

Sovereign Wealth Funds as a Tool to Invest in Renewable Energy in Africa

Narodowe Fundusze Majątkowe jako narzędzie inwestycji w energię ze źródeł odnawialnych w Afryce

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Abstract

In this paper, the Sovereign Wealth Funds (SWFs) of oil- and gas-rich developing countries in Africa are examined as a potential renewable energy (RE) investment tool. If proved successful in this role, the SWFs could offer a solution to the broadly discussed phenomenon of resource curse. In particular, this research report handles the capacity of SWFs to ameliorate barriers that hamper private energy investments in RE.

Key words: resource rich countries, resource curse, resource revenue management, sovereign wealth funds, renewable energy finance

Streszczenie

Artykuł podejmuje zagadnienie potencjału Narodowych Funduszy Majątkowych (NFM), które są w ostatnich latach coraz częściej tworzone w bogatych w złoża ropy i gazu państwach rozwijających w Afryce, jako narzędzia inwestycji w energię ze źródeł odnawialnych. Jeśli NFM sprawdziłyby się w tej roli, przyczyniłyby się do rozwiązania szeroko omawianego w literaturze problemu „klątwy surowcowej”. W szczególności, w ramach artykułu analizowana jest zdolność NFM do redukcji barier dla sektora prywatnego, które uniemożliwiają inwestycje w odnawialne źródła energii.

Słowa kluczowe: państwa bogate w surowce, klątwa surowcowa, zarządzanie przychodami z wydobycia surowców, Narodowe Fundusze Majątkowe, finansowanie energetyki odnawialnej

1. Introduction

The oil and gas abundance cannot be directly translated in a country's socio-economic prosperity. On the contrary, the discovery of hydrocarbon riches, in particular in developing economies, often has negative effects on growth indicators. This is due to a phenomenon known as *resource curse* or *paradox of plenty* which has been widely discussed in the literature (Auty, 1993; Sachs and Warner, 1995; Tierney, 2008; Cavalcanti et al., 2011). This issue can be illustrated on the example of petroleum exporting countries. For the OPEC as an organization, in the years 1965-98 GNP per capita decreased by 1,3% per year on average, compared to 2,2% average per capita growth in low- and medium- income countries

(Gylfason, 2000). The *resource curse* can be attributed to multiple causes, e.g. a decline in international competitiveness of other sectors due to high exchange rates (Dutch disease), global commodity market swings which cause volatility of revenues from natural resources, weak public revenue governance, as well as greed of political elites in connection with their lacking accountability (Mikesell, 1997). In response to the issue of *resource curse*, there have been multiple approaches developed to enable the hydrocarbon abundance to be more reliably converted in a sustainable and profitable economic growth. In particular, the appropriate design of public governance institutions and their practices with respect to the resource revenue management has been deemed utmost importance (Eifert, 2002). E.g.,

it has been estimated that if the Sub-Saharan countries improved the quality of their governance institutions to that of developing Asian economies, this would result in a near doubling of the region's per capita GDP (IMF, 2010). As an exceptionally promising instrument of the effective resource revenue governance in the developing world, the Sovereign Wealth Funds (SWFs) have recently gained widespread interest (see Dixon and Monk, 2011a, 2011b). The non-renewables are currently the largest source of electricity production in Africa (Klimstra, 2012). Simultaneously, 25 out of 54 African nations are in an energy crisis – the power is inaccessible, unaffordable, and unreliable for most people (WB, 2014). Due to technological backwardness and related inability to add value to the extracted energy resources domestically, the refined energy products have to be imported at a high price and with volatility risks. In addition, the use of coal and fossil fuels for energy production is associated with multiple negative environmental effects which include global warming, air quality deterioration, oil spills, and acid rains. These problems in turn generate further large-scale global economic, political, and health issues. At the same time, Africa is home to vast clean energy sources which as an alternative to the conventional energy could offer a straightforward solution. According to the estimates of IRENA (2013), the potential of RE in Africa is larger than current and projected power consumption. It is however still untapped due to financial, regulatory, and political barriers which are faced by potential investors. Therefore, this research paper examines the capacity of SWFs to positively influence the investment conditions in the field of RE in Africa.

2. Literature Review

2.1. Renewable Energy (RE) in Africa

2.1.1. Potential of RE in Africa

Due to diversity of the African continent, it is not possible to undertake a universal assessment of its RE (solar, wind, water, geothermal, etc.) potential. At the same time, each kind of clean energy is associated with different risks and opportunities. Which sources are more promising than the others has therefore to be decided in every single country case. Nevertheless, it is assumed that certain issues are common for the whole continent and therefore can be approached systemically. E.g. due to the proximity to the equator, most of Africa has 325 days of strong sunlight throughout the year (Rotberg, 2013). As a result, Africa as a whole could provide all of the world's energy by producing solar power on only a small portion of the Sahara Desert (EurActiv, 2009), which certainly invigorates imagination and could serve as a starting point for further discussion.

2.1.2. RE Investments and their Challenges

With regard to the global investment in RE (both domestic and FDI), a comparatively small volume has so far been accountable for by Africa. While in 2013 China was the most important investment region with USD 56.3 billion, in Africa and Middle East USD 9 billion were put into clean energy (FS-UNEP and BNEF, 2014). Taking into account the large area covered by the African continent and its enormous RE potential, as well as the trend of falling RE production costs (IRENA, 2012), this result is disappointingly poor. In developing world, the previously raising trend of RE investments was interrupted after 8 years and in 2013 it fell 14% to USD 93 billion (FS-UNEP, 2014). At the same time, the IEA (2011) estimated that from 2011 to 2035 over USD 35.6 trillion would have to be invested in clean energy supply in order to meet the climate goals. This poses a question how to attract the needed capital, and more specifically, how to overcome the constraints which have so far prevented the RE investments. In general, the elements which influence RE investment are broadly classified in the literature as: 1) **financial**, 2) **policy**, and 3) **political** (EIB, 2010; OECD, 2013). In the following, all three factors are shortly reviewed.

With regard to the **financial** aspects of RE investments, it must be noted that the projects are enormously capital-intensive (EY, 2014). In particular, they are associated with high initial financial effort. The up-front capital costs for deployment of RE technology amount to around 80% of the total lifetime costs (RCREEE, 2013). However, due to low annual fixed and variable costs, the investments can lead to reasonably steady, low-risk, and long-term cash flows under a favorable policy framework. From the regulatory policy point of view, in order to opt for investments, the entrepreneurs need therefore assurance that they will be able to secure returns on the projects over their entire lifetimes (IEA, 2011; RCREEE, 2013). Some investments in RE are referred to as *mega projects*, typically costing more than USD 1 billion and attracting public attention mainly because of their substantial impact on the overall country development (Flyvbjerg et al., 2003). Due to their vulnerability to sunk costs, as well as high transaction costs resulting from unique character of assets and complex contractual frameworks, such projects are particularly threatened by the risk of cost overrun (Globerman and Vining, 1996). In addition, the politicized nature of energy pricing makes the exact returns on energy investments barely predictable (Levy and Spiller, 1996). In addition, as large RE projects in developing countries are not a common practice, bankers attach to them a higher degree of risk. This is reflected in high interest rates and a general reluctance to lend money (ICEED, 2006).

The private sector participation is widely regarded as crucial to meet the RE investment needs. At the same time, the mobilization of private capital depends largely upon the ability of the public sector to ameliorate investment uncertainties (IEA, 2014). Therefore, the RE projects fall under category where the OECD identifies the need for *carefully targeted and time-bound incentives* (Thiemann, 2013). So far, African governments have not been able either to provide satisfactory level of green power finance themselves or to attract private sector investment through conducive RE policies (UNECA, 2006). There are two main aspects of the latter failure: an inappropriateness of public policy frameworks, and instability in policy regime (FS-UNEP, 2014).

As exemplified by successful experiences around the world, an appropriate **policy** framework should consist of 3 adequately balanced elements: public financing, regulatory policies, and financial incentives.

A transition to RE in Africa would only be possible with a *system approach*, where actions take place at all relevant policy levels (Liebreich, 2013). E.g., currently in resource rich countries there is a common practice to lavishly subsidize the fossil fuels consumption. This on the one hand lowers their prices, but on the other hand does not allow renewables to have an attractive return on investment. Therefore, some policies, if not designed as parts of a comprehensive sector reform plan, may create more problems than those they intend to address (IMF, 2014). As estimated by the IEA, in 2012 the global fossil fuel subsidies amounted to USD 544 billion, and those for renewables to USD 101 billion.

However, apart from these policy instruments which are specifically aimed at the RE investments and these which pertain to the whole energy sector, an importance should also be attached to the general regulatory trade and investment framework in a given country. According to the WB *Doing Business* report, entrepreneurs in developing regions face a less friendly regulatory environment on average than those in the OECD high-income economies. The report, which is issued on an annual basis, ranks the economies around the world in 10 areas of business regulation (e.g. starting a business, dealing with permits, registering property, getting credit, protecting investors, enforcing contracts, etc.) (WB and IFC, 2012). The Sub-Saharan Africa regularly obtains the worst results.

The third group of challenges which may be faced by the RE investors arises from the overall **political** situation. While regulatory risks result directly from government strategies and more or less carefully deliberated public policies (Butler and Joaquin, 1998), the political framework is reflection of a complex and inconstant blend of various events, actions, and players which in developing countries are usually left uncontrolled (mainly due to a missing system of checks and balances, as well as weak institutions).

The political framework in a broad sense of the word is constructed by elements such as country security, political stability, quality of public governance, attitude of local communities, relationships between government and society, trust in government's actions, accountability, transparency, rule of law, control of corruption, macroeconomic situation, terrorism and sabotage risk, etc. Some of these elements have been used to establish a set of Worldwide Governance Indicators by the WB (2012). According to the UNEP, there are strong links between the country risk, public governance, and levels of private investments: *As vague and all-comprising this category of risk [political risk in the meaning of this research paper] may be, it is critical for foreign investors and financial institutions* (UNEPFI, 2012, p. 42).

2.2. Sovereign Wealth Funds (SWFs)

2.2.1. SWFs as a remedy for problems faced by Africa

SWFs are state-owned investment vehicles. Usually, they are created as a result of national budget surpluses which have been possible to accumulate due to favorable economic conditions over a certain period of time (Rozanov, 2005). Generally, SWFs can have their origin either in commodities or in non-commodities. In case of resource-rich countries, the funds are recurrently replenished with revenues from commodities which are owned or taxed by the state. The majority of the countries operating SWFs have a positive trade balance, which reflects large receipts from exports. In addition, the creation of funds is positively associated with growing foreign exchange reserves. The SWFs are established outside the regular budget and not influenced by any changes in fiscal or monetary policy, i.e. balance of payments, foreign currency operations, proceeds of privatization, etc. (Das, 2009). SWFs count among the most promising investment tools in the aftermath of global financial crisis. In 2011, the size of SWF assets amounted to about USD 4.9 trillion, of which 2.8 trillion constituted commodity-based and 2.1 trillion non-commodity based SWFs (Tagliapietra, 2013). Despite sustained economic uncertainty, global SWF assets further increased to USD 5.16 trillion in 2012 (Ncube, 2013). The funds are becoming a *must-have* for resource rich countries, evidence of which is the fact that almost every OPEC member already has at least one. More than 30 new funds have been established since 2000 with several countries like Kenya, Liberia, Mozambique, Niger, Uganda, Sierra Leone, Zambia and Zimbabwe considering creating new ones (Revenue Watch Institute, 2013).

The financial resources accumulated in SWFs can be marked for various purposes, e.g. to protect economy from excess volatility in revenue, increase savings for future generations and ensure inter-generational equity, fund social and economic development and to secure social protection or to provide a sustainable

long-term capital growth for strategic purposes. Accordingly, SWFs can be classified into: stabilization funds, savings/future generation funds, pension reserve funds, reserve investment funds, and strategic development funds. Among these five sub-types of SWFs (defined by IMF in 2008) three are of particular importance for the developing countries: stabilization funds, saving funds, and development funds (Dixon and Monk, 2011b).

However, it must be noted that the SWFs cannot replace regulatory reforms and economic or social policies. While they can indirectly support poverty alleviation and increase employment, they cannot be expected to do so independently (Dixon and Monk, 2011b), for which there are two main reasons.

Firstly, the investment decisions of SWFs depend primarily on financial considerations, i.e. they are focused on the expected return on a given investment. Only if a project is financially sound, further aspects are taken into consideration. They include e.g. the social impacts of a given investment, as well as its environmental implications – according to the concept of sustainable development. The preliminary goal is however to maximize the economic profit.

Secondly, in order to benefit the society, the SWFs must be invested domestically. Moreover, they should be diverted to priority sectors (e.g. infrastructure), depending on specific development needs of a given country. If invested domestically in priority sectors, the SWFs could both foster the country development and bring jobs. One of the best examples of how to manage the SWFs in support of domestic social and economic development in Africa is the Nigeria Sovereign Investment Authority (NSIA). It puts 40% of its capital into a Future Generations Fund which is invested in global assets with a horizon of over 20 years. Another 40% are allocated to domestic projects in power, highways and farming. In general, due to the booming population growth and increasing life expectancy, the African continent is experiencing major infrastructure bottlenecks. At the same time, there is a lack of sufficient financing to enable a quick provision of the needed facilities. The SWFs could play an important role in closing this gap.

2.2.2. *Problems associated with governance of SWFs in Africa*

While the benefits of SWFs are evident, it is rather questionable if Africa is ready to reap them yet. It is mainly due to overall public governance problems in resource-rich developing countries, including poor transparency, weak accountability, and corruption. In order to fulfill their functions, SWFs must above all involve an effective asset management. This seems not a simple task, as countries set up SWFs precisely because the functions to be performed by these funds are not capable of being easily integrated in the existing government structures (Dixon and

Monk, 2011b). From this perspective, SWFs are special purpose vehicles which should theoretically have features distinctive from traditional governance apparatus. Unfortunately, the evidence does not support this hypothesis for most of Africa. According to the Linaburg-Maduell Transparency Index, which rates SWFs around the world, many African funds are not transparent or no data is available. In general, opacity is the defining feature of the majority of SWFs in Africa (with some notable exceptions, e.g. Botswana and Nigeria). Little information is available on their size, portfolio holdings, investment strategy, performance, mode of governance, etc. (Guerin, 2013).

To enhance transparency is one of the aims of the so-called Santiago principles which are a set of 24 guidelines on good SWF governance. They were defined by the International Working Group on Sovereign Wealth Funds (IWG). In Africa 5 countries are IWG members (Angola, Botswana, Equatorial Guinea, Libya, Nigeria), among which only Nigeria managed to efficiently integrate the Santiago principles into its SWF governance.

3. **Research question and methodology**

Against the backdrop delineated in the introductory paragraph and on the basis of literature review, this research paper focuses on the following research question, which has not been sufficiently discussed so far: ***Can SWFs alleviate the financial, policy, and political barriers faced by private RE investors in Africa?***

In an attempt to answer the research question, 10 in-depth interviews (in person or by phone) with key informants were arranged. The respondents included: Diego Masera (Chief, Renewable and Rural Energy Unit, UNIDO), Yasmina Abdelilah (Analyst, Renewable Markets Research, IEA), Sophie Jablonski (Energy Specialist, EIB), Frank Wouters (Deputy Director-General, IRENA), David Goodman (Policy Specialist, FS-UNEP Centre), Michael Maduell (President, SWF Institute), Kirsty Hamilton (Energy, Environment and Resources Associate Fellow, Chatham House), Perrine Toledano (Head of Extractive Industries Research, Columbia Center on Sustainable Investment), Prof. Abubakar S. Sambo (Special Advisor on Energy to the President of Nigeria), Magalie Masamba (Lawyer, Consultancy Africa Intelligence). The expert interviews enabled to 1) further investigate issues identified as not sufficiently covered in the literature, 2) explore the experts' overall perspective on the idea to utilize SWFs as RE investment tools. Following a short introduction to the research questions and literature gaps, the respondents were allowed to freely express their thoughts. The importance of their contribution was enhanced by the mostly critical attitude and the ability to uncover the shortcomings of the author's conceptual approach.

Following limitations of the proposed methodology were encountered: 1) difficulties to identify experts willing to speak about both RE and SWFs, 2) undisclosed information (mainly on SWFs, but also on RE policies), 3) generalizations on which the analytical approach is based and which may constrain the applicability of research results.

4. Results and analysis

Although not deprived of uncertainties, the emergence of SWFs in resource-rich countries in Africa is a promising trend. In spite of the aforementioned shortcomings, there are strong indications that SWFs may play quite an important role in fostering the continent's development. For the sake of clarity of argumentation, the following theoretical analysis is structured in four parts, each of which is introduced with a representative headline being an African proverb.

The wealth which enslaves the owner is not wealth
 Currently, many oil- and gas-rich developing countries spend public money in form of subsidies to support conventional energy sectors on the production and consumption side (both with the aim to lower energy prices for end-consumers). This policy is motivated by the fact that citizens of oil- and gas rich countries often require an individual share in the hydrocarbon abundance in form of low energy prices. The attempts to abandon or reduce fossil fuel subsidies are regularly echoed by fierce social protests in many African countries, which forces respective governments to restrain from their planned reforms. This occurs in spite of the fact that, taking into account shrinking reserves of non-renewable resources, their rising prices, as well as growing population, fossil fuel subsidies are not sustainable in a long-term perspective (as it can be expected that the extent to which there is a need to subsidize traditional energy will be exacerbating over time, not to mention the climate change issues). Therefore, fossil fuel subsidies are generally claimed a flawed policy. In addition, apart from the fact that they benefit mostly the richest citizens and reduce energy efficiency, most importantly they crowd out other investments, as they constitute a large part of national budget. This is particularly detrimental to development of infrastructure, including RE projects, which require large initial effort in terms of money. From this perspective, SWFs are well positioned to meet the financial gap. One could raise doubts why SWFs should be better than other financing sources, but there are indeed some reasonable explanations for this. Theoretically, private sector could mobilize financial resources for RE projects through three other main channels: 1) from commercial banks, 2) through equity finance, 3) from multilateral development banks and international finance institutions (which have both public sector arms offering financial support to governments and private sector arms assisting commercial companies). E.g. with regard to

commercial banks, their finance decisions are based solely on risk-return considerations. Usually, more risk means higher interest rates, and less risk is commensurate with lower interest rates. A typical risk assessment concerns regulatory and political environments in a given country which, as mentioned earlier with reference to the barriers faced by private investment companies, are generally quite high. Therefore, while the commercial banks could theoretically help investors overcome the large financial effort related to the first investment stage, they have no bearing on the political and regulatory investment aspects, and they are in fact trapped in the same pitfall as private companies. This would result in high interest rates to be repaid, so that the financial barrier is in fact higher but simply redistributed over time.

In addition, the recent global financial crisis contributed to the fact that banks are becoming more reluctant to lend money for infrastructure projects (Justice, 2009). In particular, it is expected that the Basel III regulations will have negative impact on projects requiring long-term financing, as they force banks to hold more equity on the balance sheets for high-risk lending. Hence, investments in RE have become too expensive for them (Kaminker and Stewart, 2012). On the contrary, SWFs may be invested on commercial terms (i.e. according to a purely economic risk-return or cost-benefit analysis), but their managers are also able to consider accepting a below-market return for a certain period of time. This results from the fact that in the decisions about involvement of SWFs not only financial, but also broader social and economic effects are taken into considerations. The non-commercial benefits are to be understood as positive externalities, which only the state has incentives to provide. However, SWFs should not invest in projects justified mainly on the grounds of positive externalities, but look for opportunities with market or close to market financial returns in a longer term. A balanced approach between commercial and public interest would be to rank proposed investments by both their financial returns and according to their impact on wealth creation (Gelb et al, 2014). If this reasoning was followed, it turned out that high-return (i.e. high-risk) domestic investments are most appropriate for SWFs. It has to be emphasized that SWFs are not expected to replace the existing institutions or to duplicate their roles.

The considerations presented above are to a certain degree biased, i.e. focused on the negative sides of available investment tools, in order to expose the potential to be realized by other entities, including the SWFs. However, if there already are successful mechanisms in place to financially support the private investors in the RE sector in a given country, there would not be any point in adding a SWF into the existing institutional framework. The SWFs can also actively seek to establish partnerships with each other, as well as with other financing institutions and private companies. Certainly, as public investors

they can be expected to have a deeper understanding of projects which depend on regulatory policies and political framework. Simultaneously, their comparative advantage is that, unlike some institutional investors (e.g. pension funds or insurance companies), they do not have any long-term debt or future payment obligations.

What you give you get, ten times over

As opposed to other sources of finance mentioned above, the investment of SWFs in RE is expected to result in following value-addition for the country:

1) Investment return

Typically, SWF could invest in RE project either as lender (i.e. to grant a loan to private company) or as project partner (i.e. to contribute financial resources to a private project and to become its co-owner). The investment returns can be assessed, as mentioned earlier, in terms of financial and broader economic/social value. In case when SWFs invested as lender, they could make money in a manner analogous to commercial banks⁶, i.e. by charging the cost of granting loans in form of interest rates. The loans, unlike other kinds of government spending (e.g. traditional hydrocarbon subsidies which are typical financial transfers), would this way deliver financial returns.

2) Reduction of risks

In traditional public-private partnership arrangements, a private company invests its own financial resources to provide a public service or project, which has a two-fold advantage for the public sector: 1) harnessing the efficiency which the private sector brings, 2) avoiding utilization of own financial resources or borrowing by the public sector, as the majority of costs is incurred by the private partner. The government usually holds ownership of the project, while the private company collects the revenue for a given time period. The main benefit of PPP for both partners is risk-sharing. Typically, the following kinds of risks can be allocated to the government: political (expropriation and nationalization of assets, unstable government, strong political opposition, poor public decision-making process), level of public opposition to the project, risk concerning legislation change (Ke et al., 2010).

The reduction of risks is a considerable encouragement for the engagement of private sector, as it lowers the cost of capital. In a broader sense, the cooperation of public and private sector can take a form of shared service delivery, which apart from risk sharing would also include pooling of financial resources by both parties (SWF resources on the government side). This would further reduce the financial risk incurred by the private sector.

3) Improved country rating

SWFs can have positive influence on the investment risk ratings (Whitehead, 2012). Various rating agencies use different indicators to assess the country's

credibility, e.g. Euromoney's includes following factors: political risk, economic performance/ projections, structural assessment, debt indicators, credit ratings, access to bank finance, and access to capital markets. According to these indicators, Africa is currently not an investment-worthy target (ranked mostly in the Tier 5 and 4 which are least trustful).

However, according to Moody's Investor Service, financial resources accumulated in the funds have a great potential to absorb shocks (e.g. real-estate, banking, financial crises, political risks, etc.). They constitute an important buffer for public finances, as a result of which they enhance ratings. Moreover, SWFs facilitate state's involvement in ambitious infrastructure plans and increase state handout packages, which encourages FDIs. SWF can also be seen as a complement to domestic capital markets (Byrne, 2013).

Monk (2011) goes further and claims that it is not SWFs which enables higher country rating, but conversely, the rating agency inspires the establishment of SWFs. Generally, the agencies recommend governments to keep at least 10% of state revenues in some kind of buffer. SWF are a tool to pursue this advice, which automatically results in higher rating. This in turn lowers the cost of capital. E.g. in case of Angola, the creation of SWF resulted in the improvement of country assessment by Fitch Rating from *stable* to *positive* in 2012. According to the agency, the establishment of fund has reaffirmed that government aims to reduce economy's exposure to volatility in the oil price, and has laid down a foundation for sustainable growth (Altenkirch and Brown, 2012). Also Botswana, whose SWF is rated relatively high in the Linaburg-Maduell Transparency Index, has a corresponding high Standard & Poor (2013) rating of (A-).

4) Improved regulatory framework

The RE investments ensure steady, low-risk, and long-term cash-flows only under a favourable policy framework. Thus, on the one hand it can be expected that the decision on investment of SWFs in green energy will be preceded with a careful examination of the existing policy framework, and on the other hand accompanied by its appropriate improvements, so that the profitability and security of investment are ensured. D. Goodman (FS-UNEP) argues that, as soon as public money is in game, the state may act with greater scrutiny with respect to the investment rules and regulations than in case when only private sector is involved. The political nature of energy pricing implicates the involvement of state anyway. The SWFs simply enable this engagement to be more informed. The reasons why this outcome cannot be achieved by the public sector alone (without creating SWF) are discussed further in this paragraph (*Make some money but do not let money make you*).

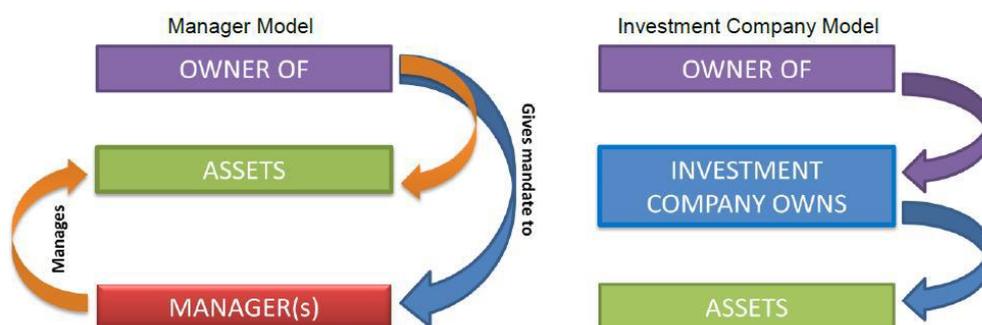


Figure 1. Manager model and investment company model (Al-Hass-an 2013)

5) Private sector development

Better regulatory framework further lowers the risk – both for private companies and for financial institutions, which may encourage their more active participation in the developing markets. Due to their long-term investment horizon, the SWFs could also provide an extension of financing terms presented to private companies by commercial banks or offer arrangements for risk-sharing. The SWFs are in general very supportive of involvement of private companies. They crowd in rather than displace them. In addition, SWFs have potential to indirectly foster the private sector development by facilitating sound fiscal and monetary policies, which creates a friendly investment climate.

Make some money but do not let money make you

An objection to the concept presented in this paper could be that revenues from extractive industry can be spent on green energy investments anyway, without creating an artificial tool which the SWFs are often accused to be. This however does not happen and the evidence suggests that most countries in spite of substantial oil and gas revenues are not able to mobilize the financial resources needed for RE projects. According to Diego Masera, this is not due to lack of an idea to do so, but rather results from the inability to apply the basic rules of good public governance and rational management. At the same time, Mr Masera is skeptical about the capacity of SWFs to overcome this problem, as they are also strongly embedded in the state's financial space. According to him, rolling out the red carpet for SWFs does not mean that corruption, lack of accountability, and greed can be swept under it and forgotten. However, as evidenced in the case study of Nigeria, it is indeed possible to run an exemplary SWF in spite of a generally bad public governance framework. The *management and ownership structure* is a keyword to explain the superiority of SWFs over the direct state investments. The general rule is that the operational management of SWFs must be independent in order to minimize political influence that could hinder the achievement of the SWF's objectives (Al-Hassan,

2013). With that respect, *the manager model and investment company model* are in practice the most common institutional frameworks for the functioning of SWFs. They can be summarized as follows in fig. 1.

The investment company model or the private fund manager model would most probably help minimize the effects of public governance problems in Africa.

One cannot both feast and become rich

Some opponents of the SWFs claim that they are an expression of state capitalism. The funds give too much power to governments, which could stifle liberalization and market competition. This may indeed be true, but you usually cannot have everything you want at once. The alternative is either to let the market forces work, which in the presence of described financial, regulatory, and political barriers will most probably lead to no economic activity in the field of RE investments, or to undertake a state-dominated policy, which may possibly also end up in a failure, but for which there is at least a chance to turn out successful.

5. Conclusions

From the analysis carried out in the framework of this research paper it can be concluded that SWFs have potential to overcome some of the financial, regulatory and political barriers faced by private investors in the RE sector in Africa. In spite of general problems with good public governance, it is possible to build a transparent and accountable fund. SWF are multifaceted tools which may be utilized in many different ways, depending on specific country needs. With regard to clean energy projects, they can substitute or complement other financing sources, serve as a project partner, take risks over, lower interest rates, influence the regulatory framework for RE, etc. As such, they are a promising tool to fight the resource curse in developing countries. Nevertheless, a broader policy commitment is needed to realize their potential. Moreover, the SWFs cannot replace economic and social policies nor regulatory reforms.

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