Business Strategy and the Environment   ERP ENVIRONMENT   WILEY

Business strategies and corruption in small- and medium-sized enterprises: The impact of business group affiliation, external auditing, and international standards certification

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Abstract

We examine the impact of three business strategies separately and in combination on the tendency for firms to engage in corruption. Using a sample of 56,827 firm-year observations for small- and medium-sized enterprises (SMEs) over the 2006–2018 period, we find that firms with business group affiliations are more likely to engage in corrupt practices in countries with low business freedom. However, those in countries with high business freedom are less likely to do so. We also find that firms that engage the services of external auditors and adopt international standards are less likely to be corrupt, especially in countries with weak financial reporting standards. Our results also show that corruption intensity reduces even more for firms that employ the three strategies, whether we consider institutional factors or not. This result holds when we use a three-way interaction term. We conclude that the three strategies are mutually reinforcing and that firm-level and country-level efforts complement each other in mitigating corruption.

KEYWORDS
business group affiliation, business strategy, corruption, external auditing, international standards certification

JEL CLASSIFICATION
D73, L14

1 | INTRODUCTION

The small- and medium-sized enterprises (SMEs) sector plays a crucial role in economic growth and can potentially contribute to the attainment of each of the 17 Sustainable Development Goals (SDGs).[1,2]

Despite this role, firms in the sector still face more business environment obstacles than large firms, one of which is bribery and corruption that remains "alive and well." The others are access to financing, tax and regulatory compliance, anticompetitive practices, and policy

[1]Relative to large firms, SMEs make up most of the world's business population, employ most of its workforce, and create most formal jobs in developing markets. Available online (https://www.ifac.org/knowledge-gateway/contributing-global-economy/discussion/helping-smes-handle-risks-bribery-and-corruption).

[2]A report by the United Nations Department of Economic and Social Affairs (UNDESA) maps out how, for example, the sector can contribute to creating employment (SDG 1), supporting and encouraging small-scale farming (SDG 2), bridging healthcare gap (SDG 3), and as providers of technical and vocational education (SDG 4). Available online (https://sustainabledevelopment.un.org/content/documents/26073MSMEs_and_SDGs.pdf).

instability and uncertainty.[3] SMEs, especially those in developing countries, continue to face the hard choice of making illegal payments to government officials to obtain public services, without which they can lose business opportunities, could be rendered uncompetitive, or could be driven out of business. A recent ACCA survey corroborates these concerns and indicates that most business leaders (64%) globally think that bribery and corruption is an obstacle for SMEs, with an even higher proportion for those in Sub-Sahara Africa (83%) and Central America (84%) (Piper, 2019). Nonetheless, however, most respondents (76%) also indicate that they are willing to seek advice from accountants about business policies and practices that could help mitigate bribery and corruption.

This paper aims to explore the influence of business strategies on bribery intensity (interchangeably, referred to as corruption). We define business strategies as actions that firms take to pursue long-term plans, comprising the strategic activities and ways to achieve business goals (Zahrah & Covin, 1993). Consistent with the broad business strategy typologies proposed in the literature (e.g., Miles & Snow, 1978, 2003; Porter, 1980), we focus on three interrelated business strategies, namely, business group affiliations (BGAs), external auditing, and international standards certification (ISC). Companies, particularly SMEs, seek to affiliate with business groups to overcome hurdles that prevent them from gaining access to resources, capabilities, and international markets (Tajeddin & Carney, 2019). These relationships offer affiliated firms a transactional and informational advantage that may then promote competitive capabilities (Mahmood et al., 2011). Also, for most SMEs, engaging the services of an external auditor is a deliberate and voluntary business decision influenced by the financial costs and accompanying added scrutiny. Thus, SMEs must weigh those costs against the benefits, such as reducing information asymmetry, enhancing credibility, and improving transparency, which might accrue in dealing with third parties. Finally, although a host of external factors determine the decision to adopt international standards, research also shows that internal considerations materially influence such decisions, thereby representing a voluntary management decision (Fikru, 2014). We investigate how these business decisions influence corruption among SMEs, separately and in combination.

We rely on data for a sample of 56,827 firm-year observations from the World Bank Enterprise Survey (WBES) over the period 2006–2018. We begin our analysis by first testing the influence of each of the three business strategies separately on the tendency for firms to engage in bribery. We then test their impact in combination by investigating whether bribery intensity varies among firms that adopt multiple strategies relative to those that do not deploy any of the three. Finally, we explore the role of the business environment by examining specific institutional factors that may be most relevant to each strategy. Our findings show that firms with business group affiliations are more likely to engage in corrupt practices than standalone firms. In contrast, firms that seek the services of external auditors or

adopt international standards are less likely to pay bribes than those that do not. We also find that bribery intensity reduces with the number of strategies. Compared with firms that deploy two or one, and more so none, those that deploy the three in combination are less likely to engage in bribery. Most importantly, our findings show that the business environment in a country matters. For example, we find that business group affiliation increases the probability of paying a bribe in countries with weak business freedom but reduces it in countries with greater business freedom. External auditing reduces corruption for firms in countries with weak financial reporting standards, but it has an insignificant effect for firms in countries with high reporting standards, and international standards certification mitigates bribery for firms in countries with weak business freedom and financial reporting standards.

Our paper contributes to the literature in several ways. First, we shed light on the role of business group affiliation as a strategy that could affect the tendency for firms to engage in corruption. Although some studies have shown that BGAs can be beneficial to firms (e.g., Belenzon & Berkovitz, 2010; Castellacci, 2015; Chang & Hong, 2000), others suggest that they can be detrimental (Almeida & Wolfenzon, 2006; Fogel, 2006). The link between BGAs and corruption inferred in this literature is also unclear. One group of studies suggests that they foster political connections and hence preferential treatment (Carney et al., 2018; dela Rama, 2011), but another group argues that they mitigate institutional environment shortcomings (Khanna & Rivkin, 2001; Khanna & Yafeh, 2007). Unlike these studies, we examine the impact of BGAs on corruption more directly among small- and medium-sized enterprises. To the best of our knowledge, we are the first to investigate this relationship. Second, we contribute to a growing strand of literature on the relationship between external auditing and corruption (e.g., Farooq & Shehata, 2018; Sharma & Mitra, 2015; Xu et al., 2019; Yi et al., 2018). These studies report mixed findings and do not consider the quality of financial accounting and auditing standards in a country as documented in the literature (see, e.g., Changwony & Paterson, 2019; Houqe & Monem, 2016). The heterogeneity in financial reporting, monitoring incentives, accounting standards implementation, and enforcement mechanisms can also influence the accounting environment in a country (e.g., Brusca & Condor, 2002; Bushman & Piotroski, 2006). All these, we argue, determine the effectiveness of external audits allowing us to disentangle its effect.

Third, we extend existing evidence on the relationship between international standards and corruption (e.g., Huang & Yuan, 2021; Montiel et al., 2012; Paunov, 2016; Xie et al., 2019). These studies argue that corruption influences firms' decisions to adopt ISCs and their innovativeness, although the impacts vary depending on the corruption measure used. Unlike previous studies, we examine the influence of two additional institutional factors: the quality of financial accounting and auditing standards and property rights. Evidence shows that some ISC-adopting firms publish their sustainability reports and subject them to quality assurance, suggesting that ISCs matter most in countries with weak financial reporting standards (Castka et al., 2015; Kolk & Perego, 2010; Prajogo et al., 2020). Some

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[3]The direct worldwide cost of corruption is estimated to be $3.6 trillion paid as bribes, but the indirect cost is even more colossal in terms of substandard products, services, and infrastructure (Piper, 2019).

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studies have also shown that adopting firms are more innovative and generate more patents (Belenzon & Berkovitz, 2010; Castellacci, 2015), indicating that the strength of property rights in a country matters. Finally, unlike previous studies, we consider the combined impact of the above three strategies on corruption. The literature has documented linkages between BGA and external audit (Beuselinck & Deloof, 2014; Bonacchi et al., 2018; Kim & Yi, 2006; Kim & Yi, 2009; Sun et al., 2020), BGA and ISC (Arora & De, 2020; Cuervo-Cazurra, 2018; Goedhuys & Sleuwaegen, 2016; Ullah et al., 2014; Zhang et al., 2019), and external audit and ISC, suggesting plausible incremental effects of the three strategies. For example, evidence shows that compared with unaffiliated firms, BGA firms that share the same network auditor are likely to be penalized for manipulating financial information (Sun et al., 2020). We posit that, because corruption is a complex phenomenon and perpetrators look for any loophole and rent-seeking opportunities, firms that deploy multiple anti-corruption business strategies are more likely to pay low bribes, if any.

The remainder of the paper proceeds as follows: We discuss relevant theoretical and empirical literature and develop our hypotheses in Section 2. In Section 3, we set out our research design by describing our sample, variables, and econometric approach. We present our results in Section 4 and carryout additional analysis and robustness checks in Section 5. Section 6 provides a discussion and concludes the paper.

2 | LITERATURE REVIEW, THEORY, AND HYPOTHESES DEVELOPMENT

2.1 | Business strategies to combat corruption

Business strategy refers to a firm's long-term plan for aligning its operations to its market. It comprises the different strategic activities and ways to achieve business goals (Zahrah & Covin, 1993). For example, this may relate to how to gain a competitive edge in its respective business environment (Bentley et al., 2013) and how to cope with corruption (Galang, 2012). Although various studies have proposed different typologies of business strategy (e.g., Miles & Snow, 1978, 2003; Porter, 1980), they all have similar characteristics and distinguish firms depending on where they fall in the respective strategy continuum. For instance, Miles and Snow (2003) propose four typologies exhibited by companies that range from prospectors to defenders. While prospectors are more innovative and seek to develop and exploit new products and market opportunities, defenders do not engage in extensive innovation and focus on producing closely related products and services and how to achieve greater efficiency. Porter's (1980) typology comprises three business strategies: cost leadership strategy—seeking to attain low cost relative to competitors; differentiation strategy—developing unique and recognizable products and services; and focus strategy—concentrating on specific customers, markets, or products and services.

Previous studies have linked the above and other business strategy dimensions to three complementing strategies that we explore in the current paper. First, the literature has shown that market failures and institutional voids motivate firms to pursue expansion and market entry strategies by forming or joining business groups to increase their competitive advantage, diversify their product offerings, and increase cost leadership (e.g., Carney, 2007; Choi et al., 2014; Karabag & Berggren, 2014; Khanna & Yafeh, 2007). Second, several studies have demonstrated that firms that focus on a prospector strategy produce less readable financial information (Lim et al., 2018), experience more irregularities and audit effort (Bentley et al., 2013), and are more likely to receive going-concern and material weakness opinions (Chen et al., 2016). Third, it is also evident that firms that pursue a quality-focused strategy are more likely to seek a standards certification (Carr et al., 1997) and those that focus on both defender and prospector strategies are less likely to over-invest (Lin et al., 2021). A common theme in these studies is that business strategy influences corporate information disclosure and transparency. We argue that how firms respond to corruption will depend on the strategic tools used to disclose more information or conceal it, enhance their credibility and reputation, and legitimize their activities.

2.1.1 | Business group affiliations and corruption

Business group affiliations (BGAs) are a collection of legally separate firms that traditionally take coordinated actions and are linked together by a web of overlapping ties, which may be formal, informal, economic, or social (Cuervo-Cazurra, 2006; Khanna & Rivkin, 2006). Affiliate firms can exploit such ties to enhance their efficiency, increase market power, and reduce information asymmetry; however, they could also provide the mechanisms for concealing information, expropriating minority shareholders, and rent seeking from politicians and governments (Khanna, 2000). Thus, some studies have argued that compared with unaffiliated firms, affiliated firms can easily access financial, human capital, and technological resources (see, e.g., Chang & Hong, 2000; Castellacci, 2015); deepen their international competitiveness (Belenzon & Berkovitz, 2010; Elango & Pattnaik, 2007; Fikru, 2014; Lamin, 2013; Mahmood et al., 2011); and also be more sustainable and resilient to shocks (Almeida et al., 2015; Bamiatzi et al., 2014; Siegel & Choudhury, 2012). Studies that provide contradictory evidence, however, suggest that BGAs exhibit less corporate transparency (Chang et al., 2007; Pattnaik et al., 2013) and can generate negative economic and social consequences (Fogel, 2006), with some even calling for their dismantlement (Almeida & Wolfenzon, 2006). Unsurprisingly, numerous studies have used theories spanning from agency costs, resource-based view to neo-institutional theory, or their integrations to explain why BGA is a popular but also contested business strategy, especially in emerging economies.

The role of BGAs in facilitating corruption is unclear in the literature. Consistent with the entrenchment/exploitation theory, one view is that BGAs establish strong political connections to political

elites to facilitate preferential treatment and unfettered access to resources that help expand their activities (Carney et al., 2018; Ghemawat & Khanna, 1998). BGAs seek to have monopoly control over resources, limit internal and external competition, and expropriate wealth from minority shareholders for self-interest by corruptly exploiting their political connections. For example, Faccio (2006) shows that the market values of politically connected firms increase when an officer or large shareholder joins politics, a result confirmed by the findings of Cheng (2018) that politically connected firms' market values plummet when the connected official or politician dies. The latter finding is also consistent with those of Fisman (2001). An alternative view, motivated by the institutional void theory, holds that BGAs are efficient organizations and that their growth is a result of external market inefficiencies and other institutional shortcomings (Carney et al., 2018). The argument here is that BGAs utilize internal capital and labour markets efficiently to expand affiliated firms' businesses and that they focus on building brands as a sign of quality and reliability. While the theory holds in countries with moderate levels of institutional development, it fails in those with low levels of development. For example, Almeida et al. (2015) report that Korean BGAs efficiently reallocate capital between low-growth and high-growth affiliate firms relative to unaffiliated firms. In contrast, Su and Tan (2018) find that highly diversified Taiwanese BGAs are more likely to establish offshore companies in tax havens to circumvent institutional voids. They argue that such surrogate companies can facilitate bribe payment, tax evasion, and other unlawful activities.

Although the above studies do not explicitly examine the influence of BGAs on bribery and rely heavily on individual country settings, they suggest both a positive and negative plausible impact on bribery intensity. Thus, since we cannot assign a directional association from the literature, we express our first hypothesis in the non-directional form:

> **Hypothesis 1.** Business group affiliations influence bribery intensity.

However, as we elaborate in Section 2.2, the institutional and business environment could potentially clarify the direction of the impact of BGAs on bribery. Over the past two decades, several developing countries have undertaken regulatory reforms that aim to streamline procedures and costs of starting a business, acquiring permits, and those for import and export. These reforms have implications for firms and can reveal the motivations of BGAs and rent-seeking behaviour. For instance, Chari and Dixit (2015) examine the impact of market development triggered by regulatory reforms in India and find that compared with affiliated firms, unaffiliated firms were more likely to establish a business start-up, especially in sectors dominated by foreign firms. Tajeddin and Carney (2019) find that Sub-Sahara Africa BGAs member firms experience higher export intensity when compared with unaffiliated firms after controlling for "trade across borders," a measure that captures regulatory reform.

2.1.2 | External auditing and corruption

To be audited or not to be audited is a critical business strategy decision for SMEs owing to the implied benefits and costs. Agency and information theory posit that the production of high-quality audited financial information can address different forms of agency conflicts and information asymmetry between private firms and lenders, investors, and other stakeholders (Chow, 1982; Jensen & Meckling, 1976). Prior studies have shown that external auditing can improve accounting regulation and tax compliance (Downing & Langli, 2019), enhance accounting information quality (Clatworthy & Peel, 2013), increase access to external financing (Palazuelos et al., 2018), and boost credit ratings (Dedman & Kausar, 2012; Lennox & Pittman, 2011). All these benefits arguably outweigh the associated costs, such as high audit fees and loss of confidentiality, leading to many SMEs voluntarily opting to engage in auditing when it is in their interest and even when they are not required to do so.

While the decision to engage an auditor or not is up to individual firms in countries with no financial reporting and auditing regulations for private firms (e.g., the United States and Canada), it is mandatory by law in most other countries for firms that exceed specific operational thresholds and voluntary otherwise (e.g., Europe, United Kingdom, and Korea) (Minnis & Shroff, 2017). Nevertheless, as observed by Vanstraelen and Schelleman (2017) and Minnis and Shroff (2017), financial reporting and auditing practices vary substantially across countries and categories of firms (unaudited, voluntary audit, and mandatory audit), and several countries have progressively reviewed their auditing thresholds. Two broad groups of studies have explored these variations in auditing choices and thresholds changes and their implications for financial reporting quality and firm outcomes. One group that focuses on audited and unaudited firms in countries with no regulations has argued that auditing positively influences lending decisions by enhancing financial information credibility and cash flow predictability (e.g., Allee & Yohn, 2009; Lisowsky & Minnis, 2020; Minnis, 2011). For example, Allee and Yohn (2009) find that the probability of accessing credit is higher for firms that subject their financial statements to audit than those that do not. Minnis (2011) indicates that auditing is not necessarily a costly affair, as it permits a thorough verification of specific credit-related financial information and the predictability of cash flows that feed into debt-pricing decisions. A more recent study by Lisowsky and Minnis (2020) reports that firm size, ownership, and trade credit influence the combined decision to produce GAAP compliant financial statements and seek an audit.

Another group of studies exploits the natural experiment generated by changes in mandatory thresholds to investigate the decision to abandon or voluntarily retain audits among firms not required to produce audited financial statements after the change, compared with those still compelled to do so (Dedman & Kausar, 2012; Kim et al., 2011; Lennox & Pittman, 2011). For instance, arguing that threshold change relays previously unobserved information and can signal credibility, Lennox and Pittman (2011) find that credit ratings increase substantially for firms that voluntarily retain audits relative to opt-out

firms. Dedman and Kausar (2012) link this additional information value more directly to financial reporting incentives finding that earnings reporting quality weakens among firms that discontinue auditing compared with those that voluntarily retain audits. Additionally, Downing and Langli (2019) report that opt-out firms are less likely to comply with tax requirements and accounting regulations, especially those that also disengage the services of external accountants. This finding indicates that financial reporting quality deteriorates for these firms.

Thus, since financial reporting and other business-related motivations and incentives could influence the decision to engage (not engage) in external auditing, we argue that auditing can decrease (increase) government officials' rent-seeking opportunities and bribery intensity. Firms that engage in auditing likely produce high-quality financial information that strictly conforms with local financial reporting laws and accrual-based reporting, thereby inhibiting rent seeking. In contrast, those that opt-out of auditing (or non-audited) likely desire to manipulate not only their earnings through income shifting but also hide unlawful transactions/entries in their financial records, exposing them to government officials' rent-seeking fishing expeditions. For instance, Höglund and Sundvik (2019) report that unaudited firms are more likely to engage in income shifting to lower taxable income than audited firms and that auditors mitigate illegal activities associated with cost-sticky transactions like selling, general, and administrative cost. Cai et al. (2011) use a similar cost-sticky item, entertainment, and travel costs, disclosed in financial statements finding that they are a means by which firms hide corrupt payments to government officials and other illegitimate managerial expenses. Ruan and Zhang (2021) find a positive association between audit fees and alleged bribery measured by an abnormal and unexplained level of entertainment and travel cost reported by firms in China. Zeng et al. (2016) find that investor valuation decisions incorporate bribery allegations and suggest that auditors could pay attention to such expenditure items.

Empirical evidence on the impact of external auditing on corruption is mixed (Farooq & Shehata, 2018; Sharma & Mitra, 2015; Xu et al., 2019; Yi et al., 2018). Yi et al. (2018) find that external audit reduces the intensity and probability of bribery and that this effect increases with the degree of foreign ownership in countries that have weak formal institutions. Farooq and Shehata (2018) also report similar results, but, in their case, a different set of firm-specific and country-level business environment factors exacerbate the negative effect of external auditing. In contrast, Sharma and Mitra (2015) find that external audit does not affect the probability of bribe payment. Although these studies place a lot of emphasis on the impact of auditing conditional on different aspects of the business environment, they do not consider the role of the accounting environment that could influence audit quality. As we discuss later, the strength of financial reporting practice in a country matter, given the observation that some firms that opt-out of auditing consult accounting professionals to improve accounting quality and hence build trust (Palazuelos et al., 2018). Furthermore, towards the end of and after 2014, several countries have periodically continued to revise the maximum auditing

exemption thresholds providing the opportunity to re-examine the current evidence. Thus, our second hypothesis is

> **Hypothesis 2.** Engagement of an external auditor reduces bribery intensity.

Alternatively, because bribery is widespread and intensive in highly corrupt countries, one might also argue that the hypothesized relationship runs from corruption to external audits instead. For example, Hope et al. (2021) find that private firms that receive government contracts or make informal payments to secure them are more likely to seek external audits. The introduction of anti-bribery laws, specifically the accounting and auditing provisions to combat bribery in a growing number of jurisdictions (Bahoo et al., 2020), is also another plausible indicator of a reverse relationship. Arguably, anti-bribery laws and the intensity of bribery determine the probability that a firm voluntarily opts to audit its financial statements. However, one might also argue that it is the actual implementation of those provisions that will reduce subsequent bribe payment. Despite data limitations and the lack of suitable instruments, we address this concern using instrumental variables regressions. Nevertheless, we also recognize that it is a shortcoming of our study.

2.1.3 | International standards certification and corruption

Prior international standards certification (ISC) research has extensively examined the determinants of adoption and their subsequent impact on organizational outcomes but with little attention on their anti-corruption role. These studies focus on certifications such as those that demonstrate conformance with the standards issued by the International Organization for Standardization (ISO), like quality management standards (ISO 9000 family), environmental management standards (ISO 14000 family), and health and safety standards (ISO 45000 family).

Studies that examine ISC adoption have used multiple theoretical perspectives and have documented the impact of firm-specific and institutional environment factors. From an institutional theory perspective (DiMaggio & Powell, 1983), firms seek legitimacy by subscribing to ISCs because they are well-established business conventions and could be under pressure to do so. Thus, the likelihood of seeking ISC could be in response to external (e.g., export and foreign ownership) and internal pressure (e.g., governmental regulations and workers' unions) (Fikru, 2014; Neumayer & Perkins, 2005). Analyses based upon the resource-based view theory (Hart, 1995) posit that, because standards certification process and the related costs are prohibitive, firm-specific capabilities such as plant size, digital resources, and financial and human resources increase the likelihood of adopting ISCs (Fikru, 2014; Liu et al., 2020; Perez-Batres et al., 2012). Those that rely on the stakeholder theory (Donaldson & Preston, 1995) suggest that, apart from serving the interests of shareholders, firms seek certification to demonstrate their distinct social

responsibilities and participation in activities that benefit other stake-holders (Fikru, 2016; Neumayer & Perkins, 2005; Perez-Batres et al., 2012). Finally, several studies have also attributed ISC adoption to information asymmetry between firms and their stakeholders and the desire to address institutional voids and signal good conduct (Montiel et al., 2012; Paunov, 2016). For example, Montiel et al. (2012) argue that the signalling value of ISCs can help mitigate information asymmetries in supply chains but that this impact is conditional on the institutional environment. They report that firms in countries with policy-specific corruption (percentage of bribe paid) compared with general corruption (perception of bribe payment by other firms) tend to seek certification.

The second stream of research has questioned whether ISCs are beneficial to adopting firms compared with non-adopters and whether a binary measure could capture the authentic implementation of the recommended practices. These studies also use multiple theoretical lenses and have shown that adopting firms exhibit better financial performance (e.g., Arocena et al., 2021; de Jong et al., 2014; Feng & Wang, 2016; Hernandez-Vivanco et al., 2019), operational efficiency (e.g., Goedhuys & Sleuwaegen, 2013; Treacy et al., 2019), and labour productivity (e.g., Delmas & Pekovic, 2013, 2018; Ozusaglam et al., 2018). For instance, Feng and Wang (2016) use the RBV theory and institutional theory to argue that improved financial performance results from knowledge-based skills and enhanced corporate image, respectively, accumulated from implementing ISO standards. Using the practice-based view (Bromiley & Rau, 2014), Treacy et al. (2019) suggest that firms that internalize imitable organizational practices have a better motivated and productive workforce, exhibit superior cost control and internal coordination, and avoid penalties from infringement of the law. However, other studies have found a negative or no impact of ISCs on different firm outcomes (Christmann & Taylor, 2006; Lo & Yeung, 2018) and variations in implementation intentions by disaggregating the binary measure of adoption (Ferrón-Vílchez, 2016). For example, Lo and Yeung (2018) find that the institutionalization of ISCs hurts operational efficiency but enhances the organizational and senior management's reputation. Ferrón-Vílchez (2016) distinguishes four certification adoption and monitoring profile firm types (passive, symbolic, invisible, and factual), finding that adopting firms that also monitor their environmental performance (factual profile) exhibit better performance than the rest.

In our study, we use the resource-based theory, practice-based view, and institutional theory as the foundations for our third hypothesis which relates to the influence of ISCs on bribery intensity. The overarching idea is that, since corruption could occur at different levels of an organization spanning the supply chain to financial reporting and records management (Carter et al., 2017; Khan et al., 2021), ISCs adoption and subsequent audits and certifications can lead to the introduction of management practices that could deter unethical behaviour. From the RBV, as firms endowed with more resources and capabilities can adopt ISO-required practices comprehensively (Darnall et al., 2008; Feng & Wang, 2016), it is arguable that adopting firms can frustrate government officials' rent-seeking behaviour. For example, training programmes offered to employees following

adoption can improve their awareness and skills, motivate them, and enhance loyalty to the firm (Delmas & Pekovic, 2018; Feng & Wang, 2016). Thus, they are likely to develop a feeling of a common goal, identify more with the organization, and exhibit citizenship behaviour and civic virtues (Delmas & Pekovic, 2018), which, we argue, increase the likelihood of resisting unethical practices and bribery. Firms with more resources and capabilities are also likely to develop quality and health and safety management systems, another core and central aspect of certification (Bowler et al., 2017; Darnall et al., 2008). These systems can enhance key processes and procedures, which improve labour productivity, operational efficiency, and organization-wide efficiency. Thus, we argue that adopting firms can minimize regulatory breaches and disrupt rent seeking, as they can demonstrate adherence to certification and audit requirements and fulfil statutory obligations.

Extending the RBV, the PBV suggests that ISC-adopting firms can not only exploit unique internal resources and capabilities, but they could also draw from imitable and transferable complementary practices across firms and industries (Bromiley & Rau, 2014; Carter et al., 2017). The argument is that ISC-driven performance outcomes depend on how firms use specific practices, the details of usage, and the interactions between a wide range of management practices (Bromiley & Rau, 2014; Treacy et al., 2019). Hence, the practices introduced by ISCs implementation could subsequently lead to, for example, improved record-keeping and reporting procedures, auditing and monitoring systems, and internal coordination and communication systems (see, e.g., Luo, 2005). These complementary management practices should reduce bribe payments by eliminating loopholes and rent-seeking opportunities. Finally, we also draw from institutional theory to argue that ISC implementation intentions could vary across adopting firms and influence the likelihood of engaging in corrupt activities. In response to external pressure to fight corruption, firms might seek to integrate stakeholder demands into their organizational structures and management practices to legitimize their activities (protect their image and reputation) and avoid exposure to regulatory scrutiny and bribery (Cuervo-Cazurra, 2016; Hauser & Hogenacker, 2014; Luo, 2005). Hence, we argue that ISC-adopting firms can attain substantial integration of such stakeholder demands into or as part of the ISC recommended management systems and, as a result, are more likely to resist bribery than non-adopters. Therefore, our third hypothesis is

> **Hypothesis 3.** Having an international standards certification reduces bribery intensity.

Despite the arguments above, this hypothesis gives rise to three further issues. First, the literature has pointed out the likely varying impacts of substantive versus symbolic adoption of ISCs (Christmann & Taylor, 2006; Iatridis & Kesidou, 2018) and other firm implementation profiles (Ferrón-Vílchez, 2016). As discussed later, we explore possible substantive adoption proxied by business group affiliations based upon the RBV assumption that affiliated firms could gain access to rare resources required for successful implementation.

Second, one might also argue that the initial adoption of ISCs cannot deter bribery if a firm is not committed to the process through regular audits and annual renewal of certification. We also argue in the following section that external audit certification of financial statements is a likely strategy adopting firms deploy to demonstrate their commitment and, finally, the possible reverse or bidirectional causality relationship between ISC and corruption. As argued before, corruption can also determine the adoption of ISCs (Montiel et al., 2012; Paunov, 2016), raising endogeneity concerns. We attempt to address this concern using instrumental variables regressions, but we also identify it as a limitation of our study due to the acknowledged lack of valid instruments.

2.2 | The moderating effect of business environment and institutions

It is well documented that weak national institutions provide discretionary opportunities for the abuse of power for private gain and illegal payments from individuals and firms to access public services (Murphy et al., 1993). Numerous studies have shown that the impact of business strategy choices on different outcomes, such as increasing financial transparency and fighting corruption, depends on the effectiveness of the external governance environment and institutions in a country (Lee & Weng, 2013; Yi et al., 2018; Zhou & Peng, 2012). It is for these reasons that most studies incorporate institutional perspectives to account for different cross-country governance dimensions. In our study, we consider three dimensions: namely, government regulation of business, financial reporting quality, and property rights. Although we map the three anti-corruption strategies against the corresponding institutional development factors, we include them in all our models.

2.2.1 | Government regulation of business, business group affiliations, and corruption

Many emerging and developing countries have, over the past three decades, undertaken regulatory reforms to improve the business environment—for example, registration of a new business, business permits, licenses, and inspection. Some jurisdictions have introduced one-stop shops that provide multiple public services under one roof (World Bank, 2009). The idea is to improve public service delivery but also reduce or eliminate illegal payment to access those services. However, despite these reforms, most firms in emerging and developing countries still encounter uncompetitive business environments, as demonstrated by the differential impacts of different business strategies in countries with weak institutions and those with strong ones (Yi et al., 2018; Zhou & Peng, 2012). Fogel (2006) reports a significant correlation between family-controlled firms and various measures of business freedom (e.g., extent of regulation, number of days required to register a business, and freedom to compete). Majumdar and Sen (2007) show that BGAs lobby for restricted public goods in

jurisdictions where industrial and financial activities are controlled. Therefore, we speculate that the impact of BGAs in reducing (increasing) corruption could be lower in countries with bureaucratic business registration and licensing processes. Our fourth hypothesis is

> **Hypothesis 4.** The degree of business freedom moderates the impact of business group affiliations on bribery intensity.

2.2.2 | Financial reporting quality, auditing, and corruption

The relationship between financial reporting quality and corruption has recently attracted both theoretical and empirical research attention, albeit with mixed findings. Focusing on macro-level corruption determinants, some of these studies conclude that countries that have high-quality financial reporting practice have adopted International Financial Reporting Standards (IFRS), and having a long IFRS experience exhibits less corruption (see, e.g., Changwony & Paterson, 2019; Houqe & Monem, 2016). The underlying idea is that the adoption of international standards can alleviate principal-agent conflicts by permitting disclosure of high-quality financial information and enabling monitoring of agents' actions, hence help to counteract corruption. However, differences in both reporting and monitoring incentives and accounting standards implementation and enforcement mechanisms can also influence the accounting environment in a country (e.g., Brusca & Condor, 2002; Bushman & Piotroski, 2006). Indeed, some studies have suggested that accounting standards can also facilitate corruption, arguing that they could predispose accountants and auditors to corruption networks and enable the manipulation of accounting systems and information (see, e.g., Hoskin, 2015; Neu et al., 2013; Roberts, 2015). Xu et al. (2020) report that managers of firms located in regions with high corruption tend to manipulate their annual accounts to curtail rent-seeking behaviour, but it is also likely that external auditing plays a crucial role in countries with weak financial reporting practices, as that process can enhance the credibility of financial statements. Thus, our fifth hypothesis is

> **Hypothesis 5.** The quality of financial reporting in a country moderates the impact of external auditing on bribery intensity.

2.2.3 | Property rights, international standards certification, and corruption

The degree of institutional development is also likely to moderate the relationship between ISCs and corruption, particularly property rights, antitrust regulations, and related institutions. The findings in Goedhuys and Sleuwaegen (2013) provide useful insights into those relationships. They examine how institutional quality influences the impact of ISCs on performance outcomes and find that it increases in

countries with low-quality institutions. Berliner and Prakash (2013) also argue that firms in jurisdictions with weak regulatory governance are more likely to adopt ISCs as a signal of environmental stewardship to international stakeholders. However, Héritier and Eckert (2008) argue that businesses do better to adopt sustainable practices when governments take concrete and credible measures to introduce or tighten regulation. These arguments suggest to us that the impact of ISCs adoption on bribery intensity is likely to be higher in countries that have strong property rights protection.

> **Hypothesis 6.** The degree of property rights protection in a country moderates the impact of international standards certification on bribery intensity.

2.3 | The case for multiple business strategies

In this paper, we also argue that, because corruption is a complex phenomenon and perpetrators look for any loophole and opportunities to extort bribes, firms that deploy multiple anti-corruption business strategies are more likely to pay less bribe, if any. Doh et al. (2003) posit that multiple business strategies can provide a holistic anti-corruption approach, "given the interactive and mutually reinforcing nature of firm- and government-sponsored strategies" (p. 125). There are several reasons inferred from three strands of literature that point to plausible mutually strengthening interactions between business group affiliations, external auditing, and international standards.

The first strand of literature examines earnings management and fraudulent financial reporting by BGA firms compared with non-BGA firms and relates it to external audits and corruption (e.g., Beuselinck & Deloof, 2014; Bonacchi et al., 2018; Kim & Yi, 2009; Sun et al., 2020). For example, Kim and Yi (2006) report that BGA firms are more likely to engage in financial reporting misconduct and earnings management as they have more opportunities and incentives than non-BGAs firms. Kim and Yi (2009) examine a policy of designating auditors for "problematic" BGA firms in Korea and find that it reduced earnings management among these firms relative to those not subject to the rule. Beuselinck and Deloof (2014) find that the likelihood of managing earnings is greater among BGA firms and those that are likely to face a positive marginal tax rate (i.e., tax incentives). In contrast, Bonacchi et al. (2018) report that accrual earnings management is less prevalent among BGA firms audited by a Big-4 auditor, suggesting that audit quality matters. Moreover, Sun et al. (2020) find that audit quality improves for firms that engage a specialist auditor and operate in a homogenous industry. However, they also report that audit quality diminishes for BGA firms that use a shared network auditor, attributing this to the desire to maintain the group clients' base.[4] This finding contradicts the competing idea that shared network auditors can foster high-quality auditing resulting from

knowledge spillovers and information advantage. Hence, as inferred from the RBV theory, because BGA firms can access group resources and capabilities that enable them to hire high-quality external auditors, they are less likely to engage in unethical financial reporting practices, which reduces bribery intensity.

Several studies have also explored the relationship between political connections and both financial reporting (Gross et al., 2016; Habib et al., 2017; Stuart & Wang, 2016; Wu et al., 2016) and auditing (Cheng et al., 2015; Guedhami et al., 2014; Tee et al., 2017). For example, Stuart and Wang (2016) find that Chinese politically connected firms were more likely to manipulate their financial reports, and the effect reduces for those with organizational equity holders. Guedhami et al. (2014) show that the likelihood of a politically connected firm appointing a Big-4 auditor increases for BGA firms and that they engage less in earnings management. Thus, there is reason to believe that BGA firms that also have financial statements certified by external auditors are less likely to engage in bribery. The premise is that BGA firms that do not have or benefit from political connections demonstrate their credibility and transparency by adopting high-quality accounting standards and subjecting themselves to auditing voluntarily hence reducing exposure to bribery. In contrast, those that exploit their political connections to obtain preferential treatment are less likely to appoint external auditors, increasing bribery intensity.

The second strand of literature considers the relationship between business group affiliations and international standards and, in general, innovativeness (e.g., Belenzon & Berkovitz, 2010; Castellacci, 2015; Mahmood & Mitchell, 2004). Consistent with the RBV theory, a common theme in these studies is that BGAs leverage their networks, political connections, and financial resources to enhance their innovativeness and hence the acquisition of ISC. For instance, Belenzon and Berkovitz (2010) find that BGA firms are more innovative and generate a higher fraction of patents than non-BGA firms, especially those in industries that source financing externally or have more diversified sources of capital. Mahmood and Mitchell (2004) argue that BGAs provide the required infrastructure to foster innovation when institutions are weak but can also create entry barriers by exploiting their financial power and political and bureaucratic connections. This argument is consistent with the observation that BGA political connections can facilitate member firms' business interests and rent-seeking activities to protect their brands and innovations (Castellacci, 2015). Huang and Yuan (2021) and Ellis et al. (2020) show that a firm's innovativeness depends on political corruption at the local level—the higher the level of corruption, the lower the rate of innovation. Thus, we posit that BGAs with more international networks and financial resources are likely to seek ISCs to minimize their exposure to national standards and corrupt officials. In this case, we would expect BGA firms that also have ISCs to exhibit a low probability of engaging in bribery relative to those without ISCs or non-BGA firms.

The last strand of literature that motivates our multi-pronged business strategy argument to confront corruption links international standards to external auditing and financial reporting practice (e.g., Barkemeyer et al., 2015; Castka et al., 2015; Kolk &

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[4]Compared with firms that use unaffiliated auditors, those that use shared network auditors receive more sanctions for fraudulent reporting from regulators, exhibit high abnormal accruals, experience higher earnings restatement, and a lower likelihood of receiving a modified opinion (Sun et al., 2020).

Perego, 2010; Prajogo et al., 2020; Rondinelli & Vastag, 2000). While the benefits that accrue from ISCs encompass many aspects of operations performance, discussed before, critics have argued that they do not guarantee legal compliance and assure performance improvements and that they lack transparency (Rondinelli & Vastag, 2000). Consequently, many ISC-adopting firms seek legitimacy by publishing and voluntarily subjecting their environmental, social, and sustainability reports to a quality assurance process involving internal auditors, non-financial consultants (so-called third-party certifiers), or professional accounting firms—external auditors (Castka et al., 2015; Kolk & Perego, 2010; Prajogo et al., 2020). Diouf and Boiral (2017) find that firms use sustainability reports to accentuate the appealing aspects of their sustainability performance and conceal unfavourable outcomes. As a result, firms in countries with stakeholder orientation and weak institutions tend to seek sustainability assurance services to enhance their credibility (Kolk & Perego, 2010). Barkemeyer et al. (2015) examine the level of anti-corruption disclosures in sustainability reports and find that the probability of disclosing anti-corruption activities diminishes when corruption exposure is intense. Maso et al. (2020) show that firms that use the same auditor for sustainability assurance and financial audit are less likely to manage earnings than those that use different providers. In sum, these studies suggest a possible link between ISC adoption, external auditing, and corruption. We argue that bribery intensity is low for firms that seek ISCs and engage external auditors.

Taken together, we propose that, because the three business strategies are interconnected and interrelated as described above, an analysis that considers their combined influence in one model can provide insight into their impact on bribery activities. If indeed firms legitimately join BGAs to access financial resources and business networks, engage external auditors to demonstrate financial reporting transparency and accountability, and seek international standards certification to provide quality assurance, then we should expect minimal bribery exposure. In our baseline analysis, we explore the separate roles of the three variables but also include them in one model. We then extend our analysis to include the number of strategies deployed by a firm to test whether there is a linear relationship.

> **Hypothesis 7.** Firms that employ multiple business strategies experience a reduction in bribery intensity.

3 | RESEARCH DESIGN

3.1 | Data

We draw our firm-level data from the World Bank Enterprise Survey (WBES) over the period 2006–2018. The WBES is conducted for over 160,000 SMEs from about 140 countries worldwide and is based on the responses of business executives of these firms regarding a wide range of issues including corruption, access to finance, and performance. It uses a standardized instrument and uniform methodology, making its results comparable across countries (World Bank, 2019).

The broad coverage of the survey also ensures a rich variation among firms in terms of key characteristics such as size. Although the WBES is extensive, with the latest round of surveys covering more than 171,000 firms in about 148 countries, one shortcoming is that the data capture the owners' subjective assessments about their businesses and not objective information derived from the financial statements or annual report. However, its appropriateness for studies on firm-level corruption have been confirmed in a number of previous studies (e.g., Birhanu et al., 2016; Uhlenbruck et al., 2006; Yi et al., 2018; Zhou & Peng, 2012). We combine the WBES data with country-level data from four different sources: the World Development Indicators, also from the World Bank; the Financial Development Index from the International Monetary Fund (IMF); the Business Freedom Index from Heritage Foundation; and the Strength of Auditing and Financial Reporting Standards from the World Economic Forum. This merging yields a total of 119 countries and 18 sectors common across all five datasets. Table 1 presents the distribution of our sample by country and sector. In line with previous studies, we limit our analysis to firms with observations on our key variables of interest, yielding a total of 56,827 observations.

3.2 | Variables

Our dependent variable, *Corruption*, captures the extent to which firms engage in bribery, which we measure as the percentage of sales paid in informal payments. This variable is based on an indirect structured question of survey participants by data collectors on the average proportion of sales firms pay as informal payments to access services such as licensing and credit from government institutions. One may argue that using this variable as a proxy for firm-level corruption is imperfect due to, for example, the potential for measurement error. However, it is also true that it is impractical to obtain a completely objective measure of firm-level corruption as corrupt acts hardly leave a paper trail (Birhanu et al., 2016). Nonetheless, the World Bank has adopted several strategies to reduce the risk for measurement error, articulated succinctly in Birhanu et al. (2016). For example, questions on payment of bribes are phrased in such a way that they do not lay blame on respondents. Also, the confidentiality of respondents is preserved. These, amongst others, enhance the reliability of the figures obtained, leading to the use of this variable in several other studies (e.g., Yi et al., 2018; Zhou & Peng, 2012).[5] We measure our three independent variables as follows: BGA (Business Group Affiliation) is a dummy variable that takes the value of 1 if a firm is part of a larger organization, and 0 otherwise; *External Audit* is a dummy variable that takes the value of 1 if a firm has its financial statements checked and certified by an external auditor, and

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[5]Furthermore, there is reason to believe that the corruption incidence reported could be underestimated. Jensen et al. (2010) document that WBES underestimates the magnitude of corruption in countries that lack press freedom and political freedom, owing to nonresponse or untrue response. Clarke (2011) finds that the WBES corruption question that captures the proportion of sales paid as a bribe tends to overestimate the corruption burden compared with the question that elicits the bribe paid in monetary terms.

TABLE 1 Sample distribution

Panel A: Distribution by country

Country	Obs	Percent	Country	Obs	Percent	Country	Obs	Percent	Country	Obs	Percent
Albania	318	0.56%	Dominica	148	0.26%	Liberia	124	0.22%	Senegal	440	0.77%
Angola	192	0.34%	Dominican Republic	507	0.89%	Lithuania	186	0.33%	Sierra Leone	116	0.20%
Argentina	1458	2.57%	Ecuador	611	1.08%	Madagascar	61	0.11%	Slovak Republic	193	0.34%
Armenia	365	0.64%	Egypt	2846	5.01%	Malawi	409	0.72%	Slovenia	222	0.39%
Azerbaijan	257	0.45%	El Salvador	884	1.56%	Malaysia	389	0.68%	Solomon Islands	54	0.10%
Bahamas	95	0.17%	Eritrea	119	0.21%	Mali	266	0.47%	South Africa	51	0.09%
Barbados	105	0.18%	Estonia	157	0.28%	Mauritania	85	0.15%	Sri Lanka	418	0.74%
Belarus	812	1.43%	Ethiopia	1164	2.05%	Mauritius	6	0.01%	St. Lucia	142	0.25%
Belize	130	0.23%	Fiji	94	0.17%	Mexico	73	0.13%	St. Vincent and the Grenadines	120	0.21%
Benin	153	0.27%	Gabon	6	0.01%	Micronesia	9	0.02%	Sudan	346	0.61%
Bhutan	223	0.39%	Georgia	293	0.52%	Moldova	292	0.51%	Suriname	279	0.49%
Bolivia	454	0.80%	Ghana	511	0.90%	Mongolia	300	0.53%	Tajikistan	285	0.50%
Bosnia and Herzegovina	330	0.58%	Greece	496	0.87%	Morocco	245	0.43%	Tanzania	324	0.57%
Botswana	207	0.36%	Guatemala	736	1.30%	Mozambique	527	0.93%	Thailand	654	1.15%
Brazil	124	0.22%	Guinea	47	0.08%	Namibia	395	0.70%	Timor-Leste	191	0.34%
Bulgaria	223	0.39%	Guyana	135	0.24%	Nepal	709	1.25%	Togo	204	0.36%
Burkina Faso	182	0.32%	Honduras	533	0.94%	Nicaragua	556	0.98%	Tonga	72	0.13%
Burundi	112	0.20%	Hungary	187	0.33%	Niger	158	0.28%	Trinidad and Tobago	269	0.47%
Cambodia	152	0.27%	India	7022	12.36%	Nigeria	649	1.14%	Tunisia	366	0.64%
Cameroon	450	0.79%	Indonesia	1547	2.72%	Pakistan	464	0.82%	Turkey	1430	2.52%
Cabo Verde	82	0.14%	Israel	406	0.71%	Panama	29	0.05%	Uganda	285	0.50%
Central African Republic	117	0.21%	Jamaica	181	0.32%	Papua New Guinea	40	0.07%	Ukraine	207	0.36%
Chad	197	0.35%	Jordan	424	0.75%	Paraguay	530	0.93%	Uruguay	727	1.28%
Chile	900	1.58%	Kazakhstan	434	0.76%	Peru	1553	2.73%	Uzbekistan	501	0.88%
China	1619	2.85%	Kenya	1243	2.19%	Philippines	1336	2.35%	Vanuatu	9	0.02%
Colombia	1502	2.64%	Kyrgyz Republic	240	0.42%	Poland	390	0.69%	Venezuela	138	0.24%
Congo, Rep.	11	0.02%	Lao PDR	641	1.13%	Romania	448	0.79%	Vietnam	751	1.32%
Croatia	295	0.52%	Latvia	199	0.35%	Russia	2884	5.08%	Yemen	434	0.76%
Czech Republic	225	0.40%	Lebanon	360	0.63%	Rwanda	148	0.26%	Zambia	511	0.90%
Cote d'Ivoire	205	0.36%	Lesotho	99	0.17%	Samoa	62	0.11%			

Panel B: Distribution by sectors

	Obs	Percent		Obs	Percent		Obs	Percent		Obs	Percent
Automobiles	1096	1.93%	Fabricated metal products	1084	1.91%	Non-metallic mineral products	1612	2.84%	Transport	789	1.39%
Basic metals	1307	2.30%	Food	4332	7.62%	Other manufacturing	12696	22.34%	Wholesale and retail	9363	16.48%
Chemicals	1977	3.48%	Hotels and restaurants	883	1.55%	Other services	12994	22.87%	Wood and furniture	544	0.96%

TABLE 1 (Continued)

Panel B: Distribution by sectors								
Construction	721	1.27%	IT	462	0.81%	Rubber and plastics products	1192	2.10%
Electronics	889	1.56%	Machinery and equipment	912	1.60%	Textiles and garments	3974	6.99%

TABLE 2 Summary statistics

	Count	Mean	SD	Min	Median	Max
Corruption	56,827	0.011	0.053	0.000	0.000	1.000
BGA	56,827	0.181	0.385	0.000	0.000	1.000
External audit	56,827	0.564	0.496	0.000	1.000	1.000
ISC	56,827	0.245	0.430	0.000	0.000	1.000
Size	56,827	80.719	181.986	3.000	20.000	1255.000
Age	56,827	18.258	13.896	2.000	15.000	73.000
Ownership concentration	56,827	0.775	0.266	0.160	0.990	1.000
Foreign ownership	56,827	0.069	0.235	0.000	0.000	1.000
Export orientation	56,827	0.070	0.211	0.000	0.000	1.000
Listing	56,827	0.043	0.204	0.000	0.000	1.000
Manager's experience	56,827	18.167	11.121	1.000	16.000	50.000
Access to finance	56,827	1.388	1.296	0.000	1.000	4.000
Gov't contracts	56,827	0.185	0.388	0.000	0.000	1.000
GDP growth	56,827	4.911	2.871	−7.800	4.564	11.548
FDI to GDP	56,827	0.031	0.029	−0.015	0.023	0.303

0 otherwise; and International Standards Certification (ISC) is also a dummy variable and takes the value of 1 if a firm has an internationally recognized product quality certification, and 0 otherwise.

Consistent with the literature (e.g., Farooq & Shehata, 2018; Sharma & Mitra, 2015; Xu et al., 2019; Yi et al., 2018), we control for a wide range of firm- and country-level variables that may affect the propensity of firms to engage in corrupt practices. We account for firm size (*Size*), measured as the number of employees of the company. We also control for the age of the firm (*Age*), which we compute as the number of years since the firm was established. We account for the nature of corporate ownership by including variables that capture the percentage of shares held by the largest shareholder (*Ownership Concentration*) and the percentage of shares held by foreign individuals and entities (*Foreign Ownership*). Additionally, we control for *Export Orientation* using the percentage of sales directly exported by a firm. To account for the level of transparency and scrutiny that a firm may be exposed to, we include *Listing Status*, a dummy variable which takes the value of 1 if the firm's shares are publicly traded and 0 otherwise. *Manager's Experience* is the number of years of experience the top manager of the firm has in the industry. *Access to Finance* is a dummy variable that captures the extent to which access to finance is an obstacle to the firm. The variable takes the value of 0 if

no obstacle and the value 1 if minor obstacle, moderate obstacle, major obstacle, or severe obstacle. Finally, we include *Gov't Contracts*, a dummy variable that takes the value of 1 if the firm has secured or attempted to secure a government contract. At the country level, we control for *GDP Growth* and the level of inward Foreign Direct Investment as a percentage of GDP (*FDI to GDP*).

3.3 | Summary statistics and correlations

Table 2 presents summary statistics of our variables. The mean value for *Corruption* is 0.011, suggesting that, on average, firms in our sample pay about 1.1% of their total sales in informal payments to "get things done." This figure is lower than the 1.3% reported in Yi et al. (2018). However, compared with their study, we use a more updated sample. The mean value of BGA is 0.18, implying that close to 20% of firms in the sample have established affiliations with a larger organization. Our figure for BGA is higher than that reported in Tajeddin and Carney (2019), who restrict their analysis to only 33 countries between 2006 and 2014. About half of firms in our sample engage the services of external auditors, reflected in the mean value of *External Audit* of 0.56. Yi et al. (2018) report a figure of 0.47, and again, we

attribute this variation from our figures to the expansion of our sample. The mean value for international certification (ISC) is 0.26, which suggests that about a quarter of firms in the sample possess an internationally recognized certification. Regarding both firm- and country-level control variables, the statistics reported in Table 2 are generally consistent with the literature.

In Table 3, we provide a Pearson's correlation matrix for our variables. We do not observe any high correlations between variables. In particular, the correlations between our three explanatory variables of interest are low, and we, therefore, have no concerns about multicollinearity.

3.4 | Econometric approach

To investigate our hypotheses, we estimate a Tobit regression model. Our choice of this model is driven by the nature of the dependent variable, which is limited between 0 and 1 (i.e., 0 and 100%). In line with Yi et al. (2018), we left-censor at zero. Our model is as follows:

$$Corruption_i = \alpha + \beta Business\ Strategy_i + \delta Controls_i + \varepsilon_i,$$

where for each firm i, *Corruption* is the percentage of sales paid in informal payments. *Business Strategy* refers to either *BGA*, a dummy variable that takes the value of 1 if a firm is part of a larger organization, and 0 otherwise; *External Audit*, a dummy variable that takes the value of 1 if the firm has its financial statements checked and certified by an external auditor, and 0 otherwise; or *ISC*, a dummy variable that takes the value of 1 if the firm has an internationally recognized product quality certification and 0 otherwise. *Controls* is a set of control variables as defined in Appendix A. In all cases, we include year and sector effects (based on the WBES) and region effects based on the IMF geographical region classification of each country.

4 | RESULTS

4.1 | The impact of individual business strategies

Table 4 presents the results of our regressions on the impact of the individual business strategies on corruption. In Columns 1, 3, and 5, we present a parsimonious model of each of the three independent variables with only year dummies. In Column 1, we observe a positive and statistically significant coefficient for BGA. This finding implies that firms with business group affiliations are more likely to engage in corrupt activities through informal payments than standalone firms. However, when we include control variables and account for sector and region effects in Column 2, the impact of BGA on corruption, although still positive, becomes insignificant. This result is hardly unexpected, considering the unclear predictions inferred from the literature and the relatively high correlation with size and age. We provide further clarity on the impact of BGA on corruption in the next section when we consider the impact of different institutional

environments. In Column 3, the coefficient of External Auditing is negative and significant at the 1% level and remains unchanged after controlling for other firm- and country-level characteristics in Column 4. This provides support for our second hypothesis. Thus, firms that employ the services of external auditors are less likely to engage in informal payments. This finding is consistent with the view that the ability of external auditors to detect and disclose illegal acts creates a disincentive for the payment of bribes (Farooq & Shehata, 2018; Khalil et al., 2015).

In Columns 5 and 6, the coefficient of ISC is also negative and significant, implying that firms that promote their product quality and legitimacy by holding ISCs are less likely to engage in corruption than those that do not. This finding supports our third hypothesis and is consistent with the literature (e.g., Huang & Yuan, 2021; Montiel et al., 2012; Paunov, 2016; Xie et al., 2019). It is in line with the view that ISC-adopting firms can reduce information asymmetries and increase transparency, thereby reducing the probability of paying bribes or engaging in corruption. However, Montiel et al. (2012) argue that this signalling value of ISCs is conditional on the institutional environment. In Column 7, we bring together all three explanatory variables while still controlling for firm- and country-level characteristics. The magnitude of the coefficient for BGA increases substantially but is weakly significant with a positive sign. We also continue to observe the negative and statistically significant impact of both External Audit and ISC. With regard to the control variables, these generally have the expected signs. In particular, we note that the most important firm characteristics that are likely to affect the propensity to pay bribes include Ownership Concentration, Listing Status, Managers' Experience, and Access to Finance. Overall, the results in Table 4 provide strong evidence to suggest that firms can reduce the likelihood of paying bribes by engaging external auditors and having an international certification.

4.2 | The impact of the institutional environment

As pointed out before, several authors have argued that the effectiveness of firm-level business strategies largely depends on the institutional environment in a country (e.g., Goedhuys & Sleuwaegen, 2013; Montiel et al., 2012). Thus, to investigate our second set of hypotheses (Hypotheses 4–6), we use three different proxies for the quality of the institutional environment: Business Freedom, Audit and Reporting Standards, and Property Rights. Business Freedom measures the efficiency and ease with which people can start, operate, or close a business. Audit and Reporting Standards measures the perception of the strength of auditing and reporting standards by business executives in a country. Finally, the Property Rights index captures the effectiveness and enforceability of laws that protect the accumulation of private property. We obtain data on both Business Freedom and Property Rights from the Heritage Foundation and Audit and Reporting Standards from the World Economic Forum. Using each factor, we split our sample into low (below median) and high (above median), representing countries with a weak and strong institutional

TABLE 3 Univariate correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Corruption	1.000													
2 BGA	.009**	1.000												
3 External audit	-.035***	.146***	1.000											
4 ISC	-.020***	.136***	.215***	1.000										
5 Size	-.009**	.181***	.187***	.309***	1.000									
6 Age	-.033***	.087***	.155***	.153***	.220***	1.000								
7 Ownership concentration	.015***	-.072***	-.133***	-.125***	-.123***	-.158***	1.000							
8 Foreign ownership	.006	.102***	.115***	.117***	.167***	.025***	-.0155***	1.000						
9 Export orientation	.002	.081***	.090***	.194***	.225***	.053***	-.079***	.185***	1.000					
10 Listing	.030***	.0775***	.065***	.079***	.178***	.099***	-.097***	.066***	.043***	1.000				
11 Manager's experience	-.034***	.034***	.053***	.0391***	.066***	.407***	-.145***	-.010*	.040***	.018***	1.000			
12 Access to finance	.059***	-.024***	-.023***	-.091***	-.072***	-.044***	.025***	-.036***	-.046***	-.007	-.016***	1.000		
13 Gov't contracts	.051***	.023***	.078***	.045***	.051***	.040***	-.046***	.013***	-.038***	.041***	.040***	.067***	1.000	
14 GDP growth	-.035***	.003	.075***	.060***	.034***	-.032***	.070***	-.041***	-.029***	-.032***	-.102***	-.045***	.000	1.000
15 FDI to GDP	.023***	.025***	-.058***	-.0763***	-.019***	-.036***	.054***	.066***	-.002	.002	-.002	.032***	.040***	0.006

Note: All variables are defined in Appendix A.
*Statistical significance at the 10% level.
**Statistical significance at the 5% level.
***Statistical significance at the 1% level.

TABLE 4 The impact of individual strategies

	1	2	3	4	5	6	7
BGA	0.0077** (.020)	0.0029 (.387)					0.0058* (.090)
External audit			−0.0260*** (.000)	−0.0231*** (.000)		−0.0116*** (.001)	−0.0226*** (.000)
ISC					−0.0235*** (.000)		−0.0085** (.012)
Size		−0.0000*** (.001)		−0.0000** (.026)		−0.0000** (.018)	−0.0000* (.066)
Age		−0.0001 (.184)		−0.0001 (.502)		−0.0001 (.302)	−0.0001 (.589)
Ownership concentration		0.0119** (.017)		0.0069 (.164)		0.0105** (.034)	0.0065 (.191)
Foreign ownership		−0.0017 (.749)		0.0030 (.579)		0.0000 (.997)	0.0034 (.539)
Export orientation		0.0069 (.271)		0.0095 (.130)		0.0096 (.128)	0.0108* (.087)
Listing status		0.0242*** (.000)		0.0259*** (.000)		0.0250*** (.000)	0.0258*** (.000)
Manager's experience		−0.0005*** (.000)		−0.0005*** (.000)		−0.0005*** (.000)	−0.0005*** (.000)
Access to finance		0.0178*** (.000)		0.0177*** (.000)		0.0177*** (.000)	0.0177*** (.000)
Gov't contracts		0.0530*** (.000)		0.0554*** (.000)		0.0536*** (.000)	0.0557*** (.000)
GDP growth		−0.0052*** (.000)		−0.0054*** (.000)		−0.0052*** (.000)	−0.0054*** (.000)
FDI to GDP		0.2874*** (.000)		0.2631*** (.000)		0.2828*** (.000)	0.2594*** (.000)
Constant	−0.1348*** (.000)	−0.1719*** (.000)	−0.1276*** (.000)	−0.1547*** (.000)	−0.1318*** (.000)	−0.1671*** (.000)	−0.1521*** (.000)
Sector effect	No	Yes	No	Yes	No	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region effect	No	Yes	No	Yes	No	Yes	Yes
Observations	56,827	56,827	56,827	56,827	56,827	56,827	56,827
Pseudo R^2	.086	.179	.090	.183	.088	.180	.183

Note: This table presents results of our regression on the impact of business strategies on corruption. The dependent variable, *Corruption*, is the proportion of sales paid in informal payments. BGA is a dummy variable which takes the value of 1 if the firm is part of a larger firm, and 0 otherwise. External Audit is dummy variable which takes the value of 1 if the firm has its financial statements checked and certified by an external auditor, and 0 otherwise. ISC is a dummy variable which takes the value of 1 if the firm has an internationally recognized quality certification, and 0 otherwise. All other variables are defined in Appendix A. *P*-values are in parentheses.
*Statistical significance at the 10% level.
**Statistical significance at the 5% level.
***Statistical significance at the 1% level.

environment, respectively. We then rerun our main regression for each sub-sample. Table 5 reports the results for this analysis. We include all three strategies in each model similar to Column 7 of Table 4.

Concerning Business Freedom, our main focus is on the impact of BGA. In stark contrast to the results reported in Columns 2 and 7 of Table 4, the coefficient estimates of BGA presented in Table 5 are positive and significant in countries with low business freedom (Column 1) but negative and significant in countries with high business freedom (Column 2). These findings are consistent with Hypothesis 4 and the two competing arguments in the literature (Carney et al., 2018; dela Rama, 2011; Khanna & Rivkin, 2001; Khanna & Yafeh, 2007). We interpret this to mean that affiliated firms compared with standalone firms are likely to comply with regulations when they can easily set up their operations and operate freely, hence minimizing engagement in bribery. However, when confronted with regulatory constraints, affiliated firms are likely to engage in bribery as a way of navigating around the rules and bureaucracy or counteracting competition (Harstad & Svensson, 2011; Martin et al., 2007). Additionally, like Yi et al. (2018), we find that external auditing reduces bribery across the two country groupings, while standards certification reduces it in countries with low business freedom. In our case, however, the magnitudes of these effects are higher, suggesting an increase in the use of external auditors and standards certifications.

Columns 3 and 4 of Table 5 report the results for countries with low and high Audit and Reporting Standards, respectively. Again, compared with the results reported in Columns 4 and 5 of Table 4, we can see that external auditing has a negative and significant effect on bribery in countries with low standards (Column 3) but has no impact in countries with high standards (Column 4). This finding is in line with Hypothesis 5 and the cross-country evidence on the role of accounting practice on corruption (e.g., Changwony & Paterson, 2019; Houqe & Monem, 2016). Arguably, firms in countries with weak accounting standards are likely to engage the services of external auditors to alleviate information asymmetry and enhance transparency and mitigate rent seeking by government officials such as tax officials. Our results also show that the impact of business group affiliation on bribery intensity does not vary with the accounting standards in a country. This result is surprising considering that BGAs have more incentives and opportunities to engage in financial reporting misconduct (Beuselinck & Deloof, 2014; Kim & Yi, 2006). As for ISC, however, we observe a negative and significant effect in countries with weak accounting standards.

We now turn to the results reported in Columns 5 and 6, where we split countries into those with weak and strong property rights, respectively. Here, we first focus on the impact of ISCs. The results show that ISC has a negative but significant effect, for firms in countries with high property rights. The impact in countries with weak property rights is also negative and insignificant. This finding lends weak support to the documented association between innovation and property rights (Papageorgiadis & Sharma, 2016; Sweet & Maggio, 2015) and between these two variables and corruption (Anokhin & Schulze, 2009). We can also see conflicting results for the other two variables of interest in our study, BGA and External Audit. While BGA increases the propensity to engage in bribery, regardless of the strength of property rights in a country, appointing an external auditor appears to reduce it. Indeed, the impact of external auditing in countries with strong property rights is the highest across all the models in Table 5. This finding suggests that external auditing is more effective in countries where individuals and businesses can enforce contracts.

4.3 | The impact of multiple strategies

Having established that all three strategies conditionally affect corruption, we next examine whether and to what extent a business is likely to engage in bribery if it employs a combination of these strategies or none. In line with Hypothesis 7, we create four dummy variables for this purpose. The first is *No Strategy* which takes the value of 1 if a firm employs none of the strategies (i.e., is not affiliated with a business group, does not engage the services of external auditors, and does not possess an ISC), and 0 otherwise. The second is *One Strategy* which takes the value of 1 if a company employs any one of these strategies and 0 otherwise. The third is *Two Strategies* that takes the value 1 if a firm adopts a combination of any two strategies and 0 otherwise. The final one is *Three Strategies* that takes the value of 1 if a firm employs all three strategies. We then regress our corruption measure on each of these variables including control variables. In the results reported in Table 5, we do not account for the institutional environment, but we do so in Table 6.

In Table 6, we enter each dummy variable at a time in Columns 1 to 4 and bring them together in one model in Column 5—in which firms with no strategy is the reference group. The results reported in Column 1 show that the coefficient for *No Strategy* is positive and statistically significant at the 1% level. Thus, firms that do not employ any of these strategies are more likely to engage in informal payments to get things done. This finding suggests that the lack of these tools increases rent-seeking opportunities. Moving on to *One Strategy* (Column 2), we find a negative and weakly significant coefficient, indicating that firms that adopt at least any one of the strategies are less likely to engage in bribery. Coefficient estimates of *Two Strategies* (Column 3) and *Three Strategies* (Column 4) are both negative and significant at the 5% and 1% levels, respectively. Indeed, the magnitude of the coefficient for *Three Strategies* is substantially greater than those for one or two strategies, supporting our proposition that multiple tools minimize rent-seeking opportunities. The results in Column 5 for the four dummies depict an interesting trend, which is the magnitude of the impact increases with the number of strategies. The coefficients of *One Strategy*, *Two Strategies*, and *Three Strategies* are −0.0136, −0.0190, and −0.0371, respectively. Thus, the likelihood of engaging in corruption decreases further as firms use a combination of more strategies.

In Table 7, we test for the impact of the multiple strategies in countries with weak versus strong institutions using the full model in Column 5 of Table 5. Like in Table 4, we split countries by their scores

TABLE 5 The effect of business environment and institutions

	Business freedom		Audit and reporting standards		Property rights	
	Low (1)	High (2)	Low (3)	High (4)	Low (5)	High (6)
BGA	0.0164*** (.000)	−0.0158*** (.004)	0.0040 (.324)	−0.0082 (.230)	0.0104** (.013)	0.0136** (.026)
External audit	−0.0288*** (.000)	−0.0142*** (.001)	−0.0296*** (.000)	−0.0011 (.835)	−0.0121*** (.000)	−0.0330*** (.000)
ISC	−0.0156*** (.000)	0.0066 (.191)	−0.0085** (.030)	0.0023 (.727)	−0.0028 (.513)	−0.0084 (.144)
Size	−0.0000*** (.006)	0.0000 (.543)	−0.0000* (.070)	−0.0000 (.193)	−0.0000*** (.002)	−0.0000 (.157)
Age	−0.0000 (.933)	−0.0002 (.229)	0.0002 (.213)	−0.0002 (.329)	0.0001 (.444)	−0.0003 (.143)
Ownership concentration	−0.0104 (.118)	0.0129* (.082)	0.0089 (.126)	−0.0310*** (.002)	−0.0054 (.364)	0.0016 (.856)
Foreign ownership	0.0003 (.969)	0.0090 (.323)	0.0162** (.015)	−0.0154 (.147)	0.0012 (.844)	0.0002 (.987)
Export orientation	0.0271*** (.001)	−0.0043 (.663)	0.0046 (.569)	0.0445*** (.000)	0.0204*** (.008)	0.0063 (.582)
Listing status	−0.0029 (.725)	0.0292*** (.000)	0.0073 (.270)	0.0769*** (.000)	−0.0031 (.653)	0.0543*** (.000)
Manager's experience	−0.0002 (.241)	−0.0004* (.049)	−0.0002 (.316)	−0.0007*** (.006)	−0.0001 (.501)	−0.0006*** (.008)
Access to finance	0.0136*** (.000)	0.0182*** (.000)	0.0155*** (.000)	0.0142*** (.000)	0.0143*** (.000)	0.0170*** (.000)
Gov't contracts	0.0548*** (.000)	0.0510*** (.000)	0.0474*** (.000)	0.0677*** (.000)	0.0607*** (.000)	0.0484*** (.000)
GDP growth	−0.0106*** (.000)	0.0060*** (.000)	−0.0107*** (.000)	−0.0036*** (.007)	−0.0065*** (.000)	−0.0093*** (.000)
FDI to GDP	0.1004* (.067)	0.0691 (.428)	0.5142*** (.000)	−1.0587*** (.000)	0.2107*** (.000)	−0.3163*** (.009)
Constant	−0.1147*** (.000)	−0.3097*** (.000)	−0.0967*** (.000)	−0.0779 (.311)	−0.2110*** (.000)	−0.0499* (.083)
Sector effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Region effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	31,280	25,547	25,898	24,182	30,533	25,948
Pseudo R^2	.226	.263	.328	.212	.219	.237

Note: All variables are defined in Appendix A. *P*-values are in parentheses.

*Statistical significance at the 10% level.

**Statistical significance at the 5% level.

***Statistical significance at the 1% level.

TABLE 6 The impact of multiple strategies

	1	2	3	4	5
No strategy	0.0159*** (.000)				
One strategy		−0.0047* (.066)			−0.0136*** (.000)
Two strategies			−0.0076** (.020)		−0.0190*** (.000)
Three strategies				−0.0239*** (.000)	−0.0371*** (.000)
Size	−0.0000** (.014)	−0.0000*** (.001)	−0.0000*** (.004)	−0.0000** (.014)	−0.0000 (.105)
Age	−0.0001 (.374)	−0.0001 (.188)	−0.0001 (.259)	−0.0001 (.241)	−0.0001 (.486)
Ownership concentration	0.0084* (.093)	0.0114** (.022)	0.0108** (.030)	0.0112** (.024)	0.0077 (.122)
Foreign ownership	0.0014 (.800)	−0.0015 (.788)	−0.0005 (.921)	0.0001 (.980)	0.0031 (.568)
Export orientation	0.0097 (.123)	0.0070 (.265)	0.0083 (.189)	0.0082 (.194)	0.0111* (.078)
Listing status	0.0255*** (.000)	0.0244*** (.000)	0.0246*** (.000)	0.0255*** (.000)	0.0266*** (.000)
Manager's experience	−0.0005*** (.000)	−0.0005*** (.000)	−0.0005*** (.000)	−0.0005*** (.000)	−0.0005*** (.000)
Access to finance	0.0177*** (.000)	0.0178*** (.000)	0.0178*** (.000)	0.0178*** (.000)	0.0176*** (.000)
Gov't contracts	0.0545*** (.000)	0.0532*** (.000)	0.0534*** (.000)	0.0534*** (.000)	0.0549*** (.000)
GDP growth	−0.0053*** (.000)	−0.0053*** (.000)	−0.0053*** (.000)	−0.0052*** (.000)	−0.0053*** (.000)
FDI to GDP	0.2730*** (.000)	0.2852*** (.000)	0.2850*** (.000)	0.2864*** (.000)	0.2720*** (.000)
Constant	−0.1752*** (.000)	−0.1698*** (.000)	−0.1692*** (.000)	−0.1705*** (.000)	−0.1582*** (.000)
Sector effect	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes
Region effect	Yes	Yes	Yes	Yes	Yes
Observations	56,827	56,827	56,827	56,827	56,827
Pseudo R^2	.181	.180	.180	.180	.181

Note: This table presents results of our regression on the impact of adopting multiple business strategies on corruption. The dependent variable, *Corruption*, is the proportion of sales paid in informal payments. All other variables are defined in Appendix A. *P*-values are in parentheses.
*Statistical significance at the 10% level.
**Statistical significance at the 5% level.
***Statistical significance at the 1% level.

of Business Freedom, Auditing and Reporting Standards, and Property Rights. The results are consistent with those in Column 5 of Table 5, particularly for countries with low business freedom and weak accounting standards. That is, the likelihood of engaging in bribery diminishes with the number of strategies deployed. Moreover, the magnitudes of the coefficients are higher, especially for accounting standards. Interestingly, for property rights, we observe a similar trend but for countries with high scores. This finding suggests that firms in countries with robust property rights double down on different strategic tools to eliminate rent-seeking opportunities. Another insightful finding that supports the "interactive and mutually reinforcing" argument proposed by Doh et al. (2003) is the observation that firms that deploy the three strategies can minimize bribery regardless of the strength of the three institutional factors.

5 | ADDITIONAL ANALYSIS AND ROBUSTNESS CHECKS

In this section, we present some additional analyses and also carry out robustness checks to address potential endogeneity.

5.1 | Accounting for financial development and country level corruption

In Table 8, we examine the impact of the three business strategies using two comprehensive measures of institutional quality—financial development and corruption control. Consistent with the approach in Table 5, we split our sample into countries with scores above and below the median of the financial development and corruption control measures. We then regress our dependent variable on the three strategies separately and in combination for each sub-sample. Panels A and B of Table 8 present the results, respectively.

For the level of financial development, we rely on the Financial Development Index constructed by the IMF. This index is a composite measure that captures the degree of market development in terms of the quality of financial institutions and financial markets, accounting for their depth, accessibility, and efficiency. Unlike the financial reporting and auditing standards index used earlier, the FDI index is an objective measure that could indicate the level of market transparency, informational efficiency, and the quality of accounting standards in a country (e.g., Beneish et al., 2015; Chen et al., 2013, 2015; Houqe et al., 2012). These features can mitigate rent-seeking opportunities

TABLE 7 The impact of multiple strategies in different institutional environments

	Business freedom		Audit and reporting standards		Property rights	
	Low (1)	High (2)	Low (3)	High (4)	Low (5)	High (6)
One strategy	−0.0193*** (.000)	−0.0078* (.087)	−0.0197*** (.000)	0.0101* (.095)	−0.0013 (.700)	−0.0258*** (.000)
Two strategies	−0.0271*** (.000)	−0.0087 (.140)	−0.0286*** (.000)	0.0031 (.680)	−0.0029 (.528)	−0.0245*** (.000)
Three strategies	−0.0303*** (.000)	−0.0433*** (.000)	−0.0394*** (.000)	−0.0256* (.055)	−0.0225*** (.010)	−0.0382*** (.001)
Size	−0.0000*** (.007)	0.0000 (.328)	−0.0000 (.133)	−0.0000 (.314)	−0.0000*** (.006)	−0.0000 (.180)
Age	−0.0000 (.824)	−0.0002 (.265)	0.0002 (.228)	−0.0002 (.375)	0.0001 (.461)	−0.0003 (.104)
Ownership concentration	−0.0091 (.174)	0.0137* (.064)	0.0092 (.112)	−0.0288*** (.004)	−0.0040 (.503)	0.0030 (.738)
Foreign ownership	−0.0002 (.972)	0.0095 (.301)	0.0161** (.016)	−0.0146 (.169)	0.0015 (.811)	−0.0009 (.934)
Export orientation	0.0254*** (.002)	−0.0015 (.876)	0.0043 (.595)	0.0452*** (.000)	0.0197*** (.010)	0.0069 (.542)
Listing status	−0.0029 (.732)	0.0291*** (.000)	0.0071 (.282)	0.0779*** (.000)	−0.0025 (.709)	0.0561*** (.000)
Manager's experience	−0.0002 (.177)	−0.0004** (.049)	−0.0002 (.251)	−0.0007*** (.004)	−0.0001 (.405)	−0.0006*** (.010)
Access to finance	0.0138*** (.000)	0.0182*** (.000)	0.0154*** (.000)	0.0142*** (.000)	0.0143*** (.000)	0.0170*** (.000)
Gov't contracts	0.0534*** (.000)	0.0513*** (.000)	0.0466*** (.000)	0.0677*** (.000)	0.0601*** (.000)	0.0469*** (.000)
GDP growth	−0.0107*** (.000)	0.0062*** (.000)	−0.0107*** (.000)	−0.0034*** (.010)	−0.0064*** (.000)	−0.0089*** (.000)
FDI to GDP	0.1200** (.029)	0.0595 (.495)	0.5151*** (.000)	−1.0602*** (.000)	0.2145*** (.000)	−0.2765** (.021)
Constant	−0.1203*** (.000)	−0.3145*** (.000)	−0.0989*** (.000)	−0.0801 (.297)	−0.2188*** (.000)	−0.0563* (.051)
Sector effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Region effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	31,280	25,547	25,898	24,182	30,533	25,948
Pseudo R^2	.222	.263	.324	.212	.219	.234

Note: All variables are defined in Appendix A. *P*-values are in parentheses.

*Statistical significance at the 10% level.

**Statistical significance at the 5% level.

***Statistical significance at the 1% level.

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TABLE 8 The impact of financial development and corruption control

	Financial development		Corruption control	
	Low (1)	High (2)	Weak (3)	Strong (4)
Panel A: Individual strategies				
BGA	0.0088* (.056)	0.0001 (.987)	0.0140*** (.001)	0.0047 (.415)
External audit	−0.0169*** (.000)	−0.0066 (.103)	−0.0107*** (.002)	−0.0234*** (.000)
ISC	0.0081 (.108)	−0.0100** (.029)	−0.0006 (.888)	−0.0102** (.050)
Constant	−0.0161 (.601)	−0.3624*** (.000)	−0.1806*** (.000)	−0.1158*** (.000)
Controls	Yes	Yes	Yes	Yes
Sector effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Region effect	Yes	Yes	Yes	Yes
Observations	24,730	32,097	28,777	28,041
Pseudo R^2	.228	.232	.211	.258
	Financial development		**Corruption control**	
	Low (5)	High (6)	Weak (7)	Strong (8)
Panel B: Multiple strategies				
One strategy	−0.0053 (.176)	0.0032 (.470)	0.0007 (.837)	−0.0182*** (.000)
Two strategies	−0.0038 (.478)	−0.0060 (.278)	0.0043 (.380)	−0.0246*** (.000)
Three strategies	−0.0119 (.245)	−0.0303*** (.001)	−0.0211** (.023)	−0.0339*** (.001)
Constant	−0.0229 (.459)	−0.3682*** (.000)	−0.1895*** (.000)	−0.1183*** (.000)
Controls	Yes	Yes	Yes	Yes
Sector effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Region effect	Yes	Yes	Yes	Yes
Observations	24,730	32,097	28,777	28,041
Pseudo R^2	.226	.232	.211	.257

Note: All variables are defined in Appendix A. *P*-values are in parentheses.
*Statistical significance at the 10% level.
**Statistical significance at the 5% level.
***Statistical significance at the 1% level.

and hence reduce the probability of a firm engaging in bribery. The results presented in Columns 1 and 2 of Panel A are similar to those in Columns 3 and 4 of Table 5. Business group affiliation has no impact, although the signs of the coefficients remain unchanged. External auditing reduces bribery intensity in countries with low financial development, while standards certification reduces bribery in countries with high values. The results displayed in Columns 5 and 6 of Panel B are also consistent with those in Columns 3 and 4 of Table 7. Although the significance levels vary, we can see that firms that adopt the three strategies are less likely to engage in bribery.

With regard to country-level corruption, the intuition here is that firms in highly corrupt countries face more pressure to engage in bribery, resulting from weak institutions and increased rent-seeking opportunities (Farooq & Shehata, 2018; Francis et al., 2011). We use the control of corruption index from World Bank, produced by Kaufmann and Kraay (2018). This index captures the extent of corruption

in a country and how public officials exploit power for personal gain. It uses inputs from over 30 sources. The index ranges from −2.5 to +2.5, with lower values representing low corruption control (weak governance) and vice versa. For ease of analysis and interpretation, we rescale the variable to range from 0 to 10, with larger values implying more ability to control corruption (strong) and lower values indicating less control of corruption (weak). Columns 3 and 4 of Panel A report the results. As expected, firms with business group affiliations are more likely to engage in bribery than standalone firms in countries with weak control of corruption. However, business group affiliation has no impact in countries with more control of corruption. This result re-echoes those in Table 4, suggesting that firms affiliated with business groups in weak institutional environments are more likely to engage in bribery. We also find that external audit has a negative and significant impact in countries with more or less control over corruption. Finally, standards certification also has a negative and

TABLE 9 Interaction effects

	1	**2**	**3**	**4**
BGA	0.0189*** (.001)	0.0079** (.047)		0.0194*** (.002)
External audit	−0.0200*** (.000)		−0.0216*** (.000)	−0.0201*** (.000)
ISC		−0.0086** (.021)	−0.0056 (.315)	−0.0072 (.243)
BGA × external audit	−0.0415*** (.000)			−0.0155* (.052)
BGA × ISC		−0.023*** (.001)		−0.0006 (.967)
External audit × ISC			−0.009** (.019)	0.0022 (.763)
BGA × external audit × ISC				−0.0215*** (.005)
Constant	−0.1566*** (.000)	−0.1679*** (.000)	−0.1524*** (.000)	−0.1542*** (.000)
Controls	Yes	Yes	Yes	Yes
Sector effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Region effect	Yes	Yes	Yes	Yes
Observations	56,827	56,827	56,827	56,827
Pseudo R^2	.183	.180	.183	.183

Note: All variables are defined in Appendix A. P-values are in parentheses.
*Statistical significance at the 10% level.
**Statistical significance at the 5% level.
***Statistical significance at the 1% level.

TABLE 10 Instrumental variable regressions

	BGA		**External audit**		**ISC**	
	1st stage (1)	**2nd stage (2)**	**1st stage (3)**	**2nd stage (4)**	**1st stage (5)**	**2nd stage (6)**
BGA		−0.0018 (.160)				
AvBGA_CSY	0.9534*** (.000)					
External audit				−0.0146*** (.000)		
AvAudit_CSY			0.9413*** (.000)			
ISC						−0.0087*** (.000)
AvCert_CSY					0.8834*** (.000)	
Constant	0.0137 (.505)	0.0234*** (.000)	−0.0283 (.312)	0.0330*** (.000)	0.0702*** (.007)	0.0275*** (.000)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Sector effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Region effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	56,563	56,563	56,825	56,825	56,431	56,431
Adjusted R^2		.035		.024		.031
1st stage F-test	7375		11,432		3372	
1st stage F-test P-value	.000		.000		.000	

Note: This table presents results of instrumental variable (IV) regressions. AvBGA_CSY is the country–sector–year average of BGA, which we use as an instrument for BGA. AvAudit_CSY is the country–sector–year average of external audit, which we use as an instrument for external audit, and AvCert_CSY is the country–sector–year average of international certification, which we use as an instrument for international certification. All other variables are as defined in Appendix A. P-values are in parentheses.
*Statistical significance at the 10% level.
**Statistical significance at the 5% level.
***Statistical significance at the 1% level.

significant effect for firms in countries with low corruption. Regarding multiple strategies, again, we also see in Columns 7 and 8 of Panel B that firms that adopt the three tools engage less in bribery, regardless of corruption control. The number of strategies is also a function of bribery intensity, as observed in our primary analysis, but in countries with more control over corruption.

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5.2 | Interaction effects

We extend our analysis by including interaction terms between the three strategies. We have demonstrated that a compelling debate in the literature suggests possible interrelationships between business group affiliation, external auditing, and standards certification that could mitigate bribery. However, one might argue that counting the number of strategies as we do in our analysis conceals the strength of these relationships, especially where there are competing propositions. In the results reported in Table 9, we explore two-way interactions between our three strategies sequentially in Columns 1 to 3 and include a three-way interaction term in Column 4 to address this concern. We can see that the interaction terms in Columns 1 to 3 are all negative and significant. Most importantly, consistent with the results reported in Tables 5 and 6, the three-way interaction term is also negative and significant.

5.3 | Addressing endogeneity concerns

It is possible that the relationship between corruption and each of the three strategies may be due to reverse causality. For example, one may argue that the challenges of firms paying bribes on a regular basis might cause them to adopt external auditing as a way of enhancing their financial reporting quality in order to reduce excessive rent-seeking by government officials. Similarly, corruption may also influence firms' decision to pursue international certification. To address these potential endogeneity concerns, we estimate a two-stage least square (2SLS) Instrumental Variable (IV) regression. Following Liu et al. (2021), we instrument each strategy using the respective country–sector–year average (AvBGA_CSY for BGA, AvAudit_CSY for External Auditing, and AvCert_CSY for international certification). While these variables are correlated with their respective strategies, they are not likely to be correlated with corruption. For each stage, we include our control variables. The results from this analysis, which we present in Table 10, are consistent with our baseline results.

6 | DISCUSSION AND CONCLUSION

The prevalence of corruption at the firm level has been a subject of growing interest among academics and policymakers alike. However, this interest has probably not been met with a commensurate amount of empirical research owing largely to the unavailability of sufficient and accurate firm-level data on corruption. Thus, most studies on corruption continue to focus on the macro-level. Following recent studies such as Farooq and Shehata (2018) and Yi et al. (2018), we rely on the WBES to explore whether and to what extent business group affiliations, external auditing, and international standards separately and in combination could mitigate the tendency for firms to engage in bribery to facilitate their operations.

Our study attempts to clarify the relationship between these firm strategies and firm-level bribery as theoretical arguments and empirical work about their role in mitigating corruption have been unclear and mixed. One major way in which we do this is by accounting for the moderating impact of the quality of the institutional environment. For example, in terms of business group affiliation, the entrenchment theory posited by Ghemawat and Khanna (1998) and Carney et al. (2018) suggests that affiliated firms, especially those backed by political influence, tend to receive preferential treatment. Thus, they are more likely to engage in corruption activities. Our results show that they indeed do so but only in countries with weak institutions, as evidenced by the level of business freedom. On the contrary, firms in countries with high business freedom are less likely to engage in corruption. Our findings also provide evidence that by enhancing the quality of accounting information (Clatworthy & Peel, 2013) and increasing the possibility of fraud detection (Farooq & Shehata, 2018; Yi et al., 2018), external auditing reduces the likelihood of firms' engaging in corruption. Nonetheless, we also show that external auditing is mainly effective in reducing bribery amongst firms in countries with poor financial reporting quality, as depicted by the general strength of auditing and financial reporting standards. Finally, we also show that international standards can help combat firm-level corruption in countries with low business freedom and weak auditing and financial reporting standards.

Furthermore, and novel to the literature, we also demonstrate that the ability of these business strategies to mitigate against the propensity for firms to engage in bribery is an increasing function of the number of the strategies adopted. We argue that because of the plausible and complex interconnections between these three business strategies, firms that adopt all three experience even more decrease in the level of bribery compared with those that adopt only a combination of two or one. In the analysis where we incorporate institutional environment factors, again, we find that the negative impact on bribery increases with the number of strategies deployed, especially in countries with low business freedom, weak financial reporting standards, or high property rights. Indeed, firms that deploy all three experience significantly lower bribery, regardless of the institutional factor used and country grouping. We conclude that multiple business strategies yield better outcomes as they interact and mutually reinforce each other (Doh et al., 2003).

Our paper has a number of implications for practice, policy, and research. First, the finding that business group affiliation can foster corrupt behaviour suggests the need to monitor affiliated firms more closely, especially those in countries with weak institutions. As revealed in our study, rent seeking might intensify for such firms in the absence of external auditing and in an environment with low business freedom. Our findings show that in countries with effective institutions, the role of business group affiliations in influencing corruption reduces. Thus, affiliated firms can enhance their credibility by voluntarily having their financial statements certified by an auditor. Second, the finding that external auditing by and on itself reduces bribery and matters most in countries with weak accounting standards suggests that governments can alternatively consider lowering the mandatory auditing threshold for affiliated firms or requiring these firms to adopt the International Reporting Standards (IFRS) for

SMEs. In most developing countries, where the prevalence of corruption is high, the SME sector forms an integral part of the economy. Thus, external auditing, which could enhance the financial reporting practices of such SMEs, can go a long way to reduce corrupt business practices. Third, the evidence that standards certification mitigates corruption in firms that engage external auditors and in countries with high-quality accounting standards supports recent initiatives to standardize sustainability reporting.[6] Finally, the finding that multiple business strategies can help to reduce even more bribery intensity ascertains the mutually reinforcing proposition, suggesting that business owners could potentially combine a wide array of strategic tools to limit rent-seeking opportunities by managers and public officials.

Notwithstanding our findings and conclusions above, our study is not without limitations and opens future research opportunities. First, and as mentioned earlier, we rely on the World Bank Enterprise Survey data, which mostly captures subjective views of business owners as opposed to objective information contained in annual reports or financial statements. Future research can extend our study by extracting objective measures of corruption. Second, as our variables of interest are discrete measures and not continuous or detailed as we would have wished, we were unable to disentangle certain relationships that might influence bribery. For example, we could not distinguish between domestic versus international business group affiliations and ownership concentration and examine differences in audit quality and standards certification type and assurance. Also, we could not differentiate between firms that seek auditing voluntarily and those mandated by law, a process that could have disentangled the financial reporting incentives of these firms and their impact on bribery. Future studies can explore how these variations in our variables of interest can impact rent-seeking behaviour. Third, although we control for the impact of access to government contracts, there is reason to believe that government procurement can determine group affiliation, the appointment of external auditors, and the adoption of standards certification. Building on recent studies on the influence of government contracts on external reporting and auditing (Hope et al., 2021; Samuels, 2021), future research can extend our analysis by exploring how those relationships can influence corruption. Fourth, the nature of the data does not allow us to account effectively for time-invariant firm-level effects and reverse causality. For example, it is arguable that corruption could motivate firms to join business affiliations, audit their financial statements, or seek international certifications. Although we include region and sector effects and conduct robustness checks using instrumental variables regressions, one might still argue that the two approaches do not sufficiently address those concerns.

Overall, our paper highlights that while firms may employ different strategies that directly or indirectly reduce rent-seeking behaviour and corruption, governments, policymakers, and regulators must continue to play a crucial role since the effectiveness of firm-level initiatives are contingent upon a robust institutional and regulatory environment.

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[6]There is a growing demand for better sustainability disclosure by investors, corporate sector, central banks, market regulators public policymakers, and auditing firms. For more details, see online website (https://www.ifrs.org/projects/work-plan/sustainability-reporting/#about).

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APPENDIX A: VARIABLE DEFINITIONS

Variable	Definition	Source
Corruption	Proportion of sales paid in informal payments	World Bank Enterprise Survey
BGA	A dummy variable which takes the value of 1 if the firm is part of a larger firm, and 0 otherwise	World Bank Enterprise Survey
External auditing	A dummy variable which takes the value of 1 if the firm has its financial statements checked and certified by an external auditor, and 0 otherwise	World Bank Enterprise Survey
ISC	A dummy variable which takes the value of 1 if the firm has in internationally recognized quality certification, and 0 otherwise	World Bank Enterprise Survey
Size	The number of employees of the firm	World Bank Enterprise Survey
Age	The number of years since the firm's establishment	World Bank Enterprise Survey
Ownership concentration	Proportion of shares held by the largest shareholder	World Bank Enterprise Survey
Foreign ownership	Proportion of shares held by foreigners	World Bank Enterprise Survey
Export orientation	The proportion of sales directly exported	World Bank Enterprise Survey
Listing status	A dummy variable which takes the value of 1 if the firm's shares are listed and 0 otherwise	World Bank Enterprise Survey
Manager's experience	The number of years of experience in the sector the top manager of the firm has	World Bank Enterprise Survey
Access to finance	A dummy variable which captures the extent to which access to finance is an obstacle to the firm. 0 = no obstacle; 1 = minor obstacle; 2 = moderate obstacle; 3 = major obstacle; 4 = severe obstacle	World Bank Enterprise Survey
Gov't contracts	A dummy variable which takes the value of 1 if the firm has secured or attempted to secure a government contract, and 0 otherwise	World Bank Enterprise Survey
GDP growth	The annual rate of GDP growth of the country in which the firm is located	World Development Indicators
FDI to GDP	The net inflow of foreign direct investment as a ratio GDP of the country in which the firm is located	World Development Indicators
Business freedom	The business freedom index of the country in which the firms is located	Heritage Foundation
Audit and reporting standards	The strength of auditing and financial reporting standards of the country in which the firm is located	World Economic Forum
Property rights	The property rights index of a country which measures the extent to which its laws protect private property rights and how these are enforced	Heritage Foundation
Financial development	An aggregate measure which captures the strength of country's financial institutions and financial markets	IMF