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Nonexecutive director influence on informational asymmetries in Caribbean offshore financial centers

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Abstract

Question/issue: This is a study of the relationship between nonexecutive director personal ownership and firm's bid ask spreads in listed firms from across the Caribbean offshore securities exchanges.

Research findings/insights: We report that bid ask spreads increase with non-executive ownership. However, this result is reduced (negatively moderated) in the context of higher formal institutional quality and also if the territory has a fixed exchange rate regime but exacerbated (positively moderated) if the firm is located within an offshore jurisdiction.

Theoretical/academic implications: The results regarding the influence of non-executive director ownership on firm liquidity-based transaction costs, namely, market estimates of bid ask spreads, are interpreted in terms of the contingency of this relationship on the wider institutional context. The effectiveness of nonexecutive directors is highly contingent upon the specific institutional context. Higher formal institutional quality and the presence of a strong macroeconomic tie between territory and Organisation for Economic Co-operation and Development (OECD) country lead to a reduction in these costs, while offshore financial centers lead to their increase. We argue that this highlights a shortcoming of agency theory's more limited view of institutions.

Practitioner/policy implications: The results support regulator's focus on board of director composition and in particular nonexecutive remuneration in the form of ownership. Given the increasing dominance of Anglo-American governance, firms worldwide are increasing the proportions of nonexecutive directors on their boards. However, their role is acutely context specific which is reflected in the relationship between their personal ownership and the liquidity-borne transaction costs of the firm as a whole.

KEYWORDS

board-level governance outcomes, board reputation/legitimacy, director independence, governance environments, multi-country

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1 | INTRODUCTION

Over the last two decades, there has been a phenomenal increase in the worldwide use of offshore tax havens (Damgaard et al., 2018). Offshore tax havens are characterized by their geographical smallness (Cobb, 2001). This smallness is associated with dense social networks and a dominance of a small numbers of extended families (Allred et al., 2017; Fichtner, 2016; Hines, 2010) whose conservatism forms the cultural foundations (Fichtner, 2016) of the opacity of these offshore tax havens (Hines, 2010; Suss et al., 2002). Surprisingly, there is no prior research on the corporate governance of firms' boards of directors within such opaque contexts, even though they provide a unique opportunity to uncover the institutional determinants of offshore secrecy. The lack of research is of concern given the importance of the monitoring and disciplining function of nonexecutive directors within good governance (Donnelly & Mulcahy, 2008; Zattoni & Cuomo, 2010) that is embedded in most corporate governance legislation and recommendations worldwide (Aguilera, 2005; Nowak & McCabe, 2003). In this paper, we theoretically and empirically explore how nonexecutive directors' personal ownership influences firm-level informational asymmetries in offshore tax havens and how the strength of this effect is influenced by variations in the macro-institutional environments in these offshore tax havens.

Theoretically, we develop a novel institution-theoretic approach that accommodates consideration of the dense overlapping social networks in offshore tax havens, such as the isolated and predominantly island economies of the Caribbean (Cobb, 2001; Hines, 2010). Our novel approach addresses the shortfall in traditional agency-theoretic approaches that regard institutions merely as a "thin veil" enforcing contractual terms (Aguilera & Jackson, 2003) and do not consider the richness of the institutional wider environment. The smallness of offshore tax havens leads to extended familial institutions seamlessly transcending both firms and state architecture increasing the importance of the social status and relational capital that nonexecutive directors derive from dense social interconnectedness (Hines, 2010; Miller et al., 2013). The importance of their social networks and of their underlying extended familial allegiances underscores the contextual embeddedness of nonexecutive directors. Thus, the role of non-executive directors as impartial monitors of executive directors, as envisaged by international investment norms of "good governance" (Aguilera & Jackson, 2003), is superseded by the need for legitimacy in the offshore tax haven. Therefore, we argue that while firms and their directors are subject to North's (1991) "rules of the game," their behavior is also subject to a dynamic interplay between firms and the social fabric in the form of external constituencies, within which non-executive directors are embedded. We thus investigate how non-executive directors' personal ownership shapes the information asymmetries. Hence, our first contribution is our focus on a largely ignored yet critical aspect of nonexecutive compensation, namely, their personal ownership, and linking this to the informational asymmetry between a firm and its external minority owners. Our institutional approach adopts a socialized view that marks a substantial departure from agency theory's singular emphasis on nonexecutive

impartiality in monitoring and disciplining often powerful insiders (e.g., Jensen & Meckling, 1976). Following Roberts et al. (2005), we argue that agency theory fails to consider the socialized, collaborative side of nonexecutive directors' roles, which, for instance, include their close interaction with executives through activities, such as mentoring, leadership counseling, experience-based advice, and involvement in and evaluation of strategic decisions. Such socialized collaboration is a particularly prominent issue in offshore tax havens, where nonexecutive directors' social capital constitutes a critical resource for their firms through their mutual interconnectedness with external constituencies (Nahapiet & Ghoshal, 1998), which are predominantly families.

Further, we suggest that this effect is contingent on the wider institutional context. We thus explore how various dimensions of the institutional environment in offshore tax havens influence the association between nonexecutive director ownership and informational asymmetry. We consider how well formal institutional frameworks protect the property rights of outside minority investors in the context of external contracting. To do this, we utilize formal institutional quality, which is a national aggregate of the six Worldwide Governance Indicator (WGI) measures (Kaufman et al., 2009) that form the underlying dimensions of institutional quality. We then undertake a fine-grained analysis of formal institutions by considering, first, whether their offshore jurisdictions have retained European colonial status and, second, whether a fixed currency regime, such as the US\$, is maintained with their major trading partners. Former European colonies benefit significantly from unhindered and costless access to first world, developed institutional architecture paired with local discretion, derived from their relative autonomy, in selectively assimilating this architecture within local societal frameworks (Cobb, 2001; Hines, 2010). Furthermore, they benefit from considerable political support of the European metropole when negotiating taxation treatise and obtaining international recognition (Fichtner, 2016). These benefits underscore the competitive advantages of colonies as offshore jurisdictions. In contrast, territories with fixed currency regimes must themselves absorb the costs of tying their institutional frameworks with those of currency partner countries and lack the political support and enhanced recognition provided by a European metropole (Cobb, 2001; Hines, 2010). These two institutional contingencies result in considerable differences in national institutional frameworks and are fundamental to the design of offshore institutional frameworks. Analyzing these contingencies will provide deeper insights into the impact of nonexecutive directors on firms' informational asymmetries.

2 | THEORY AND HYPOTHESES

We draw on institutional theory to theorize about the effect of non-executive director ownership on the informational asymmetry costs between managerial insiders and outside minority investors in the unique context of offshore tax havens. The starting point of our theorization is the specific geography of territories. We argue that the

small size of tax havens has profound implications in terms of the demographic structure and functioning of the national polity as well as the various elements of state architecture, political systems, and economy that are directly dependent on it.

Their small size bestows tax havens with a number of distinct attributes. The first is that the provision of public goods and services is prohibitively costly, which gives rise to institutional voids or deficiencies. Second, such smallness underscores significant resource constraints leading to an inherent openness in their economies. Third, their smallness leads to the dominance of a few large, extended families that transcend the social fabric. Finally, their economies are characterized by dense social networks that—in conjunction with family affiliation—mitigate the otherwise prohibitively high external contracting costs arising from the institutional voids associated with their small size.

The geographic smallness of tax havens thus leads to a powerful family and network governance model, in which a few colluding families both utilize their extended structures to “bridge” institutional voids in facilitating the optimal distribution of resources (Luo & Chung, 2013) but also completely subsume the national polity. Politically, this is akin to a benevolent familial autocracy. Family relationships constitute the basis of an informal relational contracting system based on socialized trust (Granovetter, 1973) in the absence of formal institutional architecture for and legitimacy accorded to external contracting. This informal contracting is centered on mutuality and reciprocity where business is undertaken through extended, highly socialized interactions involving benevolence towards members of one’s own social, ethnic, or familial networks (Berger et al., 2015). The corporate governance of indigenous firms is largely an outcome of institutionalized pressures (DiMaggio & Powell, 1983). Powerful mimetic and normative institutional pressures originate both from the cognitive (Scott, 1995), or cultural, sphere within island societies though through their sheer smallness these transgress into the normative realm through industry or economy peer pressure. These emphasize the moral (structural) and pragmatic (constituent audience) legitimacy (Suchman, 1995) firms acquire through conformity in their corporate governance with the underlying family-based model. Also, given the permeation of state architecture by families and dense social networks which is a function of the smallness of offshore jurisdictions, these create significant coercive institutional pressures too. This is exemplified by legal mandates such as “60:40 legislation”¹ in Bermuda and Cayman Islands that legally stipulate that 60% of both ownership and members of the board of directors of local firms must be under the control of local interests, which are either powerful local family interests or networks centered on them.

The smallness of offshore tax havens also limits the local talent pool from which potential directors can be sourced (Knyazeva et al., 2013). The recruitment is thus almost entirely subsumed within the distinctive family governance (Hines, 2010) and dense social network affiliations in offshore tax havens. This lack or shortage of truly independent external directors undermines the normative prescriptions of agency theory regarding the impartiality and independence of nonexecutive directors (Roberts et al., 2005), which is seen as

essential to their ability to monitor and appraise the decision-making of their executive counterparts (Fama & Jensen, 1983; Jensen & Meckling, 1976). The absence of independent and impartial directors is in line with the seminal work of Roberts et al. (2005) which highlights the under-socialized agency theoretic views of nonexecutive directors. A critical failure of the remote view of generic “monitoring” suggested by agency theory is its lack of addressing the role of accountability. In practice, this is achieved through executives working collaboratively with nonexecutives, who are seen as equal peers and from whom advice, mentoring, and counsel are sought to assist executives in leading and formulating strategy (Roberts et al., 2005; Shen, 2005).

Nonexecutive directors of a firm also face considerable potential social sanctions or ostracization by incumbent executives and senior management teams within the firms they are involved (Shen, 2005) in if they initiate the disciplinary aspect of their monitoring roles. Shen (2005) argues such disciplining measures range from influencing chief executive officer (CEO) succession and insisting on the independence of committees nominating CEOs, to imposing restrictions on executive bonuses, benefits, and pay awards as well as questioning the validity of contract formation. Nonexecutive directors can thus be held “hostage” through the potential for detrimental social actions against them by executives. We suggest that the likelihood of such sanctions on nonexecutive directors for fulfilling their functions is particularly high in offshore tax havens, because of the dominant role of family networks, and so on, in these tax havens. Thus, nonexecutive director ownership should increase the informational asymmetry between outside minority investors and managerial insiders.

The increased embeddedness and socialization of nonexecutive directors in offshore tax havens is essential in terms of their accentuated boundary-spanning role in enhancing the firm’s legitimacy with external constituencies (Suchman, 1995) with this facilitating access to resources (Pfeffer & Salancik, 1978). Such socialization and accordant legitimacy constitute a critical resource for firms in the form of social capital (Nahapiet & Ghoshal, 1998) and related human capital (Coleman, 1988). Furthermore, such extensive director “interlocks” with external constituencies underscore the loyalties and affiliations to the vested interests of powerful indigenous families and accompanying social networks prevalent in offshore tax havens. These interlocks act as socialized ties further embedding the firm within its environment and mitigating the contingencies associated with it. The pronounced role of social capital in tax havens will increase the informational asymmetries between the insiders and the outside minority investors.

The socialization with external environmental constituencies, such as powerful families, in offshore tax havens highlights the importance of the structure of the board of directors that facilitates non-executive directors’ interlinkages. Corporate governance regimes based on more concentrated ownership and control—such as the family governance model common in tax havens—are characterized by dual or two-tier boards of directors (Pellegrini et al., 2010; Volonté, 2015). These are composed of an upper supervisory board that is wholly staffed with nonexecutive directors who represent

block owners (Denis & McConnell, 2003) and a lower management board staffed by senior management. In contrast to the unitary or single-tier board of directors' system that is prevalent in English common law jurisdictions and engenders a dispersed shareholder governance model, there is a much greater emphasis on social collaboration in the dual-tier boards of directors common in tax havens (Pellegrini et al., 2010; Volonté, 2015). Here, social collaboration is essential to nonexecutives' role in negotiating between rival block holder interests and acting as an interface between block owner interests and senior management on subordinate management boards (Frag & Mallin, 2016; Volonté, 2015). Therefore, the very design of dual-tier boards of directors common in tax havens encourages enhanced social collaboration with powerful concentrated ownership interests to the detriment of outside minority investors. Because of this enhanced social collaboration should nonexecutive director ownership increase then so should informational asymmetry between outside minority investors and managerial insiders. Overall, based on these arguments, we formulate the following hypothesis:

Hypothesis 1. In offshore tax havens, nonexecutive director ownership is positively associated with informational asymmetry between outside minority investors and managerial insiders.

2.1 | Institutional contingency effects

While we expect that the level of nonexecutive director ownership will *generally* affect the extent of information asymmetry in our research context, we also anticipate that this will be moderated by the variation in national institutional settings. This supports our further exploration of these environmental contingency factors through three additional interactive terms. These terms are the formal regulatory institutional quality in a specific offshore jurisdiction and two closely related subcomponents, namely, whether the offshore jurisdiction has retained its European colonial status and whether it has adopted a fixed peg exchange rate regime. These last two distinct characteristics of national institutional environments facilitate the investigation of external investors' evaluations of informational asymmetry risk, as captured by our dependent variable, in relation to the *effectiveness* of nonexecutive directors in monitoring.

Formal institutional quality captures the protections afforded by the formal architecture, such as legal system and judiciary, in the protection and enforcement of minority investor property rights. Higher quality institutions provide frameworks with increased recognition and support for the role of nonexecutive directors in monitoring, where this includes an emphasis on their impartiality and their accountability to outside minority investors. Fundamentally, this protection arises through a deeper philosophical emphasis on third party, external contracting within the wider society. This is reflected in greater independence of legal and judicial systems from national executives, and elevated protections for external contracting facilitate the

national adoption of international best practices in governance. A higher-quality formal institutional architecture also implies that non-executive directors have improved access and recourse to legal redress, inhibiting insider expropriation. This argument for high formal institutional quality is very similar to the theorization in studies on developed economies such as the United States (Dalton & Dalton, 2005) and the United Kingdom (Mura, 2007). Doidge et al. (2007) argued that the technologies used for expropriation are rendered more costly for insiders than simply reinvesting cash flows back into their firms to achieve a lower cost of capital. Together, these arguments emphasize that higher formal institutional quality is associated with greater recognition of the role of nonexecutive directors as impartial monitors of incumbent insiders where this is a key component in the mitigation of deficiencies in external contracting. Given the high level of recognition and protections afforded by the wider institutional framework for minority investor welfare, nonexecutives' personal ownership is associated with increased motivational alignment with outside minority owners where this leads to their improved monitoring. Therefore, in high institutional quality, nonexecutives' ownership will be associated with a reduction in informational asymmetry between minority outside owners and insiders.

Contrastingly, lower levels of formal institutional quality are associated with weaker protections of minority property rights. More specifically, the legal and judicial systems in such environments are relatively underdeveloped, often with incomplete bodies of prior case history in common law systems or dysfunctional bureaucracy in civil code systems. The consequences of this under-development of formal institutional architecture are twofold. First, there is a much greater emphasis on dense socialized interactions and relational contracting, which form the basis for mitigating agency and informational asymmetries between insiders and minority outsiders. These attributes emphasize the much more collaborative, socialized role for non-executive directors acting in conjunction with their executive counterparts. Second, owing to the deficiencies or voids in formal regulatory frameworks (Khanna & Palepu, 2000), there is a lack of recognition of the role of nonexecutive directors in terms of monitoring and evaluation. Consequently, there is greater emphasis on the role of block owners, such as the handfuls of extended families that comprise the majority of block owners in firms, and their associated nonexecutives in terms of socialized interconnectedness. In such circumstances, nonexecutives' personal ownership leads to increased entrenchment with greater reliance on socialized relationships transcending firms. This affords minimal protections against infringements of minority property rights, which leads to elevated informational asymmetry between minority investors and insiders. These arguments lead us to test the following:

Hypothesis 2. In offshore tax havens, the positive association between nonexecutive director ownership and informational asymmetry between outside minority investors and insiders is negatively moderated by formal institutional quality.

Thus far, we have only considered the quality of the aggregate external contracting environment or formal institutional framework. However, there is notable variation in formal institutional frameworks across the Caribbean region. A defining characteristic is the relative smallness and isolation of the territories. Our narrow regional focus on the Caribbean increases our ability to theorize about the dichotomy between developed and developing/emerging frameworks in the typology of national jurisdictions in the international business literature (Cantwell et al., 2010; Meyer & Sinani, 2009; Wang et al., 2012). The developed country frameworks are characterized by reliability and impartiality in the application of the rule of law supporting external contracting, while the developing country frameworks contain institutional voids or deficiencies in the protection of minority property rights. Our institutional theorization addresses Allred et al.'s (2017) call for a third category of formal frameworks, which account for offshore tax havens. Next, we address the theoretical concern that in the context of small open economies and offshore jurisdictions, formal institutional quality that is aggregated in its construction fails to adequately capture the distinctive attributes associated with formal institutional architecture. This is particularly true in the case of smaller territories that have retained their European colonial status, foregoing independence, and those that are independent but have adopted a highly restrictive, macroeconomic fixed peg exchange rate regime.

A defining characteristic of geographically extremely small territories is their predominant retention of colonial relationship with a European metropole. This is largely motivated by the prohibitively high costs in the provision of public goods and services in such small and equally remote island economies (Cobb, 2001; Hines, 2010). These, alongside accompanying existing developed institutional architecture, are transplanted from the metropole to the small island economy under the discretion of indigenous island authorities. The smallness of territories retaining European colonial status also underscores their subversion under the near hegemonic influence of a handful of powerful extended families (Fichtner, 2016; Freyer & Morriss, 2013) whose influence transcends all areas of island societies and constitutes their social fabric. Such families often have considerable socio-emotional attachments to island territories (Fichtner, 2016). Furthermore, their dynasties are typically intertwined with island colonial heritage through their hegemonic control over island political structures where this distinctively shapes institutional development (Hines, 2010). In this way, locally powerful extended families exercise disproportionate power and influence in shaping the formation of island's formal institutional frameworks where these have evolved as inherently bifurcated in character (Cobb, 2001). Such bifurcation is associated with paradoxical institutional frameworks that afford some of the highest quality protections for outside minority property rights in the world on the one hand alongside some of their greatest infringements on the other (Hines, 2010; Suss et al., 2002).

In summary, the powerful interests of handfuls of local extended families are essentially preserved through their hegemonic control of island authorities while their relative autonomy, derived from geographic isolation (Hines, 2010), leads to their exercising of considerable discretion over institutional transplantation within a colonial

relationship. Of fundamental importance, there is a wholesale lack of reliance on indigenous political processes, which are wholly subsumed under a powerful family governance model akin to familial autocracy, in institutional reform and updating. Instead, there is a complete reliance on transplantation from developed European metropolises and the control asserted over this by the handfuls of dominant local families. This avails huge benefits first in terms of extremely small islands' access to first world institutional architecture that would be otherwise impossible to develop endogenously owing to the constraints of their small size and secondly from their having powerful political support of a European metropole. This facilitates taxation treatise negotiation and provides visible credibility to island's nascent offshore jurisdictional frameworks in a form of "regulator of last resort" (Hines, 2010; Suss et al., 2002).

Together, these preceding arguments emphasize the close association of smallness of territories and retention of European colonial status. While this has led to essentially bifurcated offshore jurisdictional frameworks supported by powerful European metropolises, at the same time, the fledgling island societies are entirely dominated by collusion between a handful of overwhelmingly powerful local families. Therefore, European colonies are small and essentially collusive in nature, characterized by extensive social connections, related socialized trust (Granovetter, 1973), and affiliations with a handful of families who have hegemonic influence over societies. Within such contexts, there is negligible emphasis on nonexecutive directors' impartiality and monitoring effectiveness with their roles being almost wholly defined by their social connections and ties to local family interests. Therefore, their higher personal ownership is associated with increased entrenchment and greater motivational alignment to insider family interests where these transcend firms rather than minority outside investors. This exacerbates informational asymmetries between outside minorities and insiders.

Contrastingly, larger territories are more likely to have economic self-sufficiency and sustainability which is supportive of political self-determination and independence from European colonial heritage. North (1991, 1994) argues that this heritage provided the basis from which the institutional frameworks of newly independent territories could then evolve. However, while the framework retains much of the essential character of the heritage, its evolution, reform and updating is undertaken through indigenous political process where this is contingent on the national polity. Of fundamental importance, sovereign territories are wholly reliant on their own domestic, endogenous political systems for the updating and reform of institutional frameworks since their independence implies a cessation in relying on costless transplantation from developed European colonial metropolises. The Achilles heel of indigenous political process is its subversion under the hegemonic control of social elites in demographically narrow polities where this leads to significant deficiencies or voids (Khanna & Palepu, 2000) in the resulting regulatory framework.

In this light, there is an increased emphasis on the role of corporate governance regimes or frameworks in order to remedy the deficiencies in external contracting from institutional voids. This implies some institutionalized support and recognition for the role of non-executive directors in terms of their impartiality and monitoring. Moreover, the emphasis on the central role of indigenous polity in

precipitating institutional reform underscores a greater emphasis on recourse to formal institutional architecture, such as law courts and judiciary. This is accompanied by a reduced emphasis on social collusion and collaboration as prevalent in European colonies where these are entirely subsumed within a family governance model. Consequently, we argue there is increased support for nonexecutive personal ownership as a means of motivational alignment with minority outside investors in more effectively monitoring insiders where this leads to a reduction in informational asymmetry. These arguments lead us to propose:

Hypothesis 3. In offshore tax havens, the positive association between nonexecutive director ownership and informational asymmetry between minority investors and insiders is positively moderated by a territory's preservation of its European colonial status.

As an alternative to retaining a colonial relationship, many very small territories have opted for political independence while simultaneously adopting a fixed peg exchange rate with a dominant trading partner, such as the US\$. The benefits of such a restrictive currency arrangement are that while effectively surrendering control of macroeconomic policy and interest rates to those determined by the dominant foreign state, it facilitates the attraction of supplementary foreign investment through the conveyance of stability and credibility in the indigenous regulatory environment. Moreover, it reduces informational asymmetries and facilitates foreign capital investment and repatriations (Kingsley & Graham, 2017)—essential for the viability of offshore jurisdictions. A critical and often overlooked element in the adoption of a fixed exchange rate is the typically extremely large amount of formal institutional architecture that must be adopted and assimilated which is essential for institutionally supporting the arrangement. This ranges from essential legal and judicial architecture to government apparatus—essential for the maintenance of the fixed currency exchange rate regime.

Territories adopting fixed exchange rate regimes and the accompanying regulatory architecture from the dominant economy with whom their currency's exchange rate is fixed are fundamentally different from those retaining colonial status (Allred et al., 2017; Cobb, 2001; Hines, 2010). The latter are defined by a paradox of visible closeness in their institutional frameworks to those of a colonial metropole, yet at same time, these frameworks are bifurcated and belie powerful and opaque local family interests (Fichtner, 2016; Freyer & Morriss, 2013). While such a paradox underscores their competitive advantage as offshore secrecy havens, it also underscores a more insular character with underlying societies centered on collusion between a small number of extended families (Allred et al., 2017; Cobb, 2001; Hines, 2010). Conversely, national polities in the former fixed currency regimes emphasize openness and a receptivity towards more far-reaching assimilation of the institutional architecture from the dominant trading partner across the wider business environment. This implies enhanced institutionalized recognition for the role of

nonexecutive directors in terms of monitoring and promoting transparency. The political commitment to maintaining high quality regulatory architecture, in order to maintain the exchange rate regime, also implies an increased emphasis on recourse to formal dispute resolution mechanisms and external contracting given the enhanced protections afforded to it. Consequently, we argue there is increased support for nonexecutive personal ownership as a means of incentivizing enhanced monitoring as opposed to entrenchment where this leads to a reduction in informational asymmetry.

Contrastingly, countries with floating exchange rates typically have larger economies accompanied with increased reliance on endogenous institutional reform and updating achieved through indigenous political processes. These are subject to the idiosyncrasies of the often demographically narrow, moribund national polities and lack the political commitment to maintaining fixed exchange rate and accompanying high quality supportive regulatory architecture. Therefore, countries with floating exchange rates are more prone to having formal institutional frameworks characterized by voids. In essence, larger territories with sovereignty in terms of political independence and macroeconomic arrangements are more prone to weaknesses arising from the limitations of national polities dominated by social elites and resulting cronyism (Moon & Schoenherr, 2021). Given the voids in external contracting, there is a greater emphasis on relational contracting and social collusion to engender socialized trust (Granovetter, 1973) in firms' resource acquisition. Together, these arguments emphasize much weaker institutionalized support for the role and impartiality of nonexecutive directors while their elevated ownership is more associated with entrenchment as opposed to monitoring effectiveness where this leads to higher informational asymmetries between insiders and minority investors.

In summary, these arguments imply that a fixed currency regime in a territory will reduce, or negatively moderate, the association between nonexecutive ownership and informational asymmetry.

Hypothesis 4. In Caribbean offshore tax havens, the positive association between nonexecutive director ownership and informational asymmetry between minority investors and insiders is negatively moderated by a fixed peg exchange rate currency regime.

3 | DATA

Our Caribbean sample comprises formal securities markets that attract domestic and foreign listed firms. Consequently, we omit the informal *Saint Vincent and the Grenadines Securities Exchange*, which lacks recognition by national regulators; the *Haitian Stock Exchange* in francophone République d'Haïti; and the *Bolsa de Valores de la República Dominicana* in Hispanic (Spanish-speaking) República Dominicana. The latter two markets have attracted no equity listings since their inceptions. Our final omission is the *Dutch Caribbean Securities Exchange* in Curaçao, Netherlands Antilles, which is designated an offshore market focusing solely on the attraction of international

listings.² This leads to a final sample comprising eight established equity markets: those of Bermuda, The Bahamas, Barbados, the Cayman Islands, Jamaica, the regional Eastern Caribbean Securities Exchange, Trinidad and Tobago, and Guyana.

The dataset is unique and is constructed in three stages. The first stage involves the compilation of a comprehensive list of firms with listed ordinary shares. These are single class voting rights, namely, one share equals one vote. Thus, entities with primary listings of dual or multiple class shares, preference shares, and convertible instruments are removed from consideration. A list of listed firms is compiled for each Caribbean stock exchange from 2000 or its year of inception, whichever date is earliest. These lists also consider new listings, suspensions, and de-listings that occurred during the period 2000–2017 inclusive to account for potential survivorship bias in the final dataset. Such listing data are obtained from the national stock exchanges (see Table A1). This results in 179 listed firms.

The second stage in the construction of the dataset involves the procurement of the individual listed firms' annual reports from across the Caribbean region. Some firms' annual reports are obtained directly from the national stock exchange websites of The Bahamas, Bermuda, Jamaica, and Trinidad and Tobago. Other firms' annual reports are obtained directly from the national exchanges of Barbados and the Eastern Caribbean Securities Exchange, and additional direct procurement is undertaken from the national regulator (GASCI) in the case of Guyana. Individual listed firms' websites are used for procurement in the case of the Cayman Islands, which is relatively efficient given the handful of listings. Additional recourse to individual listed firms is undertaken across the Caribbean region to supplement the original data collection and augment any missing values (annual reports). This leads to an unbalanced panel sample of 171 listed firms' annual reports. However, there is some variation in the consistency of the availability of the annual reports, and there are various omissions prior to 2004. All of the firm-specific balance sheet and governance variables are sourced directly from the collected annual reports.

The third and final step in constructing the dataset is in the procurement of secondary market financial trading data. This entails the systematic collection of daily bids, asks, closing prices, traded volumes, and numbers of shares issued and outstanding. These data are sourced exclusively from Bloomberg for Jamaica and Trinidad and Tobago. However, they are collected directly from the respective exchanges for Guyana, The Bahamas, Barbados, the Cayman Islands, Bermuda, and Eastern Caribbean. All data are converted to US\$ end-of-period equivalent values to facilitate comparison in a multicountry sample. This leads to a final sample of 146 listed firms with secondary trading data across 14 years.

4 | METHODS

4.1 | Dependent variable

We measure the costs associated with a single buy or sell order submission into a trading system compared to the full spread, which is

representative of a “round trip” consisting of both the buy and sell legs when buying into and then liquidating a trading position (see Stoll, 2000). This is calculated by averaging the current month's average bid-ask spread and the preceding month's average bid-ask spread. The average monthly bid-ask spread is estimated by subtracting the monthly average end-of-day closing bid (buying) prices from their ask (selling) price equivalents and then dividing this number by the midpoint of those monthly average bid-ask prices.³ Our use of averages minimizes outliers and averages out the highs and lows in quotes that result from monthly sampling.

Central to our theorization is the notion that informational asymmetry between insiders and outsiders can be represented as a form of measurable cost. We adopt the bid-ask spread as our cost construct, which provides a measure of the costs involved in equilibrating price differences attached to buy and sell orders, as reflected in bid and ask prices, respectively, to consummate trades and clear the market for a given asset (Box & Griffith, 2016). These trading costs, captured in the price differences, are informational in nature and relate to the probability of an uninformed market participant trading with an informed counterpart (Glosten & Harris, 1988). In larger markets, this model is extended to capture the costs for designated market maker brokers, who are contractually obliged to maintain markets in less actively traded, smaller assets, in terms of their risks from trading assets between uninformed and informed traders (Bollen et al., 2004; Madhavan, 1992).

However, in extremely small markets where there are at most a handful of brokers, we argue that the information and market design circumstances are slightly different. First, the minimal order flow underscores the lack of viability for market maker brokers who would otherwise receive compensation through holding a monopoly position in certain assets—a position derived from their market-making obligation. Here, the bid-ask spread additionally includes the brokers' order processing costs, their compensation for their services in the form of monopoly rents, and asymmetric information costs (Collin-Dufresne & Fos, 2015). Second, there is a considerable emphasis on the stock exchanges, as well as the associated clearing facilities, and all the stock brokers to jointly “maintain” the markets so that the markets do not succumb to “failure” owing to exacerbated informational asymmetries. We argue that the implications of this are twofold. On the one hand, there is a need to maintain legitimacy through the application of globally recognized regulatory norms embodied in notions of “best practices.” This is exemplified through often voluminous regulatory measures designed to counter insider information trading, which occurs in predominantly large, developed markets such as London and New York. This need to maintain legitimacy implies that brokers quote bid and ask prices to their external minority investor clients that at least best estimate the true level of the underlying informational asymmetry within the market for a given firm or asset. However, on the other hand, great importance is attached to the signals of quality and credible contracting that are associated with listed firms, such as retained ownership by nonexecutive directors; such signals are deemed to reliably convey the otherwise concealed true value of listed firms.

We argue that in smaller stock markets with a high barrier to entry and a handful of licensed brokers, powerful interdependencies

exist within the brokerage community, curbing excessively high gains on trades and overly high monopoly rents. This constitutes a form of market discipline in these dense communities, which is essential given that the sole means of economic viability for brokers is to levy bid-ask spreads within the trading price discovery mechanism. This is similar to the fledgling local foreign exchange brokerage markets in the Caribbean, where the market power of individual brokers influences their monopoly rent extraction and ultimately influences the exchange rate (Khemraj & Pasha, 2014). Finally, a critical issue in these smaller stock markets is that informational asymmetry becomes so significant that it precipitates a prohibitive widening of bid-ask spreads to protect uninformed investors from being outpriced by investors with superior information (Vayanos & Wang, 2007).

In summary, these arguments emphasize that bid-ask spreads are attributable to a combination of brokers' order processing costs, monopoly rent compensation for their price discovery services, and adverse selection. The order processing costs and monopoly rents are largely a function of adverse selection. Consequently, bid-ask spreads are useful as an evaluative measure of informational asymmetry.

4.2 | Explanatory variable

Our study uses one explanatory variable, namely, the percentage of ownership by all nonexecutive directors. Individual nonexecutive directors are identified from the director biography sections of the annual reports. Their individual personal ownership holdings are sourced from the shareholder sections, which are usually in the appendices or notes of annual reports. It should be noted that we identify personal nonexecutive director holdings as those holdings that are attributed to their individual selves, whereas holdings that are attributed to nonexecutive directors who are part of a family or business group entity fail to count for the individual director but instead count towards the family or business group. Thus, nonexecutive ownership is the ownership that is attributable to independent nonexecutives, which is the focus of our first hypothesis. We follow previous studies (e.g., Dalton et al., 2003; Filatotchev & Bishop, 2002) and use the percentage ratio of the total number of ordinary shares nonexecutives own to the total number of firm shares issued and outstanding.

4.3 | Moderating variables

Our three moderators are measured as follows. The first moderating variable, namely, formal institutional quality, is measured using the World Governance Indicator (WGI) index. The variable is formed from the equally weighted average of the six WGI metrics⁴ (Kaufman et al., 2009). The six dimensions are (1) voice and accountability, (2) political stability and the absence of violence/terrorism, (3) government effectiveness, (4) regulatory quality, (5) the rule of law, and (6) the control of corruption. Detailed definitions of the six metrics and their sources are provided in Table A1. These six dimensions range in value from -2.5 to $+2.5$ but are rebased here to a 0–10 scale

prior to aggregation. To mitigate collinearity concerns, formal institutional quality is centered and normalized.

Our second moderator is the European colony variable, which takes the value of 1 if the listing jurisdiction is a European colony and zero otherwise. Our measure for the third moderator takes the value of 1 if the listing jurisdiction has a fixed peg exchange rate regime with a dominant country trading partner and zero otherwise. It should be noted that due to the fixed currency regime and formal institutional quality variables being almost perfectly collinear, we include the three moderating variables in separate models. Therefore, the European colony retention variable is included with the formal institutional quality and fixed currency regime variables, but the latter two variables are not included together in any model. The inclusion of all interactive terms is accompanied by rigorous checks on the variance inflation factors (VIFs), which are consistently under the value of 4 in all of the models.

4.4 | Control variables

Our choice of controls is very specific in order to align our study with the market microstructure literature. This is of critical importance given that our dependent variable is the quoted bid-ask spread, which we use as a proxy for informational asymmetry. We adopt three sets of controls.

The first control is a single *ownership control*, which aggregates all of the block ownerships in the listed firms other than the ownership that forms the basis of the main effect, namely, that of the founder or non-founder directors. This control is included to mitigate potential omitted variable bias and is reported in annual percentage terms. The values are extracted from ownership holdings statements or the notes/appendices sections within the annual reports.

The second control is an *institutional control* represented by the aggregate stock market capitalization to gross domestic product (GDP) ratio, expressed as an annual percentage and obtained from the World Bank database. This control captures the degree of the importance of stock market intermediation in the wider economy.

The third control is a set of specific *microstructural controls* prescribed by the market microstructural finance literature (see Stoll, 1978, 2000); these microstructural controls capture four dimensions of market microstructures, each of which is converted to its natural logarithm. *Price* is measured as the monthly average daily closing price for each stock and is calculated over the preceding trading month. This controls for the discreteness of the effects of quoted trade price clustering at fractional levels, such as $1/8$,⁵ and the resultant impact on the spreads (Harris, 1994). *Volatility* is measured as the daily standard deviation of stock price returns, which is determined from the differences between the daily closing stock prices, as expressed in local currency terms. This controls for potential changes in the value of the inventory holdings of market makers, where such additional risks are included in the spreads (Bollen et al., 2004). *Traded volume* is measured as the total number of shares traded daily for each listed stock, averaged over each month. The above three variables are averaged across the preceding year. Transactional volumes are related to order processing risks in that lower volumes incur higher order processing costs, which are, in turn, reflected in the

spreads (Stoll, 1978). Size is the final variable, and following Schnatterly et al. (2008), we drop market capitalization as the measure and adopt total assets, which mitigate concerns over collinearity with stock prices while being relatively constant over the course of the preceding year. Large firms have more transparent informational environments owing to the higher analyst coverage that results from their inclusion in national blue chip indices as well as the media and press coverage that results from the size and complexity of their operations. While the opposite is true for smaller firms, these firms are less compliant with the dispersed ownership model and more likely to be governed by dominant block owners, such as families. This exacerbates informational asymmetries, leading to higher spreads. Closing stock prices and traded volumes are obtained on a daily basis directly from each national stock exchange. The total number of shares issued and outstanding and the total assets for each firm are obtained directly from the respective annual report.

4.5 | Empirical model

We construct pooled ordinary least squares (OLS) regression models based on unbalanced panels with firm-years as the units of observation. In line with Schnatterly et al. (2008), our pooled estimators draw on both cross-sectional (firms) and time series dimensions, which addresses a shortcoming in the prior literature in which only individual cross sections were considered (e.g., Stoll, 2000). However, this design presents two modeling concerns. The first concern is the presence of stochastic martingales within the price time series data-generating processes, which is an issue in finance-based studies. This is mitigated by our use of low-frequency annual data and a sample group comprising highly illiquid and price-static markets. The second concern relates to potential autocorrelation and heteroskedastic issues regarding the time series component in the errors. To circumvent these issues, we adopt industry⁶ and time (year) binary effects. These binary effects also facilitate controlling for latent or unobservable differences between firms, such as differences in industries, levels, regulation, or governance and ownership, in line with Schnatterly et al. (2008). Next, we apply White's cross-sectional standard error and covariance estimator, which take into account potential period (time series) clustering while clustering by country in the standard errors.

Three sets of regressions are estimated. The first corresponds to the main effect, namely, the nonexecutive director category of block ownership. This allows for testing the main effect suggested in *Hypothesis 1*. The second and third sets correspond to moderation by the WGI institutional quality index as suggested in *Hypothesis 2* and by the European colony and a fixed peg exchange rate regime as suggested in *Hypotheses 3 and 4*, respectively.

5 | EMPIRICAL RESULTS

5.1 | Descriptive statistics

The evidence in Table 1 reveals a number of distinct trends in the listed firms across the Caribbean region as a whole. Formal

institutional quality is notably the highest in the European colonial territories of Bermuda (77.85%) and the Cayman Islands (76.44%) and progressively decreases in other notable offshore jurisdictions such as The Bahamas (76.14%), with the weakest formal institutional quality appearing in the much larger, developing economies of Trinidad and Tobago (56.97%), Jamaica (55.23%), and Guyana (45.76%). One prominent exception in this trend is Barbados, with a value of 80.21%. Generally, this trend is reversed for the average firm bid-ask spreads, where Bermuda has the highest values (21.68%) and Trinidad and Tobago has the lowest values (2.85%). There are some notable exceptions, however, such as the severely under-developed securities market in Guyana (18.22%).

Despite the dominance of English common law across the sample countries, with the exception of Saint Lucia's French civil code (White, 1961) and Guyana's mixed Roman-Dutch system (Cooray, 1974; Lee, 1914), only 56.90% of the firms in the sample have single-tier, unitary boards of directors, which are ubiquitous to Anglophone governance systems. This is largely explained by the prevalence of extended family business groups across the region, which often have overlapping control over certain firms, as the dual-tier structure is preferable in accommodating those overlapping interests. The board sizes are large, comprising between 8 and 10 directors on average, while over 70% of these directors are nonexecutive directors. Typically, between 15% and 25% of them are independent non-executive directors, underscoring the lack of genuine independence across the island jurisdictions, where family institutions overwhelmingly dominate. Finally, nonexecutive director ownership is less than 2% across the sample, subject to significant variation between countries. This relatively low level of nonexecutive ownership is reflective of findings of similarly low nonexecutive ownership by others, such as Dalton et al. (2003) in a sample of U.S. firms, Mura (2007) in a sample of U.K. listed firms, and Filatotchev (2005) in a sample of U.K. IPO firms.

Further evidence of the variation across the Caribbean region is shown in Table 2. The bid-ask spreads are both high and variable, while nonexecutive director ownership is 1.3% on average, with a standard deviation of 4.6% and a range of 0–50%. Formal institutional quality also exhibits substantial variation across the sample, although it should be noted that this variable is statistically normalized. Furthermore, 11.2% of the sample firms are located in the European colonial territories of Bermuda and the Caymans, while 41.7% of the sample firms are located in fixed peg exchange rate, or currency, regimes. There is also considerable variation in the importance of stock market finance in relation to national GDP across the region, with an average of 65%, a standard deviation of 30.0%, and a range of zero to 164.5%.

5.2 | Bivariate analysis

The evidence from the bivariate correlation analysis (Table 2) reveals minimal correlations among the variables, while the majority are statistically significant ($p \leq .05$). There is one notable exception: the

TABLE 1 Descriptive statistics

Market	State-level				Firm-level						
	N	Institutional quality % [SD]	Bid-ask spread % [SD]	Board type: Unitary % Dual tier %	Board size # [SD]	Ratio of nonexecutive directors		Ratio of independent nonexecutive directors		Nonexecutive director ownership	
						% [SD]	% [SD]	% [SD]	% [SD]	% [SD]	% [SD]
<i>Atlantic</i>											
Bermuda	14	77.85 [2.90]	21.68 [24.32]	24.40	75.60	9.46 [3.47]	71.61 [13.00]	16.88 [12.39]	1.33 [3.40]		
<i>Northwest</i>											
Cayman islands	3	76.44 [4.21]	12.00	88.00	9.00 [0.00]	73.09 [7.69]	11.69 [10.78]	0.38 [1.04]		
The Bahamas	18	76.14 [4.75]	9.95 [17.57]	45.50	54.50	8.49 [2.01]	69.29 [26.52]	23.89 [18.98]	4.11 [11.18]		
Jamaica	72	55.23 [1.73]	12.97 [17.79]	57.40	42.60	8.80 [2.38]	77.98 [17.24]	25.27 [16.73]	0.69 [1.86]		
<i>Eastern</i>											
Barbados	17	80.21 [2.66]	11.29 [11.12]	45.10	54.90	8.69 [2.23]	75.61 [16.17]	16.31 [13.28]	0.50 [1.00]		
ESCE	13	68.72 [5.67]	12.11 [13.90]	42.00	58.00	9.19 [1.72]	91.54 [16.89]	22.91 [16.42]	0.23 [0.69]		
<i>Leeward Islands</i>											
St. Kitts & Nevis	5	69.99 [6.00]	11.65 [12.50]	40.00	60.00	8.38 [1.87]	88.58 [20.14]	21.78 [11.21]	0.46 [0.94]		
<i>Windward Islands</i>											
Dominica	1	69.49 [2.54]	10.19 [6.85]	32.50	66.20	8.85 [2.10]	78.24 [13.88]	26.34 [18.74]	1.69 [8.84]		
Saint Lucia	3	72.03 [4.45]	19.71 [21.59]	0.00	100.00	10.00 [0.00]	100.00 [15.27]	23.20 [9.88]	0.02 [0.02]		
Grenada	3	62.92 [1.68]	7.09 [6.07]	62.90	37.10	10.28 [1.50]	99.04 [2.69]	34.12 [25.46]	0.00 [0.00]		
St. Vincent & the Grenadines	1	69.71 [3.39]	0.00	100.00	9.25 [1.03]	76.56 [9.05]	6.25 [5.17]	0.00 [0.00]		
<i>Southern</i>											
Guyana	12	45.76 [1.87]	18.22 [25.73]	100.00	0.00	7.37 [2.41]	62.49 [21.68]	7.82 [8.91]	1.81 [4.71]		
Trinidad & Tobago	30	56.97 [1.58]	2.85 [2.23]	100.00	0.00	9.42 [2.28]	75.74 [16.94]	14.52 [15.22]	2.33 [5.88]		
Sample average	171	64.79 [11.88]	12.17 [17.83]	56.90	43.10	8.83 [2.42]	75.64 [19.74]	20.18 [16.49]	1.45 [5.29]		

Note: The table reports the number of firms, N, per country and includes all firms currently listed alongside all firms that were listed and then subsequently delisted or that suspended their listings during the sample timeframe of 2000–2017. This mitigates survivorship bias. The firm-level bid-ask spread is the quoted bid-ask spread. State-level institutional quality is the equally weighted average of the six WGI metrics, as defined by Kaufman et al. (2009) and sourced from <http://info.worldbank.org/governance/wgi/index.aspx#faq>. Board size is the total number of directors serving on the board of directors. The ratio of nonexecutive directors is the percentage of board members that are nonexecutive directors. The ratio of independent nonexecutive directors is the ratio of independent nonexecutive directors to the total board size. Nonexecutive ownership is the percentage level of ownership held by nonexecutive directors. SD is the standard deviation across the listed firms and years within a particular country.

correlation between the formal institutional quality and fixed currency regime variables (0.929, $p \leq .01$). This supports our decision not to include both of these variables in any one of our models. This omission from joint inclusion is further justified by the VIF analysis, where following the removal of one of the two variables, all of the VIFs are less than 4 in absolute value. It is also worth noting that due to our small sample size and the acute sensitivity of financial time series variables to potential collinearity in the time series dimension of pooled estimators, we extensively use VIFs as a means to determine which model best minimizes the issues and potential risks associated with collinearity as well as heteroscedasticity and autocorrelation in errors.

5.3 | Multivariate results

The results of the empirical tests performed on our first two hypotheses are shown in Table 3. Notably, in model 1, there is a large positive association (+0.485, $p \leq .005$) in the main effect between non-executive director ownership and bid-ask spreads.⁷ This evidence statistically supports *Hypothesis 1*. It is in line with Heflin and Shaw's (2000) thesis that increased block ownership exacerbates informational asymmetries, leading to increased adverse selection risk for minorities as reflected in wider bid-ask spreads. In practical terms, this implies that a one-standard-deviation increase in non-executive director ownership leads to a 48.5% increase in bid-ask spreads.

Next, we moderate the ownership variable by the normalized formal institutional quality index. Our results are reported in model 2, Table 3. These results reveal a large, positive, and statistically significant main effect association between non-executive ownership and bid-ask spreads (+0.733, $p \leq .005$), which is moderated by formal institutional quality (−0.569, $p \leq .005$). This supports *Hypothesis 2*. In practical terms, the moderation partially cancels out the main effect, implying that a one-standard-deviation increase in non-executive director ownership is accompanied by a 16.4% net increase in bid-ask spreads in higher-quality formal institutional jurisdictions compared to their lower-quality counterparts. This reduction in bid-ask spreads in the context of high institutional quality is akin to the findings of single-country studies of the impact of non-executive ownership on various measures of firm performance, such as by Dalton et al. (2003), which exclusively focus on large developed markets such as the United States and Europe.

Next, we introduce the moderating European colonial status retention and fixed exchange rate regime variables. In model 3, Table 3, we moderate by retaining the European colonial status of the listing jurisdiction. The main association between non-executive ownership and bid-ask spreads (+0.428, $p \leq .01$) is further positively moderated by the binary effect of European colonial status retention (+0.717, $p \leq .01$). This provides statistical support for *Hypothesis 3*. In practical terms, this implies that a one-standard-deviation increase in non-executive director ownership is accompanied by a 114.5% increase in bid-ask spreads in jurisdictions maintaining European colonial status compared to jurisdictions that are independent.

In model 4, Table 3, we moderate by assigning the listing jurisdiction a fixed peg exchange regime. The main association between non-executive ownership and bid-ask spreads (+0.712, $p \leq .005$) is negatively moderated by the binary effect of the fixed peg currency regime (−0.597, $p \leq .005$). This provides statistical support for *Hypothesis 4*. In practical terms, the moderation cancels out some of the main association, with a one-standard-deviation increase in non-executive director ownership accompanied by a 52.58% increase in bid-ask spreads in jurisdictions maintaining a fixed peg currency exchange rate regime compared to those that have independently managed floating-rate arrangements.

More generally, across the controls, there is a consistently negative and statistically significant association between all block owners (other than non-executive directors) and bid-ask spreads. This implies that a one-standard-deviation decrease in other block ownership leads to between a 3.4% and 3.5% decrease in bid-ask spreads. There is also a consistently negative association between the ratio of market capitalization to GDP and bid-ask spreads, where a 1% increase in this ratio leads to between a 1.7% and 1.8% reduction in bid-ask spreads. Finally, market microstructural controls and stock prices lack statistical significance, stock price volatility is positively associated with bid-ask spreads, and both traded volume and total assets are negatively associated with bid-ask spreads. These associations are in line with those found by both Stoll (2000) and Schnatterly et al. (2008).

As a final note on our diagnostic statistics, the adjusted R^2 s from all of the models are in line with those in the literature.

Using model parameter estimates, we input a range of values for non-executive ownership, first, in conjunction with the continuous normalized formal institutional quality index measure and, second, in conjunction with the binary metrics accounting for the listing jurisdictions retaining European colonial status and maintaining a fixed exchange rate regime. These moderation plots are shown in Figures 1–3.

The evidence from Figure 1 reveals that at low levels of non-executive director ownership, there is little impact on informational asymmetry across the entire range of formal institutional quality in terms of variation in bid-ask spreads. Conversely, at increasing levels of non-executive director ownership, there is substantial variation in relation to formal institutional quality. Notably, at low levels of formal institutional quality, higher non-executive director ownership is associated with extremely high informational asymmetry, as reflected in the bid-ask spreads. As formal institutional quality improves this informational asymmetry, the bid-ask spreads rapidly decrease to negligible levels.

The evidence from the binary interactive plots in Figures 2 and 3 supports the above finding in that in Figure 2, informational asymmetry in terms of bid-ask spreads rises much more steeply in the context of increasing non-executive director ownership within jurisdictions with European colonial status as opposed to sovereign territories. Conversely, in Figure 3, informational asymmetry, in the form of bid-ask spreads, is negligibly higher in the context of non-executive director ownership in fixed exchange rate regimes compared to comparable floating currency regimes.

TABLE 2 Descriptive statistics and correlations

	Mean	SD	Max	Min	1	2	3	4	5	6	7	8	9	10	11
1 Quoted bid-ask spread	0.121	0.170	2.000	0.000	1.000										
2 Nonexecutive ownership	0.013	0.046	0.500	0.000	.049**	1.000									
3 European colony	0.112	0.315	1.000	0.000	.200**	.012	1.000								
4 Fixed currency regime	0.417	0.493	1.000	0.000	.086***	-.005	.419***	1.000							
5 Formal institutional quality	0.457	0.527	1.312	-0.527	.055**	-.009	.441***	.929***	1.000						
6 Market cap/GDP ratio	0.650	0.309	1.654	0.000	-.007	-.164***	-.195***	-.320***	-.270***	1.000					
7 Block own excl. nonexecutive	0.477	0.565	4.697	0.021	-.007	.005	.452***	.210***	.294***	-.114	1.000				
8 Log (price, US\$)	-0.587	2.353	4.024	-7.699	-.048**	.102***	.390***	.649***	.613***	-.354	.275***	1.000			
9 Log (volatility)	11.432	3.009	19.660	1.609	-.169***	-.079***	-.257***	-.625***	-.501***	.272	-.115***	-.689***	1.000		
10 Log (volume)	-4.263	1.139	1.401	-9.957	.291***	-.042*	.185***	-.031	-.023	.123	-.051**	-.357***	.241***	1.000	
11 Log (total assets)	18.319	2.179	23.201	9.348	-.271***	-.029	.028	.159***	.154***	-.211	.062*	.429***	.013	-.195***	1.000

Note: The table outlines the Pearson correlations between all of the variables as well as the individual variable means and standard deviations. The state-level institutional quality index has been normalized.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

TABLE 3 Nonexecutive director ownership and bid-ask spread OLS regression results

	Dependent variable: Quoted bid-ask spread			
	Main effect Model 1	Moderated effect Model 2	Moderated effect Model 3	Moderated effect Model 4
Intercept	0.853 [0.10]***	0.834 [0.10]***	0.867 [0.09]***	0.837 [0.10]***
Explanatory variables				
H1: Nonexecutive own	+0.485 [0.17]***	+0.733 [0.17]***	+0.428 [0.17]**	+0.712 [0.15]***
H2: × institutional quality	-- --	-0.569 [0.21]***	-- --	-- --
H3: × European colony	-- --	-- --	+0.717 [0.43]**	-- --
H4: × fixed currency regime	-- --	-- --	-- --	-0.597 [0.22]***
European colony	+0.069 [0.01]***	+0.072 [0.01]***	+0.062 [0.01]***	+0.072 [0.01]***
Fixed currency regime	-0.007 [0.01]	-- --	-0.009 [0.01]	-0.001 [0.01]
Institutional quality	-- --	-0.001 [0.01]	-- --	-- --
Ownership control				
All other block holders own	-0.033 [0.02]**	-0.035 [0.02]**	-0.035 [0.01]***	-0.034 [0.02]**
Institutional control				
Market cap/GDP	-0.017 [0.00]***	-0.017 [0.00]***	-0.018 [0.00]***	-0.017 [0.00]***
Microstructural controls				
Log (price, US\$)	-0.001 [0.01]	-0.001 [0.01]	-0.001 [0.01]	-0.002 [0.01]
Log (volatility)	0.039 [0.01]***	0.038 [0.01]***	-0.013 [0.00]***	0.038 [0.01]***
Log (volume)	-0.013 [0.00]***	-0.012 [0.00]***	0.038 [0.01]***	-0.012 [0.00]***
Log (total assets)	-0.021 [0.00]***	-0.021 [0.00]***	-0.021 [0.00]***	-0.021 [0.00]***
N (Obs)	1343	1343	1343	1343
F statistic (prob.)	12.022 [0.00]	12.027 [0.00]	11.824 [0.00]	11.943 [0.00]
Log-likelihood	691.61	696.32	693.13	695.00
Adjusted R ²	0.2519	0.2566	0.2530	0.2551

Note: The table reports the OLS regression results from the unbalanced panels of the dependent variable (bid-ask spread) against the explanatory and control variables on a sample of 146 firms with up to 14-year-long time periods, leading to 1343 firm-year observations.

White's cross section standard errors and covariances (d.f. corrected) are in parentheses. Industry and time fixed effects are included.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

5.4 | Supplementary analysis

As a final exercise, we moderate our main association between non-executive director ownership and the dependent variable by each of the six disaggregated WGI formal institutional quality dimensions. It is notable when moderating with one dimension that we aggregate the remaining five and include this value as a control to mitigate omitted variable bias. The results are presented in Table 4, where models 6 and 9 have visibly higher adjusted R^2 s and log-likelihood ratios than all of the other models, corresponding to moderation by corruption control and rule of law, respectively. This evidence emphasizes that corruption control and the rule of law are the two principal dimensions influencing bid-ask spreads across Caribbean offshore jurisdictions.

As a final robustness test, we included a profitability measure, namely, accounting return on assets (ROA) as an additional control in the main model 1. The coefficient was very small and wholly lacked

statistical significance at any discernible confidence margin. The results are not reported due to brevity but available from authors upon request.

6 | DISCUSSION

Our study is the first to undertake an exploration of the impact of non-executive director ownership on informational asymmetry as captured by firms' traded stocks' bid-ask spreads within an offshore jurisdictional context. In accordance with our expectations, we find that higher levels of nonexecutive director ownership are associated with substantially elevated informational asymmetry. Our use of bid-ask spreads quoted by stockbrokers within markets is a unique measure of informational asymmetry and is based on the brokers' estimates of the levels of informational asymmetry in a given listed firm's stock in relation to the anticipated trading cost incurred by outside minority investors.

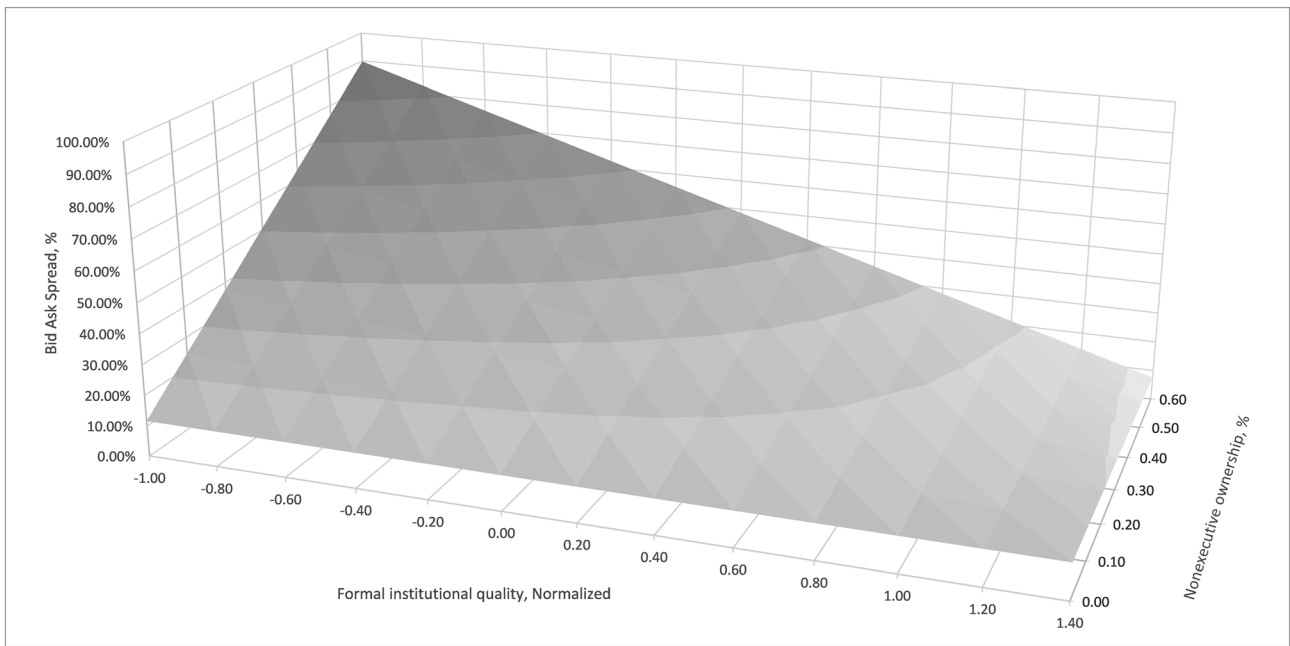


FIGURE 1 Nonexecutive ownership and moderation by institutional quality

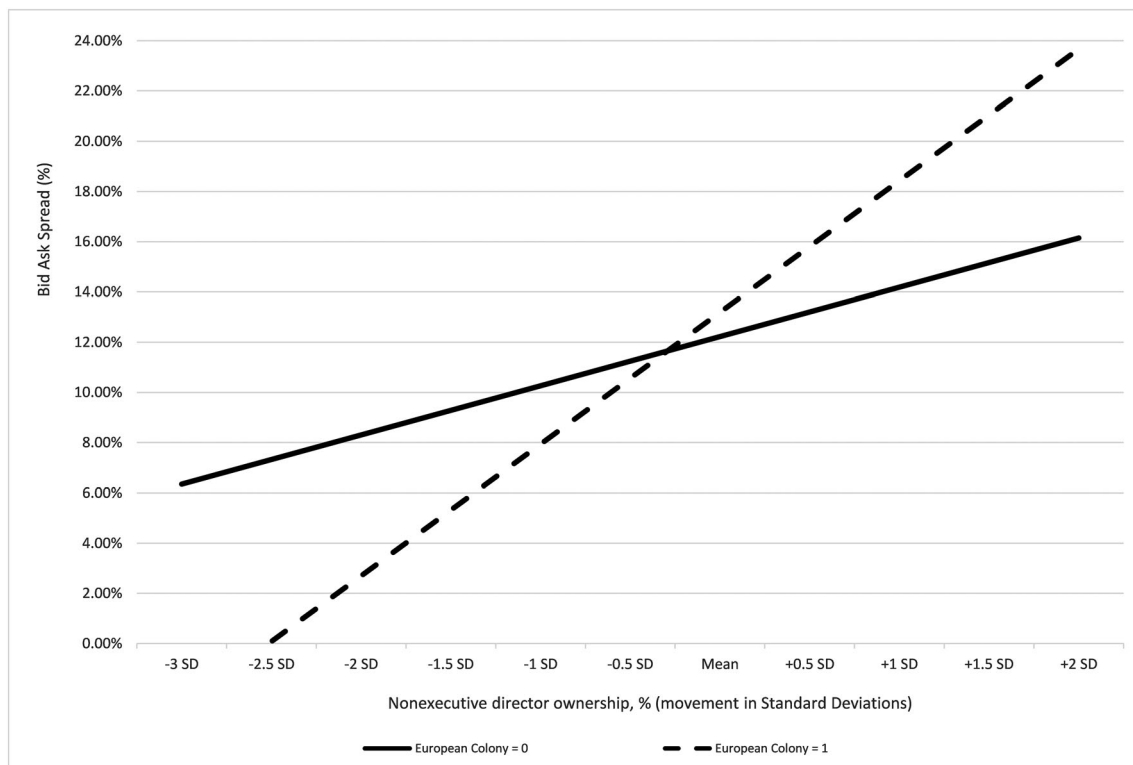


FIGURE 2 Nonexecutive ownership and moderation by European colony

Conceptually, our findings are intuitive given the smallness of predominantly offshore island economies, which are almost entirely controlled by handfuls of families that have a hegemonic influence over the national institutional frameworks. Such extensive familial influence underscores the extensive socialization of these nascent island economies and the density of social interconnectedness upon which they are

founded. In such contexts, nonexecutive directors are inherently socially interconnected both to firm owners, who are predominantly families, and to the extended families that hegemonically control the island economies. This leads to notions of nonexecutive directors being impartial monitors and their independence and avoidance of conflicts of interest being at best superfluous. We argue that nonexecutive

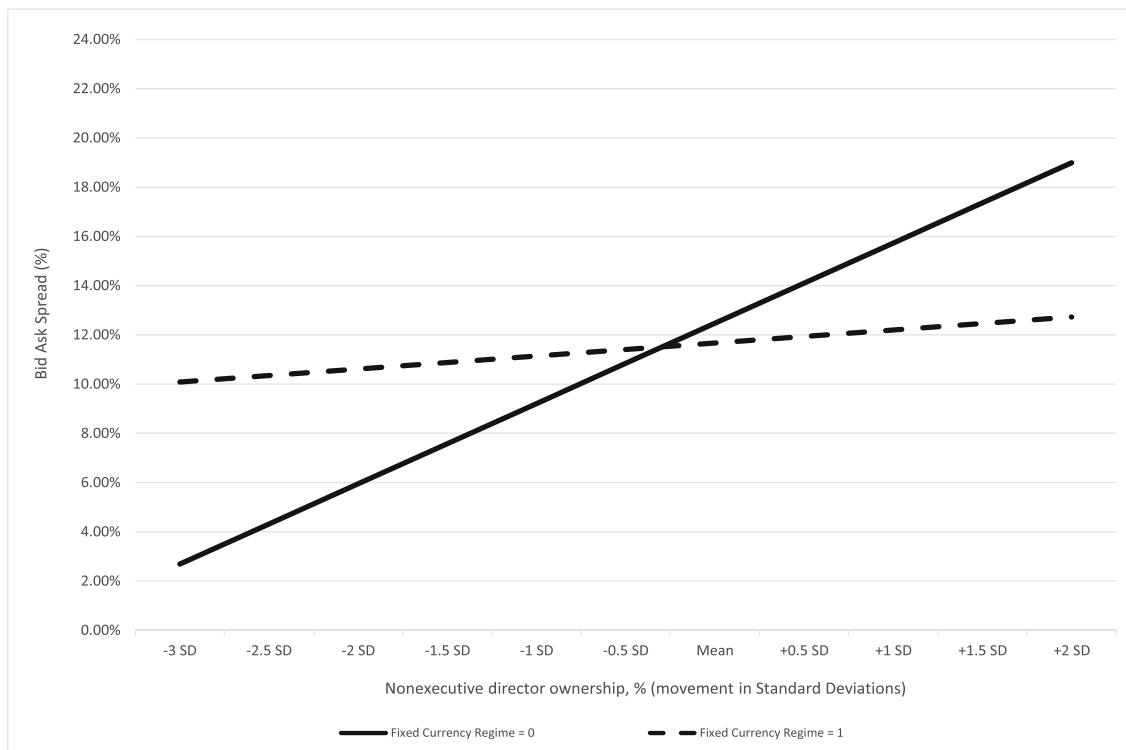


FIGURE 3 Nonexecutive ownership and moderation by fixed currency regime

directors need such dense social interconnectedness to facilitate access to resources. However, from the perspective of outside minority investors or stakeholders, these traits constitute significant risks to their property rights given the reduced emphasis on monitoring, which is reflected in increased informational asymmetry and quoted bid-ask spreads.

Empirically, we extend this underlying relationship between non-executive director ownership and informational asymmetry in the form of quoted bid-ask spreads through moderation by three institutional metrics. Our first moderator is formal institutional quality, and our findings indicate that nonexecutive director ownership is associated with heightened informational asymmetry and related bid-ask spreads only at lower levels of formal institutional quality. Conversely, nonexecutive director ownership has a nearly negligible impact on informational asymmetry at either lower levels of ownership or progressively higher formal institutional quality. Intuitively, lower institutional quality environments provide fewer protections for external contracting, with a resulting emphasis on relational contracting through social interconnectedness. Nonexecutive directors within such contexts are valued in terms of their social connections that facilitate access to resources and convey the legitimacy of their firms. However, such interconnectedness in conjunction with the reduced effectiveness of impartial monitoring implies higher informational asymmetry and thus elevated bid-ask spreads. We argue that the opposite is true in contexts of higher formal institutional quality, where external contracting is more prevalent and better supported.

Finally, we extend our analysis by moderating by two additional institutional characteristics, namely, whether the jurisdictions are

European colonies and whether the jurisdictions have a fixed exchange rate regime. Our findings reveal that nonexecutive director ownership is associated with considerably higher informational asymmetry, in terms of bid-ask spreads, in jurisdictions that are European colonies compared to those that are sovereign. This is seemingly counterintuitive in that it goes against various assertions of the “law and finance” research that link institutional quality with “better” governance at the firm level (La Porta et al., 1998, 1999). Next, our evidence reveals that in the context of jurisdictions that are sovereign and have a fixed exchange rate regime, the association between nonexecutive director ownership and informational asymmetry, or bid-ask spreads, is reduced. This is contrary to the findings regarding the moderating impact of European colonial status and provides support for Allred et al.’s (2017) argument that offshore tax havens constitute a “third” institutional category outside the current dichotomy between “developed” and “developing/emerging” country frameworks. Our study is the first to explore the impact of the institutional environment on the governance attributes of boards of directors and particularly nonexecutive directors.

The policy implications for national regulators are that personal ownership by nonexecutive directors in notably smaller territories, namely, those dominated by dense social interconnectedness and extended familial affiliations, is unlikely to have an intended effect of incentivizing motivational alignment with outside minority investors. However, this is reversed in those territories with higher institutional quality and those with a fixed currency regime, who are not in a colonial relationship. These are important implications as smaller territories strive to attract supplementary foreign investment capital to supplement otherwise small local indigenous economies.

TABLE 4 Moderation by various dimensions of institutional quality regression results

	Controls Model 5	CC Model 6	PS Model 7	GE Model 8	RL Model 9	RQ Model 10	VA Model 11
Intercept	0.855 [0.10]***	0.832 [0.10]***	0.836 [0.10]***	0.839 [0.10]***	0.835 [0.10]***	0.819 [0.10]***	0.819 [0.10]***
Nonexecutive own * CC	---	-0.408 [0.14]***	---	---	---	---	---
Nonexecutive own * PS	---	---	-0.681 [0.27]***	---	---	---	---
Nonexecutive own * GE	---	---	---	-0.567 [0.23]***	---	---	---
Nonexecutive own * RL	---	---	---	---	-0.492 [0.16]***	---	---
Nonexecutive own * RQ	---	---	---	---	---	-0.497 [0.24]***	---
Nonexecutive own * VA	---	---	---	---	---	---	-0.871 [0.40]**
Main effects							
Nonexecutive own	0.485 [0.17]***	0.626 [0.13]***	0.667 [0.15]***	0.764 [0.18]***	0.611 [0.12]***	0.722 [0.17]***	1.066 [0.31]***
Corruption control (CC)	---	0.038 [0.01]***	---	---	---	---	---
Political stability (PS)	---	---	-0.023 [0.02]	---	---	---	---
Government effectiveness (GE)	---	---	---	0.032 [0.03]	---	---	---
Rule of law (RL)	---	---	---	---	-0.029 [0.01]***	---	---
Regulatory quality (RQ)	---	---	---	---	---	-0.023 [0.02]	---
Voice & Accountability (VA)	---	---	---	---	---	---	0.033 [0.03]
All other institutions	-0.002 [0.00]	-0.013 [0.01]***	0.005 [0.00]	-0.007 [0.01]	0.007 [0.00]***	0.002 [0.00] †	-0.004 [0.00]
Institutional controls							
European colony	0.070 [0.01]***	0.077 [0.01]***	0.065 [0.01]***	0.074 [0.01]***	0.069 [0.01]***	0.086 [0.02]***	0.075 [0.01]***
Market cap./GDP	-0.017 [0.00]***	-0.017 [0.00]***	-0.016 [0.00]***	-0.019 [0.00]***	-0.019 [0.00]***	-0.018 [0.00]***	-0.017 [0.00]***
Ownership control							
All other block holders own	-0.033 [0.02]**	-0.031 [0.01]***	-0.035 [0.02]***	-0.036 [0.02]***	-0.036 [0.02]***	-0.031 [0.01]***	-0.034 [0.01]***
Microstructural controls							
Log (price, US\$)	-0.001 [0.01]	-0.001 [0.01]	-0.001 [0.01]	-0.001 [0.01]	-0.001 [0.01]	-0.001 [0.01]	-0.001 [0.01]
Log (volatility)	0.039 [0.01]***	0.037 [0.01]***	0.038 [0.01]***	0.038 [0.01]***	0.038 [0.01]***	0.037 [0.01]***	0.037 [0.01]***
Log (volume)	-0.013 [0.00]***	-0.011 [0.00]***	-0.012 [0.00]***	-0.013 [0.00]***	-0.013 [0.00]***	-0.011 [0.00]***	-0.012 [0.00]***
Log (total assets)	-0.021 [0.00]***	-0.021 [0.00]***	-0.021 [0.00]***	-0.021 [0.00]***	-0.021 [0.00]***	-0.021 [0.00]***	-0.021 [0.00]***

(Continues)

TABLE 4 (Continued)

	Controls Model 5	CC Model 6	PS Model 7	GE Model 8	RL Model 9	RQ Model 10	VA Model 11
F statistic (prob.)	12.037 [0.00]	11.818 [0.00]	11.729 [0.00]	11.725 [0.00]	11.799 [0.00]	11.734 [0.00]	11.673 [0.00]
Log-likelihood	691.84	697.59	696.17	696.10	697.29	696.25	695.27
Adjusted R ²	0.2522	0.2574	0.2558	0.2558	0.2571	0.2559	0.2548

Note: The table reports the OLS regression coefficients for the annual quoted half-spreads on each of the six disaggregated WGI institutional dimensions and firm liquidity characteristics for 146 firms across 8 jurisdictions. The six dimensions are CC for corruption control, PS for political stability, GE for government effectiveness, RL for the rule of law, RQ for regulatory quality, and VA for voice and accountability, which are defined by Kaufman et al. (2009) and sourced from <http://info.worldbank.org/governance/wgi/index.aspx#faq>. The firm liquidity characteristics are price, volume, daily return volatility, and total assets. All are natural log scaled. There are 1341 observations derived from 146 listed firms over 14 years.

Industry and time (year) binary fixed effects are included in all cases. White's cross-section standard errors and covariances (d.f. corrected) are in parentheses.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

Our findings are broadly generalizable across offshore tax havens worldwide. These draw on the same extended familial institutions in terms of opacity with these typically forming the basis of bifurcated institutional frameworks in conjunction with high quality formal contracting architecture. While territory's size is a distinguishing feature, the colonial status and currency exchange rate regime are profoundly important. This is true in locations such as Hong Kong and Panama, with fixed currency pegs to the US\$, Pacific territories such as Nauru and Vanuatu, with fixed currency pegs to Australian\$, and the Isle of Man and Channel Islands of Guernsey and Jersey, where all are pegged with UK£. It is also true of more binding colonial relationships such as between Gibraltar, Turks and Caicos Islands and the United Kingdom, and the Pacific's Cook Islands and New Zealand. However, the overwhelmingly dominant trait across all offshore tax havens is that of the degree of collusion among powerful local family interests that undermines more impartial definitions of the nonexecutive directors' role and effectiveness in promoting minority investor welfare.

Our study has a number of limitations. The first limitation is that it is constrained to only listed firms in the mostly English-speaking Caribbean region. It excludes unlisted firms and vehicles that are more typically used in aggressive tax engineering strategies by controlling owners. The second limitation is that it would be useful to widen the study to encompass the non-anglophone Caribbean region, where similar offshore centers are notably present: the Netherlands Antilles of Aruba, Curaçao, and Sint Maarten. Finally, the third limitation is that ideally, the sample coverage should include all offshore jurisdictions worldwide to facilitate comparability. However, a major constraint in all three limitations are the severe impediments in obtaining data, which are a function of the secrecy and asset protections we study.

7 | CONCLUSIONS

Our study explores the association between nonexecutive director ownership and informational asymmetry in the form of bid-ask spreads quoted by stockbrokers to minority outside investors. It also provides a multilevel analysis of the formal institutional embeddedness of this association. Practitioners are able to gain better insights into the effectiveness of nonexecutive directors in terms of their ownership mitigating informational asymmetry, which is particularly important in the opaque context of firms' burgeoning use of offshore tax havens. Practitioners can also gain insights into the extent of the influence of nonexecutive director ownership under certain predetermined, contextually embedded conditions.

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DATA AVAILABILITY STATEMENT

In accordance with the DFH guidelines on the Handling of Research Data, we will make all data used in this manuscript available upon

request. The dataset will be archived for at least 10 years following publication of this manuscript.

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NOTES

- ¹ [https://uk.practicallaw.thomsonreuters.com/5-557-3005?transitionType=Default&contextData=\(sc.Default\)&firstPage=true](https://uk.practicallaw.thomsonreuters.com/5-557-3005?transitionType=Default&contextData=(sc.Default)&firstPage=true)
- ² The websites for these exchanges are for Saint Vincent and the Grenadines (<https://www.svgex.com/>), Dutch Caribbean (<https://www.dcsx.cw/>), República Dominicana (<https://bvr.com.do/>), and Haïti (<http://www.haitianstockexchange.com/hsm/>).
- ³ We follow Stoll (2000) and Lesmond (2005) in defining the bid-ask spread as being calculated using the average of the available monthly quotes with a minimum of a single month's quote for that month and the average used for the spread. This minimizes outliers and averages out highs or lows in quotes that result from monthly sampling. The monthly quoted spread is defined as follows:

$$\text{Quoted spread}_M = 1/2 \left[\left(\frac{\text{Ask}_M - \text{Bid}_M}{\text{Ask}_M + \text{Bid}_M} \right) + \left(\frac{\text{Ask}_{M-1} - \text{Bid}_{M-1}}{\text{Ask}_{M-1} + \text{Bid}_{M-1}} \right) \right]$$

It should be noted that the structure of this expression ensures bid-ask spreads are always positive.

- ⁴ <http://info.worldbank.org/governance/wgi/index.aspx#faq>
- ⁵ While almost all exchanges worldwide have adopted electronic continuous auction trading systems with decimalization as opposed to fractional reporting of prices, bunching still takes place when prices of executed trades do not move in continuous sequences but rather bunch together on discrete numerical price intervals, which are in decimals as opposed to fractions (see Christie & Schultz, 1994).
- ⁶ This is a binary 1/0 dummy for the 24 industry categories defined in the Global Industry Classification (GICS) codes developed by MSCI (see <https://www.msci.com/gics>). Four of these categories lack firms that fall within their definition, resulting in 20 industry categories being used in our study.
- ⁷ The empirical results for the full models including coefficients for all binary industry and time (year) effects are not displayed due to brevity but are available from authors upon request.

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APPENDIX A

TABLE A1 Data sources

Market	Information source
Caribbean	Databases: Bloomberg LLP; Thomson Perfect Information Portal & Datastream
Bermuda	Bermuda Stock Exchange Library, Hamilton, Bermuda and website: http://www.bsx.com/ Hamilton-based interviews (11/2016 & 05/2019): Bermuda Stock Exchange: James S. McKirdy (Chief Compliance Officer) Bermuda Monetary Authority (BMA): Tessa Ingham (Analyst) Bermuda Chamber of Commerce: Kendaree Burgess (Executive Director) Bermuda Government: Victoria Taylor, Executive Officer Listed firm: Ozics Holdings Ltd (Auvo Kaikkonen, CEO); Cohort Ltd (Tracey Packwood); Bermuda Commercial Bank Ltd (Charlene Gilbert)
Barbados	Barbados Stock Exchange, Bridgetown, Barbados and website: http://www.bse.com.bb/ Bridgetown-based interviews (07/2011 and 11/2016): Barbados exchange: Marlon E. Yarde (GM); Barry Blenham (Operations); Donna Hope (Operations Manager) Central Bank of Barbados: Financial division
Bahamas	Bahamas Stock Exchange, Nassau, the Bahamas and website: http://bisxbahamas.com/ Nassau-based interviews (05/2019): Bahamas International Securities Exchange [BISX]: Keith Davies (CEO); Holland Grant (COO) Chamber of Commerce: Jeffrey N. Beckles (CEO) Securities Exchange Commission of the Bahamas (Senior Analysts) Bahamas Venture Capital Fund c/o Baker Tilly Managers: Joan Octaviano (Head of Audit) Bahamas Development Bank: Director (Mme Pelicanos) University of the Bahamas Graduate School of Business: Remelda Moxley (Dean) Listed firm: Bank of Bahamas (Leashawn McPhee); Emera (Dina Bartolacci Seely); Commonwealth Bank (Gina Greene); ICBL (Jenifer Clarke); Doctors Hospital (Joanne Lowe)
Cayman Islands	CISX, Cayman Islands Exchange, Georgetown, Grand Cayman and website: http://www.csx.ky Georgetown, Grand Cayman-based interviews (05/2019): Cayman Islands exchange: Sandy McFarlane (Operations Manageress) Cayman Islands Development Bank: Tracy Ebanks (General Manager/CEO) Cayman National Securities: Erol Babayigit (Vice President)
Jamaica	JSE, Jamaican Stock Exchange, Kingston, Jamaica and website: https://www.jamstockex.com/ Kingston-based interviews (07/2016): Jamaican Stock Exchange: Marlene J. street Forrest (general manager); Sandra Shirley (Principal e-campus); Charlette Eddie-Nugent (Listings Manager); Neville R. Ellis (Operations Manager) JSE electronic media marketing event (07/2016): Spanish Court Hotel Annex, Kingston, Jamaica Bank of Jamaica: Financial services division interviews
Eastern Caribbean	ECSE, Basseterre, St Kitts & Nevis and website: http://www.ecseonline.com/ Basseterre-based interviews (11/2011): Eastern Caribbean Stock Exchange: Trevor E. Blake (GM); Sherizan Mills (Operations Officer) Eastern Caribbean Central Bank visit (11/2011) Telephone-based interviews (06/2016–08/2016): Eastern Caribbean Stock Exchange: Trevor E. Blake (GM); Sherizan Mills (Operations Officer) Nevis, Charlestown-based interviews (11/2011): Financial district in Charlestown, Nevis; St Lucia-based interviews (11/2011): Financial district, Castries, St Lucia
Guyana	GASCI, Guyana Securities Council, Georgetown and website: http://www.gasci.com/ Telephone-based interviews (08/2015–01/2017): Cheryl Ibbott (CEO, Guyana Securities Council c/o Bank of Guyana); Vick (compliance Officer, Guyana Securities Council)
Trinidad & Tobago	TTSE, Trinidad & Tobago Stock Exchange, Port of Spain and website: http://ttsec.org.tt/ Trinidad, Port of Spain-based procurement (06/2016–07/2016): Trinidad, Ministry of Finance: Melissa Mattoo and Christine Frank (Communications Officers) Trinidad, Central Bank of Trinidad & Tobago: Candice Dilbar (Research Economist) Trinidad, Listed firm: National Enterprises Limited (Keisha Armstrong, Head of Secretariat) Tobago: Scarborough and Canaan-based interviews in financial district (06/2016–07/2016)

Note: The table documents a nonexhaustive representation of data and information sources from the Caribbean region.