

Public sector SME Grading System in emerging markets: a focus on Nigeria

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Abstract

In this paper, we explore the impact of creating a public sector nano, micro, small and medium enterprise (nMSME) grading system in Nigeria. Using insights from work with the Nigerian government, the first country in Africa to attempt to establish a public sector SME grading system, we showcase the potential economic benefits of the public sector model. We show that SMEs exposed to SME gradings can contribute as much as US\$28 billion to the Nigerian economy over a 5-year period. This potential benefit can be used as a proxy for the potential impact that can be derived by other emerging market economies wanting to implement a similar model. Given the challenges faced by most private sector rating agencies focusing on SMEs, we propose a public sector model as an alternative solution. The public sector model has been successful in Europe, and the work completed within the Nigerian project highlights how the model can be calibrated to be effective within an emerging market setting. Subsequent survey evidence presented in the paper indicates that various stakeholders, including lenders and the nMSMEs fully support the creation of the public-sector rating agency.

Keywords: SMEs, SME gradings, access to business opportunities, access to funding, Africa.

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1 Introduction

Small and Medium Enterprises (SMEs) or nano, Micro, Small, and Medium Enterprises (nMSMEs) are the pulse of many, if not all, economies around the world (World Bank, 2018). Consistent with this, governments are constantly formulating policies and programs to support SMEs. For example, in the United States, the government actively supports and advocates for small businesses through the Small Business Administration (SBA), which connects entrepreneurs with lenders and funding to help them plan, start and grow their business.¹ In the United Kingdom, recognizing that long accounts payable days can impose financial strain on SMEs, the UK government enacted policy to pay its invoices from SMEs within five days and provided guidance that any companies with government contracts ensure prompt payment to their own suppliers.² In Nigeria, the subject of this paper, the government, via its Small and Medium Enterprise Development Agency (SMEDAN), is constantly seeking ways to enhance the growth and sustainability of its nearly 40 million nMSMEs. In this paper, we highlight the government's move to become the first African country to adopt a public sector nMSME credit grading system to enhance operational efficiency, create business opportunities, and enable access to financing for the nMSMEs.

A public sector nMSME credit grading system is a government-driven credit rating system with a singular focus on nMSMEs.³ The grading system is like a traditional credit rating system, which seeks to assess the creditworthiness of an entity. Yet, unlike the traditional credit rating system which focuses on likelihood of default and loss given default, the nMSME credit grading system does not necessarily emphasize these two metrics. Instead, the credit grading system can emphasize simple due diligence and operational assessments of an entity and

¹ <https://www.sba.gov/>

² <https://www.gov.uk/guidance/prompt-payment-policy>

³ SMEs are often classified differently in various countries; in Nigeria, the government uses the term nMSMEs due to the large number of nano and micro-enterprises. This allows the government to better classify these entities and thus create public policy and government interventions in a much more targeted manner. Due to the link of this paper to Nigeria, we will use the term where appropriate.

thereby provide the entity's credibility, highlight areas for improvements, and create opportunities for business engagements and access to financing. The involvement of the government ensures that the goal of the grading system is not to profit from providing the services, but rather to support the nMSMEs and drive economic growth in the country. The government not-for-profit approach also ensures that the credit gradings are available to a wide range of entities, something that the private sector fails to provide (Pillay and Sikochi, 2024).⁴

France provides a well-documented example of a public sector rating system with significant economic benefits. Through Banque de France (Bank of France), France generates credit scores for over three hundred thousand entities, most of them SMEs, that are registered in the country. A growing body of research provides evidence that, thanks to these public sector credit scores, France boasts one of the lowest SME loan rejection rates amongst OECD countries, the lowest interest rates charged to SMEs, and the lowest collateral requirements for SME funding (OECD, 2022).

Our work indicates that Nigeria's nMSMEs and economy are poised to accrue significant growth from a public sector nMSME grading system. Nigeria is the first African country to seek to introduce the public sector grading model, with the primary objective of opening-up business and export opportunities for its millions of nMSMEs, the largest number of nMSMEs in Africa and to create a significant boost to economic activity. Using economic performance data for Nigeria for the period covering 1980-2021, we first explore whether and how nMSME output contributes to the country's economic output (i.e., Gross Domestic Product, or GDP) and then examine how the introduction of nMSME gradings can enhance the GDP over a given period. We project that nMSMEs exposed to NMSME gradings can incrementally contribute more than US\$28 billion to Nigeria's GDP over the period 2025-2030.

⁴ See also Pillay (2024) for a more in-depth discussion of SME credit ratings.

We also uncover important insights into other key success factors for the nMSME grading system to achieve its full potential in the Nigerian and potentially other African context. Notably, while the grading system is government-driven, its success depends on a host of external stakeholders including the nMSMEs themselves and principal capital market participants (e.g., banks). Are nMSMEs keen on having the government grading them? Will banks accept the government-sponsored gradings in making lending decisions? To address these and other related questions, we conducted surveys to engage the various stakeholders to gauge their views towards and willingness to support a government-sponsored grading agency. Overall, nearly 100 percent of the nMSMEs, financial institutions, and non-financial companies surveyed support the creation of a public-sector grading system. More tellingly, the same proportion of nMSMEs and most of the financial and non-financial companies state that they would be willing to pay a minimal fee or pay subscription fees for these gradings, respectively. This implies that key stakeholders view the gradings as a highly valued service.

In the remainder of the paper, we highlight these and many other insights we gained from advising the government of Nigeria as follows. Section 2 provides an overview of the SME/nMSME grading concept, the Nigerian economic environment, and existing research in SME credit ratings and the motivation for nMSMEs' contribution to economic performance. Section 3 discusses our statistical approach and results to enumerating the contribution of nMSMEs in Nigeria to the country's economic output. Section 4 highlights insights on survey evidence on key success factors of the nMSMEs grading system in Nigeria. Section 5 concludes.

2 Background and literature

2.1 Public sector grading systems

Creating a public sector rating entity has been explored in various jurisdictions and has

garnered extensive interest in the aftermath of the global financial crisis. To date, except for the grading system in France as well as others in the Eurozone area, the concept seems to have not transitioned from an academic exercise to an actual organisation. This is due to various reasons such as the legal ramifications of false ratings, the financial implications of creating these organisations, the demand for these ratings, and the perceived impact that the ratings would have on financial markets. The following literature review highlights some of these shortcomings and contextualises them to the SME grading model. It should be noted that apart from Nigeria, there have been limited attempts at creating a public sector SME grading system, which results in limited literature on the specific topic. The public sector sovereign rating system bears the closest resemblance, and we quote attempts at creating these entities due to their similarities with the public sector SME grading model. The underlying operating model is where the similarities exist, and the reasons why these entities weren't set up will then also be applicable to the public sector SME grading model.

One of the notable enquiries into a public sector rating model could be found in the European sovereign debt crisis, which stemmed from a rift between the 'Big Three credit rating agencies' and European governments. This was initiated by S&P's decision to potentially downgrade 15 countries' ratings. The President of the European Commission, José Manuel Barroso claimed that there was some bias against Europe in an attempt to redeem their reputations after the 2008 financial crisis (Altdörfer, et al., 2019). Subsequently, in 2010, German Chancellor Angela Merkel voiced her support for the establishment of a European credit rating agency (Willis, 2012). The concept gained traction after the European debt crisis, resulting in the European parliament adopting a resolution requesting the commission to conduct an impact analysis on the establishment of an independent European Credit Rating Foundation (European Parliament, 2011). A similar sentiment was felt in emerging markets where the BRICS group of nations was in talks to create a public sector regional rating agency

that would cover entities in the BRICS region. A feasibility study was then completed to determine whether the organisation should be set up having initially gained traction. Also, within emerging markets, an AU-controlled credit rating agency was proposed within the African Union's 3rd Specialized Technical Committee Meeting on Finance, Monetary Affairs, Economic Planning and Integration. The United Nations Economic Commission for Africa partially funded the project, and Credit Rating Analytics was selected to complete an initial feasibility study.⁵ In 2023, it was estimated by the United Nations Development Programme that African countries could save nearly \$75 billion if traditional rating agencies took on a more nuanced approach to African countries, highlighting the potential benefits of an alternative credit opinion (World Economic Forum, 2023). After looking into the prospects of a regional public sector rating agency for the ASEAN+3 region, Tullao et al. (2018) indicate that the key hindrances are the reputational constraints, data availability, operational challenges and legal/regulatory implications. They indicate that these constraints could be mitigated to a certain extent by increased regulatory oversight, which could diminish the technical shortcomings of such an organisation, but they still view the prospects for such an organisation to be quite challenging.

Not confined to the public sector, the private sector, together with Philanthropic Foundations, also initiated the idea of setting up a rating agency that could challenge the ascendance of the big three; this has been done with the intent to rectify some of the perceived shortcomings within the industry. Storn and Butcher (2012) mention the intent of the consultancy firm Roland Berger (Germany), who made a concerted effort in 2012 to establish a European rating agency. There was also an eminent effort made by the Bertelsmann Foundation in 2012 to create a non-profit credit rating agency that would address the shortcomings within the industry and the subsisting conflicts of interest (Cash, 2012).

⁵ This project is still ongoing as the AU is exploring public private partnerships for this venture.

Focussing specifically on breaking up the existing monopoly of the "big three", there have been other private sector joint ventures such as the ARC Rating Agency (Wagstyl, 2013) and the Universal Credit Rating Agency (Cash, 2016).

Although there have been many attempts to establish these public sector or alternative rating agencies, none have amounted to much as the legal, financial, and credibility implications have proven to be major stumbling blocks. Set-up costs are quite high and were typically the first stumbling block; this is followed by legal and credibility issues. For example, within the Bertelsmann Foundation's project to create the International Non-Profit Credit Rating Agency (INCRA), governments, private donors, multilateral organisations and related stakeholders were to fund the project. Although the project gained traction initially, it never came to fruition as it required a hefty \$400 million of financing to set it up. The large capital outlay highlighted the magnitude of resources that were generally required, which scared off investors as there was little guarantee of a return on investment. The government's apprehension had to do with concerns about using large amounts of funding for a project that may be perceived to have little impact and would have affected their credibility in fiscal management.

On the note of credibility, The BRICS Business Council opted for a credit rating alliance between rating agencies within the BRICS region (BRICS Business Council, 2022), which would be a more viable solution. In a workstream for the business council, the Russian chapter presented a sovereign rating model, and the other countries were to provide their inputs on the use of the model and the benefits thereof. The Alliance of BRICS Credit Rating Agencies was to be based on the common methodological platform that member states would have an alternative rating approach that recognises the specific nuances within the BRICS economies (BRICS Business Council, 2022). Some findings and recommendations from the feasibility study conclude that the organisation was not ready to be set up. One of the reasons is that a

rating alliance built on a common methodology for different countries would face implementation challenges, and rating agencies within the BRICS region would require great persuasion to align with the common methodology. Whilst discussions around the prospects of setting up this entity are still taking place, there have not been additional efforts to investigate the concept.

Costs and credibility were also major issues with the European credit rating agency project. Kröner and Framke (2015), point out that The European Rating Agency proposed by Roland Berger initially gained support from politicians as well as the private sector and even cracked the nod from the European Commission. The project, however, never took off due to concerns over credibility and financial issues, with the start-up costs estimated to be in the region of 300 million Euros (Storn and Buchter, 2012). Scheinert (2016) also reiterates the fact that financial and credibility concerns are key inhibiting factors but single out the potential legal implications as the major stumbling block for the then-proposed European Credit Rating Agency. His argument stems from the significant contingent legal liability claims that could arise from investors if false ratings are handed out, resulting in shareholder losses during times of distress. Altdörfer et al. (2019) were also against the establishment of a European Credit Rating Agency; their analysis was premised on an empirical study that used Fitch as a proxy for a European credit rating agency due to its location and operational base. They concluded that since ratings from Fitch had no major impact on the bond market, the same would be true for the proposed rating agency. After looking into the prospects of a European public credit rating agency, the European Commission also concluded that the introduction of a European credit assessment agency would add little value due to credibility concerns, and the project never gained momentum thereafter.

One alternative solution by Gavras (2012) is that either a private credit rating agency be brought under public control, or all private entities could be excluded from regulatory

activity and replaced by a public institution. He argues that public institutions could resolve certain conflicts of interest but could simultaneously bring about the risks of governments rating themselves. Shroeder (2013), shared a similar sentiment but argued that the public rating agency could firstly examine and validate the ratings handed out by the established rating agencies and research the relationship between changes in ratings and the business cycle. She proposed that the public credit rating agency could be supported by an international credit rating agency that could be housed within a global organisation such as the United Nations.

Overall, there have been many attempts at setting up a public sector credit rating agency. However, key issues prevented this from happening. The public sector SME grading model faces similar challenges, although the negative implications are not as severe. For example, with the issue of rating credibility, the perceived direct incentive to hand out false SME ratings/gradings are not as prominent relative to the sovereign rating model. In the context of sovereign ratings, governments may be tempted to manipulate ratings, mistakenly perceiving short-term gains such as increased market confidence or easier access to financing. However, this misjudgement can erode long-term credibility and destabilize the financial ecosystem. When it comes to SME ratings, there is little incentive for governments or agencies to inflate ratings, as doing so would not yield the same perceived benefits as in sovereign contexts. On the contrary, artificially inflated SME ratings could lead to unsustainable lending practices and the creation of a credit bubble, which could severely damage both the financial sector and the SMEs themselves. This might then address the issue of credibility and is one of the reasons why there is trust in the European model. Here, public sector SME rating agencies exist as In-house Credit Assessment Systems (ICAS) found in central banks in Europe. Some of the Central Banks, such as Banque De France, have successfully applied for official credit rating regulatory exemptions from the European Securities and Market Exchange (ESMA). This exemption was published in the Official Journal of the European Union on June 19th, 2010

(Rating platform, 2024). Under these systems, counterparties can mobilise collateral for credit claims granted to non-financial corporations (NFCs), and the ICASs increase the usability of non-marketable credit claims, especially for small and medium-sized banks that lend to SMEs (Banco de Espana, 2021). These SME rating units operate using an investor pays model and typically cover many SMEs in their respective countries.

One of the rationales behind introducing an SME grading function within emerging markets is that it could utilise a similar operational model and be tailored to the needs of individual countries. This is the basis behind the project in Nigeria, with the government keen to proceed with the grading concept as a starting point. Whilst the grading product will not explicitly capture the probability of default, it will replicate the operational model which formed the basis of the European public sector rating models described above. The sections below then shed more insights into the Nigerian project and focus specifically on the economic benefits that such a grading system will bring to the country's economy via nMSMEs.

2.2 The economic contribution of the SME/nMSME sector

In general, the role of nMSMEs in an economy is regarded as critical to economic growth. For example, nMSMEs contribute to the economy by creating job opportunities, alleviating poverty, promoting innovation, promoting sustainable industrialisation, and reducing income inequalities (Manzoor, Wei, & Sirajb, 2021). On a sample of high-income countries, Rohra and Panhwar (2009) observed a positive and significant association between SMEs, poverty alleviation, and economic development. Wen (2011) and Ayanda and Larab (2011) found that SMEs contributed positively to growth, particularly in rural areas. In the case of India, researchers explored the relationship between SME productivity, GDP, total exports, and employment, and found a positive relationship between SMEs' productivity and GDP (Dixit & Kumar Pandey, 2011). For South Africa, Oyelana and Adu (2015) analysed the contribution of SMEs in improving socio-economic conditions. They found that SMEs have a

major role in generating work opportunities and reducing poverty. For Nigeria, Ilegbinosa and Jumbo (2015) tested the relationship between nMSME output and economic growth. The study included nMSMEs access to finance, inflation and interest rates as control variables. They concluded that nMSMEs provide a significant influence on Nigerian growth. Folorunso, Abodune and Kareem (2015) conducted a similar study in Nigeria. They found that nMSMEs play a crucial role in alleviating unemployment and poverty reduction in Nigeria, particularly in rural areas.

Not all studies have found a positive and significant relationship between nMSME output and GDP. Kadiri (2012) investigated the role of SME employment creation and economic growth in Nigeria. He found that SMEs do not influence economic growth positively. This was due to a lack of finances and obligations from the government. Vijayakumar (2013) found an insignificant relationship between SME productivity and growth in Sri Lanka.

2.3 Nigeria's SME/nMSME sector

In Nigeria, nMSMEs are a significant part of the economy. They are classified based on both an employment and asset (excluding land and buildings) criteria, with the employment-based classification taking precedence in instances where there are overlaps in the classification criteria. This dual classification is illustrated in Table 1.

A 2020 survey estimated that there are 39.7 million nMSMEs in Nigeria, with only 3.1% being formal entities as presented in Table 1. Nigeria ranks among the top countries globally in terms of the number of entrepreneurs. In comparison, the United States has 30 million SMEs, India has 42 million, China has 38 million, and Indonesia has 64 million similar entities (Kippa, 2022).⁶

The survey indicated that the nano and micro-enterprises make the largest proposition of the NMSMEs. They represent 98.3% of nMSMEs, with 85.7% concentrated in agriculture,

⁶ These reported figures do not include nano enterprises as these countries do not include nano enterprises in their quantification of SMEs.

wholesale/retail trade, and other services. They employ a large number of people (excluding business owners), with agriculture being the largest employer. Sole proprietors dominate this category, primarily in the 36-50 age group, with substantial male ownership in the sector. Small enterprises make up 1.6% of nMSMEs and are prominent in manufacturing, wholesale/retail, education, accommodation, food services, and other services. The remaining 0.1% is made up of medium enterprises, which are primarily in education and manufacturing. Approximately 41.1% of medium enterprises are owned by individuals with a university degree.

Most formal nMSMEs in Nigeria are owned by sole proprietors, making up 79% of the total; private limited companies account for 9%, and partnerships for 6%. The situation is quite different in the informal sector, with sole proprietors dominating at 96% and partnerships at 3%. This notable emphasis on sole proprietorship ownership could potentially be a contributing factor to the informality of these nMSMEs. These characteristics are summarized in Figures 1, 2, and 3.

The low business formality is believed to hinder nMSMEs from accessing finance, with 92.4% reporting a lack of traditional and alternative funding sources.⁷ Personal savings (56.8%) and family loans (21.9%) are the primary funding sources, while loans and grants contribute 9.5% and 0.4%, respectively. Commercial banks and micro-finance institutions are the main financiers, but Nigerian banks lend less than 1% of their total exposures to nMSMEs, resulting in a \$158 billion financing gap.⁸ Challenges include low starting capital, high cost of capital, and loan rejections due to perceived risk. Credit bureaus offer limited data on creditworthiness, necessitating alternative options like the nMSME grading concept for a more comprehensive assessment.

Overall, nMSMEs contributed around 49% to Nigeria's GDP in 2017, decreasing to

⁷ SMEDAN nMSME 2021 Survey Report

⁸ MSME Finance Gap: Assessment of the Shortfalls and Opportunities in Financing Micro, Small and Medium Enterprises in Emerging Markets. 2017. International Finance Corporation. <https://www.smeffinanceforum.org/sites/default/files/Data%20Sites%20downloads/MSME%20Report.pdf>

46.3% in 2020 due to COVID-19. They also contributed 6.2% of gross exports in 2020, with wholesale/retail trade, agriculture, and manufacturing being key sectors. nMSMEs have strong ties to domestic and foreign markets, with a significant portion of raw materials and equipment sourced locally. They created 62 million jobs in 2020, with the informal sector employing the majority, particularly in agriculture, wholesale/retail, and other services.⁹ These are significant contributions to the country's economy. Yet nMSMEs face significant challenges that hinder their growth and sustainability.

2.3.1 Challenges for the nMSME sector

The challenges of nMSMEs in Nigeria are consistent with those faced in other emerging markets. In developing countries, the SME sector faces many challenges, including but not limited to a lack of capital and financial opportunities, loans with high interest rates, inadequate infrastructure, unavailability of modern technology, weak trade, and limited investment opportunities (Ilegbinosa & Jumbo, 2015). For Nigeria in particular, we zone in on some of the primary problems nMSMEs face, including:

- **Inadequate funding:** Business owners in Nigeria predominantly use their own savings as a source of finance. However, given that this is inadequately low, it hampers their growth and can often lead to forced shutdowns. Inadequate collateral is a key constraint for access to credit in nMSMEs. Other factors which have contributed to nMSMEs inability to attract investment for adequate capitalisation include poor project proposals for investors and incomplete/inaccurate financial records, amongst others. Funding is seen as the most growth-inhibiting factor of nMSMEs contributing to Nigeria's economic growth (Ilegbinosa & Jumbo, 2015).
- **Inadequate infrastructure:** The problem of unstable and unreliable supply of

⁹ Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and National Bureau of Statistics (NBS) (2021) *MSME Survey Report*. Abuja: SMEDAN and NBS. Available at: <https://smedan.gov.ng> (Accessed: 28 August 2024).

electricity, dilapidated roads, inadequate supply of water for both home and industrial use, and inefficient and costly communication systems, among others, have impeded the growth of nMSMEs in Nigeria. Finding suitable alternatives for power supply, for example, increases production costs, leading to businesses increasing their respective prices to cover costs. This ultimately makes nMSMEs uncompetitive and favours imports (Ilegbinosa & Jumbo, 2015).

- **Low-capacity utilisation:** Exorbitant prices (due to high costs) and inferior quality of products have resulted in low demand for nMSME products. This has been reflected in low sales and profits, which have translated into poor return on investment (ROI) (Ilegbinosa & Jumbo, 2015).
- **Poor planning and management:** Business owners typically have to manage all aspects of the business by themselves without seeking consultation from professionals or experts. This can result in inefficiencies, wastage, and under-utilisation of resources available to the organisation (Ilegbinosa & Jumbo, 2015).
- **Poor education and experience:** Closely associated with the problem of planning and management is the low level of education and inadequate business experience among nMSME operators in Nigeria (Ilegbinosa & Jumbo, 2015).
- **Raw material management and choice of appropriate technology:** nMSMEs generally have challenges with quality raw materials and obtaining them at a suitable price and time. In Nigeria, the majority of these raw materials are not produced in the country but imported. Generally, locally produced goods often don't have uniformity in quality. Further, the production of superior products requires suitable technical knowledge and expertise which would be capable of competing with the international equivalent (Ilegbinosa & Jumbo, 2015).
- **Difficulty of marketing, advertising, and selling:** The cause for this consists of

inadequate marketing skills and techniques resulting from the high cost of advertising, promotion, branding and canvassing (Ilegbinosa & Jumbo, 2015).

- **Non-conductive policy environment:** Fiscal and monetary policies in Nigeria have been unpredictable, contradictory, inconsistent, and sometimes conflicting (Ilegbinosa & Jumbo, 2015). This has generated a lot of problems for domestic investors compared to their foreign participants who export their outputs to Nigeria.

2.4 nMSME gradings can create an enabling nMSME environment

Considering all the impediments related to access to finance and structural deficiencies, as highlighted above, nMSMEs have still managed to develop within emerging markets, albeit at a level not aligned with their full potential. To address these impediments, we argue that the nMSME grading industry can be an integral support partner due to its ability to ameliorate funding challenges and decrease the information asymmetry associated with nMSMEs. In a survey of SME gradings conducted for the World Bank Group, Credit Rating Analytics highlighted several ways gradings enhance SME capacities (IFC, 2024). For example, 85% of survey participants indicated that the gradings improved their ability to secure credit facilities, 74% indicated that the gradings increased the amount of credit that has been extended to their businesses, 70% indicated that it improved their levels of financial reporting and accounting records, 50% indicated that these gradings directly assisted in securing export orders, and 58% indicated that these gradings assisted with technological improvements within their businesses.

In what follows, we attempt to analyse the potential benefits that nMSMEs can derive from the grading industry and further quantify their contribution to growth in the Nigerian economy.

3. Methodology and results: Influence of nMSMEs gradings on nMSMEs' output

3.1 Data and variable measurements

To assess impact of nMSMEs on economic performance, we make use of annual data spanning 1980-2021 from the International Monetary Fund (IMF) and World Bank's World

Development Indicators (WDI) database. The database provides information on several economic indicators, such as gross domestic product (GDP), net exports, inflation, and government expenditure. As we are interested in the incremental economic contributions of nMSMEs in Nigeria, we also obtain data on current estimates of nMSMEs to Nigeria's GDP. To make future projections, we apply some conservative growth assumptions as discussed below.

3.2 Modelling nMSMEs incremental contribution

Ultimately, our goal is to assess the incremental economic contribution of nMSMEs to the overall economic output in Nigeria. To accomplish this, we proceed in two steps.

3.2.1 Economic indicators relationship with nMSMEs' economic output

First, we identify the proportion of economic output from nMSMEs and regress it on various economic drivers to determine the relationship between the economic drivers and the nMSMEs economic output. To do this, we estimate a Vector Error Correction Model (VECM). According to Yunus et al. (2014), a VECM is employed to identify the movement between the variables. After running the VECM, the result indicates a long-run association between the dependent variable (nMSME output) and the independent/control variables (economic indicators). We estimate VECM using following model specification:

$$GDP_{nMSME} = \beta_1 PSCE + \beta_2 INV + \beta_3 GOV + \beta_4 NX + \beta_5 INF + \mu_i \quad (1)$$

The dependent variable GDP_{nMSME} is the nMSME output, and the independent variables are private sector credit extension ($PSCE$), investment (INV), government expenditure (GOV), net exports (NX), and inflation (INF).

These variables are measured as follows. GDP_{nMSME} is the gross domestic product of nMSMEs, which captures the overall economic activity of nMSMEs in Nigeria. The series was extrapolated from nominal GDP, by only considering nMSMEs total contribution to GDP.

PSCE is the private sector credit extension and captures deposit banks' credit to the private sector as a proportion of nominal GDP. This provides a proxy for access to finance by nMSMEs. *INV* is the gross fixed capital formation (investment) and includes spending on infrastructure which assists nMSMEs in their ease of doing business. *GOV* is the total government expenditure, which we include because any assistance from the government can assist with the ease of doing business, business opportunities, and financing for nMSMEs. *NX* is the net exports, measured by exports minus imports and provide a proxy for access to markets, supply chain finance and global value chains. *INF* captures annual inflation, included as a control variable given that all our variables are in nominal terms (current 2015 USD prices). Controlling for inflation also reflects monetary policy, which has implications for the business environment in the country.

We present our results of estimating the VECM using equation (1) in Table . When interpreting Table , we can say that nMSMEs output can be determined by the independent variables private sector credit extension, investment, and net exports. The coefficient estimates on these variables indicate a positive and significant (at the 1% level) relationship between these variables and nMSMEs economic output. Lastly, the data we used seems to be a good fit for our VECM, given that the R-squared is more than 50% and the p-value of the F-statistic is significant at the 1% level, meaning that the data fits the model well.

We perform a host of diagnostic tests to ensure the appropriateness of our model specifications. First, we conduct an appropriate lag length for the estimation of our equation to avoid unnecessary over-parameterisation. Our results (untabulated) show that from the five criteria used in selecting the optimal lag length, four of the criteria indicate that one lag should be used when conducting our model specification. Accordingly, our estimations are based a one-lag for the independent variables. Second, we perform the augmented Dickey-Fuller (ADF) test to check the order of integration of the variables or the unit roots, i.e., if each of the

variables is stationary. Stationarity of each of the variables is a key requirement when conducting a VECM model. We examine the data's integration and stationarity by using the ADF test, as it is deemed the most reliable for non-stationary testing data (Khan, 2013). If stationarity is not confirmed when variables are in level form, first-order differencing should be carried out to achieve the variables' stationarity. We confirm that all the variables, after transforming the data to the first difference, are stationary. Given this, we conduct the Johansen cointegration test to study the long-term association of the dependent and independent variables. The cointegration test is conducted if the variables are stationary at the first difference and not in level terms. The test for cointegration is a multivariate extension that allows the model to have more than one cointegration vector using the maximum likelihood approach. We find sufficient evidence for us to proceed with estimating the VECM. Finally, we perform additional diagnostic tests such as the Breusch-Pagan-Godfrey test for heteroskedasticity, the Jarque Bera for normality, and the Breusch-Godfrey test for serial correlation are applied to check the model adequacy.

3.2.2 Projecting influence on NMSMEs gradings on nMSMEs' economic output

Second, once we obtain coefficient estimates from the VECM in equation (1), we then project how GDP would change when nMSME gradings are introduced. Along with the coefficient estimates, we employ several growth assumptions for the 2025 – 2030. First, we grow nominal GDP each year by an amount that considers annual growth and inflation. For annual growth, we assume that GDP would at least grow in line with the population growth rate of 2,4% per annum. Then, when accounting for inflation, we assume an inflation rate of 12% per annum. This gives a total growth rate of 14,4% in each year from 2025-2030. Our growth estimation is biased to the downside as our base case is a very modest view. Second, between 2013 and 2020, SMEDAN reported that the total number of nMSMEs grew from 37 million to 41 million. This represents a modest growth rate of around 1.8% annually over the

period. We use this growth rate and assume that nMSMEs are projected to increase from 40 million to around 44 million between 2025 and 2030. We note that between 2020 and 2025 there is barely any growth in nMSMEs, due to a structural break from the COVID-19, pandemic. Third, for nMSMEs' contribution to GDP, various reports, including PwC (2019), indicate that nMSMEs contribute around 46% to GDP growth. We assume modest growth in this number and assume that this contribution will reach around 50% by 2030. Finally, we calculate nMSME GDP as the product of nominal GDP and nMSMEs' contribution to GDP. We summarise our economic variable assumptions in Table 3.

Next, in Table 4 we present our assumptions regarding how the public sector will roll out nMSME gradings. Nigeria anticipates that ratings would be piloted in 2024 and then rolled out fully across major states in the country, covering about 100,000 nMSMEs by end of 2025. The coverage would increase to 300,000 in 2026 and up to one million in 2029, when the grading concept is anticipated to gain country-wide awareness and reach.

Equipped with these foundational assumptions in Table 3 and 4, together with the results from our VECM in Table 2, we proceed to explain how we will calculate the benefits of nMSMEs towards GDP over the period (2025-2029) if nMSME gradings were provided by the public sector. We focus on three benefits that can be influenced by gradings.

One, access to credit. In Table 2, we find a positive and significant relationship between access to credit (proxied by private sector credit extension) and nMSME GDP. Specifically, we found that if private sector credit increases by 1%, then nMSMEs GDP increases by 0.13%. Following survey evidence from a proprietary study for a multilateral report, we expect 85% of nMSMEs to have this benefit accruing to them after receiving a grading.

Accordingly, the projected amounts for the influence of the gradings on GDP based on access to credit are calculated as follows: the proportion of nMSMEs that will receive a grading (i.e., the number of gradings from Table 4 divided by total number of nMSMEs from Table 3)

multiplied by the expected increase in access to capital (i.e., the coefficient estimates, 0.13%, from Table 2) multiplied by expected proportion to have the benefit accruing to them (i.e., the 85% from the proprietary study) multiplied by the nMSME's GDP from Table 3. For example, the projected benefit in 2026 of \$321 million is derived from $(300,000/41,000,000) * (0.13\% * 85\%) * (396,792)$.

Two, access to market. Our results in Table 2 indicate a positive and significant relationship between access to market (proxied by net exports) and nMSME GDP. Specifically, we found that if net exports increase by 1%, then nMSMEs contribution to GDP increases by 0,67%. A proprietary study for a multilateral in 2022 confirms that around 50% of nMSMEs who obtained a grading, improved their ability to secure export orders. This is probably owing to the decrease in information asymmetry and the independent verification of the company. As such, we take this consideration into our calculation.

Third, access to services and infrastructure. In Table 2, we found a positive and significant relationship between access to services and infrastructure (proxied by investment) and nMSME GDP. Specifically, we found that if investment increases by 1%, then nMSMEs contribution to GDP increases by 0,85%. Providing an nMSME with a grading may allow them to obtain loans to invest in growing their business, and adequate services and infrastructure will assist in this process. We assume that around 50% of nMSMEs who obtain a grading, will benefit from improved services and infrastructure investment. As such, we take this into consideration in our calculation.

We present the calculations of our benefits in Table 5. The overall impact on GDP over the period 2025-2030 is around USD28bn. If we wanted to look at the total contribution of all productive inputs used by nMSMEs in the economy, we could look at the benefit in terms of total factor productivity (TFP). Total factor productivity (TFP) compares total outputs relative to the total inputs used in the production of the output. TFP reveals the joint effects of many

factors, including new technologies, efficiency gains, economies of scale, managerial skills, and changes in the organisation of production. Using data from FRED, the nominal TFP is estimated at around 0.5 annually in Nigeria. We can calculate the TFP using the combined effect. This amounts to USD58bn.

4. Stakeholder perception of a public-sector grading system

Having documented significant increases in GDP following the public sector gradings, we step back and explore whether and how various key stakeholders will support such a government-sponsored entity and initiative. In this section, we unpack the survey evidence from a combination of online surveys, virtual interviews, and in-person engagements with key stakeholders in Nigeria. The majority of the in-person stakeholder engagements took place in the cities of Lagos and Abuja, Nigeria between March 2023 - August 2023. In the primary data collection, we focused on obtaining first-hand account of the demand for these ratings, the needs of key stakeholders in terms of how they would like the organisation to be set up, and the urgency at which they would like the organisation to be set up.

Table 6 summarizes the number of survey participants by sector. In total, there are 467 respondents from various sectors that took part in the survey. Of these, 296 (63.4%) respondents represent individual nMSMEs, 69 (14.3%) financial and related organizations, and 104 (22.3%) non-financial corporate companies. This multi-faceted stakeholder engagement approach ensures a well-rounded and comprehensive understanding of the challenges and opportunities within the nMSME ecosystem.

4.1 Do you believe that a public sector grading agency should be set up?

Our first question to the stakeholders regarded the establishment of an nMSMEs public sector grading agency in Nigeria. Nearly all the respondents, about 95 percent, answered ‘Yes’ to the question, “Do you believe that a public sector grading agency should be set up?” These results are the same for financial and non-financial organizations, but slightly higher for the

individual nMSMEs. There are 272 individual nMSMEs that answered this question, with 266 responding ‘Yes’ for a 97 percent in support of the agency. Overall, this result suggests a widespread recognition among individual MSMEs, financial and related organizations, and non-financial corporates of the need to have a vehicle to assess and grade nMSMEs in the country to enhance transparency, trust, and efficiency within the nMSMEs sector.

4.2 Would you pay for the public sector grading agency services?

Figure 5a and 5b present results from follow-up questions to the participants regarding their willingness to pay for the gradings. Of the individual nMSMEs answering the question on willingness to pay, 96 percent answered that they would be willing to pay a nominal fee for the grading services. Similarly, the results from the financial and related institutions and non-financial companies indicate a willingness to pay for the gradings. A significant proportion of the respondents, about 77%, expressed their willingness to subscribe to the public sector grading services. Overall, the results indicate that these stakeholders acknowledge the value and are willing to invest in a robust MSME grading system in Nigeria.

4.3 Would you incorporate the gradings in your dealings with nMSMEs?

In Figure 6 we present results from further probing the non-financial companies regarding their intent to use gradings in their dealings with nMSMEs. Specifically, for non-financial companies, we asked whether they would incorporate grading into procurement processes. In response to this question, 92 out of 98 non-financial company respondents (94%) indicated that they would integrate nMSME gradings into their procurement processes.

4.4 Would you incorporate the gradings in your dealings with nMSMEs?

We also asked the financial and non-financial participants what information about nMSMEs they would like to see in the grading reports. Figure 7a presents the results for financial institutions and 7b for non-financial companies. For both types of organizations, the top two focus areas are the financial and operational performance of nMSMEs. Notably, while

financial performance has slightly more respondents identifying it as a major focus for financial institutions, operational performance has slightly more respondents identifying as a major focus than financial performance. The quality of the management team is also a major focus for the respondents.

4.5 Key takeaways from the survey findings

Overall, the findings from the surveys highlight the support for a public sector rating agency, the willingness to pay for its services, and uncover important insights into the relevant information financial and non-financial firms seek when engaging with nMSMEs.

That said, the survey engagement also uncovered potential challenges that must be addressed to ensure credibility of the grading system. Data audits, industry-specific criteria development, and proactive stakeholder engagement are some of the recommendations that stakeholders highlighted that will help build a robust and effective nMSME grading system in Nigeria.

5. Conclusion

This paper summarizes the findings from the work performed in Nigeria, the first country to move towards creating a public-sector credit rating agency in Africa. A public sector grading system in Nigeria will likely guarantee greater coverage of credit assessment for nMSMEs. These nMSMEs are often neglected by private sector credit rating agencies that are focused on profit maximization.

The statistical projections in this paper suggest that the nMSME grading concept can be beneficial to the Nigerian economy and provide a roadmap to the broader emerging markets in enhancing economic activity through nMSMEs. We identify three areas through which the grading systems can make a difference for nMSME: access to credit, access to markets, and access to infrastructure. For example, access to market come from the grading concept being used as a tool to proliferate export opportunities and better position nMSMEs' products on the

global market. Access to credit occurs because the grading system reduces the information gap between a wide range of borrowers and lenders and thereby opening funding opportunities in a sector traditionally experiencing major funding gaps.

The benefits of the grading system notwithstanding, the success of the public sector grading system in Nigeria rests on the buy-in and support of various stakeholders. To understand the views of these stakeholders, we presented a set of survey findings on the views of individual nMSMEs, financial institutions, and non-financial companies. Most of the participants from the group support the creation of an nMSME grading system in Nigeria and are willing to pay for its services. Financial and non-financial companies indicate their intent to incorporate their gradings in their dealings with nMSMEs.

Overall, the future success of the Nigerian project will be an important yardstick to measure the effectiveness of a government-driven grading concept. As the paper is based on projections, future research can revisit the analyses as actual data becomes available. These findings can then be compared to the projections within this paper to determine their validity and if the projections should be adjusted accordingly especially as other countries may consider conducting feasibility studies of creating their own public sector grading systems.

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Tables

Table 1: Number of MSMEs in Nigeria

Category	Formal	Informal	Total	Percentage (%) of overall total
Micro	570,518	38,413,419	38,983,937	98.3
Small	617,248	0	617,248	1.6
Medium	53,199	0	53,199	0.1
Total	1,240,965	38,413,419	39,654,384	100
% of overall total	3.1	96.9	100	

Source: SMEDAN, National Survey 2021 Report

Table 2: Long-run Vector Error Correction Model (VECM) results

Variable	Coefficient	Std. Error	t-statistics
SME Output (dependent)			
Long-run			
C1	-0.23	(0.05)	-4.32***
SME output (-1)	1.00	(0.25)	
Net exports (-1)	0.67	(0.08)	2.36***
Investment (-1)	0.85	(0.24)	3.73***
Private credit (-1)	0.13	(0.04)	3.73***
Inflation (-1)	0.01	(0.01)	1.54*
Constant	-47.09		
R-squared	52%		
F-statistic	4.33		
Prob (F-statistic)***	0.00		

*Note: *** indicates significance at the 1% level, ** indicates significance at the 5% level, * indicates significance at the 10% level*

Source: WDI Statistics, CRA Analytics

Table 3: Economic variable assumptions

Year	2025	2026	2027	2028	2029	2030
GDP (US\$ mil)	737,970	844,238	965,808	1,104,884	1,263,988	1,446,002
Population growth (%)	2.4	2.4	2.4	2.4	2.4	2.4
Inflation assumption (%)	12	12	12	12	12	12
Growth in nominal GDP	14.4	14.4	14.4	14.4	14.4	14.4
No. of MSMEs (mil)	40	41	42	43	44	44
SME % contribution to GDP	46	47	48	49	50	50
SMEs GDP (US\$ mil)	339,466	396,792	463,588	541,393	631,994	737,461

Source: IMF, WDI Statistics, SMEDAN, CRA Analytics

Table 4: Public sector nMSME projected grading roll-out to nMSMEs

Year	No. of projected gradings	Comment
2025	100,000	Gradings would be piloted in 2024 and then rolled out fully in 2025 across major states in the country.
2026	300,000	Focus will still be on major states with expansion efforts resulting in a significant increase in gradings.
2027	450,000	Experience with the concept and further expansion into other states.
2028	750,000	Full expansion into all states and wide-spread coverage.
2029	1,000,000	Country-wide awareness of the grading concept.

Source: (World Bank, 2018), CRA Analytics

Table 5: Influence of public sector nMSME gradings on GDP (USD million)

Variables	Year					Total
	2025	2026	2027	2028	2029	
Number of gradings (#)	100,000	300,000	450,000	750,000	1,000,000	
Access to credit (\$m)	94	321	549	1,043	1,587	3,594
Access to market (\$m)	284	973	1,664	3,163	4,812	10,896
Access to infrastructure (\$m)	361	1,234	2,111	4,013	6,104	13,823
Combined effect (\$m)						28,313

Source: (World Bank, 2018), CRA Analytics

Table 6: Summary of survey participants

Category	Respondents (#)	Percentage (%)
Individual nMSMEs	296	63.4
Non-Financial Corporate companies	104	22.3
Financial and Related Organisations	69	14.3
Total	467	100.0

Figure 1: Gender and sectoral composition of micro-enterprises

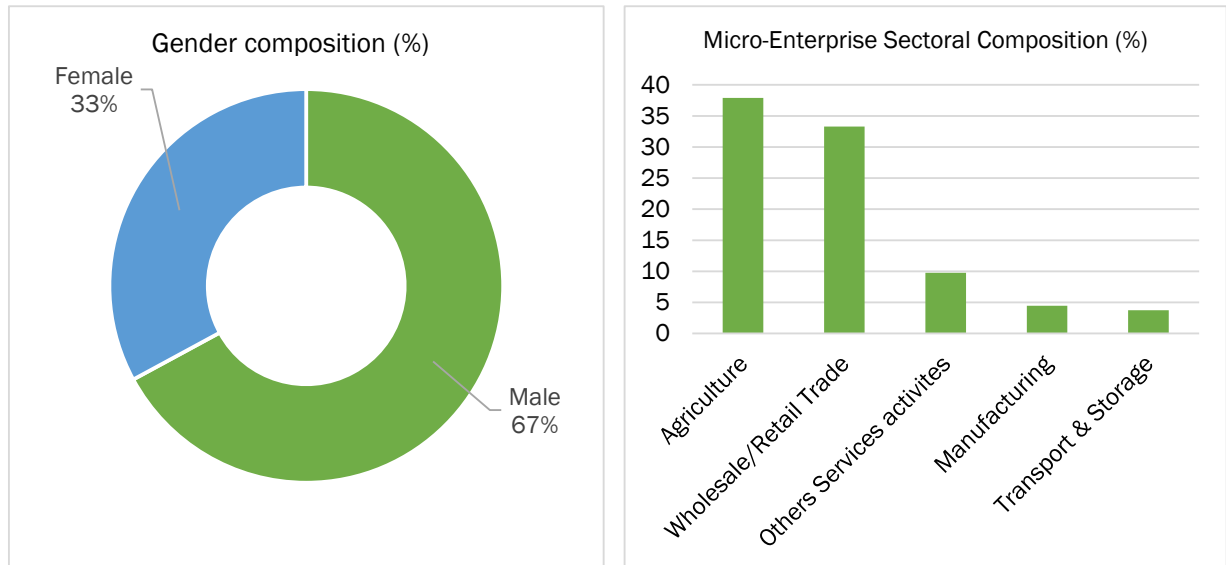
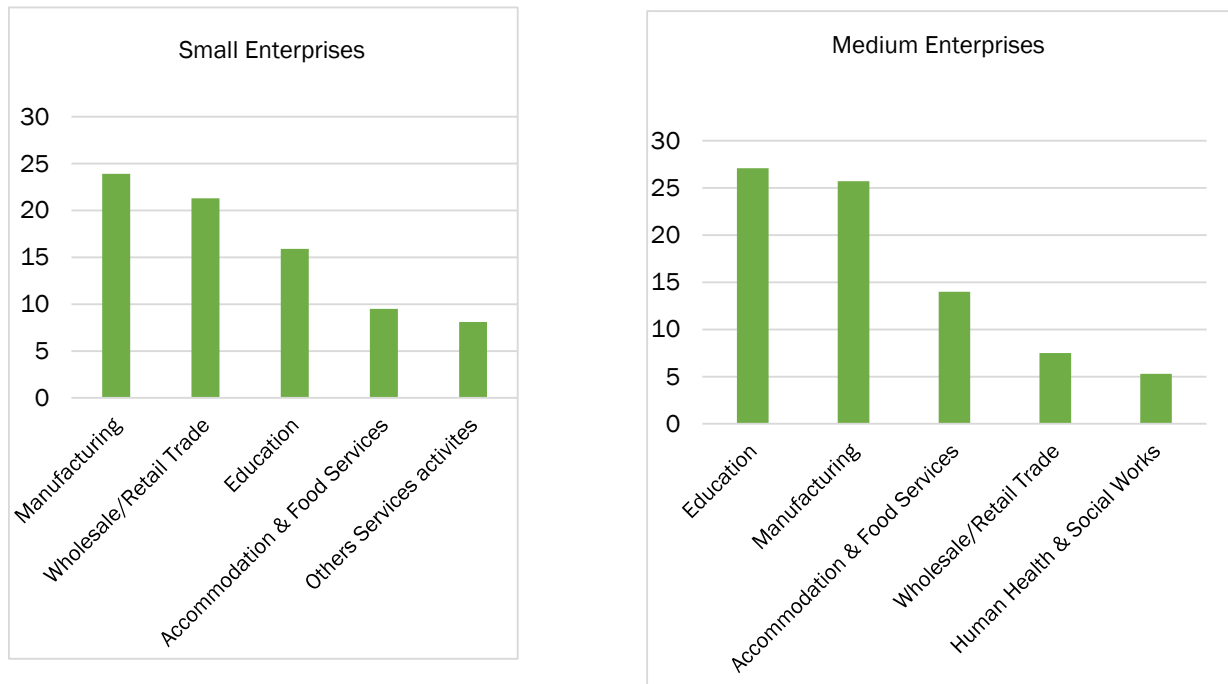
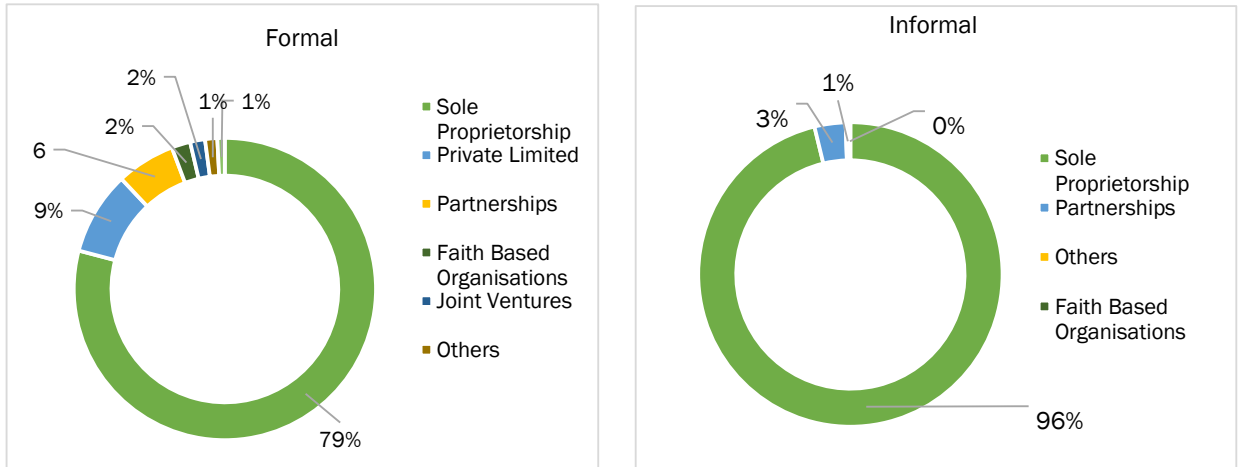


Figure 2: Top 5 economic sectors for small and medium enterprises (%)



Source: SMEDAN, National Survey 2021 Report

Figure 3: Ownership structure of MSMEs



Source: SMEDAN, National Survey 2021 Report

Figure 4a: Individual nMSMEs participating in the survey by sector

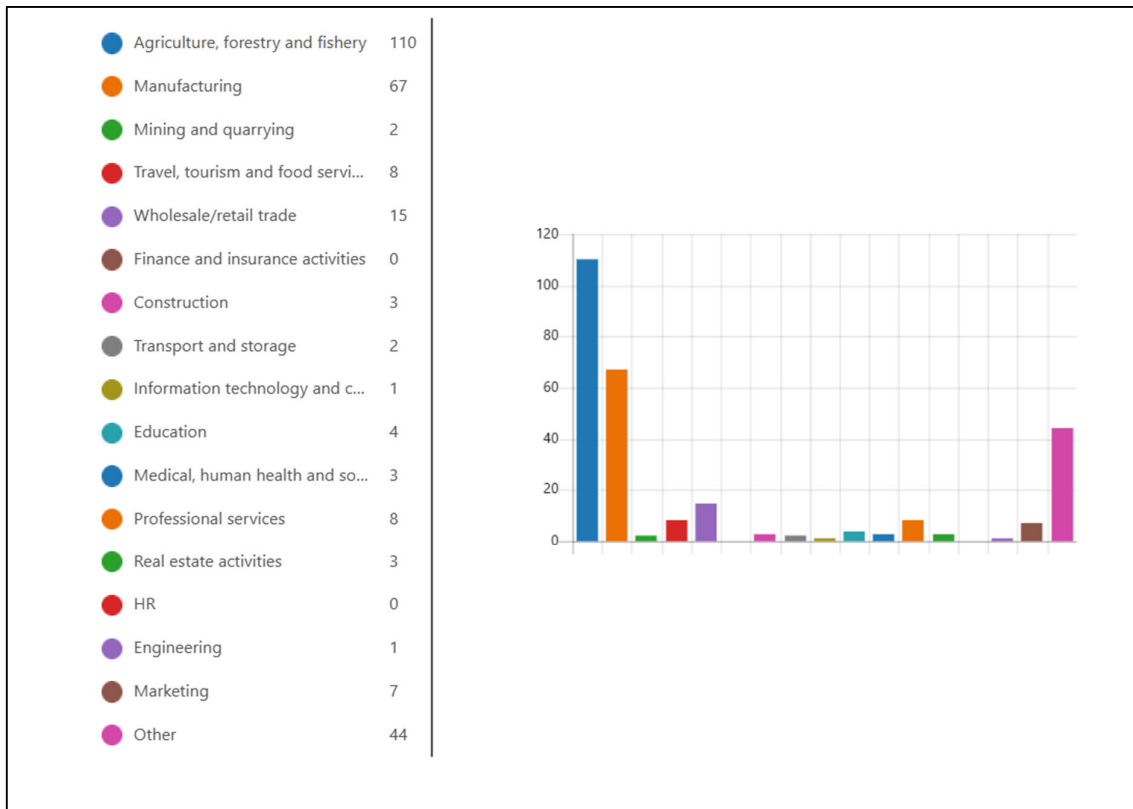


Figure 4b: Financial institutions participating in the survey

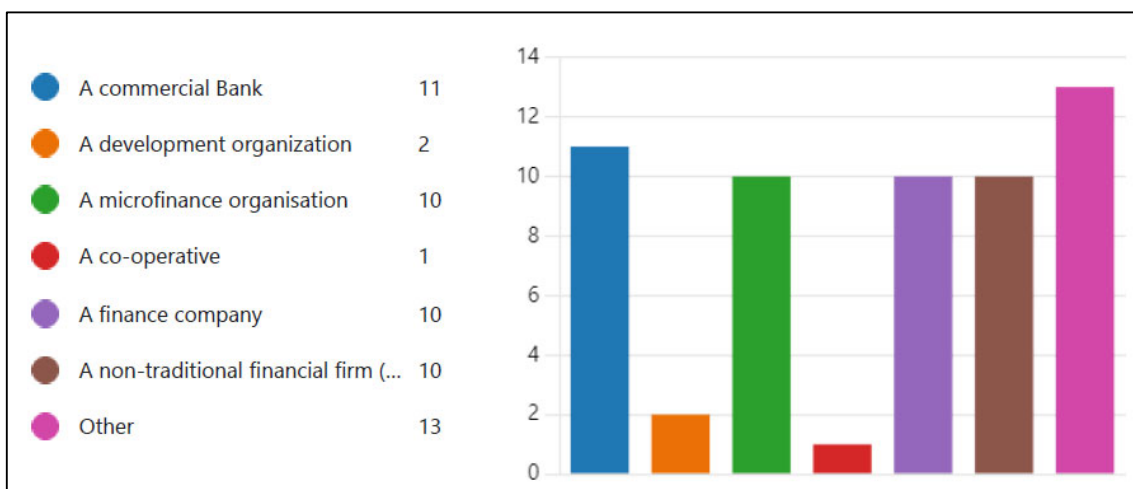


Figure 4c: Non-financial companies participating in the survey by sector

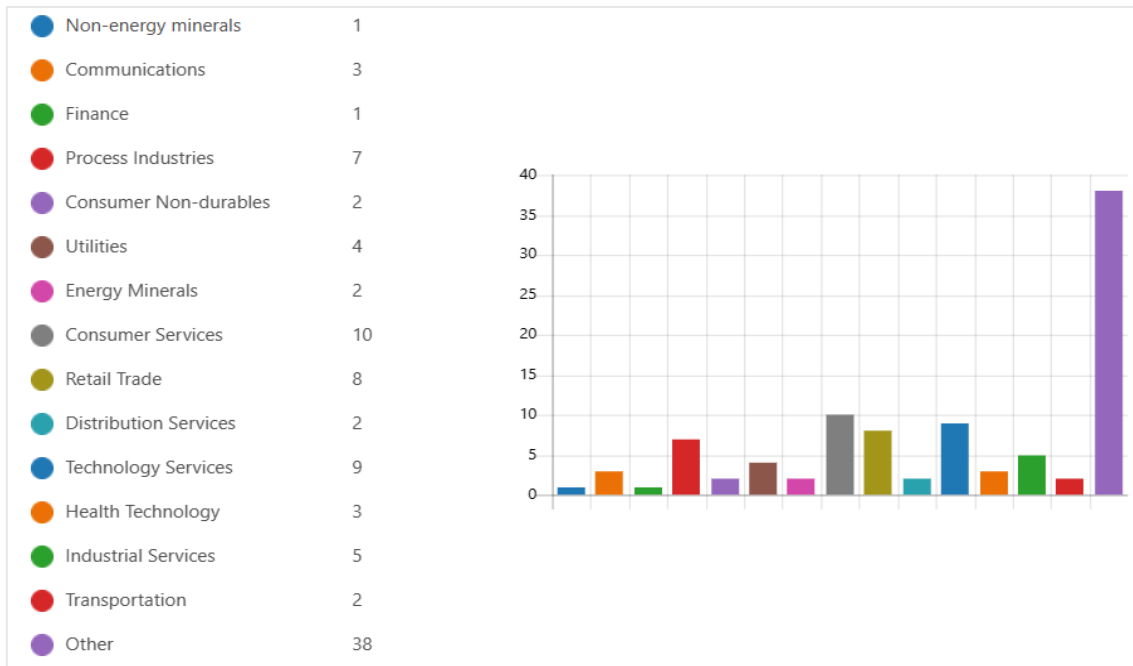


Figure 5a: Individual nMSMEs willingness to pay for the gradings

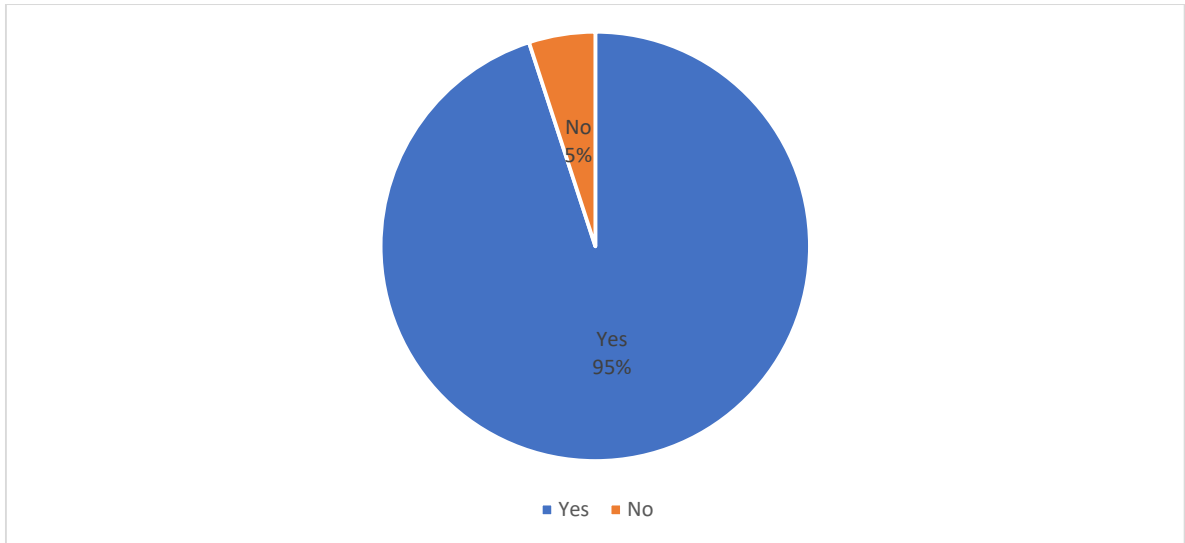


Figure 5b: Willingness to pay for subscriptions by Financial & related organisations and non-financial organisations to access insights and grading reports

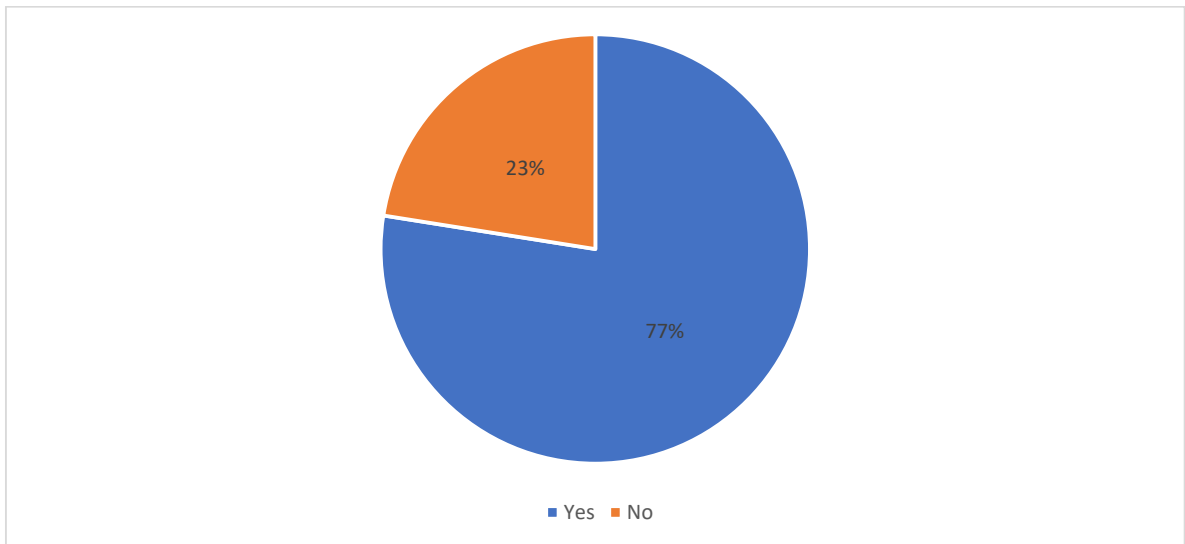


Figure 6: Incorporation of Gradings into Procurement Processes

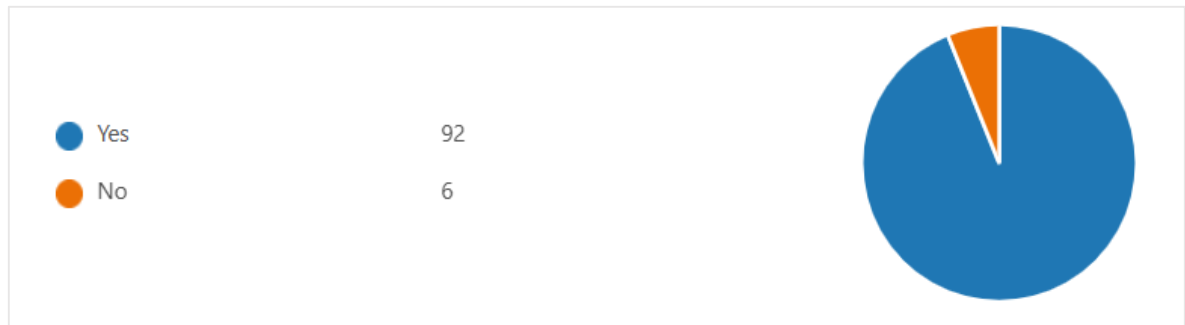


Figure 7a: Focus Areas of Gradings for financial institutions

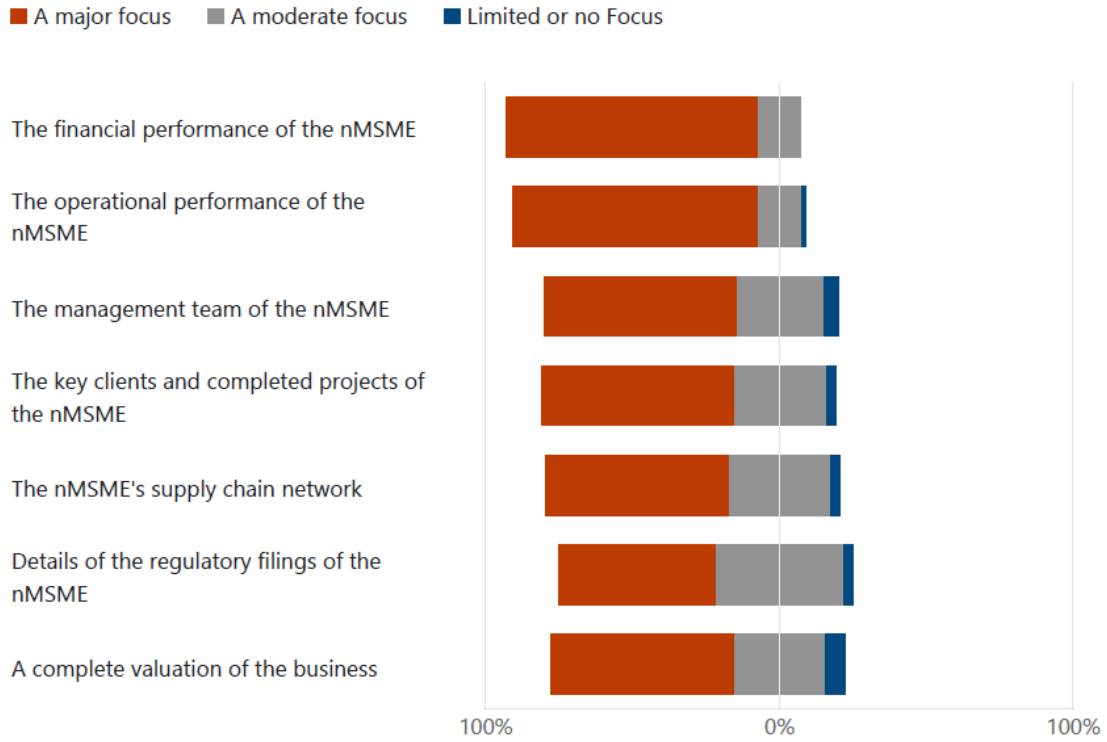


Figure 7b: Focus Areas of Gradings for non-financial companies

