# Governance Tensions in MNCs' Financial Reporting Quality

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# Abstract

Drawing on *institutional theory*, *corporate governance bonding theory* and *corporate governance arbitrage theory*, this study investigates how the institutional complexity of a multinational corporation (MNC), impacts its accounting quality. We employ a unique sample of MNCs registering affiliates or subsidiaries in offshore financial centers (OFCs). Our analyses show that MNCs cross-listing in the U.S., exhibit lower abnormal accruals, higher accruals quality and more persistent earnings patterns compared to MNCs not-cross-listing in the U.S., thus supporting the *corporate governance bonding theory*. However, the positive association between cross listing and accounting quality is negatively moderated by a MNC's choice of OFC subsidiaries or affiliates, thereby suggesting that the internal institutions underlying foreign subsidiaries do relate to the accounting quality of the parent firm. Moreover, a MNC's OFC choice also negatively moderates the relation between home country governance and accounting quality, thus lending further support to *corporate governance arbitrage theory*. Our study underscores, to regulators and investors, the co-existence of international mobility of good governance and bad governance for MNCs. Therefore, it is important to enhance monitoring efforts for MNCs with opaque and complex structures, to better detect opportunistic earnings management.

*Keywords: multinational corporations (MNCs), cross listing, offshore financial centers (OFCs), accounting quality, corporate governance bonding theory, institutional theory, corporate governance arbitrage theory*

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## 1. Introduction

This study focuses on whether and to what extent the institutional complexity of a multinational corporation (MNC) shapes its accounting quality. MNCs represent a pivotal organizational form in today's world, with new forms of MNCs emerging (Cuervo-Cazurra & Ramamurti, 2014; Aguilera, Marano and Haxhi, 2019). However, little is known about the forces driving their accounting quality, particularly given that in contrast to firms operating in a single country, MNCs' investors and directors face more severe agency costs and information asymmetry arising from foreignness, multiple currencies, cultural and language differences, geographic distances and divergent operating and legal institutions (Kostova and Zaheer, 1999; Kostova, Roth and Dacin, 2008 & 2009; Bushman, Chen, Engel and Smith, 2004; Shroff, Wahid and Yu, 2014). Consequently, it is still an open question as to how MNCs mitigate agency costs and information asymmetry through varying mechanisms and how the heterogeneous institutional environments influence the accounting quality of MNCs.

Relying on institutional theory and agency theory, Cumming, Filatotchev, Knill, Reeb and Senbet (2017) develop the theory of *international mobility of corporate governance*, pertinent to how MNCs' divergent institutional contexts at the headquarters' level and at the subsidiary level define their strategic choices. The two fundamental mechanisms of *international mobility of corporate governance* include *corporate governance bonding* and *corporate governance arbitrage*. *The corporate governance bonding theory* largely pertains to the mobility of good governance, such as through cross-listing in a country with stronger legal regimes (Coffee, 1999; Cumming et al., 2017). In contrast, *the corporate governance arbitrage theory* refers to the mobility of bad governance, such as placing subsidiaries in weaker legal institutions to circumvent some corporate

governance requirements (Allred, Findley, Nielsen and Sharman, 2017; Aguilera et al., 2019). To this end, we employ a unique sample of non-U.S. MNCs operating subsidiaries in offshore financial centers (OFCs) [1] and also possibly cross-listing in the U.S. The US cross-listing setting allows us to test *the corporate governance bonding theory* while the OFC setting permits us to jointly examine *the corporate governance arbitrage theory*. In essence, we seek to address the following three questions.

First, *the corporate governance bonding theory* predicts that cross-listing in the U.S., can serve as an effective institution to reduce information asymmetry and agency cost for foreign firms. U.S. investor protection laws and regulations are widely regarded as among the most effective in the world (Ball, Kothari and Robin, 2000). However, recent studies also demonstrate cross-listed firms do not fully comply with some US laws while enforcement actions by the SEC towards foreign firms are ineffective (Siegel, 2005; Srinivasan, Wahid and Yu, 2015). In particular, different from domestic firms, MNCs face more severe agency cost and information asymmetry due to foreignness, multiple currencies, cultural and language differences, geographic distances and divergent legal institutions (Reeb, Kwok and Baek, 1998; Bushman et al., 2004; Shroff et al., 2014). Therefore, it is debatable how the SEC can monitor the accounting quality of these MNCs with complex, heterogeneous and dynamic institutions. In this context, the first question we seek to answer is whether cross-listing in the U.S. enhances the accounting quality of MNCs? Second, it is important to understand how parent companies and foreign subsidiaries mutually shape MNCs'

[1] In this study, we follow Zoromé's (2007, p. 7) definition of an OFC as "a country or jurisdiction that provides financial services to non-residents on a scale that is incommensurate with the size and the financing of its domestic economy." Based on this definition, we identified the world's 40 primary OFCs using the Osiris database (Appendix A). The Zoromé (2007) definition is also consistent with the International Monetary Fund's (IMF, 2000) definition of OFCs. The IMF defines OFCs as "(i) jurisdictions that have relatively large numbers of financial institutions engaged primarily in business with non-residents; (ii) (jurisdictions with) financial systems with external assets and liabilities out of proportion to domestic financial intermediation designed to finance domestic economies; and (iii) more popularly, centers which provide some or all of the following services: low or zero taxation; moderate or light financial regulation; banking secrecy and anonymity." (Offshore financial centers IMF background paper available at: http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm)

performance (Aguilera et al., 2019). In this regard, *the corporate governance arbitrage theory* posits that some MNCs can set up shell companies or operate subsidiaries in countries with less stringent legal institutions to bypass corporate governance requirements. Our sample of MNCs place subsidiaries or affiliates in OFCs that exhibit attributes such as tax avoidance opportunities, secrecy and weak legal rules and enforcement, thereby increasing the risk of insider expropriation and undermining the bonding effect (Desai, 2005; Durnev, Li and Magnan, 2016). Consequently, the second question we consider is whether a MNC's choice of OFC subsidiaries moderates the association between cross listing and accounting quality. Third, prior evidence indicates that a firm's home country governance (rule of law) influences its financial reporting quality (Bonetti, Magnan and Parbonetti, 2016) as well as its financial disclosure (Shi, Magnan and Kim, 2012). Therefore, we further assess how a MNC's internal legal institutions interact with its home country governance in resolving or aggravating information asymmetry and agency problems. Hence, consistent with *the corporate governance arbitrage theory*, our third question follows: How does a MNC's OFC subsidiaries choices moderate the association between its home country governance, and accounting quality?

We contend that a MNC's accounting quality hinges on the tension among heterogeneous and conflicting legal institutions, i.e., home country governance, the benefits to be derived from bonding to enhanced disclosure and legal enforcement via a U.S. cross-listing and internal legal institutions which reflect the potential agency cost associated with reliance on OFCs. The use of OFCs increases the complexity and the opacity of underlying legal structures as well as the information asymmetry between managerial insiders and other stakeholders such as directors. In light of the divergent legal institutions, a natural question arises: why would a firm cross-listing in the U.S., with all the costs and monitoring it entails, want to undermine the strength of cross listing

by having OFC subsidiaries? This substitution effect may reflect management's potential intention to manipulate financial information: cross listing is a *visible* strong external legal institution signaling *mobility of good governance* whereas the *less visible* internal OFC institution allows management to achieve *the mobility of bad governance* and deconstruct the seemingly high accounting quality. Some anecdote evidence provides support to our conjecture. For example, in 2007, RINO International Corporation, a mainland Chinese firm with environmental protection and remediation operations, also listed on NASDAQ via a reverse takeover involving an entity registered in the British Virgin Islands. The firm raised over $24 million in the U.S. but, in 2010, was subject to allegations of financial reporting fraud by some short sellers and the Securities & Exchange Commission: the main accusation was that it ran two sets of accounting books, one for China and one for the U.S., while having OFC subsidiaries. Its auditors subsequently resigned and the firm's shares were delisted by NASDAQ. The firm eventually went bankrupt. This opaque and exceedingly complicated business model gave RINO opportunities to engage in earnings manipulation and commit accounting fraud.[2]

Our study exploits a large international dataset provided by OSIRIS, which includes detailed information on subsidiaries or affiliates of MNCs. Our sample consists of 3,236 unique MNCs from 31 non-U.S. countries operating subsidiaries or affiliates in OFCs in the period 2002 to 2013, yielding 11,951 firm-year observations.

Pertinent to our first research question, we find that MNCs cross-listed in the U.S. are associated with lower abnormal accruals, higher accruals quality and greater level of earnings persistence. In an economic sense, cross-listing in the U.S. is associated with a 20.93% (26.10%) reduction in the absolute value of abnormal accruals (positive abnormal accruals), thus supporting

[2] https://www.reuters.com/article/us-china-shortsellers/special-report-chinese-stock-scams-are-the-latest-u-s-import-idUSTRE74A71F20110511. Retrieved January 26, 2018.

*the corporate governance bonding hypothesis* that MNCs raise the quality of their accounting by bonding to an environment with an enhanced legal regime and more transparent practices. Additionally, the more a MNC has subsidiaries and affiliates in OFCs with weak legal rules, secrecy policies and tax avoidance opportunities, the lower its accounting quality. With respect to our second research question, we document that the positive association between cross listing in the U.S. and accounting quality is reduced if MNCs operate their business via subsidiaries or affiliates in OFCs with high OFC attributes. Furthermore, among the three unique attributes of OFCs, i.e., regulation arbitrage, secrecy policy and tax avoidance opportunity, the first two contribute the most to the lower level in accounting quality reported by MNCs with OFC affiliates and subsidiaries, thereby providing strong support to *the corporate governance arbitrage theory*. With respect to our third research question, our analyses reveal that OFC attributes also negatively moderate the positive association between a MNC's home country governance and accounting quality.

Our research makes a unique contribution to three streams of literature. First, our research adds to the literature pertinent to the understanding of corporate governance of MNCs. In their review paper, Aguilera et al. (2019) call for more research to understand the financial perspectives of the corporate governance of MNCs' parent-subsidiary relationship. By examining the accounting quality of a unique sample of MNCs registering subunits in OFCs, we heed the call of Aguilera et al. (2019, page 473) by simultaneously testing *the corporate governance bonding theory* and *the corporate governance arbitrage theory*. Our results underline the co-existence of *good governance mobility* and *bad governance mobility* for MNCs. It is therefore imperative to

have effective cooperations between home and host countries of MNCs to enhance accounting quality. [3]

Second, our work is related to the literature on foreign firms listing in the U.S. Our evidence is generally consistent with *the corporate governance bonding hypothesis* that foreign firms bond to U.S. enforcement and oversight mechanisms, and enhanced accounting quality (Doidge, Karolyi and Stulz, 2004; Lang, Raedy and Yetman, 2003). However, concerns on the bonding effect persist, and the U.S. regulatory enforcement may not be as effective as it appears. Along this line, Cheng, Srinivasan and Yu (2013) show that foreign firms listing in the U.S. are less likely to undergo securities lawsuits relative to U.S. domestic listed firms. Srinivasan et al. (2015) also posit that home country enforcement moderates the likelihood of foreign firms detecting and reporting accounting misstatements. More importantly, unlike prior literature which examines the cross-listing impact on foreign firms rather than MNCs, our study advances this literature by focusing on a unique sample of MNCs with OFC affiliates and subsidiaries, i.e., firms with opaque and complex corporate structures. While prior research on cross-listed firms focuses on the parent company's legal and institutional environment, we explore how MNCs' underlying internal legal institutions interacts with their cross listing status in affecting accounting quality. Results suggest that regulators (the Securities and Exchange Commission, the SEC and the Public Company Accounting Oversight Board, PCAOB) as well as investors should enhance enforcement and monitoring for firms with opaque or complicated structures and having subsidiaries or affiliates in jurisdictions with flexible regulations and secrecy policies.

[3] Beuselinck, Cascino, Deloof, and Vanstraelen (2016) report that MNCs exploit, via their subsidiaries, regulatory arbitrage opportunities arising from cross-country differences in institutional quality. Our study adopts a more comprehensive view of a MNC's external legal institutions as comprising a U.S. cross-listing in addition to the parent company's home country legal origins. We further explore the multi-dimensional nature of the legal institutions in which a MNC's subsidiaries evolve (enforcement, secrecy and tax avoidance) using OFCs' features as a benchmark, thus providing further contour to that reality.

Finally, our work contributes to the literature on firms operating in OFCs. Over the past decades, more and more companies choose to set up subsidiaries or affiliates in OFCs. By 2015, OFC-based institutions managed wealth equivalent to 12% of global Gross National Product, or around nine trillion U.S. dollars (Alstadsaeter, Johannesen and Zucman, 2017). However, much of the OFC world remains little known and under-explored (Durnev et al., 2016 & 2017). We contribute to the OFC literature by considering how the interplay between cross listing as well as a MNC's home country governance (external governance mechanism) and operating business via subsidiaries or affiliates in OFCs (internal governance mechanism) affects MNCs' accounting quality. Our findings suggest that an OFC orientation within underlying subsidiaries and affiliates attenuates the impact of cross listing and home country governance on accounting quality.

The remainder of our paper is organized as follows. Section 2 presents theory underpinning while section 3 develops hypotheses. Section 4 outlines data selection and research design, and Section 5 reports our results. In Section 6, we provide additional analyses and sensitivity checks, and finally our conclusions in Section 7.

## 2. Theoretical Underpinnings

Drawing on *institutional theory* (Scott, 2001), it is widely viewed that regulative, normal and cognitive institutions affect MNCs activities (Cantwell, Dunning and Lundan, 2010; Jackson and Deeg, 2008; Arregle et al., 2016). Specifically, institutional theory suggests that institutional complexity, defined as the divergent tensions resulting from many and varied institutions, has an impact on MNCs (Kostova and Zaheer, 1999; Kostova et al., 2008 & 2009; Regner and Edman, 2014). Along this line, the stream of c*omparative corporate governance* research focuses on how MNCs' multiple institutional contexts at the headquarters level and at the subsidiary level shape their strategic behaviors (Aguilera et al., 2019). For instance, prior research shows that different

domains of institutions, country-level institutions and institutional distance affect MNC's organizational legitimacy (Kostova and Zaheer, 1999), systematic risk (Reeb et al., 1998), firm performance (Charcar, Newburry and Vissa, 2010), and internationalization (Regner and Edman; Arregle et al., 2016). However, little attention has been devoted to examining the impact of institutional complexity on MNCs' financial reporting. One exception is Meek, Roberts and Gray (1995) who explore the impact of institutions on voluntary annual report disclosures by MNCs. In addition, Huang (2018) illustrates that decision structures of U.S. MNCs influence earnings management of subsidiaries. Recently, Beuselinck et al. (2019) take into account how MNCs' complexity, as represented by their subsidiaries and affiliates, affects their accounting quality. However, our research is distinct from Beauselinck et al. (2019) in two ways. First, while Beauselinck et al. (2019) focuses on the earnings management at the subsidiary level of MNCs, our research examines the *overall* accounting quality of MNCs. Second, we adopt a unique sample of MNCs operating subsidiaries in OFCs and cross-listing in the U.S. whereas Beauselinck et al. (2019) tests earnings management choices for general MNCs. Our research design thus allows us to further explore the impact of institutional diversity of MNCs.

Cumming et al. (2017) advances the theory of *international mobility of corporate governance*. Basing on *agency theory* and *institutional theory*, they maintain that MNCs can import or export corporate governance practices to enhance efficiency and achieve legitimacy from foreign stakeholders. The two mechanisms of *international mobility of corporate governance* entail *corporate governance bonding* and *corporate governance arbitrage*. *Corporate governance bonding* refers to importing good governance practices, such as through cross listing in countries with stronger legal regimes (Coffee, 1999; Cumming et al., 2017). *Corporate governance arbitrage* exploits the institutional differences between different countries and largely pertains to

the mobility of governance from stronger institutional environments to weaker ones, possibly through setting up shell companies (Cumming et al., 2017; Allred et al., 2017). In order to simultaneously test *corporate governance arbitrage hypothesis* and *corporate governance bonding hypothesis*, we adopt this unique setting of MNCs operating in OFCs and cross-listing in the U.S.

## 3. Hypotheses

Our first hypothesis is pertinent to the effect of U.S. cross-listing on the accounting quality of MNCs. It is grounded on the *corporate governance bonding hypothesis* (Coffee, 1999; Stulz, 1999; Cumming et al., 2017) which explicitly recognizes the legal consequences of a U.S. cross-listing. The theory is that U.S. disclosure requirements, exposure to SEC enforcement, and the threat of shareholder litigation make it harder, and costlier, for controlling owners and managers to extract private benefits from outside investors. For instance, Doidge et al. (2004) show that firms with a U.S. cross-listing exhibit a valuation premium relative to non-cross-listing firms.

Prior studies document that cross-listing in the U.S. reduces information asymmetry, thereby improving both private and public information precision for non-U.S. firms (Fernandes and Ferreira, 2008; Herrmann, Kang and Yoo, 2015). Lang et al. (2003) also show that cross-listed firms in the U.S. are associated with less earnings smoothing, lower discretionary accruals and more timely recognition of losses compared to firms not-cross-listed in the U.S. Thus, cross-listing in the U.S. provides a means for foreign MNCs to credibly commit not to expropriate outside investors. Further, Ball et al. (2000) show that the U.S. has one of the most rigorous accounting regimes among all countries across the world. Similarly, in exploring earnings management around the world, Leuz, Nanda and Wysocki (2003) provide evidence that U.S. firms display the lowest level of earnings management compared to firms worldwide. The *institutional duality theory*

advanced by Hillman and Wan (2005) posits that MNCs face twofold influences from both the host and home countries. Therefore, there may be an institutional contagion or governance spillover effect on MNCs listed in the US as they attempt to obtain legitimacy in the host market. Foreign firms listed on a major U.S. exchange are required to file Form 20-F with the SEC, reconcile their financial statements to US GAAP[4] and follow the Sarbanes-Oxley Act of 2002 (SOX). They are also subject to enforcement by the SEC and U.S. courts (Coffee, 1999). In addition, in light of the more stringent monitoring of auditors (Bronson, Ghosh and Hogan, 2017), a U.S. listing could enhance accounting quality (Choi, Kim, Liu and Simunic, 2008 & 2009) (mostly because of the role played by the Public Company Accounting Oversight Board (PCAOB)).

Conversely, there is also a debate as to whether U.S. securities laws and enforcement are effective in reaching non-US firms. In essence, the validity of the bonding hypothesis has been called into question by a number of recent studies that document cross-listed firms' lack of compliance with certain US laws and the low number of enforcement actions by U.S. legal institutions (Siegel, 2005; Lang, Raedy and Wilson, 2006). Specifically, Lang et al. (2006) document that U.S. cross-listed firms show smoother earnings, greater propensity to manage earnings, and less timely loss recognition compared to U.S. domestic firms. Srinivasan et al. (2015) also reveal that U.S. cross-listed firms exhibit a lower frequency of earnings restatements compared to U.S. firms, suggesting less stringent monitoring from the SEC.

In contrast to domestic firms, investors and other non-insider stakeholders in MNCs face more severe agency cost and information asymmetry arising from foreignness, multiple currencies, cultural and language differences, geographic distances and different operating and legal institutions (Reeb et al., 1998; Bushman et al., 2004; Shroff et al., 2014). Consequently, it is

[4] After 2007, if foreign firms listed in the U.S. adopt IFRS, as issued by the IASB, they do not need to provide reconciliation given that IFRS is considered to be of sufficient quality compared to U.S. GAAP.

uncertain how competing and divergent legal institutions of MNCs impact the bonding effect. On one hand, cross-listing in the U.S., can serve as a useful mechanism to reduce information asymmetry and agency cost for MNCs. On the other hand, however, a MNC's legal institutions also comprise its subsidiaries and affiliates legal contexts. Therefore, it is debatable how the SEC can monitor the accounting quality of these MNCs with complex, multifaceted and dynamic institutions. Hence, given the contention in prior theories and literature, we put forward our first hypothesis without direction (framed in null form):

*Hypothesis 1: Ceteris paribus, a MNC's U.S. cross-listing status relates with its accounting quality.*

Building on *corporate governance arbitrage theory*, our second hypothesis pertains to MNCs' subsidiary structure. MNCs typically conduct their international activities through foreign subsidiaries or affiliates operating in different institutional environments. However, the bonding literature generally does not consider MNCs' complex governance mechanism and their internal legal institutions (Bushman et al., 2004; Shroff et al., 2014). Nevertheless, the *corporate governance arbitrage theory* complements *corporate governance bonding theory* by suggesting the mobility of bad governance (Cumming et al., 2017). Two examples of *corporate governance arbitrage theory* include setting up shell companies or operating subsidiaries in countries with less stringent legal institutions to avoid corporate governance requirements (Allred et al., 2017; Haxhi, van Ees and Sorge, 2013). Given the scarcity of the literature on *corporate governance arbitrage theory*, our unique sample of MNCs operating subsidiaries in OFCs can definitely add to the understanding of the mobility of bad governance.

It is imperative to understand how parent companies and foreign subsidiaries jointly contribute to MNC's performance (Aguilera et al., 2019). Most prior studies focus on parent-subsidiary relationships (Regner and Edman, 2014; Arregle et al., 2016), while Aguilera et al. (2019) reveal that studies on understanding the financial perspective of corporate governance of parent-subsidiary relationships for MNCs are very limited. In this regard, Shroff et al. (2014) document that cross-border frictions between the parent and subsidiary for MNCs impact the investment decisions of foreign subsidiaries. Akamah, Hope and Thomas (2018) provide evidence that MNCs with tax-haven operations are more likely to aggregate their geographic disclosures. Furthermore, Huang (2018) find that the external legal institutions of MNC's subsidiaries influence their earnings management. In a similar vein, we conjecture that the complex and opaque structure of MNCs operating subsidiaries or affiliates in OFCs, along with OFCs' secrecy policy and regulation arbitrage, make it easier for firms to engage in earnings manipulation (Durnev et al., 2017).

Using the subsidiary- (or affiliate-) weighted offshore attitude index developed by Masciandaro (2008), we explore how the OFC overall attitude moderate the association between cross listing and accounting quality. The offshore attitude index ranges from 0 to 5, with 0 referring to firms operating their subsidiaries or affiliates in a country with a strong non-offshore attitude while 5 indicates a country with the strongest offshore attitude.[5] Grounded on prior research, we argue that the accounting quality of MNCs is influenced by the institutional and legal attributes of the OFCs in which MNCs operate, even after cross listing in the U.S. Higher offshore attitude indexes imply zero or low taxation, more flexible legal institutions, existing secrecy policies, and

[5] To be more specific, if a country is associated with a "5" offshore attitude index, this country was listed in all three offshore financial centers' blacklists published respectively by the OECD (a list of tax havens), the Financial Action Task Force (FATF) (a list of possible centers for money laundering) and the Financial Stability Forum (FSF) (a list of non-cooperative countries and territories).

less scrutiny from capital market regulators and auditors. All these factors potentially affect their accounting quality, and can help MNCs obscure earnings manipulation and mitigate the bonding function arising from cross-listing. Prior studies show that the SEC is not effective in monitoring firms from less rigorous investor protection environments (Lang et al., 2006; Shi et al., 2012; Gong, Ke and Yu, 2013). For instance, cross-listed firms from weaker legal institutions are less likely to release management earnings forecasts (Shi et al., 2012) and report internal control weaknesses required by SOX (Gong et al., 2013). Therefore, we predict that a MNC's choices of OFC subsidiaries will moderate the association between cross listing and accounting quality. If the association between cross listing and accounting quality is positive, then OFC attributes should *negatively* moderate such relation. If the association between cross listing and accounting quality is negative, then OFC attributes should magnify such negative association. Given the non-directional prediction on cross-listing and accounting quality (H1), we also postulate our second hypothesis with no directional prediction:

*Hypothesis 2: Ceteris paribus, a MNC's subsidiary- (or affiliate-) weighted offshore attitude index moderates the association between its cross-listing status and accounting quality.*

In addition to the heterogeneous institutions of cross-listing and OFC subsidiary, a MNC's institutional complexity also encompasses its home-country institutions. Country-specific institutions determine a firm's business environment, contract enforcement, information supply, thus influencing the costs and benefits associated with enhancing accounting quality and disclosure transparency (Doidge, Karolyi and Stulz, 2007; Francis and Wang, 2008; Francis, Michas and Seavey, 2013). Prior research mostly supports that the strength of country institutions is positively associated with firms' accounting quality (e.g., Francis et al. 2013). However, the *corporate*

*governance arbitrage theory* suggests that the differences between a MNC's parent and subsidiaries' legal contexts, particularly the mobility from a strong institutional setting to a weaker one, will affect its corporate governance practices (Cumming et al., 2017; Aguilera et al., 2019). In this lens, Kostova, Nell and Hoenen (2018) portray that agency costs of MNCs' subsidiaries are influenced by their institutional conditions. Allred et al. (2017) document that many MNCs bypass international standards by registering international shell companies. Therefore, Cumming et al. (2017) highlight the existence of bad governance mobility. Similar to those MNCs operating with shell companies, our sample of MNCs placing subsidiaries or affiliates in OFCs are associated with higher levels of regulatory arbitrage, secrecy policy and tax avoidance, thus providing more opportunities to manipulate earnings. Hence, it is plausible that some MNCs set up subsidiaries in OFCs in order to diminish disclosure or corporate governance costs. We therefore conjecture that the bad governance of some OFC subsidiaries is also mobile to their parent companies, and the OFC attributes should negatively moderate the positive association between home-country legal institution and accounting quality. In light of these views, we offer the following hypothesis in null form:

> *Hypothesis 3: Ceteris paribus, a MNC's subsidiary- (or affiliate-) weighted offshore attitude index negatively moderates the association between its home-country legal institutions and accounting quality.*

## 4. Data Selection and Research Design

### *4.1 Sample Selection and Data*

To construct our sample of MNCs cross-listed in the U.S., we merge the OSIRIS international database with the data of firms cross-listing in the U.S. We obtain a list of American Depositary Receipts (ADRs) which list on NYSE/AMEX/NASDAQ from the Bank of New York

website[6]. We exclude over-the-counter (OTC) and Rule 144a private placements firms given that they are not required to register with the SEC, file Form 20-F and incur legal bonding costs by following U.S. disclosure practices (Coffee, 2002).

The OSIRIS international database (maintained by the Bureau Van Dijk Electronic Publishing) is a comprehensive data set that contains over 60,000 public companies from more than 130 countries. It provides country-level and firm-level data, such as the economic development and the accounting standards relating to different countries. For most firms, OSIRIS also has information on subsidiaries or affiliates, thereby allowing us to identify MNCs with subsidiaries or affiliates conducting business in OFCs. Following IMF surveys (2000, 2005, 2008), Zorome (2007), and Dharmapala and Hines (2009), i.e., we identify 40 available OFCs in OSIRIS (see Appendix A). We then get MNCs that establish affiliates or subsidiaries in OFCs while having their headquarters registered in non-OFC countries or jurisdictions. We limit every country to include both cross-listing and non-cross-listing firms, and firms with OFC affiliates and subsidiaries. Meanwhile, all countries where MNCs have their headquarters registered are non-OFCs and must have at least 10 firm-year observations. Furthermore, we restrict our sample to all non-financial listed firms and require each firm-year observation to have information on all measures of accounting quality as well as on control variables. After dropping observations with missing firm-level variables, there are 3,236 MNCs, among all of which have OFC subsidiaries or affiliates, and 11,951 firm-year observations from 31 developed and developing countries in the full sample, including 290 cross-listing firms with 1,493 firm-year observations and 2,946 non-cross-listing firms with 10,458 firm-year observations during the 2002-2013 period.[7]

[6] Please refer to https://www.adrbnymellon.com/directory/dr-directory for a complete list of ADR firms.

[7] We choose the sample period starting from 2002 to mitigate the possibility of changes among cross-listed firms before and after the adoption of Sarbanes-Oxley Act in early 2002.

Panels A, B and C of TABLE 1 describe the country, industry and year data distribution, respectively. Panel A reports that among our 11, 951 firm-year observations, 3,120 (26.10%) are from Japan, 1,167 (9.77%) from the UK, 1,148 (9.61%) from Taiwan, and 787 (6.59%) from China, while Columbia and Qatar only have 19 (0.16%) firm-year observations, respectively. For industry distribution, Panel B presents that Industrial industry accounts for 6,362 (53.23%) observations, whereas Information Technology and Energy industries only represent 158 (1.32%) and 332 (2.78%) observations. For sample year distribution in the period 2002-2013, Panel C indicates that most observations concentrate in the period after year 2008 with year 2013 representing the peak (1,883 observations or 15.76%); conversely, only 153 (1.28%) observations occur in year 2002. To mitigate the impact of uneven country, industry and year distributions and unobservable country or industry effects, we adopt country-level, industry-level and year-level random fixed-effect models in our empirical tests.

[INSERT TABLE 1 HERE]

*4.2 Accounting Quality Proxies*

*We* follow previous literature, and adopt five measurements of accounting quality, i.e., accruals-based earnings management: 1) absolute value of abnormal accruals (*AAC*), 2) positive abnormal accruals (*PAAC*), 3) accruals quality (*AQ*), 4) modified accruals quality (*MAQ)*, and 5) earnings persistence (*EPERS*). To calculate accruals-based earnings management (*AC*), we use the modified cross-sectional Jones (1991) model for concurrent firm performance (Dechow, Sloan and Seeeney, 1995; Francis et al., 2013) by pooling our firm-year observations from different countries for each industry and year to estimate the coefficients in Eq. (1),

$$\frac{ACCR_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \alpha_2 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_3 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}, \quad (1)$$

where $ACCR_{it}$ denotes total accruals for firm $i$ in year $t$, calculated as earnings before extraordinary

items and discontinued operations minus cash flow from operations. $A_{it-1}$ represents total assets of the prior year, while $\Delta REV_{it}$ denotes changes in revenue from the previous year. Last, $PPE_{it}$ denotes gross value of property, plant, and equipment. We then use the estimated parameters from Eq. (1) to calculate nondiscretionary accruals (*NDAC*):

$$NDAC_{it} = \hat{\alpha}_1 \frac{1}{A_{it-1}} + \hat{\alpha}_2 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \hat{\alpha}_3 \frac{PPE_{it}}{A_{it-1}}, \quad (2)$$

Here $\Delta REC_{it}$ represents the change in net accounts receivable.

Following Dechow et al. (1995), we adjust the changes in revenues ($\Delta REV_{it}$) by the change in accounts receivable ($\Delta REC_{it}$) in Eq. (2). The difference between total accruals obtained from Eq. (1) and nondiscretionary accruals from Eq. (2) determines our proxy for abnormal accruals (*AC*) for firm *i* and year *t*; namely: $AC_{it} = ACCR_{it}/(A_{it-1}) - NDAC_{it}$. Our first measurement for accounting quality *AAC* is the absolute value of abnormal accruals, representing both income-increasing and income-decreasing accruals management. Our second proxy for accounting quality *PAAC* captures income-increasing accruals management.

Our third measurement for accounting quality is accruals quality (*AQ*). Dechow and Dichev (2002) posit that earnings are more predictive of future cash flows if there is a lower estimation error in the mapping of accruals and cash flows. Following prior studies (Francis et al., 2005), we estimate the following models for accruals error after controlling for change in revenues and the level of property, plant and equipment:

$$TCA_{it} = \lambda_0 + \lambda_1 CFO_{it-1} + \lambda_2 CFO_{it} + \lambda_3 CFO_{it+1} + \lambda_4 \Delta REV_{it} + \lambda_5 PPE_{it} + \varepsilon_{it}, \quad (3)$$

where $TCA_{it}$ is the total current accruals for firm *i* in year *t* calculated as $\Delta CA - \Delta CL - \Delta CASH + \Delta STDEBT$. More specifically, $\Delta CA$ represents the change in current assets, $\Delta CL$ denotes the change in current liabilities, $\Delta CASH$ refers to the change in cash, while $\Delta STDEBT$ is the change

in short-term debt. In addition, *CFO* is the cash flow from operations. We scale all variables by average total assets. We then estimate Eq. (3) for each industry in the Industry Classification Benchmark (OSIRIS database) requiring at least 20 observations in year *t*. The accruals error in year *t* is defined as the standard deviation of the firm- and year-specific residuals of Eq. (3) during years from *t-3* to *t*. Larger standard deviations of residuals signify lower accruals quality. *AQ* refers to the residuals multiplied by -1. Thus, a higher *AQ* represents enhanced accounting quality.

Our fourth measurement is modified accruals quality (*MAQ)* put forward by Wysocki (2008) as an alternative proxy for the accruals quality (*AQ*) used by the Dechow and Dichev's (2002). To attain modified accruals quality, we first estimate the standard deviation of residuals from the following Eq. (4) and Eq. (5) during the year *t-3* to *t*,

$$TCA_{it} = \lambda_0 + \lambda_1 CFO_{it} + \varepsilon_{it,} \quad (4)$$

$$TCA_{it} = \lambda_0 + \lambda_1 CFO_{it-1} + \lambda_2 CFO_{it} + \lambda_3 CFO_{it+1} + \varepsilon_{it,} \quad (5)$$

The ratio of the standard deviation of the residuals from Eq. (4) and Eq. (5) represents modified accruals quality *MAQ*. The improvement of this proxy *MAQ* mitigates the confounding effect by opportunistic earnings management and draws the concurrent association between accruals and cash flows.

Finally, our fifth proxy for accounting quality is earnings persistence (*EPERS*). To mitigate the possibility that earnings persistence may be reached in the short term by undertaking earnings management (Dechow, Ge and Schrand, 2010), we adopt the negative standard deviation of a firm's long-term (from year *t-3* to *t*) average earnings as the measure of earnings persistence. That is, $EPERS = (-1) \times \sigma\,(\text{Earnings}_{it})$.

*4.3 Empirical Models*

To test Hypotheses 1, 2 and 3 (H1, H2 and H3) we estimate the following regressions, which link cross listing, OFC attributes, home country governance and their interactions with our

five proxies for accounting quality:

$$Y_{it} = \beta_1 Cross\_Listing_{it} + \beta_2 OFCindex*Cross\_Listing_{it} + \beta_3\ GOVindex_t^c\ (or\ GoodGOV^c) + \beta_4 OFCindex*\ GOVindex_t^c (or\ OFCindex*GoodGOV^c) + \beta_5 OFCindex_{it} + \beta_6 LGDP_t^c + \beta_7 Tax_t^c + \beta_8 Eng^c + \beta_9\ Mcap^c + \beta_{10}\ Big5_{it} + \beta_{11}\ Litigate_{it} + \beta_{12} Inde_{it} + \beta_{13} Ifrs_{it} + \beta_{14} Aanalyst\ Following_{it} + \beta_{15} Size_{it} + \beta_{16}\ Mtb_{it} + \beta_{17} Lev_{it} + + \beta_{18}\ Neti_{it-1} + \beta_{19}\sigma\_Cfo_{it} + \beta_{20}\sigma\_Rev_{it} + \text{or}\ \beta_{21}\ Cfo/Sales_{it} + industry\ fixed\ effects + year\ fixed\ effects + \varepsilon_{it}, \quad (6)$$

where $Y_{it}$, represents one measure of accounting quality: the absolute value of abnormal accruals (*AAC*); positive abnormal accruals (*PAAC*); accruals quality (*AQ*); modified accruals quality (*MAQ*); and earnings persistence (*EPERS*). *c* refers to countries or jurisdictions that firms have headquarters registered in, *i* means firms, and *t* represents years.

We estimate multi-level random effect models including country, industry, and year fixed effects in every regression to account for the impact of country and industry characteristics and time change on proxies of accounting quality (Roychowdhury 2006). We control for country-specific factors (i.e., the country in which a firm has registered its headquarters: natural logarithm GDP (*LGDP*) across the sample period; average corporate tax rate (*Tax*) of a country in which a MNC has its headquarters registered; English (*Eng*) as the official language; and the market capitalization of countries where MNCs registered headquarters (*Mcap*)).

Our primary testing variables in Eq. (6) are *Cross_Listing, OFCindex, OFCindex*Cross_Listing* and *OFCindex*GOVindex (or OFCindex*GoodGov). Cross_Listing* is an indicator variable which equals one if a MNC is cross-listed in the U.S. and zero otherwise. It is adopted to test H1. Given the contradicting evidence in prior studies (Lang et al., 2003; Lang et al., 2006), MNCs cross-listed in the U.S. may have lower or higher accounting quality. Hence, we do not make a prediction on the sign of its coefficients. In addition, we measure the differences among MNCs by adopting the subsidiary (or affiliate)-weighted offshore attitude indexes (*OFCindex*). Masciandaro (2008) constructs this index incorporating various aspects of MNCs

operating subsidiaries in OFCs: i.e., political strength, economic crimes occurrence, regulations prosecution, potential national benefits, and an inclusion in one of the OFC blacklists: the Financial Stability Forum list, the FATF list of Non Cooperative Countries and Territories, and the OECD list of tax havens. The index is equal to 0 if a country shows a strong non-offshore attitude; 1 if a country does not show a strong non-offshore attitude but was not listed in one of the blacklists; 2, 3, and 4 if a country was present in one, two, or three blacklists, respectively. Furthermore, 1 is added to the index if a country or jurisdiction is on the market list of OFCs.[8] The index ranges from 0 to 5, with 0 representing the lowest magnitude of offshore attitude. To understand the varying nature of MNCs with OFC subsidiaries and affiliates, we collect information on their subsidiaries or affiliates and weigh the offshore attitude indexes by the number of subsidiaries or affiliates (divided by the total number of subsidiaries or affiliates of a MNC). Specifically, we calculate the subsidiary (or affiliate)-weighted offshore attitude indexes as following:

$$OFCindex_{it} = \sum_c \left( offshoreattitudeindex^c \times subsidiary_{it}^c \right) / \sum_c subsidiary_{it}^c \qquad (7)$$

In Eq. (7), the variable *subsidiary* denotes the number of subsidiaries or affiliates that a firm *i* has in country *c* in year *t*.[9] Essentially, if a MNC operates more subsidiaries or affiliates in countries with larger *offshore attitude index* scores, the resulting index will exhibit larger values. We adopt *OFCindex to* test whether higher OFC attributes lead to lower accounting quality. Additionally, we focus on the interaction between *Cross_ Listing* and the *OFCindex* to examine H2 (i.e., *OFCindex*Cross_ Listing*).

*GOVindex* represents a country-level governance index of a firm's home country, which is

[8] The market list of OFCs is obtained from the International Financial Centers' Year Book (IFCY) data set from 2006 to 2007 by which a country or jurisdiction is classified as an OFC if the authorities of a country or jurisdiction approved it. See Masciandaro (2008) and Rose and Spiegel (2007) for a description of the index.
[9] Almost all of the offshore attitude indexes (Masciandaro, 2008) for non-offshore countries are zero or one.

the average of five governance indicators of Kaufmann, Kraay, and Mastruzzi (2011) including the regulatory quality, political stability and the absence of violent terrorism, government effectiveness, rule of law and control of corruption. We focus on the interaction between *OFCindex* and *GOVindex* to test H3 (i.e., *OFCindex*GOVindex*). To check the validity of our results, we also adopt an alternative variable for country-level governance strength, namely, *GoodGov*, which is equal to1 if a MNC has its headquarters registered in the 11 countries with the strictest legal regimes in our sample based on La Porta et al. (1998) (Austria, Australia, Belgium, Finland, France, Germany, the United Kingdom, Japan, Netherlands, Norway and Sweden), and 0 otherwise. In alternative models, we employ the interaction term between *OFCindex* and *GoodGov* to examine H3 (i.e., *OFCindex*GoodGov*).

We follow previous literature (e.g., Roychowdhury, 2006; Zang, 2012) and control for other factors influencing a firm's accounting quality, including firm-level variables such as auditor reputation (*Big5*), litigation risk (*Litigate*), controlling shareholder independence (a measure of management entrenchment) (*Inde*), and accounting standards (*Ifrs*), firm size (*Size*), future growth (*Mtb*), leverage ratio (*Lev*), profit in the previous year (*Neti*), and the percentage of cash flow from operations to net sales (*Cfo/Sales*). Further, we control for fundamentals volatility computed as volatility of cash flow from operations ($\sigma\_Cfo$) and volatility of sales ($\sigma\_Rev$) using four years of historical data because previous studies posit that fundamentals volatility and unsigned accruals are positively associated with each other (Hribar and Nichols, 2007). Appendix B summarizes variable definitions and list data sources.

## 5. Empirical Results

### *5.1 Descriptive Statistics*

Table 2 reports descriptive statistics for country and firm-specific variables for all years,

with Panel A presenting the statistics for 1,493 cross-listing firm-year observations, Panel B summarizing the statistics for 10,458 non-cross-listing firm-year observations and Panel C providing the results of univariate tests for the mean and median differences for the five accounting quality proxies between cross-listing and non-cross-listing samples[10]. As indicated in Panel A, for cross-listed MNCs in the U.S, the mean and median values of absolute discretionary accruals (*AAC*) are 8% and 4.9%, respectively. Conversely, Cohen, Dey and Lys (2008) present that the mean (median) *AAC* for U.S. domestic firms is 11% (6%). Relatedly, the mean and median values of positive discretionary accruals (*PAAC*) are 6.1% and 5%, respectively. The mean (median) *AQ* for the cross-listed OFC MNCs is –1.732 (–0.347), while the mean (median) *MAQ* and *EPERS* are, correspondingly, 3.038 (1.074) and –0.033 (–0.021). Panel B reports for non-cross-listing OFC MNCs, the means and medians of *AAC* are 8.7% and 6.1%, while for *PAAC* they are 7% and 6.2%, respectively. The mean (median) *AQ* for the non-cross-listing MNCs is –2.529 (–0.522), while the mean (median) *MAQ* and *EPERS* are 2.43 (0.975) and –0.038 (–0.021).

Panel C compares the mean (median) differences for the five accounting quality measurements: *AAC*, *PAAC*, *AQ*, *MAQ*, and *EPERS*. Results of *t*- and *z*- tests show that the mean and median differences between cross-listing and non-cross-listing OFC MNC samples are significant for all five proxies. More explicitly, pertaining to Hypothesis 1, at the univariate level, we find that cross-listing OFC MNCs have lower absolute value of abnormal accruals (*AAC*), lower positive abnormal accruals (*PAAC*), higher accruals quality (*AQ*) and modified accruals quality (*MAQ*), and more persistent earnings patterns (*EPERS*). These results imply that MNCs cross-listed in the U.S. bond to the enhanced accounting quality in the host country, thus exhibiting less earnings management and greater accounting quality compared to MNCs not cross-listing in

[10] We winsorize the primary firm variables at 1% and 99% levels.

the U.S.

[INSERT TABLE 2 HERE]

*5.2 Univariate Results*

TABLE 3 outlines the Pearson cross-correlation matrix for all variables, with both cross-listing and non-cross-listing MNCs being included. It is worth noting that the two accruals quality measures (*AQ* and *MAQ*) display a positive correlation of 0.22, consistent with previous research (e.g. Biddle, Hilary and Verdi 2009). However, these two accruals quality proxies are negatively related to the absolute value of abnormal accruals (*AAC*). Our primary testing variable *Cross_Listing* is negatively associated with *AAC* and *PAAC* whereas positively associated with *AQ*, *MAQ*, and *EPERS*, signifying that MNCs cross-listing in the U.S. enjoy higher accounting quality compared to their non-cross-listing counterparts (H1). With respect to another testing variable *OFCindex*, it is positively related to *AAC* and *PAAC* while negatively related to *AQ*, *MAQ* and *EPERS*, entailing that MNCs operating more subsidiaries or affiliates in countries with higher offshore attitude index are associated with poorer accruals quality and lower earnings persistence. Meanwhile, home country governance of MNCs (*GOVindex*) is negatively associated with their subsidiary- (affiliated) OFC attributes (*OFCindex*)

[INSERT TABLE 3 HERE]

*5.3 Results of Primary Regressions*

Table 4 reports the results of our baseline regressions in Eq. (6). It is worth mentioning that for Table 4 to 8, *t*- and *z*- values are based on multilevel year and industry random fixed effects clustering in estimated coefficients as well as in their standard. In Table 4, column (1) and (2) present the results for the regressions with the absolute value of abnormal accruals (*AAC)* as the dependent variable.

The coefficients on *Cross_Listing* are significantly negative (–0.018 and –0.019) in these

two columns, suggesting that cross-listing in the U.S. is related to a lower absolute value of abnormal accruals. The coefficients are also economically significant. Specifically, cross-listing in the U.S. is associated with a level of abnormal accruals that is 20.93% (22.09% for column 2) lower than for non-cross-listing firms (–20.93%=–0.018/0.086, where –0.018 is the coefficient on *Cross_Listing*, and 0.086 is the sample mean of the entire sample for *AAC*). Similarly, columns 3 and 4 report the results on our second accounting quality proxy *PAAC*. The coefficients on *PAAC* are also negative and significant (the coefficients= –0.018 and –0.018 in both columns), signifying that MNCs cross-listing in the U.S. exhibit 26.10% (= –0.018/0.069, where –0.018 is the coefficient on *Cross_Listing*, and 0.069 is the sample mean of the entire sample for *PAAC*) less positive abnormal accruals than non-cross-listing counterparts. Furthermore, columns 5 and 6 summarize the results for the models with accruals quality (*AQ*) as the dependent variable, while columns 7 and 8 are for the models with modified accruals quality (*MAQ*) as the dependent variable. The coefficients on *Cross_Listing* are positive and significant across all four models (the coefficients=0.142, 0.166, 0.167 and 0.188 respectively for the four models), implying that cross-listed MNCs are associated with better accruals quality than MNCs not-cross-listing in the U.S. Finally, columns 9 and 10 show the results for regressions with earnings persistence (*EPERS*) as the dependent variable: the coefficients on *Cross_Listing* are again positively significant (the coefficients = 0.008 and 0.010 respectively), showing that cross-listing MNCs exhibit more persistent earnings pattern compared to non-cross-listing MNCs. Taken together, relative to Hypothesis 1, these findings suggest that by cross-listing in the U.S., foreign MNCs commit to higher quality financial reporting, which is consistent with the *corporate governance bonding theory* as it implies that investors are unlikely to be expropriated by insiders.

The coefficients for *OFCindex* have the expected sign in all regressions, with MNCs with

higher offshore attitude index scores exhibiting lower quality accounting quality irrespective of the metric used. With respect to Hypothesis 2, the coefficients on *OFCindex*Cross_Listing* are positive and significant from Column 1 to 4 (coefficients = 0.017, 0.018, 0.010, 0.010, respectively), but negative and significant across Column 5 – 10 (coefficients = –0.036, –0.092, –0.114, –0.110, –0.014, –0.015). These results suggest that the accounting quality of cross-listed MNCs is reduced as a MNC's OFC subsidiaries or affiliates exhibit increasing offshore attitude indexes: higher offshore attitude index scores for cross-listed MNCs are associated with higher absolute values of abnormal accruals (*AAC*), higher positive abnormal accruals (*PAAC*), lower accruals quality (*AQ*), lower modified accruals quality (*MAQ*) and lower earnings persistence (*EPERS*). For example, for cross-listed MNCs, if the *OFCindex* increases by one, the absolute value of abnormal accruals (*AAC*) rises by 0.030 (0.030=0.017+0.013, where 0.017 is the coefficient on *OFCindex*Cross_Listing* in column 1 and 0.013 is the coefficient on *OFCindex* in column 1). A series of F-tests on the coefficients of the sum of *Cross_listing* and *OFCindex*Cross_listing* shows that we significantly reject the hypothesis that the sum of the coefficients equals zero (e.g. F-value equals 16.90 in column 3, 2.03 in column 7, and 9.79 in column 9, respectively). This evidence is consistent with Hypothesis 2 that the association between cross-listing and accounting quality for MNCs is weaker for MNCs operating in OFCs with high offshore attitude indexes. The above findings signify that the *corporate governance bonding benefits* associated with accounting quality for MNCs are alleviated by the *corporate governance arbitrage effect*, i.e., the mobility of bad governance related to underlying legal structures regarding where MNCs operate their subsidiaries or affiliates.

The coefficients for *GOVindex* (or *GoodGov*) exhibit the expected sign in almost all regressions (except columns 1 and 5). In short, MNCs with strong home country governance

exhibit higher accounting quality than MNCs originating from countries with weak governance. Regarding Hypothesis 3, the coefficients on *OFCindex*GOVindex (GoodGov)* are positive and significant from Column 2 to 4 (coefficients = 0.008, 0.005, 0.007 respectively), but negative and significant across Column 6 – 10 (coefficients = –0.070, –0.325, –0.057, –0.002, –0.010 respectively). These results suggest that the impact of a MNC's home country governance on its accounting quality is negatively moderated by offshore attitude indexes. A series of F-tests on the coefficients of the sum of *GOVindex (GoodGov)* and *OFCindex*GOVindex (OFCindex*GoodGov)* shows that we significantly reject the hypothesis that the sum of the coefficients equals zero in most regressions. This evidence is consistent with Hypothesis 3 that the association between home country governance and accounting quality for MNCs is weaker for MNCs operating in OFCs with high OFC attributes, thus providing further support to *corporate governance arbitrage theory*.

In terms of the estimated coefficients on our control variables, the following are noteworthy. First, country-level GDP (*LGDP*) is generally positively related to accounting quality. However, MNCs originating from a country with English as the official language (*Eng*) are associated with higher absolute value of abnormal accruals (*AAC)*, higher positive abnormal accruals (*PAAC*), lower accounting quality (*AQ*) and earnings persistence (*EPERS*). Second, MNCs operating in high-litigation risk industries (*Litigate*), which have a larger size (*Size*) and which report according to IFRS (*Ifrs*) have lower positive abnormal accruals (*PAAC)*, higher accounting quality (*AQ or MAQ*) and earnings persistence (*EPERS*). Finally, MNCs with higher volatility of revenue ($\sigma$_*Rev*) are associated with higher abnormal accruals (*AAC or PAAC)*, lower accounting quality (*AQ or MAQ*) and earnings persistence (*EPERS*), which is consistent with prior literature (e.g. Dechow and Dichev, 2002; Dechow et al., 2010).

[INSERT TABLE 4 HERE]

## 6. Robustness Checks and Additional Analyses

### *6.1 Self-Selection Bias*

A MNC's decision to cross list in the U.S. is voluntary because it is plausible that some firms are more likely to cross list (Doidge et al., 2004). Therefore, we cannot rule out the possibility that MNCs with better accounting quality are more likely to cross list in the U.S. and that a firm's decision to cross list is a function of unobservable omitted variables that are correlated with our test variables (an endogeneity issue). We address the above issues by performing the Heckman (1979) two-stage treatment effect model: In the first stage, following previous literature (e.g., Herrmann et al., 2015), we estimate a probit choice model in which the likelihood of a MNC cross list in the U.S. is linked with firm-specific and country-wide factors. In the second stage, we estimate the regressions of Eq. (6) after including the inverse Mills ratio (IMR), which is obtained from the first-stage probit model. As indicated in Panel A of Table 5, at the country level, MNCs originating from countries with civil law system (*Legal Origin*), higher Judicial efficiency *(RuleofLaw*), better economic development (*LnGNP*), and higher country market capitalization (*Mcap*) are more likely to cross list in the U.S. Conversely, MNCs from countries with higher stock market turnover (*Market Turnover*) are less likely to list their shares in the U.S., suggesting that the motivation of cross listing may be to enhance liquidity. Interestingly, MNCs from countries adopting IFRS (*Ifrs*) have a lower propensity to cross list in the U.S., implying that capital markets with IFRS may serve as a substitute for cross listing. At the firm level, our results show that larger firms (*Size*), firms with greater growth potential (lower *LnBM*) and better financial performance (*Roe)* are more likely to list their shares in the U.S. Panel B of Table 5 shows that the results of Heckman two-stage models are, overall, consistent with those of multi-level random

fixed effect regressions in Table 4.

[INSERT TABLE 5 HERE]

*6.2 Endogeneity*

To further mitigate the concerns of endogeneity, we adopt two approaches. One is the propensity score matching (PSM) methodology; another is firm-fixed effect models.[11] Panel A of Table 6 details the results of the PSM models. Using the first-stage probit choice model as explained above, we first compute the predicted likelihood, which is called propensity scores, for all firms in each sample year. In each sample year, we then match cross-listing with non-cross-listing firms, using the predicted likelihoods or propensity scores. In so doing, we use a 1-to-1 matching and adopt a maximum allowable range of propensity score of 0.1% to match the cross-listing sample with the non-cross-listing sample. Specifically, each cross-listing MNC is matched to one non-cross-listing MNC that, first, meets the maximum allowable range of propensity score of 0.1%, and then, has the propensity score closest to that of the forecaster.[12] The PSM process leads to 1,556 firm-year observations with both cross-listing firms and non-cross-listing firms[13]. Using the PSM sample, we then re-estimate Eq. (6). As shown in the table, the coefficients of *Cross-Listing* are negative and significant in Column 1– 4 while positive and significant in columns 6 – 10, which supports our primary results related to H1. Also, the coefficients of *OFCindex*Cross_Listing* are positive and significant in Column 1 – 4, and negatively significant in columns 6 – 10, validating the main results related to H2. Further, the coefficients of *OFCindex*GOVindex* (*GoodGov*) are positive and significant in Column 2, 3 and 4, and negatively significant in Column 6, 7, 8 and 10. The covariate comparison of the cross-listing and matched

[11] For the advantages of using the PSM, refer to Larcker and Rusticus (2010).
[12] For a robustness check, we also employ a 1-to-N matching so that all non-cross-listing firms that meet the maximum range of propensity score of 0.1% are included into the PSM sample. Our primary results are robust to this correction.
[13] For the model with *PAAC* as the dependent variable, the sample size is 989.

non-cross-listing samples is presented in Panel B. All covariates except for *LnGNP* are balanced with less than 5% standardized difference. In sum, results of the PSM estimation lend further credence to our main regression results reported in Table 4. As indicated in all five models on firm-fixed effect in Panel C of Table 6, the coefficients on *Cross_Listing* (H1), *OFCindex*Cross_Listing* (H2) retain similar to those in the base models[14].

[INSERT TABLE 6 HERE]

*6.3 The Impact of Offshore Characteristics on Accounting Quality*

To further explore the influence of OFC characteristics on accounting quality, we focus on three proxies that represent three primary OFC aspects, namely, secrecy policies, regulation arbitrage and tax avoidance opportunities. Following previous literature (Durnev et. al, 2017), we replace the overall measure of OFC characteristics, *OFCindex,* with these three aspects. Secrecy policies are computed as a firm's subsidiary (or affiliate)-weighted secrecy indicator of the IMF group index. According to the IMF (2000), the Financial Stability Forum (2000) groups OFCs into three categories based on transparency for international cooperation and supervision: those with the highest level are listed in Group I, while those with the lowest level are placed in Group III[15]. We code one, two, and three for OFCs in Group I, Group II and Group III, respectively, and compute the affiliate- or subsidiary-weighted transparency index as the measure of the secrecy policies (*Secrecy*) of OFC MNCs. Regulation arbitrage proxies for the gap between flexible regulations of OFCs where a MNC's subsidiaries or affiliates are registered and the regulation of its home country. The proxy of tax avoidance opportunities via OFCs is equal to the average corporate tax rate of the country in which a MNC's headquarter is registered minus the affiliates-

[14] It is worth noting that Panel C of Table 6 (Firm-Fixed Effects Models) do not contain the interaction term *OFCindex*GovIndex* because when performing firm-fixed effect models, country-level variables (e.g., *GovIndex*) are omitted.

[15] Data source: International Monetary Fund (2000), 'Offshore Financial Centers: IMF Background Paper'. The IMF has not updated its categorization of OFC groups since 2000, so we hold the group numbers of OFCs constant throughout our sample period.

or subsidiary-weighted corporate tax rate of its OFC subsidiaries or affiliates[16].

Panels A, B and C of Table 7 summarize the regression results on secrecy policies, regulation arbitrage and tax avoidance opportunities. We find that in the models with secrecy policies and regulation arbitrage, our primary results on H1, H2 and H3 remain unchanged while in models with tax avoidance opportunities the coefficients on *TaxDiff*Cross_Listing* are only significant in one model, implying that secrecy policies and regulation arbitrage related to MNCs' OFC subsidiaries or affiliates likely dominate tax avoidance in mitigating the cross-listing benefits rather than the tax avoidance attribute[17].

[INSERT TABLE 7 HERE]

*6.4 Additional Analyses*

To further enhance the robustness of our results, we undertake two additional tests. The first adds Canadian firms back to our sample. We exclude Canadian MNCs from our primary sample because Canadian firms, different from ADRs, list their shares directly in the U.S. stock exchanges and are exempted from many disclosure requirements under the multijurisdictional disclosure system (Foerster and Karolyi, 1999). The second one is to employ country-weighted least squares to diminish the concerns of uneven sample size across countries. The results are outlined in Panel A and B of Table 8. As shown in these two panels, our results are not sensitive to these corrections as all coefficients remain the same signs across all models. Furthermore, in Panel C we break down the entire sample into the sub-samples of strong and weak home country governance in order to examine the impact of external mechanisms (*Cross_listing*) on accounting

[16] OECD Tax Database, *Table II.1 – Corporate income tax rates: basic/non-targeted* (last updated May 2014), http://www.oecd.org/tax/tax-policy/tax-database.htm. Corporate income tax rates around world, 2014 (Tax Foundation, http://taxfoundation.org/article/corporate-income-tax-rates-around-world-2014).

[17] It is worth noting that we do not include the interaction term *OFCindex*GovIndex (GoodGov)* in table 7 because the thee testing variables here (i.e., *Secrecy*, *Regulation Arbitrage*, and *TaxDiff*) are calculated as the differences between a firm's home-country index and its subsidiary-weighted index, which are similar to *OFCindex*GovIndex*.

quality and the interaction between internal governance structure and external mechanisms (*OFCindex *Cross_listing*). Results indicate that cross-listing and the negative moderated effect of *OFCindex* are stronger and more significant for MNCs that register their headquarters in countries with good governance than those in bad governance. This result supports *the corporate governance arbitrage theory* in that the greater the arbitrages in legal institutions between the parent company and the subsidiaries, the higher the moderating effect of OFCs play. Finally, although our primary analyses focus on MNCs placing subsidiaries in OFCs, we also conduct similar tests on MNCs that do not register subsidiaries or affiliates in OFCs as a comparison. The results in Panel D of Table 8 show that both the effects of *cross-listing* and the negative moderating effect of *OFCindex* are less salient for MNCs that do not operate subsidiaries in OFCs. In fact, the coefficients for *OFCindex*Cross_Listing* are all insignificant in the good home-country governance sample and only marginally significant in one model for the bad home-country governance sample. The distinctly different results from Panel C and D of Table 8 suggest that the mobility of bad governance, i.e., setting up subsidiaries in OFCs, does impact the overall accounting quality of MNCs, thus lending further credence to the *corporate governance arbitrage theory*.

[INSERT TABLE 8 HERE]

**7. Concluding Remarks**

This study investigates how a MNC's institutional diversity affect its accounting quality. We employ MNCs registering subsidiaries or affiliates in OFCs as our sample given that these firms are characterized by complex and multi-level legal structures incorporating the legal institutions of their incorporation country, the countries where they set up their subsidiaries and their listing host countries. Hence, these MNCs offer a unique opportunity to simultaneously test

*the corporate governance bonding theory* and *the corporate governance arbitrage theory* (Cumming et al., 2017; Aguilera et al., 2019). In terms of *the corporate governance bonding theory*, we hope to examine whether the enforcement from the SEC and other regulators are effective in reaching foreign firms with complex legal and organizational structures (Bushman et al., 2004). In light of *the corporate governance arbitrage theory*, we seek to examine whether the mobility of bad governance, i.e., setting up subsidiaries in OFCs with opaque corporate structure and less stringent legal institutions, moderates the effect of cross-listing or MNCs' home-country institutions on accounting quality.

We find that MNCs cross listing in the U.S. exhibit lower absolute value of abnormal accruals, lower positive abnormal accruals, higher accruals quality and more persistent earnings patterns compared to MNCs not-cross-listing in the U.S., thus supporting *the corporate governance bonding hypothesis* that cross-listing MNCs benefit by reducing opaque information asymmetry and lead to higher accounting quality (Coffee, 2002). Further, we document that the positive association between cross listing and accounting quality is negatively moderated by the legal institutions of the countries or jurisdictions where MNCs operate their subsidiaries or affiliates. More specifically, if MNCs operate subsidiaries or affiliates in OFCs having flexible legal institutions and employing secrecy policies (higher offshore attitude index), the bonding effect on accounting quality is attenuated, thereby providing support to *the corporate governance arbitrage theory*. We also explore the channels through which the subsidiaries' legal framework plays a role and find that the moderation effect on accounting quality is through regulation arbitrage and secrecy policies, rather than through tax avoidance. This result offers direct evidence to verify *the corporate governance arbitrage theory*. Finally, we show that the OFC attributes also

negatively moderate the positive association between MNCs' home-country institution and accounting quality.

As in other studies, our study is subject to caveats. For instance, for MNCs with complex legal and organizational structures, are the benefits of cross listing in the U.S. greater than the costs? Facing the new waves of cross listing firms deregistering from the U.S. stock exchanges, what are the patterns that these MNCs have displayed? In addition, how would firm-level corporate governance factors, such as board of directors attributes, impact the accounting quality of MNCs. Given the scarcity of evidence on these questions, we leave them for further research.

[INSERT APPENDIX HERE]

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## Table 1 Sample Distribution

**Panel A Distribution by Country or Jurisdiction**

| Country | # of Firms | # of Observations | Percentage of Obs. (%) |
|---|---|---|---|
| Argentina | 17 | 60 | 0.502 |
| Australia | 173 | 553 | 4.627 |
| Austria | 28 | 101 | 0.845 |
| Belgium | 38 | 218 | 1.824 |
| Brazil | 46 | 98 | 0.820 |
| Chile | 30 | 116 | 0.971 |
| China | 301 | 787 | 6.585 |
| Colombia | 8 | 19 | 0.159 |
| Egypt | 8 | 22 | 0.184 |
| Finland | 42 | 222 | 1.858 |
| France | 229 | 1,144 | 9.572 |
| Germany | 233 | 976 | 8.167 |
| Greece | 38 | 99 | 0.828 |
| India | 286 | 584 | 4.887 |
| Indonesia | 26 | 55 | 0.460 |
| Italy | 6 | 48 | 0.402 |
| Japan | 749 | 3,120 | 26.107 |
| Mexico | 31 | 126 | 1.054 |
| Netherlands | 54 | 273 | 2.284 |
| Norway | 37 | 153 | 1.280 |
| Philippines | 13 | 30 | 0.251 |
| Poland | 13 | 23 | 0.192 |
| Qatar | 6 | 19 | 0.159 |
| Russian Federation | 31 | 91 | 0.761 |
| South Africa | 27 | 86 | 0.720 |
| Sweden | 77 | 347 | 2.904 |
| Taiwan | 332 | 1,148 | 9.606 |
| Thailand | 54 | 180 | 1.506 |
| Turkey | 17 | 38 | 0.318 |
| United Arab Emirates | 16 | 48 | 0.402 |
| United Kingdom | 270 | 1,167 | 9.765 |
| Total | 3,236 | 11,951 | 100 |

## Table 1 (Continued)

**Panel B Distribution by Industry**

| Industry | ICB code in the Osiris Database | Observations | Percentage of Obs. (%) |
|---|---|---|---|
| Energy | 0533 0537 0573 0577 | 332 | 2.778 |
| Materials | 1353-1779 | 1,405 | 11.756 |
| Industrial | 2353-2799 3353-3785 | 6,362 | 53.234 |
| Consumer Discretionary | 5333-5379 | 335 | 2.803 |
| Consumer Staples | 5553-5759 | 660 | 5.523 |
| Health Care | 4533-4577 | 672 | 5.623 |
| Information Technology | 6535 6575 | 158 | 1.322 |
| Telecommunication Services | 9533-9578 | 1,831 | 15.321 |
| Utilities | 7535 7573-7577 | 196 | 1.640 |
| Total | | 11,951 | 100 |

**Panel C Distribution by Year**

| Fiscal Year | Number of Firms | Number of Observations | Percentage of Number of Observations |
|---|---|---|---|
| 2002 | 103 | 153 | 1.280 |
| 2003 | 163 | 255 | 2.134 |
| 2004 | 195 | 414 | 3.464 |
| 2005 | 254 | 611 | 5.113 |
| 2006 | 231 | 681 | 5.698 |
| 2007 | 403 | 1,141 | 9.547 |
| 2008 | 355 | 1,200 | 10.041 |
| 2009 | 340 | 1,625 | 13.597 |
| 2010 | 283 | 1,028 | 8.602 |
| 2011 | 223 | 1,315 | 11.003 |
| 2012 | 311 | 1,645 | 13.765 |
| 2013 | 375 | 1,883 | 15.756 |
| Total | 3,236 | 11,951 | 100 |

This table shows the sample distribution by 31 countries or jurisdictions where MNCs with OFC subsidiaries or affiliates have their headquarters registered as of December 31, 2013 in panel A, while panel B reports sample distribution of firm-year observations by industry. Panel C reports the yearly distribution of observations. The sample period is from 2002 to 2013.

## Table 2 Summary Statistics and Results of Univariate Tests

**Panel A Cross-listing Sample**

| Variables | N | 25th percentile | Mean | Median | 75th percentile | Standard deviation |
|---|---|---|---|---|---|---|
| *OFCindex* | 1,493 | 0.220 | 0.636 | 0.487 | 0.960 | 0.553 |
| *Secrecy* | 1,493 | 0.210 | 0.425 | 0.333 | 0.556 | 0.341 |
| *Regulation Arbitrage* | 1,493 | 0 | 0.182 | 0.036 | 0.299 | 0.264 |
| *TaxDiff* | 1,493 | 0 | 0.023 | 0.009 | 0.031 | 0.037 |
| *GOVindex* | 1,493 | -0.035 | 0.828 | 1.196 | 1.440 | 0.816 |
| *GoodGov* | 1,493 | 0 | 1 | 1 | 0.520 | 0.500 |
| *AAC* | 1,493 | 0.021 | 0.080 | 0.049 | 0.090 | 0.131 |
| *PAAC* | 916 | 0.023 | 0.061 | 0.050 | 0.085 | 0.055 |
| *AQ* | 1,493 | -1.207 | -1.732 | -0.347 | -0.138 | 3.317 |
| *MAQ* | 1,493 | 0.576 | 3.038 | 1.074 | 2.470 | 5.087 |
| *EPERS* | 1,493 | -0.041 | -0.033 | -0.021 | -0.011 | 0.038 |
| *LGDP* | 1,493 | 9.362 | 9.828 | 10.333 | 10.635 | 1.105 |
| *Tax* | 1,493 | 0.250 | 0.291 | 0.300 | 0.340 | 0.066 |
| *Eng* | 1,493 | 0 | 0.240 | 0 | 0 | 0.428 |
| *Mcap* | 1,493 | 0.384 | 0.903 | 0.880 | 1.315 | 0.494 |
| *Big5* | 1,493 | 1 | 0.814 | 1 | 1 | 0.389 |
| *Litigate* | 1,493 | 0 | 0.297 | 0 | 1 | 0.457 |
| *Inde* | 1,493 | 7 | 8.000 | 10 | 10 | 3.165 |
| *Ifrs* | 1,493 | 0 | 0.117 | 0 | 0 | 0.322 |
| *Analyst Following* | 1,493 | 2.042 | 2.446 | 2.321 | 2.875 | 0.507 |
| *Size* | 1,493 | 10.949 | 13.497 | 14.216 | 15.871 | 2.646 |
| *Mtb* | 1,493 | 0.974 | 2.294 | 1.673 | 2.811 | 2.076 |
| *Lev* | 1,493 | 0.459 | 0.574 | 0.581 | 0.698 | 0.179 |
| *Neti* | 1,493 | 0.022 | 0.052 | 0.050 | 0.086 | 0.064 |
| *σ_Cfo* | 1,493 | 0.017 | 0.052 | 0.034 | 0.068 | 0.058 |
| *σ_Rev* | 1,493 | 0.033 | 0.091 | 0.066 | 0.115 | 0.093 |
| *Cfo/Sales* | 1,493 | 0.072 | 0.159 | 0.133 | 0.227 | 0.188 |

## Table 2 (Continued)

**Panel B Non-Cross-listing Sample**

| Variables | N | 25th percentile | Mean | Median | 75th percentile | Standard deviation |
|---|---|---|---|---|---|---|
| *OFCindex* | 10,458 | 0 | 0.439 | 0.200 | 0.7 | 0.595 |
| *Secrecy* | 10,458 | 0.200 | 0.494 | 0.370 | 0.667 | 0.430 |
| *Regulation Arbitrage* | 10,458 | 0 | 0.114 | 0 | 0.140 | 0.223 |
| *TaxDiff* | 10,458 | 0 | 0.017 | 0.001 | 0.029 | 0.028 |
| *GOVindex* | 10,458 | 0.997 | 1.045 | 1.237 | 1.429 | 0.664 |
| *GoodGov* | 10,458 | 0 | 0.717 | 1 | 1 | 0.450 |
| *AAC* | 10,458 | 0.030 | 0.087 | 0.061 | 0.101 | 0.118 |
| *PAAC* | 6,824 | 0.034 | 0.070 | 0.062 | 0.093 | 0.053 |
| *AQ* | 10,458 | -3.000 | -2.529 | -0.522 | -0.186 | 3.883 |
| *MAQ* | 10,458 | 0.571 | 2.430 | 0.975 | 1.905 | 4.346 |
| *EPERS* | 10,458 | -0.044 | -0.038 | -0.021 | -0.010 | 0.050 |
| *LGDP* | 10,458 | 9.904 | 10.152 | 10.562 | 10.698 | 0.985 |
| *Tax* | 10,458 | 0.26 | 0.317 | 0.325 | 0.380 | 0.072 |
| *Eng* | 10,458 | 0 | 0.138 | 0 | 0 | 0.345 |
| *Mcap* | 10,458 | 0.537 | 0.803 | 0.694 | 1.014 | 0.375 |
| *Big5* | 10,458 | 0 | 0.668 | 1 | 1 | 0.471 |
| *Litigate* | 10,458 | 0 | 0.333 | 0 | 1 | 0.471 |
| *Inde* | 10,458 | 7 | 7.221 | 9 | 10 | 3.488 |
| *Ifrs* | 10,458 | 0 | 0.357 | 0 | 1 | 0.479 |
| *Analyst Following* | 10,458 | 2 | 2.304 | 2.321 | 2.583 | 0.628 |
| *Size* | 10,458 | 11.840 | 12.905 | 12.953 | 14.025 | 1.630 |
| *Mtb* | 10,458 | 0.716 | 1.621 | 1.165 | 1.956 | 1.533 |
| *Lev* | 10,458 | 0.383 | 0.526 | 0.532 | 0.670 | 0.200 |
| *Neti* | 10,458 | 0.010 | 0.036 | 0.035 | 0.066 | 0.071 |
| *σ_Cfo* | 10,458 | 0.014 | 0.062 | 0.034 | 0.076 | 0.078 |
| *σ_Rev* | 10,458 | 0.040 | 0.118 | 0.077 | 0.146 | 0.127 |
| *Cfo/Sales* | 10,458 | 0.040 | 0.098 | 0.084 | 0.142 | 0.457 |

**Panel C Cross-listing vs. Non-cross-listing**

| | Cross-listing | | | Non-cross-listing | | | Difference in means | Difference in medians |
|---|---|---|---|---|---|---|---|---|
| **Variable** | **N** | **Mean** | **Median** | **N** | **Mean** | **Median** | **t-test** | **Wilcoxon Z-test** |
| *AAC* | 1,493 | 0.080 | 0.049 | 10,458 | 0.087 | 0.061 | -1.99** | -7.57*** |
| *PAAC* | 916 | 0.061 | 0.050 | 6,824 | 0.070 | 0.062 | -4.86*** | -6.85*** |
| *AQ* | 1,493 | -1.732 | -0.347 | 10,458 | -2.529 | -0.522 | 8.49*** | 8.93*** |
| *MAQ* | 1,493 | 3.038 | 1.074 | 10,458 | 2.430 | 0.975 | 4.40*** | 3.68*** |
| *EPERS* | 1,493 | -0.033 | -0.021 | 10,458 | -0.038 | -0.021 | 4.75*** | 0.74 |

This table reports summary statistics of the main variables of the cross-listing sample and non-cross-listing sample in Panel A and B, respectively, while Panel C reports mean comparison tests (based on t-tests) and median comparison tests (based on Wilcoxon Z-tests) for the measures of financial reporting quality between cross-listing and non-cross-listing firms. We use the absolute value of abnormal accruals (*AAC*) following the modified Jones (1991) model as described in Dechow et al. (1995), positive abnormal accruals (*PAAC*), Dechow and Dichev (2002)'s accruals quality (*AQ*), Wysocki (2008)'s modified accruals quality (*MAQ),* and earnings persistence (*EPERS*) as proxies of financial reporting quality. The null hypothesis is that the means and medians are different across the corresponding subsamples. *, **, *** indicate significance at the 10%, 5%, and 1% levels (based on a two-tailed test), respectively. All variables are defined in Appendix B.

**Table 3** **Correlation coefficients**

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. *Cross_Listing* | **0.110** | **-0.020** | **-0.056** | **0.069** | **0.045** | **0.036** | **-0.106** | **-0.120** | **-0.104** | **0.094** | **0.084** | **0.104** | **-0.025** | **0.074** | **-0.169** | **0.076** | **0.109** | **0.137** | **0.080** | **0.075** | **-0.045** | **-0.071** | **0.046** |
| 2.*OFCindex* | 1.000 | **0.110** | **0.115** | **-0.092** | **-0.024** | **-0.052** | **-0.458** | **-0.431** | **-0.479** | **-0.102** | **-0.142** | **-0.098** | **-0.021** | **-0.073** | **-0.183** | 0.001 | **0.052** | **0.022** | 0.013 | **0.030** | **-0.057** | **0.074** | **0.039** |
| 3. *AAC* | | 1.000 | **0.889** | **-0.012** | **-0.025** | **-0.155** | **-0.140** | **-0.031** | **-0.140** | 0.012 | **-0.077** | **-0.104** | **-0.062** | **-0.067** | 0.016 | -0.013 | **-0.080** | **-0.075** | **0.175** | **-0.167** | **0.120** | **0.066** | **-0.041** |
| 4. *PAAC* | | | 1.000 | -0.014 | **-0.018** | **-0.156** | **-0.137** | **-0.082** | **-0.138** | **0.065** | **-0.034** | **-0.093** | **-0.040** | -0.059 | 0.011 | **-0.079** | **-0.134** | -0.007 | **-0.202** | **0.322** | **0.107** | **0.064** | **0.144** |
| 5. *AQ* | | | | 1.000 | **0.217** | **0.073** | **-0.088** | **0.095** | **0.099** | **-0.037** | **-0.050** | 0.009 | **-0.034** | 0.007 | **-0.119** | **0.023** | **0.064** | **-0.052** | **-0.026** | **0.030** | **-0.156** | -0.004 | **0.020** |
| 6. *MAQ* | | | | | 1.000 | **0.058** | -0.014 | **0.032** | 0.013 | **-0.029** | **-0.027** | **0.019** | **-0.023** | 0.014 | **-0.089** | **0.037** | **0.036** | **-0.039** | **-0.050** | **0.029** | **-0.063** | **-0.031** | **0.021** |
| 7. *EPERS* | | | | | | 1.000 | **-0.058** | **0.121** | **0.079** | **-0.167** | **-0.103** | **0.087** | **-0.099** | 0.011 | **-0.178** | 0.014 | **0.298** | **-0.092** | **-0.038** | **0.080** | **-0.539** | **-0.310** | **0.021** |
| 8. *LGDP* | | | | | | | 1.000 | **0.190** | **0.913** | **0.213** | **0.421** | **0.263** | **0.029** | **0.093** | **0.398** | **0.033** | **0.066** | **-0.043** | **-0.065** | **-0.044** | **0.177** | **-0.023** | -0.015 |
| 9. *Tax* | | | | | | | | 1.000 | **0.145** | **-0.169** | **-0.280** | **0.022** | **-0.110** | **0.021** | **-0.151** | **0.057** | **0.075** | **-0.131** | **0.029** | **-0.097** | **-0.123** | **-0.125** | **-0.035** |
| 10. *GOVindex* | | | | | | | | | 1.000 | **0.248** | **0.531** | **0.285** | **0.071** | **0.151** | **0.408** | **0.035** | **0.115** | 0.010 | **-0.059** | **-0.020** | **0.188** | -0.007 | **-0.022** |
| 11. *Eng* | | | | | | | | | | 1.000 | **0.632** | **0.045** | **-0.050** | **0.136** | **0.394** | **-0.112** | **-0.208** | **0.132** | **-0.048** | **0.063** | **0.259** | **0.104** | **0.021** |
| 12. *Mcap* | | | | | | | | | | | 1.000 | **0.195** | **0.072** | **0.227** | **0.301** | 0.001 | **-0.177** | **0.130** | **-0.059** | **-0.057** | **0.203** | **0.037** | 0.008 |
| 13. *Big5* | | | | | | | | | | | | 1.000 | **0.029** | **0.151** | **0.044** | **0.110** | **0.217** | 0.003 | -0.014 | **0.048** | **-0.097** | **-0.066** | 0.001 |
| 14. *Litigate* | | | | | | | | | | | | | 1.000 | **0.101** | -0.005 | -0.005 | **-0.156** | **0.109** | **-0.220** | **0.045** | **0.047** | **0.063** | -0.007 |
| 15. *Inde* | | | | | | | | | | | | | | 1.000 | **-0.154** | -0.002 | 0.011 | -0.002 | **-0.103** | -0.001 | **-0.108** | **-0.043** | **-0.024** |
| 16. *Ifrs* | | | | | | | | | | | | | | | 1.000 | **-0.101** | **-0.146** | **0.057** | **0.036** | 0.016 | **0.373** | **0.116** | 0.015 |
| 17. *Analyst Following* | | | | | | | | | | | | | | | | 1.000 | **0.130** | **-0.050** | **0.038** | **0.179** | **-0.059** | **-0.066** | -0.017 |
| 18. *Size* | | | | | | | | | | | | | | | | | 1.000 | **-0.043** | **0.257** | **0.028** | **-0.281** | **-0.051** | 0.011 |
| 19. *Mtb* | | | | | | | | | | | | | | | | | | 1.000 | **0.095** | **0.365** | **0.124** | **0.071** | **0.045** |
| 20. *Lev* | | | | | | | | | | | | | | | | | | | 1.000 | **-0.290** | **0.048** | **0.102** | **-0.055** |
| 21. *Neti* | | | | | | | | | | | | | | | | | | | | 1.000 | **-0.021** | 0.003 | **0.190** |
| 22. *σ_Cfo* | | | | | | | | | | | | | | | | | | | | | 1.000 | **0.283** | -0.004 |
| 23. *σ_Rev* | | | | | | | | | | | | | | | | | | | | | | 1.000 | **-0.054** |
| 24. *Cfo/Sales* | | | | | | | | | | | | | | | | | | | | | | | 1.000 |

This table reports Pearson pairwise correlation coefficients between the main variables based on the entire sample. Bold text indicates significance at (or smaller than) the 5% level using two-tailed tests. All of the variables are defined in Appendix B.

## TABLE 4 Base-line Results

| | Dependent Variables | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *AAC* | | *PAAC* | | *AQ* | | *MAQ* | | *EPERS* | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| ***Cross_Listing*** | -0.018*** | -0.019*** | -0.018*** | -0.018*** | 0.142** | 0.166** | 0.167** | 0.188* | 0.008*** | 0.010*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.039] | [0.027] | [0.034] | [0.084] | [0.000] | [0.000] |
| ***OFCindex*Cross_Listing*** | 0.017*** | 0.018*** | 0.010*** | 0.010*** | -0.036* | -0.092* | -0.114* | -0.110** | -0.014*** | -0.015*** |
| | [0.003] | [0.002] | [0.002] | [0.002] | [0.083] | [0.059] | [0.085] | [0.012] | [0.000] | [0.000] |
| ***GOVindex*** | -0.000 | | -0.006** | | 0.212 | | 0.377** | | 0.005*** | |
| | [0.978] | | [0.021] | | [0.151] | | [0.029] | | [0.000] | |
| ***OFCindex* GOVindex*** | 0.001 | | 0.005*** | | -0.042 | | -0.325*** | | -0.002* | |
| | [0.848] | | [0.001] | | [0.593] | | [0.000] | | [0.086] | |
| ***GoodGov*** | | -0.015** | | -0.006* | | 0.099** | | 0.087*** | | 0.005** |
| | | [0.014] | | [0.079] | | [0.029] | | [0.000] | | [0.036] |
| ***OFCindex* GoodGov*** | | 0.008* | | 0.007*** | | -0.070* | | -0.057*** | | -0.010*** |
| | | [0.083] | | [0.004] | | [0.060] | | [0.000] | | [0.000] |
| *OFCindex* | 0.013*** | 0.008*** | 0.001* | 0.001* | -0.095** | -0.039* | -0.087** | -0.123** | -0.004*** | -0.001* |
| | [0.000] | [0.010] | [0.073] | [0.065] | [0.031] | [0.068] | [0.043] | [0.025] | [0.000] | [0.065] |
| *Control Variables* | | | | | | | | | | |
| *LGDP* | -0.014*** | -0.012*** | -0.003** | -0.004*** | 0.211*** | 0.001 | 0.081 | 0.158** | 0.000 | 0.003*** |
| | [0.000] | [0.000] | [0.026] | [0.000] | [0.009] | [0.993] | [0.389] | [0.028] | [0.971] | [0.000] |
| *Tax* | 0.032* | 0.059** | -0.004 | -0.001 | 0.305 | 0.420** | 0.069** | 0.076 | 0.013* | 0.015* |
| | [0.100] | [0.015] | [0.660] | [0.954] | [0.592] | [0.043] | [0.011] | [0.563] | [0.077] | [0.096] |
| *Eng* | 0.014*** | 0.014*** | 0.012*** | 0.012*** | -0.353*** | -0.355*** | -0.151 | -0.116 | -0.013*** | -0.011*** |
| | [0.001] | [0.001] | [0.000] | [0.000] | [0.005] | [0.004] | [0.305] | [0.426] | [0.000] | [0.000] |
| *Mcap* | -0.014*** | -0.014*** | -0.006** | -0.006*** | 0.130 | 0.225* | 0.084 | 0.101 | 0.011*** | 0.008*** |
| | [0.002] | [0.002] | [0.026] | [0.008] | [0.325] | [0.072] | [0.588] | [0.490] | [0.000] | [0.000] |
| *Big5* | -0.003 | -0.003 | -0.003** | -0.003** | 0.088 | 0.086 | 0.005 | 0.015 | 0.003*** | 0.002** |
| | [0.235] | [0.183] | [0.028] | [0.020] | [0.223] | [0.234] | [0.957] | [0.863] | [0.003] | [0.015] |
| *Litigate* | -0.001 | -0.001 | -0.003* | -0.003* | 0.142 | 0.143 | 0.041*** | 0.040*** | 0.003** | 0.003*** |
| | [0.792] | [0.774] | [0.059] | [0.064] | [0.206] | [0.203] | [0.002] | [0.002] | [0.019] | [0.010] |
| *Inde* | -0.000 | -0.000 | -0.000* | -0.000* | 0.008 | 0.006 | 0.020* | 0.020* | 0.000* | 0.000*** |
| | [0.371] | [0.417] | [0.082] | [0.056] | [0.409] | [0.556] | [0.080] | [0.083] | [0.049] | [0.007] |
| *Ifrs* | -0.002 | -0.003 | -0.008*** | -0.009*** | 0.043*** | 0.031*** | 0.026** | 0.021* | 0.009*** | 0.009*** |
| | [0.521] | [0.285] | [0.000] | [0.000] | [0.000] | [0.000] | [0.012] | [0.053] | [0.000] | [0.000] |
| *Analyst Following* | -0.001 | -0.001 | 0.000 | 0.000 | 0.004 | 0.013 | 0.078 | 0.089 | 0.005*** | 0.005*** |
| | [0.523] | [0.455] | [0.854] | [0.899] | [0.944] | [0.793] | [0.191] | [0.135] | [0.000] | [0.000] |
| *Size* | -0.007*** | -0.007*** | -0.003*** | -0.003*** | 0.060*** | 0.056*** | 0.103*** | 0.106*** | 0.007*** | 0.007*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.002] | [0.004] | [0.000] | [0.000] | [0.000] | [0.000] |
| *Mtb* | -0.005*** | -0.005*** | -0.006*** | -0.006*** | -0.091*** | -0.088*** | -0.005 | -0.004 | -0.002*** | -0.002*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.837] | [0.858] | [0.000] | [0.000] |
| *Lev* | 0.097*** | 0.098*** | -0.024*** | -0.024*** | 0.125 | 0.147 | -0.333* | -0.259 | -0.003 | -0.003 |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.459] | [0.386] | [0.092] | [0.136] | [0.207] | [0.164] |
| *Neti* | -0.151*** | -0.151*** | 0.360*** | 0.360*** | | | | | | |
| | [0.000] | [0.000] | [0.000] | [0.000] | | | | | | |
| *σ_Cfo* | 0.173*** | 0.173*** | 0.060*** | 0.060*** | | | | | | |
| | [0.000] | [0.000] | [0.000] | [0.000] | | | | | | |
| *σ_Rev* | 0.009 | 0.008 | 0.012** | 0.011** | -0.586** | -0.553** | -0.739** | -0.763** | -0.105*** | -0.105*** |
| | [0.344] | [0.347] | [0.015] | [0.023] | [0.035] | [0.038] | [0.018] | [0.014] | [0.000] | [0.000] |
| *Cfo/Sales* | | | | | 0.148** | 0.143** | -0.115 | -0.118 | 0.001 | 0.001 |
| | | | | | [0.035] | [0.042] | [0.161] | [0.151] | [0.180] | [0.171] |

## TABLE 4 (Continued)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Industry Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.105 | 0.105 | 0.197 | 0.196 | 0.041 | 0.040 | 0.025 | 0.024 | 0.202 | 0.203 |
| No. of Observations | 11,951 | 11,951 | 7,740 | 7,740 | 11,951 | 11,951 | 11,951 | 11,951 | 11,951 | 11,951 |
| F-test (p-value): *Cross_Listing = -OFCindex*Cross_Listing* | 0.09 [0.762] | 0.10 [0.750] | 16.90*** [0.000] | 18.80*** [0.000] | 1.65* [0.094] | 3.11** [0.045] | 2.03* [0.059] | 2.16** [0.045] | 9.79*** [0.001] | 6.25*** [0.009] |
| F-test (p-value): *GOVindex = -OFCindex* GOVindex* | 0.00 [0.984] | | 1.72* [0.087] | | 0.58 [0.442] | | 1.75* [0.094] | | 33.13*** [0.000] | |
| F-test (p-value): *GoodGov = -OFCindex* GoodGov* | | 2.86** [0.047] | | 1.70* [0.90] | | 4.63** [0.032] | | 3.04** [0.040] | | 2.15** [0.047] |

This table reports multilevel industry and year random effect estimates (Baltagi et al. 2001) which internalize clustering in estimated coefficients as well as in their standard errors using the measures of financial reporting quality, the absolute value of abnormal accruals (*AA*C) following the modified Jones (1991) model described in Dechow et al. (1995), the positive abnormal accruals (*PAAC*), Dechow and Dichev (2002)'s accruals quality (*AQ*), Wysocki (2008)'s modified accruals quality (*MAQ*), and earnings persistence (*EPERS*), as the dependent variables. One test variable, *Cross_Listing*, equals one if a firm is cross-listed in the U.S. markets and zero otherwise, while another test variable is the interaction between *Cross_Listing* and the affiliate– or subsidiary– average OFC attributes *OFCindex* (*OFCindex*Cross_Listing).* In columns (1), (3), (5), (7), and (9) the country-level corporate governance (*GOVindex*) of a country or jurisdiction in which firms have their headquarters registered, and the interaction *OFCindex* GOVindex* are included in the regressions. In columns (2), (4), (6), (8) and (10) the good country-level governance measure *GoodGov* which is equal to 1 if a multinational firm has its headquarters registered in the 11 countries with the strictest legal regimes in our sample based on La Porta et al. (1998) (Austria, Australia, Belgium, Finland, France, Germany, the United Kingdom, Japan, Netherlands, Norway and Sweden) and 0 otherwise, and the interaction *OFCindex* GoodGov* are included in the regressions. The numbers in parentheses are probability levels at which the null hypothesis of a zero coefficient can be rejected. *, **, *** indicate significance at the 10%, 5%, and 1% levels (based on a two-tailed test), respectively. All of the variables are defined in Appendix B.

## TABLE 5 Heckman two-stage model

### A. The First Stage

| | Pro (Cross_Listing) | |
|---|---|---|
| *Legal Origin* | -0.187*** | [0.001] |
| *RuleofLaw* | 0.620*** | [0.000] |
| *GovermentEff* | -1.832*** | [0.000] |
| *LnGNP* | 0.317*** | [0.000] |
| *Accounting Disclosure* | 0.020*** | [0.000] |
| *Mcap* | 1.006*** | [0.000] |
| *Market Turnover* | -0.005*** | [0.000] |
| *LnBM* | -0.177*** | [0.000] |
| *Roe* | 0.007*** | [0.000] |
| *Size* | 0.126*** | [0.000] |
| *Ifrs* | -0.985*** | [0.000] |
| *INDE* | 0.068*** | [0.000] |
| Industry Fixed Effect | Included | |
| Year Fixed Effect | Included | |
| Pseudo $R^2$ | 0.146 | |
| No. of Observations | 11,951 | |

### B. The Second Stage

| | Dependent Variables | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *AAC* | | *PAAC* | | *AQ* | | *MAQ* | | *EPERS* | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| ***Cross_Listing*** | -0.064*** | -0.075*** | -0.026*** | -0.027*** | 0.136*** | 0.200** | 0.260* | 0.158* | 0.030*** | 0.033*** |
| | [0.000] | [0.000] | [0.000] | [0.001] | [0.000] | [0.022] | [0.058] | [0.074] | [0.000] | [0.000] |
| ***OFCindex* Cross_Listing*** | 0.018*** | 0.020*** | 0.008*** | 0.008*** | -0.128** | -0.174** | -0.244* | -0.127* | -0.016*** | -0.017*** |
| | [0.002] | [0.001] | [0.007] | [0.010] | [0.045] | [0.030] | [0.069] | [0.053] | [0.000] | [0.000] |
| ***GOVindex*** | -0.005 | | -0.010*** | | 0.152 | | 0.354** | | 0.006*** | |
| | [0.284] | | [0.000] | | [0.306] | | [0.043] | | [0.002] | |
| ***OFCindex* GOVindex*** | 0.000 | | 0.006*** | | -0.009 | | -0.336*** | | -0.001** | |
| | [0.195] | | [0.001] | | [0.906] | | [0.000] | | [0.045] | |
| ***GoodGov*** | | -0.022*** | | -0.012*** | | 0.133*** | | 0.144*** | | 0.014** |
| | | [0.001] | | [0.001] | | [0.004] | | [0.000] | | [0.013] |
| ***OFCindex* GoodGov*** | | 0.009* | | 0.007*** | | -0.099* | | -0.135*** | | -0.011*** |
| | | [0.086] | | [0.008] | | [0.056] | | [0.001] | | [0.000] |
| *OFCindex* | 0.013*** | 0.008*** | 0.001* | 0.001* | -0.087* | -0.059* | -0.085** | -0.104** | -0.004*** | -0.001* |
| | [0.000] | [0.010] | [0.057] | [0.062] | [0.067] | [0.052] | [0.044] | [0.033] | [0.000] | [0.077] |
| *Inverse Mills ratio* | 0.017*** | 0.020*** | 0.004* | 0.004* | -0.307** | -0.082* | -0.206* | -0.086* | -0.008*** | -0.008*** |
| | [0.000] | [0.000] | [0.082] | [0.069] | [0.023] | [0.056] | [0.061] | [0.060] | [0.000] | [0.000] |
| *Control Variables* | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.105 | 0.105 | 0.196 | 0.195 | 0.043 | 0.043 | 0.021 | 0.019 | 0.199 | 0.200 |
| No. of Observations | 11,951 | 11,951 | 7,740 | 7,740 | 11,951 | 11,951 | 11,951 | 11,951 | 11,951 | 11,951 |

## TABLE 5 (Continued)

The table reports the estimates of Heckman's two-stage model (1997). On the first stage presented in Panel A, following prior literature we regress *Cross-Listing* on the country-level variables including the indicator of common law to civil law (*Legal Origin)*, rule of law (*RuleofLaw)*, the government efficiency (*GovermentEff*), log GNP per capita (*LnGNP*), CIFAR index which measures the extent of accounting disclosure (*Accounting Disclosure)*, the market-level variables including stock market development (*Mcap*), stock market liquidity (*Market Turnover*), and the firm-level variables including the log of book-to-market ratio (*LnBM*), return on equity (*Roe)*, log net sales (*Size*), accounting standards (*Ifrs*), and shareholder independence (*INDE*), along with industry and year fixed effects.
On the second stage reported in Panel B, we exclude *Ifrs* and *INDE* which have been used in the first stage and include the inverse Mills ration obtained from estimating the first stage Heckman model using the measures of financial reporting quality, the absolute value of abnormal accruals (*AAC*) following the modified Jones (1991) model as described in Dechow et al. (1995), the positive abnormal accruals (*PAAC*), Dechow and Dichev (2002)'s accruals quality (*AQ*), Wysocki (2008)'s modified accruals quality (*MAQ*), and earnings persistence (*EPERS*), as the dependent variables. We use the multilevel random effect estimates (Baltagi et al. 2001) which internalize clustering in estimated coefficients as well as in their standard errors. Industry and year fixed effects are included. One test variable, *Cross_Listing*, equals one if a firm is cross-listed in the U.S. markets and zero otherwise, while another test variable is the interaction between *Cross_Listing* and the affiliate– or subsidiary– average OFC attributes *OFCindex* (*Cross_Listing*OFCindex).* In columns (1), (3), (5), (7), and (9) the country-level corporate governance (*GOVindex*) of a country or jurisdiction in which firms have their headquarters registered, and the interaction *OFCindex* GOVindex* are included in the regressions. In columns (2), (4), (6), (8) and (10) the good country-level governance measure *GoodGov* which is equal to 1 if a multinational firm has its headquarters registered in the 11 countries with the strictest legal regimes in our sample based on La Porta et al. (1998) (Austria, Australia, Belgium, Finland, France, Germany, the United Kingdom, Japan, Netherlands, Norway and Sweden) and 0 otherwise, and the interaction *OFCindex* GoodGov* are included in the regressions. The numbers in parentheses are probability levels at which the null hypothesis of a zero coefficient can be rejected. *, **, *** indicate significance at the 10%, 5%, and 1% levels (based on a two-tailed test), respectively. All of the variables are defined in Appendix B.

## TABLE 6 Addressing Endogeniety

### A. Propensity-Score-Matched (PSM) approach

| | Dependent Variables | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *AAC* | | *PAAC* | | *AQ* | | *MAQ* | | *EPERS* | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| ***Cross_Listing*** | -0.018* | -0.022** | -0.012*** | -0.013*** | 0.018 | 0.016* | 0.020* | 0.021* | 0.003** | 0.005** |
| | [0.058] | [0.025] | [0.009] | [0.008] | [0.144] | [0.085] | [0.056] | [0.053] | [0.030] | [0.012] |
| ***OFCindex* Cross_Listing*** | 0.020* | 0.024** | 0.003* | 0.003* | -0.030 | -0.030* | -0.028** | -0.026** | -0.011*** | -0.013*** |
| | [0.072] | [0.033] | [0.059] | [0.063] | [0.149] | [0.056] | [0.046] | [0.049] | [0.002] | [0.000] |
| ***GOVindex*** | -0.014 | | -0.013** | | 0.097 | | 0.093** | | 0.006* | |
| | [0.301] | | [0.050] | | [0.366] | | [0.049] | | [0.073] | |
| ***OFCindex* GOVindex*** | 0.006 | | 0.011*** | | -0.070 | | -0.055** | | -0.001 | |
| | [0.439] | | [0.000] | | [0.689] | | [0.030] | | [0.594] | |
| ***GoodGov*** | | -0.009* | | -0.018** | | 0.095* | | 0.086*** | | 0.010** |
| | | [0.081] | | [0.024] | | [0.082] | | [0.000] | | [0.017] |
| ***OFCindex* GoodGov*** | | 0.023* | | 0.020*** | | -0.072* | | -0.064** | | -0.008** |
| | | [0.085] | | [0.001] | | [0.073] | | [0.017] | | [0.016] |
| *OFCindex* | 0.005** | 0.003** | 0.002* | 0.002* | -0.103 | -0.037* | -0.090* | -0.075* | -0.001* | -0.004** |
| | [0.046] | [0.035] | [0.086] | [0.061] | [0.641] | [0.059] | [0.078] | [0.068] | [0.085] | [0.022] |
| *Control Variables* | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.120 | 0.121 | 0.245 | 0.241 | 0.046 | 0.046 | 0.054 | 0.054 | 0.124 | 0.126 |
| No. of Observations | 1,556 | 1,556 | 989 | 989 | 1,556 | 1,556 | 1,556 | 1,556 | 1,556 | 1,556 |

### B. Covariate comparison of the cross-listing and matched non-cross-listing sample in the PSM approach

| Variables | **Cross** (N=778) | | **Non-Cross** (N=778) | | Comparisons | |
|---|---|---|---|---|---|---|
| | **Mean** | **Standard Deviation** | **Mean** | **Standard Deviation** | **t-test [*P*-value]** | **Standardized difference in %** |
| *Legal Origin* | 0.324 | 0.468 | 0.310 | 0.463 | 0.60 [0.549] | 3.009 |
| *RuleofLaw* | 0.952 | 0.888 | 0.975 | 0.750 | -1.52 [0.127] | -2.797 |
| *GovermentEff* | 1.099 | 0.784 | 1.115 | 0.674 | -1.08 [0.105] | -2.189 |
| *LnGNP* | 9.813 | 1.202 | 9.913 | 1.265 | -1.74* [0.082] | -8.104 |
| *Accounting Disclosure* | 64.240 | 9.048 | 64.645 | 8.452 | -0.91 [0.362] | -4.625 |
| *Mcap* | 0.833 | 0.474 | 0.852 | 0.394 | -1.09 [0.277] | -4.359 |
| *Market Turnover* | 103.5 | 58.015 | 105 | 46.881 | -1.48 [0.142] | -2.850 |
| *LnBM* | -0.360 | 0.851 | -0.383 | 0.770 | 0.56 [0.575] | 2.834 |
| *Roe* | 9.123 | 12.629 | 9.544 | 11.842 | -0.68 [0.499] | -3.439 |
| *Size* | 13.401 | 2.739 | 13.342 | 1.772 | 0.51 [0.609] | 2.558 |
| *IFRS* | 0.181 | 0.386 | 0.181 | 0.386 | 0.00 [1.000] | 0.000 |
| *INDE* | 7.833 | 3.259 | 7.841 | 3.212 | -0.05 [0.963] | -0.247 |

Notes: standardized difference in % for continuous variables = $\frac{100\ (\bar{X}treatment - \bar{X}control)}{\sqrt[2]{(S^2treatment + S^2control)/2}}$

standardized difference in % for dummy variables $= 100\ (Ptreatment - Pcontrol))/\sqrt[2]{[Ptreatment(1 - Ptreatment) + Pcontrol(1 - Pcontrol)]/2}$

## TABLE 6 (Continued)

### C. Firm-fixed Effects

| | Dependent Variables | | | | |
|---|---|---|---|---|---|
| | *AAC* | *PAAC* | *AQ* | *MAQ* | *EPERS* |
| | (1) | (2) | (3) | (4) | (5) |
| ***Cross_Listing*** | -0.014*** | -0.013*** | 0.119*** | 0.333** | 0.005*** |
| | [0.004] | [0.000] | [0.000] | [0.015] | [0.007] |
| ***OFCindex* Cross_Listing*** | 0.017*** | 0.007** | -0.131** | -0.100* | -0.012*** |
| | [0.003] | [0.033] | [0.049] | [0.065] | [0.000] |
| *OFCindex* | 0.021*** | 0.007*** | -0.098*** | -0.141* | -0.004*** |
| | [0.000] | [0.000] | [0.000] | [0.059] | [0.000] |
| *Firm-level Control Variables* | Included | Included | Included | Included | Included |
| Firm Fixed Effect | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.090 | 0.176 | 0.031 | 0.020 | 0.194 |
| No. of Observations | 11,951 | 7,740 | 11,951 | 11,951 | 11,951 |

Panel A reports the multilevel random effect estimates (Baltagi et al. 2001) controlling for industry and year fixed effects, which internalize clustering in estimated coefficients as well as in their standard errors using the cross-listing and propensity-score matched non-cross-listing sample. Panel B presents the covariate comparison of the cross-listing and matched non-cross-listing samples. Propensity score is the predicted probability of cross-listing on the U.S. stock markets, estimated through a probit regression following prior literature (e.g. Fernandes and Ferreira (2008); Herrmann et al. (2015)). Specifically, *Cross-Listing* regresses on the country-level variables including the indicator of a common law to civil law (*Legal Origin)*, rule of law (*RuleofLaw)*, the government efficiency (*GovermentEff*), log GNP per capita (*LnGNP*), CIFAR index which measures the extent of accounting disclosure (*Accounting Disclosure)*, the market-level variables including stock market development (*Mcap*), stock market liquidity (*Market Turnover*), and the firm-level variables including the log of book-to-market ratio (*LnBM*), return on equity (*Roe)*, log net sales (*Size*), accounting standards (*Ifrs*), and shareholders independence (*INDE*), along with industry and year fixed effects. Panel C shows the results controlling for firm and year fixed effects.

The measures of financial reporting quality, the absolute value of abnormal accruals (*AAC)* following modified Jones (1991) model as described in Dechow et al. (1995), the positive abnormal accruals (*PAAC*), Dechow and Dichev (2002)'s accrual quality (*AQ*), Wysocki (2008)'s modified accrual quality (*MAQ*), and earnings persistence (*EPERS*), are the dependent variables. In both Panel A and C, one test variable, *Cross_Listing*, equals one if a firm is cross-listed in the U.S. markets and zero otherwise, while another test variable is the interaction between *Cross_Listing* and the affiliate– or subsidiary– average OFC attributes *OFCindex* (*Cross_Listing*OFCindex).* In panel A of columns (1), (3), (5), (7), and (9) the country-level corporate governance (*GOVindex*) of a country or jurisdiction in which firms have their headquarters registered, and the interaction *OFCindex* GOVindex* are included in the regressions. In columns (2), (4), (6), (8) and (10) of panel A, the good country-level governance measure *GoodGov* which is equal to 1 if a multinational firm has its headquarters registered in the 11 countries with the strictest legal regimes in our sample based on La Porta et al. (1998) (Austria, Australia, Belgium, Finland, France, Germany, the United Kingdom, Japan, Netherlands, Norway and Sweden) and 0 otherwise, and the interaction *OFCindex* GoodGov* are included in the regressions. The numbers in parentheses are probability levels at which the null hypothesis of a zero coefficient can be rejected. *, **, *** indicate significance at the 10%, 5%, and 1% levels (based on a two-tailed test), respectively.

All of the variables are defined in Appendix B.

## TABLE 7 Three distinguishing aspects of OFCs

### A. Secrecy policy

| | Dependent Variables | | | | |
|---|---|---|---|---|---|
| | *AAC* | *PAAC* | *AQ* | *MAQ* | *EPERS* |
| | (1) | (2) | (3) | (4) | (5) |
| ***Cross_Listing*** | **-0.011**** | **-0.010***** | **0.171**** | **0.030*** | **0.002**** |
| | **[0.041]** | **[0.000]** | **[0.026]** | **[0.087]** | **[0.027]** |
| ***Secrecy* Cross_Listing*** | **0.037***** | **0.014**** | **-0.144*** | **-0.027**** | **-0.007***** |
| | **[0.000]** | **[0.013]** | **[0.058]** | **[0.039]** | **[0.000]** |
| *Secrecy* | 0.019*** | 0.002* | -0.091** | -0.035* | -0.002* |
| | [0.000] | [0.065] | [0.026] | [0.071] | [0.064] |
| *Firm-level Control Variables* | Included | Included | Included | Included | Included |
| Country Fixed Effect | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.105 | 0.193 | 0.026 | 0.026 | 0.195 |
| No. of Observations | 11,951 | 7,740 | 11,951 | 11,951 | 11,951 |

### B. Regulation arbitrage

| | Dependent Variables | | | | |
|---|---|---|---|---|---|
| | *AAC* | *PAAC* | *AQ* | *MAQ* | *EPERS* |
| | (1) | (2) | (3) | (4) | (5) |
| ***Cross_Listing*** | -0.002 | **-0.011***** | **0.215*** | **0.041*** | **0.006***** |
| | [0.548] | **[0.000]** | **[0.074]** | **[0.077]** | **[0.000]** |
| ***Regulation Arbitrage* Cross_Listing*** | **0.031**** | **0.008**** | **-0.382**** | **-0.052*** | **-0.031***** |
| | **[0.014]** | **[0.024]** | **[0.030]** | **[0.090]** | **[0.000]** |
| *Regulation Arbitrage* | 0.015*** | 0.007** | -0.305* | -0.321* | -0.012*** |
| | [0.006] | [0.011] | [0.061] | [0.094] | [0.000] |
| *Firm-level Control Variables* | Included | Included | Included | Included | Included |
| Country Fixed Effect | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.102 | 0.193 | 0.028 | 0.024 | 0.195 |
| No. of Observations | 11,951 | 7,740 | 11,951 | 11,951 | 11,951 |

### C. Tax Avoidance Opportunity

| | Dependent Variables | | | | |
|---|---|---|---|---|---|
| | *AAC* | *PAAC* | *AQ* | *MAQ* | *EPERS* |
| | (1) | (2) | (3) | (4) | (5) |
| ***Cross_Listing*** | -0.002 | **-0.009***** | **0.096**** | **0.246*** | 0.001 |
| | [0.643] | **[0.000]** | **[0.042]** | **[0.085]** | [0.450] |
| ***TaxDiff* Cross_Listing*** | **0.026**** | 0.019 | -0.190 | -0.461 | -0.066 |
| | **[0.018]** | [0.253] | [0.546] | [0.214] | [0.116] |
| *TaxDiff* | 0.019*** | 0.015** | -0.040 | -0.144** | -0.053*** |
| | [0.000] | [0.012] | [0.710] | [0.047] | [0.000] |
| *Firm-level Control Variables* | Included | Included | Included | Included | Included |
| Country Fixed Effect | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.083 | 0.175 | 0.023 | 0.015 | 0.190 |
| No. of Observations | 11,951 | 7,740 | 11,951 | 11,951 | 11,951 |

This table reports the results of the impact of three distinguishing aspects of OFCs, secrecy policies (*Secrecy*) in Panel A, regulation arbitrage (*Regulation Arbitrage*) in Panel B and tax avoidance opportunities (*TaxDiff*) in Panel C, on the boundary function of cross-listing for financial reporting quality. The measures of financial reporting quality, the absolute value of abnormal accruals (*AAC*) following the modified Jones (1991) model as described in Dechow et al. (1995), the positive abnormal accruals (*PAAC*), Dechow and Dichev (2002)'s accruals quality (*AQ*), Wysocki (2008)'s modified accruals quality (*MAQ*), and earnings persistence (*EPERS*), are the dependent variables. We use the multilevel random effect models, when fixed effects cannot be used, random effects at the country, industry, and year levels are applied. *Secrecy* is constructed by a firm's affiliate– or subsidiary–weighted secrecy indicator of IMF (2000) OFC groups for international cooperation and supervision. *Regulation Arbitrage* is constructed by using the index of regulation enforcement quality of the 15 countries in our study minus the subsidiary-weighted OFC regulation enforcement index of each offshore firm (Kaufmann et al. 2011). *TaxDiff* is the opportunity for tax avoidance via OFCs, which is the average corporate tax rate of the country of a parent firm's minus subsidiary-weighted corporate tax rate of its OFC subsidiaries or affiliates. One test variable, *Cross_Listing*, equals one if a firm is cross-listed in the U.S. markets and zero otherwise, while another test variable is the interaction between *Cross_Listing* and the measure of OFC distinguishing aspects, *Cross_Listing*Secrecy, Cross_listing*Regulation Arbitrage, and Cross_listing*TaxDiff,* respectively. The numbers in parentheses are probability levels at which the null hypothesis of a zero coefficient can be rejected. *, **, *** indicate significance at the 10%, 5%, and 1% levels (based on a two-tailed test), respectively. All of the variables are defined in Appendix B.

## TABLE 8 Additional Analysis

### A. Including Canadian Firms

| | Dependent Variables | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *AAC* | | *PAAC* | | *AQ* | | *MAQ* | | *EPERS* | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| ***Cross_Listing*** | -0.019*** | -0.022*** | -0.015*** | -0.015*** | 0.138** | 0.135** | 0.031* | 0.052* | 0.010*** | 0.010*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.028] | [0.031] | [0.085] | [0.075] | [0.000] | [0.000] |
| ***OFCindex* Cross_Listing*** | 0.018*** | 0.021*** | 0.009*** | 0.008*** | -0.107* | -0.114* | -0.019** | -0.022** | -0.017*** | -0.016*** |
| | [0.002] | [0.000] | [0.005] | [0.007] | [0.059] | [0.061] | [0.026] | [0.024] | [0.000] | [0.000] |
| ***GOVindex*** | -0.000 | | -0.006** | | 0.040 | | 0.119*** | | 0.009*** | |
| | [0.497] | | [0.041] | | [0.777] | | [0.010] | | [0.000] | |
| ***OFCindex* GOVindex*** | 0.001 | | 0.005*** | | -0.031 | | -0.104*** | | -0.004*** | |
| | [0.810] | | [0.001] | | [0.677] | | [0.000] | | [0.005] | |
| ***GoodGov*** | | -0.014*** | | -0.008*** | | 0.141* | | 0.139*** | | 0.013*** |
| | | [0.006] | | [0.004] | | [0.098] | | [0.000] | | [0.000] |
| ***OFCindex* GoodGov*** | | 0.008* | | 0.006*** | | -0.103** | | -0.118*** | | -0.008*** |
| | | [0.054] | | [0.006] | | [0.042] | | [0.000] | | [0.000] |
| *OFCindex* | 0.013*** | 0.008*** | 0.001* | 0.001* | -0.075* | -0.051* | -0.019** | -0.040* | -0.003* | -0.002 |
| | [0.000] | [0.004] | [0.088] | [0.066] | [0.072] | [0.055] | [0.041] | [0.068] | [0.068] | [0.076] |
| *Control Variables* | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.102 | 0.103 | 0.160 | 0.160 | 0.032 | 0.032 | 0.019 | 0.018 | 0.175 | 0.174 |
| No. of Observations | 12,341 | 12,341 | 8,001 | 8,001 | 12,341 | 12,341 | 12,341 | 12,341 | 12,341 | 12,341 |

### B. Country-weighted Least Squares (WLS) Model

| | Dependent Variables | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *AAC* | | *PAAC* | | *AQ* | | *MAQ* | | *EPERS* | |
| | (1) | (2) | (3) | (4) | (5) | | | | | |
| ***Cross_Listing*** | -0.029*** | -0.031*** | -0.022*** | -0.021*** | 0.183* | 0.195** | 0.045* | 0.057* | 0.018*** | 0.018*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.052] | [0.022] | [0.091] | [0.077] | [0.000] | [0.000] |
| ***OFCindex* Cross_Listing*** | 0.023*** | 0.026*** | 0.013*** | 0.013*** | -0.150* | -0.116** | -0.020* | -0.041* | -0.017*** | -0.019*** |
| | [0.000] | [0.000] | [0.000] | [0.001] | [0.054] | [0.036] | [0.100] | [0.063] | [0.000] | [0.000] |
| ***GOVindex*** | -0.011* | | -0.006** | | 0.204** | | 0.144*** | | 0.010*** | |
| | [0.078] | | [0.013] | | [0.049] | | [0.005] | | [0.001] | |
| ***OFCindex* GOVindex*** | 0.009** | | 0.002* | | -0.260* | | -0.135*** | | -0.004** | |
| | [0.021] | | [0.045] | | [0.061] | | [0.007] | | [0.011] | |
| ***GoodGov*** | | -0.002 | | -0.005 | | 0.362*** | | 0.341*** | | 0.013*** |
| | | [0.856] | | [0.327] | | [0.000] | | [0.000] | | [0.000] |
| ***OFCindex* GoodGov*** | | 0.003 | | 0.000 | | -0.082* | | -0.043*** | | -0.012*** |
| | | [0.534] | | [0.480] | | [0.086] | | [0.001] | | [0.000] |
| *OFCindex* | 0.015*** | 0.003* | 0.002* | 0.002* | -0.042** | -0.095** | -0.014* | -0.022* | -0.002* | -0.003** |
| | [0.002] | [0.075] | [0.062] | [0.069] | [0.013] | [0.048] | [0.094] | [0.089] | [0.078] | [0.055] |
| *Control Variables* | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.092 | 0.092 | 0.195 | 0.194 | 0.045 | 0.045 | 0.026 | 0.027 | 0.204 | 0.206 |
| No. of Observations | 11,951 | 11,951 | 7,740 | 7,740 | 11,951 | 11,951 | 11,951 | 11,951 | 11,951 | 11,951 |

**TABLE 8**
**(Continued)**

**C. Comparison of cross-listing impact between good and bad home-country governance**

| | Good home-country governance | | | | | Bad home-country governance | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *AAC* | *PAAC* | *AQ* | *MAQ* | *EPERS* | *AAC* | *PAAC* | *AQ* | *MAQ* | *EPERS* |
| | (1) | (2) | (3) | (4) | (5) | (1) | (2) | (3) | (4) | (5) |
| ***Cross_Listing*** | -0.031*** | -0.023*** | 0.190* | 0.301** | 0.014*** | -0.001* | -0.011* | 0.174* | 0.147 | 0.010*** |
| | [0.004] | [0.000] | [0.085] | [0.021] | [0.000] | [0.095] | [0.060] | [0.089] | [0.657] | [0.001] |
| ***OFCindex* Cross_Listing*** | 0.011* | 0.019*** | -0.103* | -0.105* | -0.006** | 0.003 | 0.002 | -0.118 | -0.002 | -0.004 |
| | [0.073] | [0.009] | [0.062] | [0.083] | [0.034] | [0.796] | [0.637] | [0.114] | [0.995] | [0.152] |
| *OFCindex* | 0.014*** | 0.007*** | -0.054* | -0.112*** | -0.011*** | 0.009** | 0.001** | -0.010* | -0.067* | -0.003*** |
| | [0.000] | [0.000] | [0.061] | [0.001] | [0.000] | [0.028] | [0.049] | [0.090] | [0.055] | [0.003] |
| *Control Variables* | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.098 | 0.190 | 0.042 | 0.045 | 0.242 | 0.118 | 0.189 | 0.026 | 0.016 | 0.134 |
| No. of Observations | 8,274 | 5,262 | 8,274 | 8,274 | 8,274 | 3,677 | 2,478 | 3,677 | 3,677 | 3,677 |
| Difference in Coefficients on *Cross-Listing* between the two samples | -0.030*** | -0.012* | 0.016 | 0.154* | 0.004*** | | | | | |
| p-value of Chi-squares | [0.010] | [0.068] | [0.137] | [0.062] | [0.000] | | | | | |

**D. Comparison of cross-listing impact between good and bad home-country governance for Non-OFC sample**

| | Good home-country governance | | | | | Bad home-country governance | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *AAC* | *PAAC* | *AQ* | *MAQ* | *EPERS* | *AAC* | *PAAC* | *AQ* | *MAQ* | *EPERS* |
| | (1) | (2) | (3) | (4) | (5) | (1) | (2) | (3) | (4) | (5) |
| ***Cross_Listing*** | -0.036* | -0.008* | 0.442* | 0.175 | 0.015 | -0.003 | -0.005 | 0.350*** | 0.124** | 0.002 |
| | [0.068] | [0.060] | [0.074] | [0.420] | [0.209] | [0.759] | [0.599] | [0.006] | [0.036] | [0.625] |
| ***OFCindex* Cross_Listing*** | 0.014 | 0.013 | -0.591 | -0.194 | -0.028 | 0.010 | 0.008 | -0.546 | -0.143* | -0.004 |
| | [0.113] | [0.382] | [0.180] | [0.274] | [0.468] | [0.338] | [0.311] | [0.157] | [0.084] | [0.282] |
| *OFCindex* | 0.001 | 0.005* | -0.179 | -0.189 | -0.002 | 0.004 | 0.009*** | -0.088 | -0.000 | -0.004*** |
| | [0.902] | [0.082] | [0.411] | [0.439] | [0.487] | [0.336] | [0.010] | [0.384] | [0.998] | [0.008] |
| *Control Variables* | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Industry Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Year Fixed Effect | Included | Included | Included | Included | Included | Included | Included | Included | Included | Included |
| Pseudo $R^2$ | 0.071 | 0.155 | 0.189 | 0.125 | 0.233 | 0.078 | 0.160 | 0.238 | 0.079 | 0.169 |
| No. of Observations | 3,285 | 2,311 | 3,285 | 3,285 | 3,285 | 4,683 | 3,861 | 4,683 | 4,683 | 4,683 |
| Difference in Coefficients on *Cross-Listing* between the two samples | -0.033*** | -0.003* | 0.092** | 0.051 | 0.013* | | | | | |
| p-value of Chi-squares | [0.006] | [0.079] | [0.041] | [0.112] | [0.083] | | | | | |

Panel A of this table reports the multilevel random effect estimates (Baltagi et al. 2001) controlling for industry and year fixed effects, which internalize clustering in estimated coefficients as well as in their standard errors after adding the Canadian MNCs with OFC subsidiaries or affiliates directly listed in the U.S. stock markets. The measures of financial reporting quality, the absolute value of abnormal accruals (*AAC*) following the modified Jones (1991) model as described in Dechow et al. (1995), the positive abnormal accruals (*PAAC*), Dechow and Dichev (2002)'s accruals quality (*AQ*), Wysocki (2008)'s modified accruals quality (*MAQ*), and earnings persistence (*EPERS*), are the dependent variables.
Panel B presents the estimates of the country-weighted least squares model for controlling uneven cross-country observations. Panel C reports the comparison of cross-listing impact between good and bad home-country governance using the sub-sample of the good home-country governance and the sub-sample of the bad home-country governance. The sub-sample of good home-country governance includes firms have their headquarters registered in the 11 countries with the strictest legal regimes in our sample based on La Porta et al. (1998) (Austria, Australia, Belgium, Finland, France, Germany, the United Kingdom, Japan, Netherlands, Norway and Sweden), while the sub-sample of bad home-country governance includes the rest of firms of the entire

sample.
Panel D reports the comparison of cross-listing impact between good and bad home-country governance using the non-OFC MNC sub-sample of the good home-country governance and the non-OFC sub-sample of the bad home-country governance. The sub-sample of good home-country governance includes firms have their headquarters registered in one of the 11 countries with the strictest legal regimes in our sample based on La Porta et al. (1998) (Austria, Australia, Belgium, Finland, France, Germany, the United Kingdom, Japan, Netherlands, Norway and Sweden), while the sub-sample of bad home-country governance includes the rest of firms of the entire sample.
One test variable, *Cross_Listing*, equals one if a firm is cross-listed in the U.S. markets and zero otherwise, while another test variable is the interaction between *Cross_Listing* and the affiliate– or subsidiary– average OFC attributes *OFCindex* (*Cross_Listing*OFCindex).* The numbers in parentheses are probability levels at which the null hypothesis of a zero coefficient can be rejected. *, **, *** indicate significance at the 10%, 5%, and 1% levels (based on a two-tailed test), respectively. All of the variables are defined in Appendix B.

## Appendix A. OFCs

| Country Name | Country Code | Offshore attitude index | IMF Group Index |
|---|---|---|---|
| Andorra | AD | 2 | 2 |
| Anguilla | AI | 3 | 3 |
| Antigua & Barbuda | AG | 4 | 3 |
| Aruba | AW | 4 | 3 |
| Bahamas | BS | 5 | 3 |
| Bahrain | BH | 3 | 2 |
| Barbados | BB | 3 | 2 |
| Belize | BZ | 4 | 3 |
| Bermuda | BM | 2 | 2 |
| British Virgin Islands | VG | 4 | 3 |
| Cayman Islands | KY | 4 | 3 |
| Costa Rica | CR | 2 | 3 |
| Cyprus | CY | 4 | 3 |
| Dominica | DM | 3 | 2 |
| Gibraltar | GI | 3 | 2 |
| Grenada | GD | 3 | 2 |
| Hong Kong | HK | 1 | 1 |
| Ireland | IE | 0 | 1 |
| Latvia | US | 1 | 2 |
| Lebanon | LB | 3 | 3 |
| Liberia | LR | 4 | 2 |
| Liechtenstein | LI | 5 | 3 |
| Luxembourg | US | 1 | 1 |
| Macao | MO | 1 | 2 |
| Maldives | MV | 3 | 3 |
| Malta | MT | 2 | 2 |
| Marshall Islands | MH | 5 | 3 |
| Mauritius | MU | 3 | 3 |
| Monaco | MC | 3 | 2 |
| Nauru | NR | 4 | 3 |
| Netherlands Antilles | AN | 4 | 3 |
| Panama | PA | 5 | 3 |
| Seychelles | SC | 4 | 3 |
| Singapore | SG | 2 | 1 |
| St. Kitts and Nevis | KN | 5 | 3 |
| St. Lucia | LC | 4 | 3 |
| St. Vincent and the Grenadines | VC | 5 | 3 |
| Switzerland | CH | 0 | 1 |
| Uruguay | UY | 1 | 2 |
| Vanuatu | VU | 4 | 3 |

Sources: IMF OFC background papers, http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm; the international Osiris database; Zoromé (2007) and Masciandaro (2008); and the U.S. Internal Revenue Services' list of secrecy countries or jurisdictions, https://www.congress.gov/110/bills/s681/BILLS-110s681is.xml.

## Appendix B
## Variables Definition and Data Sources

"DATA" refers to data item number in the OSIRIS database. Δ refers to annual changes.

| Variables | Definition | Data Sources |
|---|---|---|
| **Variables Used to Estimate Proxies of Financial Reporting Quality** | | |
| *IBEI* | Earnings before extraordinary items and discontinued operations = DATA13037–DATA13043. | OSIRIS |
| *A* | Total assets = DATA13077. | OSIRIS |
| *Sales* | Net sales = DATA13002. | OSIRIS |
| *Rev* | Total revenues = DATA13004. | OSIRIS |
| *ΔRev* | Change in total revenues = ΔDATA13004. | OSIRIS |
| *Rec* | Net accounts receivables = DATA13052. | OSIRIS |
| *ΔRec* | Change in net accounts receivables = ΔDATA13052. | OSIRIS |
| *Ppe* | Gross value of property, plant, and equipment = DATA20095 + DATA20110 + DATA20125 + DATA20140+ DATA20155 + DATA20170. | OSIRIS |
| *MEV* | Market capital= DATA21220 - DATA21215. | OSIRIS |
| *Cfo* | Operating cash flows = MEV /DATA31085. | OSIRIS |
| *ACCR* | Total accruals = IBEI – Cfo. | |
| **Proxies for Financial Reporting Quality** | | |
| *AC* | Abnormal accruals are measured as deviations from the predicted values by the following cross-sectional regression, run for every industry-year pair: $ACCR_{it}/(A_{it-1}) = \alpha_1 (1/A_{it-1}) + \alpha_2 (\Delta Rev_{it} - \Delta Rec_{it})/(A_{it-1}) + \alpha_3 (Ppe_{it})/(A_{it-1}) + \varepsilon_{it.}$ | OSIRIS |
| *AAC* | Absolute value of abnormal accruals. | OSIRIS |
| *PAAC* | Positive abnormal accruals. | |
| *AQ* | Accruals quality which is the standard deviation of the firm-level residuals based on Dechow and Dichev (2002) model for the years *t-3* to *t* multiplied by negative one. The model is a regression of working capital accruals on lagged, current, and future cash flows plus the change in revenue and PPE. All variables are scaled by average total assets. The cross-sectional regression is estimated for each industry with at least 20 observations in a given year based on the Industry Classification Benchmark of OSIRIS database. | OSIRIS |
| *MAQ* | A modified accruals quality based on Wysocki (2008). It equals the ratio of the standard deviation of the residuals from the model that regresses working capital accruals on current cash flows and the model that regresses working capital accruals on lagged, current, and future cash flows. The standard deviation of the residuals of each model are computed for the years *t-3* to *t.* | OSIRIS |
| *EPERS* | A measure for earnings persistence*,* which is equal to negative standard deviation of a firm's average earnings from year *t-3* to *t.* | OSIRIS |

**Appendix B (Continued)**

| Variables | Definition | Data Sources |
|---|---|---|
| **Interest Variables** | | |
| *Cross_Listing* | An indicator which equals one if a firm is cross-listed in the U.S. stock market and zero otherwise. | Bank of New York; websites of NYSE, AMEX and NASDAQ; |
| *OFCindex* | The offshore attitude index is from Masciandaro (2008). The index measures attitudes towards OFCs, and it is based on multiple factors such as potential national benefits, political stability, regulations enforcement, the presence of crime, and an inclusion in one of the OFCs' blacklists: Financial Stability list, FATF list of Non Cooperative Countries and Territories, and OECD list of tax havens. The index is equal to 0 if a country shows a strong onshore attitude; 1 if a country does not show a strong onshore attitude but it was not listed in one of the blacklists; 2, 3, and 4 if a country was present in one, two, or three blacklists, respectively. Finally, 1 is added to the index if a country or jurisdiction is on the International Financial Centers' Year Book (IFCY) data set from 2006 to 2007 by which a country or jurisdiction is classified as an OFC if the authorities of a country or jurisdiction approved it. The index ranges from 0 (low degree of offshore characteristics) to 5 (high degree of offshore characteristics).<br>We construct *OFCINDEX* as a subsidiary (or affiliate)–weighted average of the offshore attitude indexes with weights equal to the number of subsidiaries (scaled by the total number of subsidiaries), $OFCINDEX_{it} = \sum_c \left( offshoreattitudeindex^c \times subsidiary_{it}^c \right) / \sum_c subsidiary_{it}^c$ , where *subsidiary is* the number of subsidiaries or affiliates that firm *i* has in country *c* in year *t*. | Masciandaro (2008) |
| *Secrecy* | The subsidiary (or affiliate) –weighted OFC secrecy policy index of an offshore firm. Based on the magnitude of supervision and transparency for international cooperation, the Financial Stability Forum (2000) categorizes OFCs into three groups, those with the highest level of supervision and transparency are listed in Group I while those with the lowest level placed in Group III. One, two and three are given to OFCs in reference to the index if they are placed in Group I, Group II or Group III respectively. | International Monetary Fund (2000), 'Offshore Financial Centers: IMF Background Paper' |
| *Regulation Arbitrage* | The regulation enforcement index of the country of a parent firm's minus subsidiary-weighted regulation enforcement index of its OFC subsidiaries or affiliates. | The Worldwide Governance Indicators (Kaufmann et al. 2011) |
| *TaxDiff* | Proxy of the opportunity for tax avoidance, which is the average corporate tax rate of the country where the parent firm is headquartered minus the subsidiary-weighted corporate tax rate of its OFC subsidiaries or affiliates. | OECD Tax Database, *Table II.1 – Corporate income tax rates: basic/non-targeted* http://www.oecd.org/tax/tax-policy/tax-database.htm. Corporate income tax rates around world, 2014 (Tax Foundation, http://taxfoundation.org/article/corporate-income-tax-rates-around-world-2014) |

**Appendix B (Continued)**

| Variables | Definition | Data Sources |
|---|---|---|
| **Interest Variables** | | |
| *GOVindex* | A country–level governance index of a firm's home country, which is the average of five governance indicators of Kaufmann, Kraay, and Mastruzzi (2011) including regulatory quality, political stability and the absence of violent terrorism, government effectiveness, rule of law and control of corruption. | Kauffmann, Kraay, and Mastruzzi (2011) |
| *GoodGov* | It is equal to 1 if a multinational firm has its headquarters registered in the 11 countries with the strictest legal regimes in our sample based on La Porta et al. (1998) (Austria, Australia, Belgium, Finland, France, Germany, the United Kingdom, Japan, Netherlands, Norway and Sweden), and 0 otherwise. | La Porta et al. (1998) |
| **Control Variables** | | |
| *LGDP* | Measure of economic development defined as the natural logarithm of GDP of the country of a parent firm's in U.S. dollars (billion). | IMF and Central Intelligence Agency (CIA) World Factbook |
| *Tax* | Average corporate tax rates of countries where firms have headquarters registered. | Tax Foundation Website: http://taxfoundation.org/article/corporate-income-tax-rates-around-world-2014 |
| *Eng* | It is equal to 1 if the official language of a country or jurisdiction that a firm has headquarters registered in is English, 0 otherwise. | The Centre d'Etudes Prospectives et D'Informations Internationale dataset (CEPII) |
| *Mcap* | The market capitalization of countries where firms registered headquarters. | World bank website: http://databank.worldbank.org/data/views/reports/tableview.aspx |
| *Big5* | It is equal to 1 if an offshore firm is audited by one of the Big 5 auditors and 0 otherwise. | OSIRIS and firms' annual reports |
| *Litigate* | It is equal to 1 for firms in high-litigation risk industries: biotechnology (ICB 4533-4577), computers (ICB 9533-9578), electronics (ICB 2733-2737), and retail (ICB 5333-5379) industries, and 0 otherwise. | OSIRIS and firms' annual reports. |
| *Inde* | This variable ranges from 0 through 10, and it represents the degree of independency of minority shareholders from controlling shareholders with 10 indicating the highest degree independency. | OSIRIS |
| *Ifrs* | It is equal to 1 if a firm follows IFRS and 0 otherwise. | OSIRIS |
| *Size* | Log of the net sales of the fiscal period = Log (DATA13002). | OSIRIS |
| *Mtb* | Market-to-book ratio = MEV / Total shareholder equity (DATA14041). | OSIRIS |
| *Lev* | The ratio of total liabilities to total assets = DATA14022/ DATA13077. | OSIRIS |
| *Neti* | Current period net profits scaled by total assets = DATA 13045/ $A_{it}$. | OSIRIS |

**Appendix B (Continued)**

| Variables | Definition | Data Sources |
|---|---|---|
| **Control Variables** | | |
| *σ_Cfo* | The volatility of cash flow from operations which is the standard deviation of the cash flow from operations. | OSIRIS |
| *σ_Rev* | Revenue volatility which is the standard deviation of total revenues (DATA13004). | OSIRIS |
| *Cfo/Sales* | A ratio of cash flow from operations to net sales. | OSIRIS |
| *Analyst Following* | Log of the number of financial analysts following a firm. | IBES |
| **Heckman First-stage Variables** | | |
| *Legal Origin* | An indicator of common law to civil law. | La Porta et al. (1998) |
| *RuleofLaw* | Country-level rule of law which reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. | Kauffmann, Kraay, and Mastruzzi (2011) |
| *GovermentEff* | Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. | Kauffmann, Kraay, and Mastruzzi (2011) |
| *LnGNP* | Log of GNP per capita in U.S. dollars | World bank website: http://databank.worldbank.org/data/views/reports |
| *Accounting Disclosure* | CIFAR index which measures the country-level extent of accounting disclosure | |
| *Market Turnover* | Country-level stock trade turnover which is a proxy of market liquidity. Market turnover ratio is the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-of-period values for the current period and the previous period. | World bank website: http://databank.worldbank.org/data/views/reports |
| *LnBM* | Log of book-to-market ratio | OSIRIS |
| *Roe* | Return on equity (DATA 31065) | OSIRIS |
| *Industry* | Industry dummies variables. Industries defined in the OSIRIS are: Energy, Materials, Industrial, Consumer Discretionary, Consumer Staples, Health Care, Financials, Information Technology, Telecommunication Services, and Utilities. | OSIRIS |