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The impact of the regulatory business environment on SMEs' funding choices in developing countries: Evidence from Africa

Andrew E. Hansen-Addy[1] | **Mario Davide Parrilli**[2] | **Ishmael Tingbani**[3]

[1]School of Business, Operations, and Strategy, Greenwich Business School, University of Greenwich, London, UK

[2]Faculty of Management, Executive Business Centre, Bournemouth University, Bournemouth, UK

[3]Department of Accounting, Southampton Business School, University of Southampton, Southampton, UK

Correspondence
Andrew E. Hansen-Addy, School of Business, Operations, and Strategy, Greenwich Business School, University of Greenwich, Old Naval College, Park Row, London, SE10 9LS, UK.
Email: a.e.hansenaddy@greenwich.ac.uk

Abstract

While it is known that some elements of the business environment (BE), such as macroeconomic conditions, impact access to finance and the funding choices of SMEs, very little is known whether other elements of the BE—such as the institutional setting and the regulatory business environment (RBE)—influence access to (or supply of) finance and the funding choices of SMEs. Using a World Bank Enterprise Surveys panel sample (2003–2020) from 30 African countries and employing Propensity Score Matching (PSM) methods, it is noted that while an enabling institutional setting and RBE in Africa increases access to external finance for SMEs, SMEs still opt for retained earnings over funding from banking and non-banking financial institutions for their working capital. This funding behaviour can be explained by that SMEs located in enabling RBEs have increased productivity and financial performance and so can employ larger amounts of retained earnings for their operations. Furthermore, even though more accessible in enabling RBEs, external finance remains unaffordable for most SMEs in Africa. These findings indicate the need to tailor interventions to make varied finance more accessible and affordable for SMEs in developing countries.

KEYWORDS

access to finance, Africa, business environment, developing countries, regulatory institutions, SME finance

1 | INTRODUCTION

There is little doubt that Small and Medium Enterprises (SMEs) contribute immensely to the economies of developing countries (Ayyagari et al., 2007; CSIS, 2021). They often serve as the backbone of growth in these regions accounting for about 70% of GDP, and about 80% of general employment (CSIS, 2021; IFC, 2017). These facts show the potential of SMEs to fortify economic progress in developing countries. For instance, Ayyagari et al.'s (2014) study based on 104 developing countries, noted that SMEs have the largest proportion in job creation, and the highest sales and employment growth in developing countries. This capacity is widely confirmed (Ayyagari et al., 2017; CSIS, 2021; Kersten et al., 2017; Li et al., 2012; Proparco, 2019; World Bank, 2016).

Nevertheless, access to finance is still a major challenge for many SMEs in developing countries despite numerous interventions (Abor et al., 2014; Coetzee & Buys, 2017; IFC, 2017; Proparco, 2019; Wang, 2016). While there is a pool of literature on why this challenge still persists (Ayyagari et al., 2017; Beck, Demirgüç-Kunt, & Maksimovic, 2008; CSIS, 2021; Moritz et al., 2016; Quartey et al., 2017; Xiang & Worthington, 2015), few studies if any, have explored how the unique regulatory business environment (hereafter RBE) influence access to finance and the funding choices of SMEs in developing countries. We argue that filling this gap is imperative because, a favourable overall business environment (BE) (which includes not only the regulatory setting but also the economic, political, socio-cultural and institutional setting) impacts almost all entrepreneurial activities, it impacts positively the performance of firms, creates opportunities for investment, and creates competition amongst other things (Dethier et al., 2011; Ehigiamusoe & Samsurijan, 2021; World Bank, 2004, 2020a).

Furthermore, SMEs are not scaled down versions of large firms. SMEs have unique characteristics and are influenced in much more complex ways by the RBE (and overall BE) than large firms. For instance, whilst large firms may not be heavily impacted by poor business regulations such as obstructive tax administration, many SMEs would view such regulations as a burden and a major stumbling block to their operations (Abrie & Doussy, 2006; Adegboye et al., 2018). Thus, a clearer understanding on how the RBE in developing countries impact the funding choices of SMEs should provide invaluable insights to improve policies and initiatives aimed at bolstering access to finance and the performance of SMEs in these countries.

Using a rich panel sample of 36,968 firm observations (covering 30 African countries) from the World Bank Enterprise Surveys (WBES) conducted between 2003 and 2020, we find that whilst an enabling RBE in developing countries increases access to external finance for SMEs, SMEs still opt for retained earnings over external finance. We argue that this is because, first, SMEs in enabling RBEs have increased performance and so are able to employ larger amounts of retained earnings for their operations. And second, external finance, even though more accessible in an enabling RBE, remains unaffordable for most SMEs in developing countries.

This article contributes to literature in these ways. First, unlike most studies that focus on pecking order/trade-off behaviour (Agyei et al., 2020; Ayalew et al., 2020; Myers & Majluf, 1984; Ogieva & Ogiemudia, 2019), the influence of firm-related factors (Abor & Biekpe, 2009; Beck & Demirguc-Kunt, 2006; Coetzee & Buys, 2017; Cowling et al., 2018; Rostamkalaei & Freel, 2016; Yuko et al., 2015), or the influence of entrepreneur-related factors (Irwin & Scott, 2010; Makler et al., 2013; Pallegedara, 2017; Vasilescu, 2014; Yuko et al., 2015), this is the first study to consider the influence of the RBE on the funding choices of SMEs in developing countries.

Second, we depart from most studies that proxy the BE with macroeconomic indicators—see for example, Bhattacharjee et al. (2009), and Rusu and Roman (2016)—but align with scholarly works that note the importance of the institutional setting in shaping the quality of the BE where firms operate (Belas et al., 2019; Cojocaru & Susanu, 2019; Forte & Tavares, 2019). This study also demonstrates that the institutional setting and RBE might be more reliable measures of the BE's impact on the operations of firms than other traditional measures such as macroeconomic indicators.

Third, by proxying the RBE with both objective and subjective regulatory measures, we contribute to a clearer understanding of how regulatory institutions contribute to the overall BE. Furthermore, we show that indeed subjective measures of the BE are complimentary to objective measures and that these do not just reflect firm experiences but are reliable measures of the BE.

The findings of this study contribute to a more comprehensive understanding of the financial decision-making process of SMEs in developing countries and offer policymakers and practitioners valuable information to enhance the RBE for SMEs and promote their access to external finance. The rest of this article is structured as follows: Section 2 presents our theoretical arguments and hypotheses; Section 3 outlines the data and empirical approach adopted for the study; Section 4 presents our results and discussion; and Section 5 concludes our study.

2 | THE UNIQUE REGULATORY BUSINESS ENVIRONMENT IN DEVELOPING COUNTRIES

Even though for decades scholars have explored how institutions influence economic activities within a country, it was not until the 1950s that 'institutional theory' was first introduced. Selznick (1957), suggested that the organizational structure was an adaptive vehicle that was shaped in reaction to the effects of participants as well as the external environment. Since then, there have been numerous definitions and approaches to the theory with substantial variation (Scott, 1987). For instance, in the 1990s, the theory of how institutions and institutional change impact economic activity was expanded by North (1990), and the World Bank introduced novel aggregate

(governance) indicators for measuring institutional quality in countries (Kaufmann et al., 1999). Additionally, Khanna and Palepu (1997) introduced and defined 'institutional voids' as the absence or underdevelopment of institutions that enable and support market activity. This network of systems or institutions include political, financial, legal, and regulatory systems that provide an enabling environment for entrepreneurship (Estrin et al., 2013). The absence of these institutions is termed an institutional void (Mair & Marti, 2009).

Developing countries struggle with the provision of adequate institutions (Beck, Demirgüç-Kunt, & Pería, 2008). In instances where these institutional arrangements are present, they are often weak or ineffective (Xiaowei & Chi-Nien, 2013). Extant literature points to poor regulatory institutions in developing countries which should otherwise provide policy and regulation of markets for businesses (Agarwal & Mohtadi, 2004; Beck, Demirgüç-Kunt, & Maksimovic, 2008; Kaivanto & Stoneman, 2007; Smallbone et al., 2001). For instance, many developing countries have poor tax regulation and administration systems (Adegboye et al., 2018). Thus, many businesses in developing countries view obstructive tax regulation and administration as a burden to their businesses, stifling productivity to the extent that tax compliance requirements are viewed as a stumbling block (Abrie & Doussy, 2006; Adegboye et al., 2018). Waseem (2018) noted that many firms in Pakistan reported significant lower earnings when new detrimental tax reform was introduced. Some of these firms moved their operations to the informal economy or even changed their legal form. Evidently, these tax reforms had a negative impact on the performance of Pakistani firms. Conversely, favourable tax administration boosts the operations of firms in developing countries. For instance, Rocha et al. (2018) noted that reducing tax rates increased formality and the general performance of firms in Brazil.

As with tax administration and compliance, the regulatory aspects of licensing for businesses is ineffective and weak in developing countries (Devas & Kelly, 2001). This poor regulation and oversight of business licensing often leads to high numbers of unlicensed businesses and at worse business failures (Friedberg et al., 2004). Many firms in developing countries report that restrictions on access to appropriate licensing and permits force them to engage in corrupt practices (Anderson, 2019; Goel, 2012). These practices often involve collusion between Government officials and entrepreneurs to obtain licences and permits fraudulently leading to high monetary and non-monetary effects on businesses (Giang et al., 2016; Goel, 2012).

Financial systems in developing countries are also weak and to a large extent inefficient. This often creates real obstacles in accessing finance for many firms in developing countries (Fowowe, 2017; Quartey et al., 2017; Yuko et al., 2015). Furthermore, financial systems in developing countries are dominated by banks which tend to be less exposed to SMEs, provide a lower share of investment loans, and charge higher fees and interest rates (Beck, Demirgüç-Kunt, & Maksimovic, 2008; Quaye et al., 2014). Financial institutions also have varying requirements for accessing finance, thereby creating an added obstacle in accessing finance from them (Coetzee & Buys, 2017; Domeher, 2012). Hence, SMEs are generally denied access to finance by commercial banks and big financial institutions in developing countries (Beck, 2007).

Therefore, as a consequence of weak financial systems, retained earnings remains the most popular source of finance for SMEs in developing countries (Zabri et al., 2015). Many SMEs prefer finance from retained earnings over external finance in the first instance for investment, expansion, and growth. The use of retained earnings (or broadly the use of internal funds over external funds) may be demand driven and explained by pecking order and /or trade off behaviour (Agyei et al., 2020; Ayalew et al., 2020; Nguyen, 2022; Ogieva & Ogiemudia, 2019). However, these choices could also be influenced by the institutional setting and RBE which is the novel focus of this study.

Furthermore, given that firms in locations with favourable RBEs (as elaborated hitherto) have better productivity and financial performance, it stands to reason that they will rely more on retained earnings for investment in their operations since they are more likely to make profits and allocate these as retained earnings. Moreover, retained earnings will be cheaper compared to any form of external finance available to SMEs in developing countries. Paulo (2018) noted that the amount of retained earnings employed by firms seems to be influenced by their country's economic environment, thus, a favourable RBE (which is associated with a country's economic development) promotes an increase in retained earnings. This implies that firms can allocate and employ larger amounts of retained earnings for investment and growth in developing countries with enabling RBEs because these firms perform better in these countries. This argument leads us to our first hypothesis:

H1. An enabling RBE increases SMEs' use of retained earnings in developing countries.

The single most accessible form of external finance available in developing countries is from commercial banks which is a result of the underdevelopment of financial institutions in these countries (Beck, 2007; Quaye et al., 2014). However, even though commercial

banks dominate available financial institutions in developing countries, SMEs have difficulty in accessing finance from them. This is because commercial banks are less exposed to SMEs due to their opaqueness and therefore charge higher fees and interests on loans granted to SMEs (Beck, Demirgüç-Kunt, & Pería, 2008; Quaye et al., 2014). Commercial banks also attempt to reduce their lending risks by introducing varying and high demands for accessing finance such as requests for physical collateral which many SMEs find difficult to meet (Bond et al., 2015; Coetzee & Buys, 2017; Domeher, 2012). Hence, SMEs face enormous obstacles in accessing badly needed finance from banks in developing countries (Fowowe, 2017; Issaka Jajah et al., 2022; Quartey et al., 2017; Yuko et al., 2015). However, a more favourable institutional setting and RBE would mean banking institutions would have improved financial performance (Simerly & Li, 2000; Forte & Tavares, 2019), greater financial leverage (Weill, 2008), and be capable of lending to SMEs. For instance, a commercial bank that has adequate support from the financial regulator where it operates, and perhaps incentives to lend to SMEs is more likely to take actions that would make finance more accessible to SMEs. This may include the setting up of specialized desks and staff to aid SMEs. Thus, a favourable RBE is good for commercial banks, so they are more able to increase the supply of funds for SMEs.

A similar argument can be put forward for non-banking financial institutions. Rateiwa and Aziakpono (2017) noted that the economic role played by non-banking financial institutions was positively related to the macroeconomic environment in developing countries. This presupposes that non-banking financial institutions perform better and provide greater finance supply for firms in developing countries with favourable RBEs. Therefore, SMEs in developing countries with favourable RBEs would have greater supply of funds from banking and non-banking financial institutions. These arguments lead us to our second hypothesis:

> **H2.** An enabling RBE increases SMEs' access to external finance from financial institutions in developing countries.

However, given that commercial banks in developing countries still charge high fees and interest on loans given to SMEs (Beck, Demirgüç-Kunt, & Pería, 2008; Quaye et al., 2014), are less exposed to SMEs due to their opaqueness (Beck, Demirgüç-Kunt, & Pería, 2008; Quaye et al., 2014), and that retained earnings is a cheaper alternative for SMEs (Agyei et al., 2020; Ayalew et al., 2020; Nguyen, 2022; Ogieva & Ogiemudia, 2019), it seems reasonable that SMEs will not use bank finance if retained earnings are more readily available in an enabling RBE (Paulo, 2018; Zabri et al., 2015). Interestingly, Pallegedara (2017) found that SMEs in Sri Lanka with higher monthly income were less likely to obtain bank loans. Other factors that potentially dampen SMEs demand for bank finance in enabling RBEs include managerial characteristics such as education and experience (Campanella & Serino, 2019; Mutoko & Kapunda, 2017), and firm characteristics such as capital size and credit ratings (Boushnak et al., 2018). These arguments lead to the third hypothesis.

> **H3.** An enabling RBE decreases SMEs' use of finance from banking financial institutions in developing countries.

Non-banking financial institutions are often part of the financial system in developing countries that provide

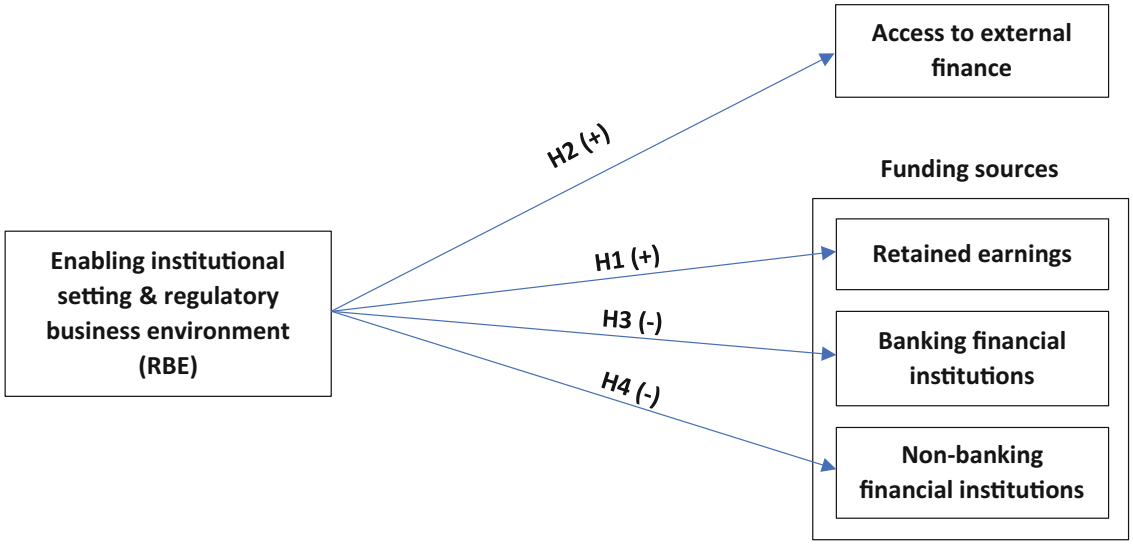

FIGURE 1 Conceptual framework. [Colour figure can be viewed at wileyonlinelibrary.com]

lending to poorly financed businesses such as SMEs (Churchill, 2018; Ghiţă-Mitrescu et al., 2016; Remer & Kattilakoski, 2021). For instance, microfinance institutions (MFIs) are helping bridge the access to finance gap in developing countries by adopting innovative ways to counteract obstacles faced by SMEs in accessing finance from commercial banks in Ghana (Quaye et al., 2014). However, MFIs charge even higher interest rates than banking institutions in developing countries leading to low SME patronage. Ogujiuba et al. (2013) note that many SMEs in Nigeria do not patronize loans from MFIs due to high interest rates charged by these institutions which many SMEs cannot afford to repay. They add that some MFIs in Nigeria have collapsed due to defaults in loan repayment and high transaction costs. We argue, therefore that given these challenges, SMEs in developing countries would not use finance from non-bank financial institutions (in the presence of adequate retained earnings) even if these are easily accessible as would be the case in countries with an enabling RBE. Hence, we put forward this fourth hypothesis:

> **H4.** An enabling RBE decreases SMEs' use of finance from non-banking financial institutions in developing countries. Figure 1 depicts the conceptual framework used in this study.

3 | METHODOLOGY

3.1 | Data and sample selection

We derive our sample from the extensive World Bank Enterprise Surveys (WBES) database. The WBES, which began from 2002, is an on-going World Bank project that collects objective data on the experiences and perceptions of enterprises in the World Bank member countries. It currently encompasses over 125,000 firms in 139 countries and cover a broad range of business environment topics including access to finance, corruption, infrastructure, crime, competition, and performance measures. The surveys cover enterprises in the manufacturing and services sectors (World Bank, 2018). The WBES has been used in many policy-driven studies published in leading journals (Fan et al., 2022; Hansen-Addy et al., 2023; Islam et al., 2018; Quartey et al., 2017; Wang, 2016).

We select our sample based on the latest available panel datasets on Africa from the WBES. Out of the numerous countries in Africa where the World Bank conducts the enterprise surveys, there are only 30 countries with available panel datasets (please see Table 1). These datasets cover surveys undertaken between 2003 and 2020. Pooling[1] our datasets (countries) together yields a rich unbalanced panel sample of 36,968 firm observations for analysis (see Table 1) (World Bank, 2020b). Firms with 5–99 employees are included in this study, so the sample aligns with other studies and the WBES classification of SMEs.[2]

The African BE offers a unique representation of developing countries. Why? For instance, the Doing Business Report mentions that Sub Saharan Africa (SSA) remains one of the weakest business environments with an Ease of Doing Business (EODB) average score of 51.8, far below the global average of 63.0. Furthermore, this report notes that in SSA, it takes on average 21.5 days to undertake business registration compared to 11.9 in the European Union (World Bank, 2020a). Clearly, the African BE offers a unique context for this study.

3.2 | Variables

3.2.1 | Outcome variables

The efficient management of working capital is essential to the survival of African SMEs. Furthermore, SMEs often face limited access to external funding sources, making it challenging to undertake significant fixed investments. As a result, their immediate focus is on optimizing the allocation and utilization of available resources to meet short-term operational requirements (García-Teruel & Martínez-Solano, 2007). Thus, in line with our objective of considering the influence of the RBE on the funding choices of SMEs in developing countries and following Troilo et al. (2019), we focus on sources of funding for working capital.[3]

First, we use three (3) sources of working capital funding as dependent variables from our sample. These four variables are responses to the question: What percentage of your working capital is financed by each of these four sources? These sources are: (1) retained earnings or internally generated funds; (2) banking financial institutions, private and state-owned; and (3) non-banking financial institutions which include microfinance institutions, credit cooperatives, credit unions, or finance companies. Following Quartey et al. (2017) we transform these sources of finance variables to ordinal scale. The transformed variables take the values 1–4 according to the following: 1 if a firm uses a source to fund 0%–25% of working capital; 2 if a firm uses a source to fund 26%–50% of working capital; 3 if a firm uses a source to fund 51%–75% of working capital; and 4 if a firm uses a resource to fund 76%–100% of working capital.

Second, we include an objective measure of access to finance following Kuntchev et al. (2013). Using the WBES, Kuntchev et al. (2013) constructed 4 groups to represent the extent to which each firm was credit

TABLE 1 Sample description.

Country		Number of firms	Percentage	Years of survey (2003–2020)	GDP per capita (USD)[a]	Human capital Index[b]	World Bank income category[c]
1	Angola	555	1.75	2006, 2010	2137.91	0.36	Lower-middle income
2	Benin	292	0.92	2004, 2009, 2016	1428.45	0.4	Lower-middle income
3	Botswana	437	1.38	2006, 2010	7347.55	0.41	Upper-middle income
4	Burkina Faso	383	1.21	2006, 2009	918.15	0.38	Low income
5	Cameroon	571	1.8	2006, 2009, 2016	1661.70	0.4	Lower-middle income
6	Cape Verde	173	0.54	2006, 2009	3445.76	–	Lower-middle income
7	Chad	215	0.68	2009, 2018	696.42	0.3	Low income
8	Cote d'Ivoire	550	1.73	2009, 2016	2578.76	0.38	Lower-middle income
9	DRC	1035	3.26	2006, 2010, 2013	584.11	0.37	Low income
10	Egypt	5460	17.2	2004, 2007, 2008, 2013, 2016, 2020	3876.36	0.49	Lower-middle income
11	Ethiopia	942	2.97	2011, 2015	943.97	0.38	Low income
12	Ghana	1100	3.46	2007, 2013	2445.29	0.45	Lower-middle income
13	Kenya	1614	5.08	2007, 2013, 2018	2006.83	0.55	Lower-middle income
14	Lesotho	191	0.6	2009, 2016	1166.46	0.4	Lower-middle income
15	Liberia	199	0.63	2009, 2017	673.09	0.32	Low income
16	Malawi	553	1.74	2005, 2009, 2014	642.66	0.41	Low income
17	Mali	807	2.54	2003, 2007, 2010, 2016	917.91	0.32	Low income
18	Morocco	1685	5.31	2004, 2007, 2013, 2019	3496.76	0.5	Lower-middle income
19	Niger	279	0.88	2005, 2009, 2017	594.93	0.32	Low income
20	Nigeria	6394	20.14	2007, 2009, 2014	2085.03	0.36	Lower-middle income
21	Rwanda	583	1.84	2006, 2011, 2019	833.83	0.38	Low income
22	Senegal	1161	3.66	2003, 2007, 2014	1606.47	0.42	Lower-middle income
23	Sierra Leone	208	0.66	2009, 2017	515.93	0.36	Low income
24	South Africa	1598	5.03	2003, 2007	6994.21	0.43	Upper-middle income
25	Tanzania	855	2.69	2006, 2013	1135.54	0.39	Lower-middle income
26	Togo	206	0.65	2009, 2016	992.33	0.43	Low income
27	Tunisia	737	2.32	2013, 2020	3924.34	0.52	Lower-middle income
28	Uganda	997	3.14	2006, 2013	858.06	0.38	Low income

TABLE 1 (Continued)

Country		Number of firms	Percentage	Years of survey (2003–2020)	GDP per capita (USD)[a]	Human capital Index[b]	World Bank income category[c]
29	Zambia	1221	3.85	2007, 2013, 2019	1120.63	0.4	Low income
30	Zimbabwe	748	2.36	2011, 2016	1737.17	0.47	Lower-middle income
	Total	31,749	100				

Note: The total sample size (*N*) is 36,968 observations.
[a]World Bank values for 2021.
[b]World Bank HCI values for 2020; global average HCI is 0.56.
[c]According to the World Bank categorisation for the fiscal year 2022, high-income countries are those with a per-capita GNI of $12,696 (USD) or more. Middle-income countries are split into two categories: upper-middle-income nations, which have per capita incomes between $12,695 and $4096, and lower-middle-income nations, which have a GNI per capita of $4095 to $1046. Finally, those countries whose GNI per capita was computed to be $1045 or less were placed in the low-income category.

constrained. These groups were (1) Full credit constrained (FCC); (2) Partially credit constrained (PCC); (3) Maybe credit constrained (MCC); and (4) Not credit constrained (NCC). The FCC group of firms applied for external credit, were rejected, and currently do not have any lines of credit. They also include firms that did not use external sources of finance for their working capital and investments in the previous year. Fundamentally, these are firms that do not have access to external credit even though they need additional capital. The PCC group are firms that used external sources of finance for their working capital and investments within the past year or had a line of credit at the time of the survey, however, such firms have recently applied for credit for reasons other than having enough capital but was rejected. The MCC group used external sources of finance for working capital and investment during the past year or had a current line of credit, however, they have recently applied for credit and were successful. The NCC group includes firms that did not apply for credit recently simply because they had enough capital to meet the firm's needs. Thus, we constructed an objective ordinal variable on access to (or supply of) external finance (where, 1 = FCC; 2 = PCC; 3 = MCC; 4 = NCC) following the groups of Kuntchev et al. (2013) (see Table 2). Additionally, following Fowowe (2017), we include a subjective measure of how accessible external finance is to SMEs. Respondents were asked if they faced constraints (or obstacles) in accessing external finance. Responses sought were 0 = very severe obstacle; 1 = major obstacle; 2 = moderate obstacle; 3 = minor obstacle; 4 = no obstacle) (see Table 2).

3.2.2 | Treatment variable

We proxy the RBE with the objective *ease of starting a business* (ESB) score of the World Bank's Doing Business project following similar studies (Bosire, 2019; Hossain et al., 2018; Munemo, 2012; Nketiah-Amponsah & Sarpong, 2020). The Doing Business project of the World Bank was launched in 2002 and it measures the impact business regulations have on SMEs across 190 economies. It analyses business regulations by measuring processes, obstacles and time spent for obtaining business incorporation and building permits, electricity connection, transferring property, getting access to credit, protecting minority investors, paying taxes, engaging in international trade, enforcing contracts, and resolving insolvency (World Bank, 2020a). The ESB component is an average score of the number of official procedures required to start up and formally operate a business, the cost to complete these procedures and the paid-in minimum capital requirement. These procedures cover processes prospective business owners need to undertake to obtain approvals, licences, permits, and verifications from the relevant authorities. A high ESB score indicates that the RBE in a country is enabling and favourable for business activities. Hence, we find the ESB to be a highly suitable objective proxy for the RBE of countries in this study (see Table 1).

We first assign appropriate ESB scores (derived from the Doing Business online repository) to each observation in our sample. For instance, a Ghanaian SME surveyed in 2007 and 2013 would be assigned an ESB score of 73.8 for the 2007 observation, and an ESB score of 84.9 for the 2013 observation. We then construct our treatment variable from the distribution of ESB scores allocated (see Table 4). An 'obstructive' RBE (coded 0) refers to locations with ESB scores up to the 50th percentile in the distribution; an 'enabling' RBE (coded 1) refers to locations with ESB scores above the 50th percentile in the distribution.

3.2.3 | Control variables

We include numerous control variables (covariates) in our analyses. Five of these variables are firm-related

TABLE 2 Variables.

Variable	Definition	Obs (*N*)	Mean	Std. dev	Min	Max
Panel A: Outcome variables (sources of finance for working capital and access to finance)						
Retained earnings or internally gen. funds	Finance from retained earnings or internal funds[a]	35,750	3.281	1.032	1	4
Banks (public & private)	Finance from bank financial institutions, private and state-owned[a]	32,791	1.150	0.502	1	4
Non-banks (micro fin., coops., etc)	Finance from non-bank financial institutions which include microfinance institutions, credit cooperatives, credit unions, or finance companies[a]	34,763	1.024	0.204	1	4
Access to (supply of) finance 1	Subjective measure of constraints (obstacles) faced in accessing external finance (0 = very severe obstacle; 1 = major obstacle; 2 = moderate obstacle; 3 = minor obstacle; 4 = no obstacle)	35,111	2.090	1.421	0	4
Access to (supply of) finance 2	Objective measure of access to finance (1 = Fully credit constrained; 2 = Partially credit constrained; 3 = Maybe credit constrained 4 = Not credit constrained) following Kuntchev et al. (2013)	19,409	3.296	1.057	1	4
Panel B: Objective treatment variable (RBE)						
Ease of starting a business (registration, permits, etc)	The RBE proxied by the DB 'ease of starting a business' score[b]	35,201	0.590	0.492	0	1
Panel C: Subjective treatment variables (RBE)						
Tax administration	RBE of a firm proxied by how much of an obstacle tax administration poses to a firm (0 = obstructive RBE; 1 = enabling RBE)[c]	23,052	0.670	0.470	0	1
Business licensing & permit regulations	RBE of a firm proxied by how much of an obstacle business licensing & permit regulations pose to a firm (0 = obstructive RBE; 1 = enabling RBE)[c]	23,719	0.806	0.396	0	1
Customs & trade regulations	RBE of a firm proxied by how much of an obstacle customs & trade regulations pose to a firm (0 = obstructive RBE; 1 = enabling RBE)[c]	24,237	0.797	0.402	0	1
Panel D: Explanatory variables						
Size of firm	The size of a firm	36,968	20.443	19.465	5	99
Status of firm	Legal status of firm (1 = Sole Proprietorship; 2 = Partnership; 3 = Limited Partnership; 4 = Shareholding with traded shares; 5 = Shareholding with non-traded shares; 6 = Other)	35,724	3.079	0.957	1	6

TABLE 2 (Continued)

Variable	Definition	Obs (*N*)	Mean	Std. dev	Min	Max
Age of firm	The age of firm	36,033	16.272	13.839	0	220
Human capital of O/M	The human capital of the Owner/ Manager (represented by years of business related experience)	35,924	15.111	10.554	0	70
Gender of O/M	The gender of the Owner/Manager (0 = Male; 1 = Female)	25,641	0.141	0.348	0	1
Sector	The sector/industry of firm (1 = Manufacturing e.g. fabrication, and publishing; 2 = Retail e.g. electronics and petroleum products; and 3 = Services e.g. motor garages, and IT)	30,352	1.822	0.877	1	3
Competition from informal firms	How much of an obstacle is competition from informal or unregistered firms (0 = very severe obstacle; 1 = major obstacle; 2 = moderate obstacle; 3 = minor obstacle; 4 = no obstacle)	34,674	1.740	1.385	0	4
Gross Domestic Product Per Capita	The log of the GDP per capita of the country where firm is located	36,016	7.374	0.775	5.543	8.769
Interest rates	Lending interest rates	29,010	15.103	8.161	4.740	56.520
Profit	Log of profits	30,317	11.256	2.783	−10.397	24.544
Revenue per employee	Log of revenue per employee	33,027	9.253	2.468	−6.615	23.518
Loan	If firm applied for a loan/ credit in previous fiscal year	29,846	1.831	0.375	1	2
Country	The country where firm is located (30 African countries in alphabetical order)	36,968	16.451	7.437	1	30
Year	Year survey was conducted	36,968	2012.108	4.682	2003	2020

[a](1 = 0%–25%; 2 = 26%–50%; 3 = 51%–75%; 4 = 76%–100% of working capital).
[b]Obstructive RBE = firms in locations with scores up to the 50th percentile in the distribution; Enabling RBE = firms in locations with EODB scores above the 50th percentile in the distribution.
[c]Obstructive RBE = firms that considered specific regulation as a 'major obstacle' or 'severe obstacle' to their operations); Enabling RBE = firms that considered specific regulation as 'no obstacle' or 'minor obstacle' to their operations).

factors and entrepreneur-related factors that influence the funding choices of SMEs. These five variables are the size of firm, measured by the number of employees; the legal status of the firm; age of the firm; the human capital of the owner/manager (represented by years of experience of the owner/ manager); and the gender of the owner/manager.

The size of a firm is the most discussed firm-related factor that influences the funding choices of firms (Abor & Biekpe, 2009; Beck & Demirguc-Kunt, 2006; Cowling et al., 2016; Moritz et al., 2016; Rostamkalaei & Freel, 2016; Wang, 2016; Yuko et al., 2015). The size of a firm is positively associated with access to formal credit (Yuko et al., 2015) with smaller firms opting for short-term debt (Abor & Biekpe, 2009). The legal form (status) of firms can also influence their funding choices. It is generally asserted that informal firms prefer informal sources of finance and formal firms prefer formal sources of finance (Coetzee & Buys, 2017; Nkundabanyanga et al., 2014; Yuko et al., 2015).

The education, experience, and gender of an owner or manager are a few of the entrepreneur-related factors explored in literature that influence the funding choices of firms (Irwin & Scott, 2010; Makler et al., 2013; Pallegedara, 2017; Vasilescu, 2014; Yuko et al., 2015). For instance, financial literacy of an owner/manager improves access to formal finance for SMEs in developing countries (Adomako et al., 2016; Yuko et al., 2015).

Additionally, SMEs with female owners in Sub-Saharan Africa were found to be less likely to be credit constrained than male owned enterprises but this is reversed for medium sized enterprises according to Hansen and Rand (2014).

We also include other standard control variables in our econometric analysis - the firm's sector of operation, the country variable, interest rates, recent loan/ credit application, net profit, revenue per employee, and the GDP per capita of the country where a firm is located (Quartey et al., 2017; Troilo et al., 2019). Also included is a measure of competition from informal firms since informal firms contribute 55–80% of GDP in African countries and impact the operations of registered firms (Abdelkader & Mansouri, 2013; Moyo & Sibindi, 2020) (see Table 2).

3.3 | Econometric method

We performed several data cleaning operations and preparations to ensure our sample was suitable for analysis. These actions include eliminating ambiguous entries in the dataset, creating new panel ids for the pooled datasets, and recoding a few variables.

Traditionally, similar studies have employed regressions to analyse relationships involving the BE of firms, however, standard regressions are prone to multicollinearity, endogeneity issues, and self-selection biases (Dethier et al., 2011). So, we employ Propensity Score Matching (PSM) methods to test for treatment effects of an enabling RBE on the funding choices of SMEs following Hansen-Addy et al. (2023). PSM methods allow for a more accurate causal relationship to be established through counter factual analysis of a firm under control and treatment settings. This means we were able to disentangle (or isolate) the influence of the RBE from other covariates that may well have an impact on the sourcing of finance for SMEs (Phillipson et al., 2019). PSM methods are highly regarded, widely used, and can be seen in recent impactful studies (Caliendo & Tübbicke, 2020; Cepeda et al., 2003; Gundersen, 2016; Hansen-Addy et al., 2023; Parrilli et al., 2020).

Thus, we compare, on one hand, firms operating in 'obstructive' RBEs, and on the other hand firms operating in 'enabling' RBEs. We match firms by (the covariates) size, status, age, human capital of owner/ manager, gender of owner/ manager, sector of operation, competition from informal firms, interest rates, recent loan/ credit application, net profit, revenue per employee, country, and the GDP per capita of the country where firm is located. We also include the year of observation, so firms surveyed about the same period are matched. We perform our PSM analyses using n to ensure a firm is not matched to itself.

The matching process itself involves compressing our matching criteria (covariates) into a propensity score (which is basically the probability of the treatment on the covariates) and then comparing the sourcing of finance of individual firms with similar propensity scores across the control (obstructive RBE) and the treated (enabling RBE) groups. Generally, the propensity score is estimated with a logit (or probit) model where the binary treatment variable is regressed on the covariates. So, our logit regression model for the propensity score is as follows.

$$\textit{Propensity score} = \Pr(T_i = 1) = \beta_0 + \beta_1 Z_i + v_i. \quad (1)$$

where T is the binary treatment variable capturing if a firm is either located in an obstructive (= 0) or enabling (= 1) RBE; i refers to each firm in the sample; Z refers to the set of matching criteria or covariates used in this study; and v refers to the unobserved error.

Once computed the propensity scores form the basis for matching firms using several approaches. To ensure consistency (Wooldridge, 2010), we employ these approaches: the Nearest Neighbour Matching (NN) (also called Mahalanobis Distance Matching) proposed by Abadie and Imbens (2006), Inverse Probability Weighting (IPW), and Regression Adjustment (RA). For the matching quality to be acceptable, the balancing test needs to be satisfied where there are no significant differences between the covariate means across both control and treatment groups (Dehejia & Wahba, 2002). Once the balancing test is successful, the average treatment effect on treated (ATET) which is the mean effect of firms that are treated (or firms that are located in enabling RBEs) can be computed (Wooldridge, 2010) (Figure 1).

4 | RESULTS AND DISCUSSION

4.1 | Descriptive statistics

We noted some interesting descriptive statistics concerning the sample employed in this study. For instance, 64.23% of firms are small firms (5–19 employees), and 35.77% are medium firms (20–99 employees). Moreover, only 3.48% are Sole Proprietorships, while 55.13% of firms are Limited Partnerships, and 18.99% are Partnerships.[4] Furthermore, most firms (48.98%) operate in the manufacturing sector (which represent industries like plastics and rubber, textiles, and garment making, and fabricated metal products), 31.16% in the service sector (which represent industries like IT, hospitality, auto repair, and entertainment), and 19.86% in the retail

TABLE 3 Descriptive statistics of sourcing for working capital.

Source of finance	% of total working capital financed	No. of firm obs. (*N*)	Percentage
Retained earnings & internally gen. funds	0%–25%	3542	9.91
	26%–50%	4817	13.47
	51%–75%	5457	15.26
	76%–100%	21,934	61.35
Total		35,750	100
Banks (public & private)	0%–25%	29,434	89.76
	26%–50%	2292	6.99
	51%–75%	575	1.75
	76%–100%	490	1.49
Total		32,791	100
Non-bank (micro fin., coops., etc)	0%–25%	34,156	98.25
	26%–50%	456	1.31
	51%–75%	71	0.2
	76%–100%	80	0.23
Total		34,763	100

TABLE 4 Descriptive statistics on objective RBE treatment.

	Mean	Std. dev.	Min	P25	Median	P75	Max	Obs. (*N*)
Ease of starting a business	68.682	17.821	17.4	59	73.8	81.4	94.6	35,201

sector (which represent industries like household items and clothing, electronics, and petroleum products). These statistics present an interesting overview of businesses in Africa and demonstrate that most firms in Africa operate in low to medium tech industries (Galindo-Rueda & Verger, 2016; IMF, 2018; Wintjes et al., 2014).

There were also interesting details on the funding choices of SMEs in our sample. The majority (over 60%) of SMEs financed 76%–100% of their working capital with retained earnings. This contrasts with the majority (about 80%–98%) of SMEs financing only 0 to 25% of their working capital from bank, non- bank sources. These statistics indicate most SMEs fund their working capital with mainly retained earnings (see Table 3).

We also note a wide distribution of ESB scores for the countries in the sample, ranging from 17.4 to 94.6. Interestingly, the mean ESB score in the sample of 68.7 is lower than the median score of 73.8, suggesting that the distribution is negatively skewed (see Table 4).

4.2 | Empirical results and discussion

Table 5 details results of the logit model concerning the probability of a firm being in an enabling RBE. We note that it is more likely to find bigger firms in enabling RBEs when proxied by the ESB, suggesting that an enabling environment promotes the growth of firms. Similarly, it is more likely to find older firms in an enabling RBE when proxied by the ESB. SMEs are less likely to face competition from informal firms in enabling RBEs suggesting that there are fewer informal firms in enabling RBEs. The estimates also suggest that GDP per capita is more likely to be higher in enabling RBEs, while interest rates are likely to be lower. These estimates are consistent with literature (Moyo & Sibindi, 2020; Quartey et al., 2017; Yuko et al., 2015). The balancing tests on whether there are no significant differences between the covariate means across both control and treatment groups was satisfied in almost all matching estimations with differences in covariate weighted means negligible and variance ratios near 1.

Model (1) in Tables 6–8 and Appendix Tables A1–A3 employ the subjective access to finance outcome variable (*Access to finance 1*). Similarly, model (2) employs the objective access to finance variable based on Kuntchev et al. (2013) (*Access to finance 2*). Model (3) employs the outcome variable for working capital funding from retained earnings. Model (4) employs the variable for funding from banking financial institutions, private and state-owned (*Banks*). Model (5) employs the variable for funding from non-banking financial institutions which

TABLE 5 Probability of firm being located in an enabling RBE.

	Objective RBE—ease of starting a business
Size of firm	0.684***
	(0.080)
Age of firm	0.217***
	(0.055)
Status of firm	−0.101***
	(0.037)
Human capital of O/M	0.002
	(0.058)
Gender of O/M	−0.821***
	(0.124)
Sector of firm	0.343***
	(0.047)
Competition from informal firms	−0.762***
	(0.088)
GDP per capita	3.642***
	(0.235)
Interest rates	−0.255***
	(0.019)
Profits	−0.531***
	(0.061)
Revenue per employee	0.327***
	(0.062)
Loan	0.340***
	(0.104)
Country	0.201***
	(0.016)
Constant	−24.981***
	(1.646)
Observations (*N*)	12,012
No. of firms (*n*)	10,963
Wald chi2(13)	310.02***

Note: Standard errors in parentheses. *** $p < 0.01$;** $p < 0.05$, * $p < 0.1$.

include microfinance institutions, credit cooperatives, credit unions, or finance companies (*Non-banks*).

Our first hypothesis (H1) predicted that an enabling RBE increases SMEs' use of retained earnings in developing countries. The ATET results of all PSM methods support this prediction significantly using the ESB treatment variable on the outcome variable for working capital funding from retained earnings (Model (3), NN $\beta = 0.155$, $p < 0.01$; IPW $\beta = 0.318$, $p < 0.05$; RA $\beta = 0.213$, $p < 0.01$) (see Tables 6–8). In view of these results, H1 is supported.

This is an interesting finding that confirms that inasmuch as the use of retained earnings (or internal funds) over external funding is often explained by the POT and TOT (Agyei et al., 2020; Ayalew et al., 2020; Nguyen, 2022; Ogieva & Ogiemudia, 2019), the economic environment where firms operate plays a role. In essence, an enabling business environment (including an enabling RBE) promotes prosperity for SMEs which presents an opportunity to use larger amounts of retained earnings for investment and growth. This finding partly explains why retained earnings remains the most popular source of finance for SMEs in developing countries (Ayalew et al., 2020; Nguyen, 2022; Ogieva & Ogiemudia, 2019; Paulo, 2018; Zabri et al., 2015). It also confirms Paulo's (2018) finding that the amount of retained earnings employed by firms seems to be influenced by their country's economic environment, thus, a favourable RBE (which is associated with a country's economic development) promotes an increase in retained earnings in the context of developing countries.

The second hypothesis (H2) predicted that an enabling RBE increases SMEs' potential access to external finance from financial institutions in developing countries. In other words, SMEs in enabling RBEs have a greater supply of finance from financial institutions in developing countries. The ATET results from our PSM methods on access to finance support this prediction significantly using the ESB treatment variable on the subjective access to finance variable (Model (1), NN $\beta = 0.217$, $p < 0.01$; IPW $\beta = 0.249$, $p < 0.01$; RA $\beta = 0.546$, $p < 0.01$), and the objective access to finance variable (Model (2), NN $\beta = 0.110$, $p < 0.01$; IPW $\beta = 0.121$, $p < 0.1$; RA $\beta = 0.103$, $p < 0.05$) (see Tables 6–8). Thus, our second hypothesis (H2) is empirically supported.

Commercial banks dominate financial institutions in developing countries, yet SMEs generally have difficulty accessing finance because commercial banks are less exposed to SMEs and charge higher fees and interests on loans granted to SMEs (Beck, Demirgüç-Kunt, & Pería, 2008; Quaye et al., 2014). However, an enabling RBE would mean banking institutions would have improved financial performance (Forte & Tavares, 2019; Simerly & Li, 2000), have greater financial leverage (Weill, 2008), and be capable of lending more to SMEs, which are otherwise considered risky clients. For instance, a commercial bank that has adequate support from the financial sector regulator and perhaps incentives to lend to SMEs would be more likely to put in measures to counter the hurdles normally faced by banks in understanding the needs of SMEs. Perhaps, this would include setting up special packages, desks and allocating staff to address the needs of SMEs. Indeed, an enabling institutional setting and RBE should certainly make bank

TABLE 6 ATET results of Nearest Neighbour Matching using the objective treatment.

			Sources of funding		
	Access to finance		Retained earnings	Bank institutions	Non- bank institutions
	Model 1	Model 2	Model 3	Model 4	Model 5
ATET	0.217***	0.110***	0.155***	−0.141***	−0.018*
	(0.051)	(0.040)	(0.052)	(0.029)	(0.010)
Observations:					
Total Raw	9581	5986	9398	8288	9332
Total matched	12,828	8666	12,680	10,438	12,526
Treated matched	6414	4333	6340	5219	6263
Control matched	6414	4333	6340	5219	6263

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. ATET is average treatment effect on the treated. The following covariates are included in all models: size of firm, age of firm, status of firm, human capital of O/M, gender of O/M, sector of firm, year of survey, GDPC of country, interest rates, comp. from informal firms, loan, profits, revenue per employee.

TABLE 7 ATET results of inverse probability weighting using the objective treatment.

			Sources of funding		
	Access to finance		Retained earnings	Bank institutions	Non- bank institutions
	Model 1	Model 2	Model 3	Model 4	Model 5
ATET	0.249***	0.121*	0.318**	−0.149**	−0.028
	(0.034)	(0.062)	(0.139)	(0.071)	(0.037)
POM[a] (Enabling BE)	2.205***	3.552***	3.049***	1.257***	1.049***
	(0.033)	(0.053)	(0.144)	(0.079)	(0.036)
Observations:					
Total weighted	9581	5986	9398	8288	9332
Treated weighted	3874.6	2201.3	3947.2	3611.4	3910.7
Control weighted	5706.4	3784.7	5450.8	4676.6	5421.3

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. ATET is average treatment effect on the treated. The following covariates are included in all models: size of firm, age of firm, status of firm, human capital of O/M, gender of O/M, sector of firm, year of survey, GDPC of country, interest rates, comp. from informal firms, loan, profits, revenue per employee.

[a]Potential outcome mean.

finance more accessible for SMEs. Moreover, non-banking financial institutions which are part of the financial system in developing countries also provide lending to poorly financed businesses such as SMEs (Churchill, 2018; Ghiță-Mitrescu et al., 2016; Remer & Kattilakoski, 2021). These institutions are also more likely to provide greater access to finance for SMEs in an enabling RBE because these institutions would have a better regulatory environment to thrive. But would SMEs in enabling institutional settings and RBEs use accessible finance from financial institutions?

The third (H3) hypothesis predicted that an enabling RBE decreases SMEs' use of finance from banking financial institutions in developing countries. The ATET results of our PSM methods support this prediction using the ESB treatment variable on the outcome variable working capital funding from banking financial institutions (Model (4), NN $\beta = -0.141$, $p < 0.01$; IPW $\beta = -0.149$, $p < 0.05$; RA $\beta = -0.188$, $p < 0.01$ (see Tables 6–8). Thus, our third hypothesis (H3) is accepted.

These results are in line with our argument that even though access (or supply) of external finance increases in an enabling RBE (as confirmed by H2), SMEs fail to take advantage of this supply and opt for retained earnings. This seems to be a reasonable conclusion because commercial banks in developing countries still charge high fees and interest on loans given to SMEs thus making this type of finance unattractive (Beck, Demirgüç-Kunt, & Pería, 2008; Quaye et al., 2014). Moreover, this result is consistent with H1, in that SMEs in enabling RBEs ultimately rely on their retained earnings not only because they have relatively greater amounts of retained earnings

TABLE 8 ATET results of regression adjustment[a] a using the objective treatment.

	Access to finance		Sources of funding		
			Retained earnings	Bank institutions	Non- bank institutions
	Model 1	Model 2	Model 3	Model 4	Model 5
ATET	0.546***	0.103**	0.213***	−0.188***	−0.038***
	(0.047)	(0.041)	(0.054)	(0.036)	(0.013)
POM[b] (Enabling BE)	1.908***	3.570***	3.153***	1.297***	1.058***
	(0.045)	(0.041)	(0.052)	(0.036)	(0.013)
Observations	9581	5986	9398	8288	9332

Note: Standard errors in parentheses. *** $p < 0.01$; **$p < 0.05$; *$p < 0.1$. ATET is average treatment effect on the treated. The following covariates are included in all models: size of firm, age of firm, status of firm, human capital of O/M, gender of O/M, sector of firm, year of survey, GDPC of country, interest rates, comp. from informal firms, loan, profits, revenue per employee. Results of regressions used in estimating the control and treated POMs in Regression Adjustment Estimator can be provided on request.

[a]Outcome model is Poisson.

[b]Potential outcome mean.

due to increased productivity, but also due to high costs associated with bank finance.

The fourth hypothesis (H4) predicted that an enabling RBE decreases SMEs' use of finance from non-banking financial institutions in developing countries. The ATET results from our PSM methods support this prediction and the estimates are mostly significant using the ESB treatment variable on the outcome variable working capital funding from non-banking financial institutions (Model (5), NN $\beta = -0.018$, $p < 0.1$; IPW $\beta = -0.028$; RA $\beta = -0.038$, $p < 0.01$) (see Tables 6–8). Thus, the fourth hypothesis is supported.

According to Rateiwa and Aziakpono's (2017) study (based on a sample of firms in Egypt, Nigeria and South Africa), non-banking financial institutions perform better and provide greater access to finance for firms in developing countries with favourable BEs, however, SMEs are not keen to seek this form of finance. This is because non-bank financial institutions like MFIs charge high interest rates leading to defaults in repayment (Ogujiuba et al., 2013). Thus, SMEs in developing countries do not use finance from non-bank financial institutions (in the presence of adequate retained earnings) even if these are easily accessible as would be the case in countries with an enabling RBE.

4.3 | Robustness check

We initially proxied the RBE with the objective *ease of starting a business* (ESB) score of the World Bank's Doing Business project following similar studies (Bosire, 2019; Hossain et al., 2018; Munemo, 2012; Nketiah-Amponsah & Sarpong, 2020). As robustness check, we replaced the ESB with three (3) subjective variables in the sample that cover the impact of business regulations on firms following similar studies (Beck et al., 2005; Carlin et al., 2006; Commander & Svejnar, 2008). These variables are firm-level responses to the question: How much of an obstacle do the following business regulations pose to an enterprise: tax administration, business licensing & permits, and customs & trade regulations. Likert responses given are: no obstacle; minor obstacle; moderate obstacle; major obstacle; and very severe obstacle. We construct treatment variables from these responses as follows: an 'obstructive' RBE (coded 0) refers to responses from firms that considered a specific regulation as a 'major obstacle' or 'severe obstacle' to their operations; an 'enabling' RBE are responses from firms that considered a specific regulation as 'no obstacle' or 'minor obstacle' to their operations. These variables provide good subjective treatment variables for the quality of the RBE in developing countries and augment our objective treatment variable (see Table 2).

Subjective (firm-level) measures of the BE in countries are sometimes considered useful because country-level measures do not capture institutional heterogeneity present in each country or regions within a country (Dethier et al., 2011; Dollar et al., 2005). Country-level measures also do not capture how each distinct firm is influenced by business regulation; this is necessary because each firm is influenced differently (Straub, 2008).

The PSM estimates we gathered using the subjective measures are presented in Appendix Table A1. These estimates largely confirm the findings of this article.

Furthermore, we conduct analyses on an additional sample of micro firms (1–4 employees), and large firms (100+ employees). The estimates for micro firms are largely consistent but empirically insignificant (see Appendix Table A2). The estimates for large firms are

also largely consistent and partially significant (see Appendix Table A3). These tests confirm the applicability of our findings to SMEs.

5 | CONCLUSION

Our study seeks to provide a better understanding of the influence of the RBE on the funding choices of SMEs in developing countries.

A key finding in this study is that access to (or the supply of) external finance increases in developing countries with enabling RBEs, however, access to finance does not translate to increased use by SMEs. This is because external forms of finance in developing countries remain relatively expensive even though available. Thus, SMEs will typically opt for retained earnings over any form of external finance. This fine thread shows that progress has been made in making finance accessible to SMEs in some developing countries, but there remains the hurdle of affordability. SMEs have unique challenges and characteristics so try to avoid costly debt that may be detrimental to their businesses.

We contribute to literature in these ways. First, we contribute to the theory of SME funding behaviour. While the use of retained earnings by SMEs may be demand driven and explained by pecking order and /or trade-off behaviour, these choices are certainly influenced by the economic environment of firms. An enabling RBE promotes prosperity for SMEs which presents an opportunity to employ larger amounts of retained earnings for their operations. Thus, this study provides an essential understanding on how pecking order/ trade-off vis-a-vis the external business environment shape the behaviour of SMEs.

Second, we provide new evidence of the influence of the RBE on SME funding choices, unlike most studies that focus on the influence of firm-related and entrepreneur-related factors. Third, by proxying the RBE with both objective and subjective regulatory measures, we contribute to a clearer understanding of how regulatory institutions contribute to the overall BE. Furthermore, we show that indeed subjective measures of the BE are complimentary to objective measures and that these do not just reflect firm experiences but are reliable measures of the BE (Hansen-Addy et al., 2023).

These findings richly contribute to scholarly understanding of the funding behaviour and financial decision-making process of SMEs in developing countries. These insights present an essential challenge to policy makers, governments, donor agencies, and financial institutions on tailoring interventions, and properly aligning measures and initiatives aimed at making varied affordable finance available for SMEs in developing countries. These interventions may include the provision of credit infrastructure (credit bureaus, collateral registries), credit guarantees, secured transaction reforms and matching grants as suggested by the World Bank (Bruhn, 2016; World Bank, 2019). These findings also provide support for measures and initiatives (such as regulatory reform, business registration reform, and business skills and practices training) aimed at bolstering institutional support for firms in developing countries (Ayyagari et al., 2017; Bruhn, 2016; World Bank, 2019). This, in turn, would significantly improve the overall quality of the BE in developing countries.

This study is limited to African countries; therefore, it would be exciting for similar studies to be conducted in other regions. The WBES sample employed in this study consists of registered SMEs in mainly the manufacturing sector, hence, it would be insightful to conduct a similar study on other sectors, micro firms, and on informal firms in Africa. This study focuses on funding sources for working capital, so, it would be exciting to consider in future studies, the impact of the RBE on trade credit, funding sources for investment in equipment, and emerging alternative funding sources (such as, bonds, equity, business angels, and crowdfunding) since these are not currently popular and well developed in the context of Africa.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in 'Firm-Level Datasets for researchers' at https://www.enterprisesurveys.org/en/enterprisesurveys.

ORCID

Andrew E. Hansen-Addy https://orcid.org/0000-0002-6440-6312

Mario Davide Parrilli https://orcid.org/0000-0002-1210-403X

Ishmael Tingbani https://orcid.org/0000-0002-4012-1224

ENDNOTES

[1] The datasets were appended to each other. Most countries had only one panel dataset covering their various waves. Only 4 countries (DRC, Malawi, Morocco, and Senegal) had two panel

datasets each covering their waves. Out of these 4 countries, 3 countries had year overlaps between their datasets which created the possibility of duplicate observations. These are: DRC (2006–2010; 2010–2013); Malawi (2005–2009; 2009–2014); Senegal (2003–2007; 2007–2014). For these 3 countries, we eliminated the duplicate observation in our sample if present, using the unique firm identifiers.

[2] The WBES classification is, Micro firms (1–4 employees), Small firms (5–19 employees), Medium firms (20–99 employees), and Large firms (100+ employees).

[3] By concentrating on the management of working capital, this study acknowledges the specific challenges faced by SMEs in Africa and aims to provide insights and strategies that directly address their immediate operational needs. Understanding how SMEs can effectively manage their working capital becomes essential for sustaining day-to-day operations, maintaining liquidity, and ultimately ensuring their financial viability.

[4] The WBES sample employed in this study is based on formal registered firms.

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APPENDIX A

TABLE A1 ATET results for nearest neighbour matching using subjective treatment.

	Sources of funding				
	Access to finance		Retained earnings	Bank institutions	Non- bank institutions
	Model 1	Model 2	Model 3	Model 4	Model 5
Business licensing & permits	0.913***	0.095**	0.064*	−0.035**	0.000
	(0.046)	(0.039)	(0.035)	(0.016)	(0.007)
Customs & trade regulations	0.621***	0.231***	0.091**	−0.017	−0.001
	(0.046)	(0.054)	(0.038)	(0.014)	(0.006)
Tax administration	0.720***	0.077**	0.043	−0.025**	−0.009
	(0.046)	(0.033)	(0.034)	(0.012)	(0.008)
Observations[a]	7024	3950	7041	7045	7043

Note: Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. ATET is average treatment effect on the treated.For brevity, matched (control and treated) observations are not shown.
[a]Raw observations for Bus. Lic. models only; other RBE variables present similar raw observations.

TABLE A2 Micro firms sample, ATET results of nearest neighbour matching (3) using the objective treatment.

	Sources of funding				
	Access to finance		Retained earnings	Bank institutions	Non- bank institutions
	Model 1	Model 2	Model 3	Model 4	Model 5
ATET	0.261	0.070	−0.017	−0.035	−0.069
	(0.164)	(0.106)	(0.129)	(0.044)	(0.045)
Observations:					
Total Raw	449	249	435	411	435
Total matched	434	264	434	382	432
Treated matched	217	132	217	191	216
Control matched	217	132	217	191	216

Note: Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. ATET is average treatment effect on the treated. The following covariates are included in all models: size of firm, age of firm, status of firm, human capital of O/M, gender of O/M, sector of firm, year of survey, GDPC of country, interest rates, comp. from informal firms, loan, profits, revenue per employee.

TABLE A3 Large firms sample, ATET results of nearest neighbour matching (3) using the objective treatment.

	Sources of funding				
	Access to finance		Retained earnings	Bank institutions	Non- bank institutions
	Model 1	Model 2	Model 3	Model 4	Model 5
ATET	0.306**	0.080	0.248*	−0.117	0.003
	(0.137)	(0.068)	(0.135)	(0.075)	(0.020)
Observations:					
Total Raw	1450	1229	1425	1216	1415
Total matched	2178	1894	2158	1736	2136
Treated matched	1089	947	1079	868	1068
Control matched	1089	947	1079	868	1068

Note: Standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. ATET is average treatment effect on the treated. The following covariates are included in all models: size of firm, age of firm, status of firm, human capital of O/M, gender of O/M, sector of firm, year of survey, GDPC of country, interest rates, comp. from informal firms, loan, profits, revenue per employee.