) are intended reductions in greenhouse gas emissions expressed by countries under the United Nations Framework Convention on Climate Change (UNFCCC).

capital markets and the banking sector need to be complementary in order to bridge the financial gap related to universal clean energy access across sub-Saharan Africa.

6.3.1 The Development of Capital Markets

Capital markets are crossing points where suppliers of capital (retail and institutional investors) and entities that need it for productive uses (businesses, public entities) can meet and exchange securities. They involve various stakeholders[13] and have the objective to enhance transactional efficiency. Accordingly, the development of well-functioning domestic capital markets may provide significant benefits for the financing of clean energy access.

The benefits include:

- Increased capital inflows and enhanced liquidity

First, capital markets increase the funding supply as well as provide higher visibility and exposure for traded securities to active and passive investors,[14] thus improving liquidity and decreasing dependency on foreign markets. Moreover, they offer additional exit options for (early stage) investors.

- Access to secondary and derivative markets

Second, they enable access to secondary (Table 6.1) and derivative markets, thus complementing traditional bank services, increasing the availability of financing mechanisms and potentially underpinning the (green) bond markets. This can be useful when conventional funding dries up, which is an important concern across the continent as African firms rely extensively on banks for external financing (Otchere et al., 2017). Moreover, it allows the use of new risk management mechanisms like hedging instruments as well as facilitates the sterilisation of large capital inflows and long-term investing. The increased trading volume and funding supply may even possibly result in a reduced cost of capital in the long-run (van der Putte et al., 2020).

- Improve transparency

Third, capital markets may improve corporate governance and transparency by imposing public disclosure requirements, leading to better-informed investment decisions and reducing information asymmetry.

Capital markets are crucial for equity financing. As an example, the Morgan Stanley Capital International (MSCI) Emerging Markets Index helps capital providers evaluate equity market performance in emerging markets. Moreover, it

[13] Governments, policymakers, regulators, investors, corporations, etc.

[14] Active investing requires a hands-on approach, in which a portfolio manager oversees a team of analysts who look at qualitative and quantitative factors in order to actively manage a portfolio. Passive investing often results in investors buying index funds or other mutual funds.

Table 6.1 Proceeds raised (USD billion) via IPOs[a] and FOs[b] and number of deals in global and African equity capital markets, 2010–2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
IPO proceeds raised—global	299.1	178.8	142.5	195.6	274.3	206.9	142.5	209	223.6	199.2
IPO proceeds raised—Africa	2.5	1.1	0.4	0.9	1.7	2	1.5	3	2.2	1.2
% of proceeds raised in Africa (%)	**0.86**	**0.62**	**0.28**	**0.46**	**0.63**	**0.98**	**1.11**	**1.48**	**1.00**	**0.63**
FO proceeds raised—global	642	479.9	509.3	588.2	613.5	685.8	551.1	620.8	462.6	457.8
FO proceeds raised—Africa	7.8	4.4	5.4	5.1	9.4	11.1	7.4	10.7	6.2	3.5
% of proceeds raised in Africa (%)	**1.22**	**0.93**	**1.07**	**0.87**	**1.54**	**1.61**	**1.35**	**1.73**	**1.33**	**0.76**
Number of deals (IPO)—global	1258	1041	728	865	1167	1185	1013	1523	1198	1040
Number of deals (IPO)—Africa	23	17	13	23	27	32	24	30	17	9
% of IPO in Africa (%)	**1.83**	**1.63**	**1.79**	**2.66**	**2.31**	**2.70**	**2.37**	**1.97**	**1.42**	**0.87**
Number of deals (FO)—global	3562	2902	2508	3046	3178	3323	3186	3571	2839	2733
Number of deals (FO)—Africa	71	65	52	50	75	93	73	95	79	59
% of FO in Africa (%)	**1.99**	**2.24**	**2.07**	**1.64**	**2.36**	**2.80**	**2.29**	**2.66**	**2.78**	**2.12**

Source Authors' elaboration, based on PwC (2020)

[a]Initial public offerings, referring to the process of offering shares of private corporations to the public in a new stock issuance

[c]Further offers

is commonly used by investors to channel investments. However, no African countries are currently represented in this index, with the exception of Egypt and South Africa (MSCI, 2019). They should therefore explore the necessary requirements[15] to upgrade their status from frontier to emerging markets in order to make the most of the previously mentioned benefits.

As reported above, capital markets are also vital for the development of fixed-income markets, especially a green bond market in the case of the clean energy sector. With the aim of encouraging their growth and uptake, African stock exchanges and regulators need to develop and implement green bond guidelines as well as specific listing rules and standards.

Additionally, capital markets targeting SMEs should also be implemented. Indeed, small- and medium-sized enterprises are essential for an economy, as they tend to be more dynamic than larger firms in driving innovation and developing sustainable business models. To do so, they need access to growth capital, beyond what is possible through venture capital funding.

Currently, many African countries have weak financial systems, which limit the pool of domestic finance, deter international investors and deteriorate countries' credit ratings. Even though development stages vary across the continent, capital market infrastructures and stock exchanges are generally underdeveloped. In addition, the region faces critical challenges related to the low-income levels and asset accumulation, as well as a limited number of large enough institutions able to provide the required funds to ensure the solidity and efficiency of capital markets (McKinsey, 2017).

Indeed, building vibrant secondary and derivative capital markets requires a nationwide or even regional approach, designed for a sustainable rather than fast development. Firstly, a set of preconditions are needed to create the foundations for long-term capital market establishment and drive investors' confidence, encompassing sound and stable macroeconomic policies as well as strong institutional and legal settings.

Secondly, a critical mass of investors is required to obtain market depth and liquidity. Institutional investors are ideal candidates for the position of cornerstone institutions. However, in case national levels do not reach the necessary size, regional solutions should be promoted in order to avoid illiquid markets. Even though it requests coordination and harmonised legal frameworks allowing investors and issuers to freely operate across member states, regional capital markets represent an interesting solution to improve international cooperation and financial efficiency.

Finally, market architecture needs structural reforms to provide clarity and vision, strengthen stakeholders' protection, introduce supervisory and legal frameworks as well as new financial schemes. On top of that, market regulators have a central role to play in the development and functioning of local capital markets and thereby need to be empowered to ensure adequate surveillance and regulatory enforcement. Furthermore, modern technologies should be put at their disposal to facilitate fair trading, information flow exchange and transparent disclosure.

[15] For more information see Annex 6.

Knowing that the development of capital markets is a complex process, multilateral agencies and development banks can work alongside regulators and policymakers as well as build capacity among market participants, by providing practical recommendations and sharing experience.

6.3.2 African Banking Systems

The banking system is growing across Africa. Moreover, innovation is transforming how people conduct financial transactions and save money in the continent, even though patterns vary by gender and income levels.

Yet, retail services are still underdeveloped and the unbanked population is significant, resulting in a widespread use of cash and informal saving schemes, limited access to long-term and affordable financing, high transaction costs, complex processes and poor geographic coverage.

Nevertheless, the sector presents several opportunities and innovations such as

- The use digital technologies and mobile phones to overcome the underuse of banking facilities
- The provision of tailored-made saving, borrowing and investing services
- Optimization in order to decrease operational complexity and costs
- Support of consumer finance and securitization

As previously reported, a large part of external financing of African SMEs comes from commercial banks, highlighting the importance of this industry across the continent. Nevertheless, many entrepreneurs tend to rely on their savings to start a business rather than borrow for it.

Accordingly, it is important to reinforce the capacity of the banking sector in order to foster local financing and capital allocation in clean energy access solutions. Moreover, saving mobilisation may provide additional sources of capital to start and grow clean energy access projects.

Even though the gross savings in percentage of GDP have had a declining trend in the last decades in sub-Saharan Africa, some countries present significant saving rates[16] that could in part be used to bridge the financing gap in clean energy access (WB, 2019). In 2019, sub-Saharan Africa had gross domestic savings as a percentage of GDP of 22%, which represents around $380 billions, part of which could be invested in sustainable development in the case enticing investment opportunities with tailored risk-return profiles are available to retail investors (ibid.).

[16]Here, it should be added that due to significant income inequalities around the subcontinent, a small share of the population holds an important part of the domestic savings.

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