THREE ESSAYS ON FOREIGN CEOS

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DECLARATION

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ABSTRACT

This thesis examines the impact of foreign CEOs on the corporate policies of publicly traded US companies. Using a sample of S&P 1500 firms from 2000 to 2017, this thesis exploits the variation in foreign CEOs' international experience and national culture to analyse their impact on firm risk, capital structure decisions and corporate acquisitions.

The first study examines the impact of foreign CEOs on the risk taking behaviour of their firms and management practices. The results show that, compared with domestic CEOs, firms managed by foreign CEOs have higher stock return volatility and idiosyncratic risk. We find that firms managed by foreign CEOs invest more in intangible assets and are more likely to do mergers and acquisitions. We document that foreign CEOs are not a homogenous group and that the legal origin of foreign CEOs matters in their risk taking behaviour. The results show that foreign CEOs who come from countries with better creditor rights take fewer risks than those from poor creditor rights countries. The results show that foreign CEOs have a significant impact on firm risk and corporate policies.

The second study exploits the variation in the cultural background of foreign CEOs to analyse its impact on capital structure decisions. Using the cultural measure of individualism versus collectivism, we find that firms managed by foreign CEOs from individualistic cultures have higher leverage. We next examine the channels through which individualistic CEOs impact a firm's capital structure and find that individualistic CEOs are more likely to issue debt than equity and adjust their target leverage at a faster speed than firms managed by foreign CEOs from a collective culture. The empirical evidence shows that firms managed by individualistic CEOs tend to have more short debt maturity. The results are robust to endogeneity checks using propensity score matching and the instrumental variable approach.

The impact of individualism on capital structure decisions is also observed for firms managed by American CEOs born in individualistic states.

Following the literature that international experience impacts manager's strategic choices, the third study examines the impact of foreign CEOs on corporate acquisitions. The results show that foreign CEOs are more likely than domestic CEOs to do mergers and acquisitions (M&As). We find that firms managed by foreign CEOs are more likely to acquire targets in high-tech industries and targets operating in different 2-digit Standard Industry Classification (SIC) code industries. The results show that foreign CEOs are more likely to do cross border acquisitions. We examine the value implications of M&As undertaken by foreign CEOs and find that announcement returns for firms managed by foreign CEOs are lower. Overall, the results show that foreign CEOs have a significant impact on M&A outcomes.

DEDICATION

I dedicate this thesis to my husband, Lord Osei Bonsu and my children, Kofi Osei Bonsu and Adelaide Osei Bonsu. Your genuine love and unwavering support have brought me this far.

I also dedicate this thesis to my parents for their love, support, and encouragement throughout my life.

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Therefore, as it is written: "Let the one who boasts boast in the Lord" 1 Corinthians 1:31.

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CHAPTER ONE

INTRODUCTION

1. Motivation and research objectives

The impact of CEO characteristics on corporate policies has gained tremendous attention as recent studies show that a significant portion of the disparity in corporate decisions is driven by CEO attributes (Bamber, John & Yanyan, 2010; Bertrand & Schoar, 2003; Graham, Harvey & Puri, 2013). Though these studies exist, the impact of foreign CEOs remains largely unexplored. Given the significant impact that CEOs have on a firm's decision making, this study investigates the impact of foreign CEOs on firm risk and management practices, capital structure decisions, and corporate acquisitions. By exploiting the variation in foreign CEOs' international experience and cultural background, the results provide new evidence on the impact of foreign CEOs on the corporate polices of publicly traded firms in the US. Further analysis shows which firms benefit from the appointment of foreign CEOs.

There has been an increase in foreign born labour force participation; the OECD reports that, in 2008, foreign born employees comprise 26.5% of the Australian labour force, 12.6% of the UK labour force and 16.5% of the US labour force (OECD, 2010). Some of the most iconic American corporations in the sample, such as Microsoft, Google, and Pepsi, are currently managed by foreign CEOs. Thus, skilled migrants present a significant opportunity for host countries as they move their human capital from their home country to other countries, which Giannetti, Liao and Yu (2015) describe as a brain gain for firms. Foreign CEOs bring to their position institutional knowledge of countries and regions other than the firm's home country. As such, foreign CEOs provide their firms with both social capital (foreign networks) and human capital (foreign knowledge of other markets). This experience is valuable because

it cannot be substituted or imitated (Barney, 1991; Carpenter, Sanders & Gregersen, 2001; Daily, Certo & Dalton, 2000; Sambharya, 1996) and, therefore, their strategic focus and orientation may be different from domestic CEOs. Though some domestic CEOs may have international experience, Caligiuri and Santo (2001) suggest that such experience is limited in time and scope. Caligiuri, Lazarova and Zehetbauer (2004) note that the impact of executives' international behaviour on firms may not be complete if we focus solely on their international experience and that top managers' nationality should be accounted for when considering their international experience. In support of this, Shaw (1990) suggests that nationality influences the fundamental values and cognitive skills of individuals that shape their decisions and strategic choices. Further, independent of the talent and ability management accrues, the values in their country of origin have a deep, lasting impact on their orientation (Nielsen & Nielsen, 2011). This explains what Hunter (1988), Markus and Kitayama (1994) and Schwartz (1999) suggest that when people are born and raised in a society, they are exposed to the laws, customs, values, and organizational practices through formal and information institutions and this cannot be achieved through expatriate assignments.

Consistent with these theories, Nielsen and Nielsen (2011) document that top management teams with international experience and top management teams with foreign nationality impact strategic choices differently when entering foreign markets. Giannetti, Liao and Yu (2015) document that, in China, firms that hired foreign directors after the introduction of policies to attract foreign executives, make cross border acquisitions and increase export sales; that foreign directors that come from countries with strong management practices improve operational efficiency; and those from countries with strong corporate governance structures improve corporate governance in their firms. Li et al. (2011) show that country of origin influences leverage choices of foreign joint ventures in China. DeBacker, Heim and Tran (2015) find that firms whose owners come from highly corrupt countries evade tax in the US.

In a similar vein, corporate misconduct such as earnings management, accounting fraud, option backdating, and opportunistic insider trading occurs more in firms whose officers originate from highly corrupt countries (Liu, 2016). Thus, foreign CEOs with knowledge of how foreign organizations operate, may bring these practices to their firms, which could impact corporate policies and firm performance.

Behavioural economics and the psychology literature suggest that executives' decision making is influenced by their personality and psychology profile (Bono & Judge, 2004; Boudreau et al., 2001; Judge & Bono, 2000; Judge et al, 2002; Peterson et al., 2003; Wernimont & Campbell, 1968). The upper echelons theory documents that top managers' perception of situations and their interpretation are influenced by their experience, values, and personalities (Hambrick, 2007; Hambrick & Mason, 1984). There is also evidence that supports the behavioural consistency theories that a manager's personal and professional lives are consistent with their corporate behaviour (Baxamusa & Jalal, 2016; Cain & McKeon, 2016; Chyz, 2013; Cronqvist, Makhija & Yonker, 2012). Foreign CEOs have cross-cultural experience, i.e., their own culture and that of the foreign country, which could help them develop certain behavioural skills to perform across cultures (Benet-Martínez et al., 2002; Hong, 2010; LaFromboise, Coleman & Gerton, 1993; Tadmor, Tetlock & Peng, 2009). International and cross-cultural experiences increase risk taking behaviour and the confidence of individuals (Carpenter, Pollock & Leary, 2003; Herrmann & Datta, 2005; Tihanyi et al., 2000).

International and cross-cultural experiences have also been shown to be positvely correlated with openness to experience (Caligiuri & Tarique, 2012; Leung & Chiu, 2010). Openness to experience individuals as those who are intelectually curious, flexible and nondogmatic in their attitudes and values (Costa & McCrae, 1985). The psychology literature shows that openess to experience relates to innovation and willingness to take risks (Costa & McCrae, 1992; Goldberg, 1990; LePine, Colquitt & Erez, 2000; Tetlock, Peterson & Berry,

1993). Open to experience indiviudals are creative and their behaviours are less predictable and stable (Tetlock, 1983, 1984; Tetlock, Peterson & Berry, 1993). Managers who are open to experience pursue exciting strategies, embrace change and take risks (Bono & Judge, 2004; Judge et al., 2002). This study predicts that foreign CEOs' openness to experience, which relates to risk taking and creativity, would have a significant impact on firm risk and corporate policies.

Given the background of how foreign CEOs could impact a firm's strategic choices as discussed above, the objectives of this studys are to:

(1) Investigate how foreign CEOs impact firm risk-taking behaviour. Risk aversion could result in agency cost for shareholders if managers give up risky projects that could increase firm value (Smith & Stulz, 1985). Prior studies show how CEO attributes such as age, gender and pilot certificates impact firm risk. We hypothesize that, the international and cross–cultural experiences of foreign CEOs that relate to risk taking behaviours and innovation increase firm risk taking.

(2) Examine the impact of foreign CEOs' cultural background on capital structure decisions. CEOs make financing decisions under uncertainty and, as such, the literature shows that managerial attitude towards financial risk is an important factor for the capital structure of the firms, with a difference in risk attitude ranging from CEO personal leverage, gender, religion, and political affiliation (Cronqvist, Makhija & Yonker, 2012; Faccio, Marchica & Mura, 2016; Baxamusa & Jalal, 2016; Hutton, Jiang & Kumar, 2014). Unlike many CEOs' attributes that impact capital structure decisions, culture is largely a given to individuals throughout their lifetime (Becker, 1996) and, therefore, examining such intrinsic attributes of foreign CEOs on capital structure decisions is important. We propose that the distinct values and preferences embedded in individualism versus collectivism could provide an explanation of a CEO's attitude towards risk and uncertainties in the financing policies of his/her firm

because individualism promotes risk taking behaviours and could influence CEOs' incentives for debt financing as well as their perceptions of the risk associated with debt financing (Breuer, Riesener & Salzmann, 2014; Hofstede, Hofstede & Minkov, 2010; Kreiser et al., 2010; Li et al., 2013). Individualism could also cause a firm's capital structure to deviate from its industry peers since individualistic CEOs are less likely to mimic the corporate polices of their peers (Heine, et al., 1999; Hofstede, Hofstede & Minkov, 2010; Markus & Kitayama, 1991).

(3) Examine the impact of foreign CEOs on corporate acquisitions. The decision to engage in mergers and acquisitions (M&As) requires choices such as whether to acquire, what to acquire, when to acquire and for how much to acquire. Since the outcomes of these choices are uncertain, a CEO's personal preferences, experience and personality traits may play a role (Chatterjee & Hambrick, 2011; Malhotra, Zhu & Reus, 2015). M&As are important corporate investments because they involve huge sums of money and, therefore, have the potential to destroy shareholder value (Moeller, Schlingemann & Stulz, 2005). Graham, Harvey and Puri (2015) find that compared with other corporate policies, CEOs have a major influence on M&As. The upper echelons theory suggests that managerial experience has a significant effect on managers' strategic choices (Hambrick, 2007; Hambrick & Mason, 1984). In support of this theory, the literature shows that international experience impacts executives' decisions in strategic choices (Athanassiou & Nigh, 2002; Carpenter, Sanders & Gregersen, 2001). We hypothesize that foreign CEOs' international experience would significantly impact their strategic choices in M&As such as acquisition type, target selection and payment method, which will subsequently impact acquirer returns.

2. A summary of the major findings

The sample for this thesis consists of S&P 1500 firms from 2000 to 2017. We hand collect data on the CEO's country of birth, education, and work experience from Marquis Who's Who

biography online database, Notable Names Database (NNDB) as well as corporate websites. To be included in the sample, a CEO must have been born and attended school in the home country. This allows us to properly assign them their nationality and examine the direct impact of their foreign identity on three aspects of corporate policies. The list of CEOs whose information we hand collected are from Compustat Execucomp.

Chapter 2 examines the impact of foreign CEOs on firm risk taking behaviour. The main measures of firm risk are stock return volatility, idiosyncratic risk, and beta. We use multivariate regressions and control for firm specific characteristics, CEO characteristics, year, and industry fixed effects. The results show that firms managed by foreign CEOs have high stock return volatility and idiosyncratic risk. There was no significant relationship between foreign CEOs and beta. Given that firms may appoint foreign CEOs to take advantage of their international skill set to achieve a firm's strategic purposes, the appointment of foreign CEOs presents selection bias in the OLS model for firm risk. We control for endogeneity in this study using the number of foreign born in the state in which the firm is headquartered as an instrumental variable for foreign CEOs. The results remain robust to the use of instrumental variables and propensity score matching.

Next, foreign CEOs were grouped into two based on their legal origin, assuming that foreign CEOs come from different countries and have been shaped by the formal and informal institutions of those countries (Hunter, 1988; Markus & Kitayama, 1994; Schwartz, 1999). We find that foreign CEOs who come from common law countries (better creditor rights) manage less risky firms. This evidence shows that foreign CEOs are not a homogenous group and that their legal origin matter for firm risk.

We next examine the impact of foreign CEOs on corporate policies because the total risk and idiosyncratic risk observed for firms managed by foreign CEOs could be because of a firm's corporate polices. The results show that, compared with firms managed by domestic

CEOs, firms managed by foreign CEOs invest more in R&D and advertising. These two investments are more risky because their outcomes are more uncertain and usually have a zero salvage value. The empirical evidence shows that firms managed by foreign CEOs are more likely to do M&As. These investment choices could partially explain the higher risk observed for firms managed by foreign CEOs.

Next, we analyse the impact of foreign CEOs on firm value, operating performance, and management practices. The results show that firms managed by foreign CEOs have a higher valuation (measured by market-to-book and residual income approach) and operating performance (measured using ROA and industry adjusted ROA). Thus, the risk taking behaviour of foreign CEOs is beneficial to shareholders. Further analysis shows that this higher valuation and operating performance benefits only firms that have multiple geographic segments. This suggests that not all firms that employ foreign CEOs benefit from their risk taking behaviour. We find that firms that hire foreign CEOs who come from good management practice countries have higher productivity, and firms that hire foreign CEOs who come from good corporate governance countries manage earnings less. Thus, foreign CEOs transfer their knowledge of how foreign organizations operate into the firms they manage in the US. This chapter therefore provides empirical evidence on the value of foreign CEOs to shareholders.

Chapter 3 examines the impact of foreign CEOs' national culture on capital structure decisions. As a measure of national culture, variation in the individualism versus collectivism cultural dimension of Hofstede, Hofstede & Minkov (2010) is exploited. The two measures of leverage used in this study are book leverage and market leverage. The empirical results show that firms managed by foreign CEOs from individualistic cultures have higher leverage. Several robustness tests using alternative measures of individualism (see, House et al., 2004; Schwartz, 1994; Tang & Koveos, 2008) and alternative measures of leverage are conducted but the positive relationship between individualism and firm leverage remain the same.

Because firms may appoint CEOs based on their cultural background to take advantage of the CEO's specific attributes to achieve a firm's strategic purposes, there exists potential selection bias for the appointment of CEOs from individualistic cultures. We control for endogeneity in the study using three instrumental variables (S-allele, G-allele and the prevalence of pathogens) that suggest a possible causal relationship from individualism to capital structure. The results remain robust to the use of instrumental variables and propensity score matching when taking into account the potential self-selection bias of CEOs. We find that the active monitoring role of large institutional shareholders reduces the positive impact of individualism on leverage. Thus, corporate governance helps reduce individualistic CEOs' tendency to imprint their values and preferences on a firm's leverage.

To ensure that the positive relationship between individualism and firm leverage is not driven by a reduction in total assets or the market value of assets, we examine the impact of individualism on a firm's propensity to issue debt rather than equity. The results show that firms managed by foreign CEOs from individualistic cultures have a higher probability of issuing debt than equity. In addition, we find that the speed of leverage adjustment is higher for firms managed by individualistic CEOs than for firms managed by foreign CEOs from collective cultures. Further analysis shows that individualism does not only impact the debt ratio but also the type of debt that firms hold. We find that debt maturity is lower for firms managed by individualistic CEOs. Overall, the results suggest that firms managed by individualistic CEOs have a risky financing policy.

Next, to ensure that the impact of individualism on capital structure decisions is robust, we examine the variation in individualism versus collectivism at the state level for American-born CEOs because the literature shows that the state in which American CEOs were born impacts their strategic choices (Jiang, Qian & Yonker, 2018; Yonker, 2017). We find that firms managed by American CEOs born in individualistic states have higher leverage and shorter

debt maturity. Overall, the results show that individualism has a significant impact on capital structure decisions made by CEOs. This chapter provides empirical evidence on how the values and preferences in the cultural background of CEOs impact the financing policies of their firms.

Chapter 4 provides empirical evidence of the relationship between foreign CEOs and corporate acquisitions. In the analysis, we use logistic regressions and find that firms managed by foreign CEOs are more likely to do M&As. We find that foreign CEOs do not only impact M&A propensity but also the types of acquisition. Specifically, we find that firms managed by foreign CEOs prefer targets operating in high-tech industries, and targets operating in different industries. We also find that firms managed by foreign CEOs are more likely to acquire foreign targets.

We next examine the impact of M&As undertaken by foreign CEOs on shareholders' value and find that announcement returns for firms managed by foreign CEOs are negative. The results suggest that compared with domestic CEOs, firms managed by foreign CEOs generate more negative acquirer returns with the announcement returns being 0.8 percentage points lower than domestic CEOs. We next examine the channels through which the negative acquirer returns for firms managed by foreign CEOs occur by regressing the acquirer 3-day returns by sub-samples of acquisition type (diversified, cross border, high-tech and home bias acquisitions). We find that negative acquirer returns for firms managed by foreign CEOs occur when foreign CEOs undertake diversified and home biased acquisitions.

We also consider the geographic segments of firms and find some evidence that foreign CEOs that manage geographically diversified firms generate positive abnormal returns in M&As. This result suggests that shareholders of firms that are geographically segmented benefit from acquisitions made by foreign CEOs. We control for endogeneity in the study using the number of foreign-born in the state in which the firm is headquartered and the distance in

kilometres from the foreign CEOs' country to the US as instrumental variables for foreign CEOs. The results remain qualitatively the same when considering the potential selection bias of foreign CEOs. Overall, the results show that foreign CEOs have a significant impact on M&A outcomes.

3. Contribution

This thesis makes several contributions to the corporate finance literature. First, the thesis contributes to the growing strand of finance literature that documents the impact of CEO characteristics on firm risk. Existing studies document the impact of age (Serfling, 2014), gender (Faccio, Marchica & Mura, 2016), overconfidence (Ho et al., 2016) and Pilot CEOs (Cain & McKeon, 2016) on firm risk. This study shows that foreign CEOs' impact on firms' risk is significantly important and that the risk taking behaviour of foreign CEOs is beneficial for firms with multiple geographic segments.

Second, the thesis adds to the literature on capital structure decisions. Prior studies have examined the effect of CEO personal leverage (Cronqvist, Makhija & Yonker, 2012) and religion (Baxamusa & Jalal, 2016) on capital structure decisions. This study adds to these studies by showing that the cultural background of foreign CEOs has important implications for a firm's capital structure decisions. The major contribution of this study is that, unlike most CEO attributes that impact capital structure decisions, culture is given to individuals throughout their lifetime and therefore is an intrinsic attribute of the CEO.

Third, this study contributes to the literature on the impact of CEO attributes on M&As. Existing studies document the impact of age (Yim, 2013), gender (Huang & Kisgen, 2013), overconfidence (Malmendier & Tate, 2008) and CEO political affiliation (Elnahas & Kim, 2017) on M&A activity. This study shows that foreign CEOs significantly impact M&A

outcomes and that the announcement returns for firms managed by foreign CEOs are lower in diversified and home biased acquisitions.

Fourth, this study adds to the literature on the impact of foreign executives on corporate policies such as the benefit and cost of foreign independent directors (Masulis, Wang & Xie, 2012), the brain gain of corporate boards (Giannetti, Liao & Yu, 2015), diverse boards (Estélyi & Nisar, 2016), the internationalization of corporate boards (Oxelheim et al., 2013), and stock market reaction to announcements of international top executive appointment (Schmid & Dauth, 2014). Though these studies focus on foreign executives' experience, this study shows that, in addition to their international experience, foreign CEOs' cultural background has an impact on firms' capital structure decisions. The study also shows that foreign CEOs are not a homogenous group; the legal origin of foreign CEOs matters for firm risk taking behaviour and management practices.

Fifth, the study contributes to the literature on the impact of different cultural backgrounds on financing decisions. Existing studies focus on the macro level (Chuck & Tadesse, 2006; Chui, Lloyd & Kwok, 2002; Chui, Kwok & Zhou, 2016; Zheng et al., 2012); this study provides evidence at the micro level by showing that the cultural background of individual foreign CEOs determines the financing decisions of their firms.

Sixth, the study contributes to the literature on the role of country of origin in influencing individual outcomes such as performance under competitive pressure (Nguyen, Hagendorff & Eshraghi, 2018), corporate misconduct (Liu, 2016), tax evasion (DeBacker, Heim & Tran, 2015), work and fertility (Fernández & Fogli, 2009), Mediterranean youth living arrangements (Giuliano, 2007), shirking at work (Ichino & Maggi, 2000), parking behaviour of United Nation officials (Fisman & Miguel, 2007), and savings behaviour (Guiso, Sapienza

& Zingales, 2006). This study's contribution is that foreign CEOs' legal origin and cultural background are important determinants of corporate behaviour.

4. Thesis structure

The remainder of the thesis is organised as follows. Chapter 2 examines the impact of foreign CEOs on firm risk taking behaviour and management practices. Chapter 3 investigates the impact of individualism on capital structure decisions. Chapter 4 analyses the impact of foreign CEOs on corporate acquisitions. Chapter 5 concludes the study by summarizing the study's findings, discussing the contribution to the literature, and providing suggestions for future research.

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CHAPTER TWO

FOREIGN CEOS AND FIRM RISK

Abstract

We examine the impact of foreign CEOs on firm risk and corporate policies. Using hand collected biographic data on US CEOs, we find that firms managed by foreign CEOs have higher firm-specific risk**.** These firms have higher firm valuation suggesting the risk taking behaviour of foreign CEOs is beneficial to shareholders. Foreign CEOs invest more in R&D and advertising and have a propensity to engage in mergers and acquisitions. We document that foreign CEOs are not homogenous, and that the legal origin of foreign CEOs matters in their risk taking behaviour. Foreign CEOs with experience from countries with better creditor rights take less risk than those from poor creditor rights nations. Overall, our results show that foreign CEOs have a significant impact on firm risk and corporate policies.

JEL classification: F23, G31, G34.

Keywords: Foreign CEO, Risk taking, Creditor rights, Corporate policies, International experience.

1. Introduction

The impact of CEO characteristics on corporate policies has gained tremendous attention. Previous studies show that a significant portion of the disparity in corporate decisions is driven by CEO attributes (Bamber, John & Yanyan, 2010; Bertrand & Schoar, 2003; Graham, Harvey & Puri, 2013). For example, Cain and McKeon (2016) find that firms whose CEOs hold a private pilot's licenses (i.e., less risk averse individuals), are riskier. Cronqvist, Makhija and Yonker (2012) reach a similar conclusion by analysing the relationship between corporate and personal leverage. That is, CEOs' personal debt preferences carry over to the firms they manage. Faccio, Marchica and Mura (2016) find that firms run by female CEOs are less risky whereas Ho et al. (2016) find that commercial banks with overconfident CEOs are riskier. In this paper, we focus on another, and potentially more important, CEO characteristic – the CEO's identity; i.e., whether the CEO is domestic or a foreigner, and provide a causal link between firm risk and a CEO's identity.

Understanding how foreign CEOs affect firm performance and corporate policies is important for at least two primary reasons. First, there has been an increase in foreign born labour force participation and the OECD reports that, in 2008, foreign born employees comprised 26.5% of the Australian labour force, 12.6% of the UK labour force and 16.5% of the US labour force (OECD 2010)[1]. Some of the most iconic American corporations in our sample, such as Microsoft, Alphabet, and Pepsi, are currently managed by foreign CEOs. Skilled migrants present a significant opportunity for host countries because they move their human capital from their home country to other countries, which Giannetti, Liao and Yu (2015) describe as brain gain for firms.

[1] OECD latest update was on 12 May 2010 so foreign born labour force participation for 2008 is the latest available. See Appendix A for details for other OECD countries.

Secondly, foreign CEOs bring to their position institutional knowledge of countries and regions other than the firm's home country and, therefore, their strategic focus and orientation may be different from domestic CEOs, which could impact firm risk. Though domestic CEOs may have international experience, Caligiuri and Santo (2001) suggest that such experience is limited in time and scope. Caligiuri, Lazarova and Zehetbauer (2004) note that the impact of an executive's international behaviour on firms may not be complete if we focus solely on their international experience and that top managers' nationality should be accounted for when considering their international experience. Shaw (1990) earlier suggests that nationality influences the fundamental values and cognitive skills of individuals, which shapes their decisions and strategic choices and that, independent of the talent and ability management accrues, the values of their country of origin has a deep, long-lasting impact on their orientation (Nielsen & Nielsen, 2011). This is consistent with the idea that when people are born and raised in a society, they are exposed to the laws, customs, values and organizational practices through formal and informal institutions; this cannot be achieved through expatriate assignments (Hunter, 1988; Markus & Kitayama, 1994; Schwartz, 1999).

We follow Giannetti, Liao and Yu (2015) and define foreign CEOs as CEOs who were born and raised outside the US. Specifically, we examine whether foreign CEOs impact a firm's total risk and its components: market and idiosyncratic risks. We then examine the investment polices of firms managed by foreign CEOs. We empirically test the impact of foreign CEOs on firm risk using S&P 1500 sample of 12,536 firm-year observations from 2000 to 2017, of which 1,713 are managed by foreign CEOs.

First, we find that, compared with domestic CEOs, foreign CEOs manage riskier firms since the firms they manage have high stock return volatility and idiosyncratic risk. We find a positive relationship between foreign CEOs and firm risk using the full sample and a matched sample of firms managed by domestic CEOs. We do not find any significant relationship

between foreign CEOs and firm beta. We document that foreign CEOs are not a homogenous group and that the legal origin of foreign CEOs matters for their risk taking behaviour. Foreign CEOs with experience from countries with better creditor rights take less risk than those from poor creditor rights nations.

We further examine the channels through which foreign CEOs increase firm risk. We find that foreign CEOs undertake more investment in intangible assets. Foreign CEOs invest more in R&D and advertising, which are risky investments because of the uncertainties in their payoff. We also find that firms managed by foreign CEOs are more likely to engage in mergers and acquisitions (M&As), which are described as risky investment opportunities because of the uncertainty in their outcomes and implications for acquiring firm shareholders. We document that foreign CEOs are more likely to do cross border acquisitions that are considered riskier than domestic acquisitions because of uncertainties in the target country. We also find that, though firms managed by foreign CEOs are more likely to do cross border acquisitions, they are less likely to target acquisitions in their home country which magnifies their risk taking behaviour These investment policies can partially explain the high stock return volatility and idiosyncratic risk we observe for firms managed by foreign CEOs.

Third, we show that the risk taking behaviour of foreign CEOs is beneficial to shareholders because firms managed by foreign CEOs have a higher valuation. We measure firm valuation using both market valuation and the residual income approach and find that firms managed by foreign CEOs have a high market to book and residual income value. We also find that firms managed by foreign CEOs have a higher operating performance.

Our study would have required comparing changes in firm performance and corporate polices when a firm changes a CEO from domestic to foreign and vice versa. Unfortunately, we do not have enough observations for CEO changes from domestic to foreign and vice versa.

Exogenous turnovers retain 14 firm-year observations. Nonetheless, we control for endogeneity in our study using the foreign born population in the state in which the firm is headquartered as an instrumental variable for the supply of foreign CEOs. We also conduct propensity score matching to control for selection bias. Our results remain robust to the use of instrumental variables and the matched sample of firms managed by domestic CEOs. We acknowledge that the use of instrumental variables and propensity score matching do not completely rule out endogenous matching but the preponderance of evidence documented in this papers suggests that foreign CEOs matter in corporate risk taking.

The study makes several contributions to corporate finance literature. First, the study contributes to the growing strand of finance literature that documents the impact of CEO characteristics on corporate policies. Existing studies document the impact of age (Serfling, 2014); gender (Faccio, Marchica & Mura, 2016); overconfidence (Ho et al., 2016); Pilot CEOs (Cain & McKeon, 2016) and CEO personal leverage (Cronqvist, Makhija & Yonker, 2012) on firm risk. We show that a CEO's identity (domestic or foreign) is an important determinant of corporate risk taking.

Secondly, our study contributes to the literature on the impact of foreign executives on corporate policies. Existing studies focus on foreign directors who play a monitoring role in the firm. For example, Masulis, Wang and Xie (2012) analyse the benefit and cost of foreign independent directors and find that firms with foreign independent directors do better in cross border acquisitions when the target country is that of the foreign director. Giannetti, Liao and Yu (2015) study the brain gain of corporate boards and document that foreign directors improve the operational efficiency and corporate governance of their firms. Estélyi and Nisar (2016) show that firms with diverse boards, in terms of nationality, have a higher operating performance. Oxelheim et al. (2013) find that the nationality of foreign directors relates to the nationality of foreign owners. Schmid and Dauth (2014) show that the market reacts to the

appointment of foreign executives only when their foreign experience exceeds certain threshold. We show that foreign CEOs' impact on firm risk and corporate polices is important. and that foreign CEOs' international experience in a particular legal origin has implications for their risk taking behaviour.

Thirdly, the study contributes to the literature on the role of country of origin in influencing individual outcomes such as performance under competitive pressure (Nguyen, Hagendorff & Eshraghi, 2018), corporate misconduct (Liu, 2016), and tax evasion (DeBacker, Heim & Tran, 2015). Our contribution is that foreign CEOs are not a homogenous group; the legal origin of foreign CEOs matters in firm risk taking behaviour and management practices.

The rest of the paper is organized as follows: Section 2 develops the testable hypotheses. Section 3 describes the data and sample selection method. Section 4 presents the empirical results and robustness tests. Section 5 concludes the study.

2. Hypotheses development

Our basic proposition is that the foreigner status of CEO impacts firm risk and corporate policies. The upper echelons theory documents that top managers' perception of situations and their interpretations is influenced by their experience, values, and personalities (Hambrick & Mason, 1984). Foreign CEOs have international experience that, based on previous studies, increases confidence and the risk taking behaviour. For example, Carpenter, Pollock and Leary (2003) find that high tech firms that have top management teams with international experience take more risks than those without international experience. Herrmann and Datta (2005) and Tihanyi et al. (2000) document that the foreign experience of top management teams relates to risk taking strategies such as international expansion. International experience impacts executives risk taking propensity in strategic choices and enhances executives' ability to process complex information in a dynamic environment (Athanassiou & Nigh, 2002;

Carpenter, Sanders & Gregersen, 2001). It is worth noting that even though managers have significant impact on firm risk taking behaviour, there could be an optimal risk taking level that is acceptable in specific industries. Our hypotheses are based on the fact that foreign CEOs have certain characteristics, and these are reflected in their management style.

There are at least two reasons for the higher risk appetite of foreign CEOs. First, foreign CEOs' cross-cultural experience can help them develop certain behavioural skills to perform across cultures and risky situations. For example, Brannen and Peterson (2009) note that cross-cultural experience increases tolerance for uncertainty and such individuals are can deal with complex situations. Second, cross-cultural experience has been shown to be positively correlated with openness to experience[2] (Caligiuri & Tarique, 2012; Leung & Chiu, 2010). Openness to experience relates to innovation and willingness to take risks (Costa & McCrae, 1992; Goldberg, 1990; LePine, Colquitt & Erez, 2000) and such individuals are creative and their behaviours are less predictable and unstable (Tetlock, 1983, 1984; Tetlock, Peterson & Berry, 1993). Less predictability is related to risk taking as the actions of such individuals cannot be easily determined which results in a lot of uncertainties around their behaviours. For competitive advantage point of view, less predictability is a good trait for manager as their competitors cannot easily copy what they do. Managers who are open to experience pursue exciting strategies, embrace change, and take risks (Bono & Judge, 2004; Judge et al., 2002). Our first hypothesis is as follows:

Hypothesis 1 (H1): The impact of foreign CEOs on firm risk is positive.

Foreign CEOs' country of origin matters for corporate risk taking because foreign CEOs might have been shaped by the formal and informal institutions of their country of origin (Hunter, 1988; Markus & Kitayama, 1994; Schwartz, 1999). Consistent with this view, Li et

[2] Openness to experience individuals as those who are intellectually curious, flexible and non-dogmatic in their attitudes and values (Costa & McCrae, 1985).

al. (2011) show that country of origin influences leverage choices of foreign joint ventures in China. DeBacker, Heim and Tran (2015) find that firms whose owners come from highly corrupt countries evade tax in the US. In a similar vein, corporate misconduct such as earnings management, accounting fraud, option backdating and opportunistic insider trading, occurs more in firms whose officers originate from highly corrupt countries (Liu, 2016). Therefore, among foreign CEOs, their country of origin may have a different impact on corporate risk since foreign CEOs' knowledge of how foreign organizations operate may bring these practices to their firm, which could result in corporate policies that impact the firm's risk. Our assertion follows Acharya, Amihud and Litov (2011) who find that in countries with better creditor rights, firms take fewer risks because managers are afraid to lose their jobs in case of bankruptcy. Chava and Roberts (2008) and Nini, Smith and Sufi (2009) document that strong creditor rights in the form of restrictive debt covenants and enforcement of debt covenant violations decreases capital investment. In a similar vein, Favara et al. (2017) show that strong creditor rights decrease firm risk taking across countries. Cho et al. (2014) find that strong creditor protection reduces the extent to which firms issue and finance projects with long term debt. Acharya and Subramanian (2009) and Acharya, Sundaram and John (2011) document that strong creditor rights reduce innovation in high tech industries and lower the use of financial leverage. In support of that study, Chiou, Lee and Lee (2010) document that stocks in common law countries are less risky than those in civil law countries, in particular, of French/Spanish civil law origin. We formally state our second hypothesis as follows:

> Hypothesis 2 (H2): Foreign CEOs with experience from countries with better creditor rights reduce firm risk and those from poor creditor rights increase firm risk.

3. Sample selection

Data on CEOs' birth country, education and work experience are hand collected from Marquis Who's Who biography online database, Notable Names Database (NNDB), as well as companies' websites. To be included in the sample, a CEO must have been born and attended school in the home country. This allows us to properly assign them their nationality and examine a direct impact of their foreign identity on firm performance and corporate policies. The list of CEOs whose information was obtained from Marquis Who's Who database are taken from Compustat Execucomp. We obtain accounting and stock market data from Compustat and the Center for Research in Security Prices (CRSP) databases, respectively. We exclude financial (SIC 6000-6999) and utility (SIC 4000-4999) firms. Our final sample consists of 9,590 firm-year observations from 2000 to 2017 with 1,655 unique CEOs. The nationality mix of CEOs in our sample is presented in Appendix A1. All variables are defined in in Appendix A2.

3.1 Summary statistics

Table 1 reports the summary statistics of our sample. Panel A shows that firms managed by foreign CEOs form 13.7% of our total sample. The mean (median) age is 65 (65). Firms managed by female CEOs represent 2.7% of the sample; CEOs who are chair of their firms form 63.3%. The mean (median) CEO portfolio delta is $709.1 ($217.8) and the portfolio vega is $145.9 ($46.1). We find that 11% of the CEOs in our sample have Ivy League education and 9.5% have military experience. Panel B summarises the firm characteristics. Mean (median) firm size is $10,420.5 ($2,180.06) million. The mean (median) leverage is 22.1% (20.9%). Firms hold average (median) cash of 15.9% (10%). Firms exhibit mean (median) Tobin's Q of 2.1(1.7). The mean (median) total firm risk is 39.8% (34.8%) measured as the standard deviation of daily stock returns and mean (median) idiosyncratic risk is 31.3% (27.3%)

measured as the annualized standard deviation of the residuals from the regression of daily stock returns on the Fama and French three factors.

[Insert Table 1 here]

Table 2 compares the means of CEO and firm characteristics for domestic and foreign CEOs in our sample. In Panel A, the average foreign CEO is 63 years which is younger than domestic CEOs. Foreign CEOs have longer tenure and are less likely to hold the dual position as chair of the firms they manage. Foreign CEOs are less likely than domestic CEOs to have Ivy League education and military experience. Comparing the sample means of firms managed by domestic and foreign CEOs in Panel B, we find that firms managed by foreign CEOs invest more in R&D and have more total and idiosyncratic risk. If we use Tobin's Q as a measure of firm performance, foreign CEOs perform better than domestic CEOs. Firms managed by foreign CEOs are more likely to undertake M&As. Overall, Table 2 shows a significant difference between the means of CEO and firm characteristics for domestic and foreign CEOs. This confirms our prediction that firm risk and corporate policies of firms managed by foreign CEOs are likely to be different from firms managed by domestic CEOs. However, these differences may be because of time trends, firm characteristics and CEO characteristics that may correlate with the appointment of foreign CEOs to firms. As a result, in the next section we test the relationship between foreign CEOs and firm risk and corporate policies in a multivariate analysis in the next section.

[Insert Table 2 here]

4. Empirical results

4.1 Foreign CEOs and firm risk

To test our first hypothesis that foreign CEOs increase firm risk, we estimate the following regression model:

$$FIRM\ RISK_{ijt} = \beta_0 + \beta_1(FOREIGN\ CEO)_j + \beta_2(CEO\ \ CONTROLS)_{jt-1} + \beta_3(FIRM\ CONTROLS)_{it-1} + \beta_4(FIXED\ EFFECTS)_{it} + \in_{ijt}, \quad (1)$$

where: "i" denotes the firm, "j" denotes the CEO, and "t" denotes year. Firm total risk is measured as the annualized standard deviation of firm daily stock returns (Bernile, Bhagwat & Yonker 2018; Serfling 2014). We follow Ang et al. (2009) and calculate idiosyncratic risk as the annualized standard deviation of the residuals from the regression of daily stock returns on the Fama and French three factors. Firm beta is measured using the standard capital asset pricing model. Foreign CEO is our main variable of interest. Foreign CEO is a dummy variable that takes the value of one if a CEO's nationality is other than American and/or a bachelor's degree in the home country and/or foreign work experience, and zero otherwise. In all the estimated regression models, we control for major firm and CEO characteristics identified in the literature to impact firm risk.

The CEO characteristics we control for are age (Serfling, 2014), gender (Faccio, Marchica & Mura, 2016), tenure (Berger, Ofek & Yermack, 1997), delta and vega (Coles, Daniel & Naveen, 2006; Core & Guay, 2002), military experience (Cain & McKeon, 2016), Ivy League education, and MBA degree. We obtain CEO age, gender, and tenure from ExecuComp. We follow Core and Guay (2002) to calculate CEO delta and vega using ExecuComp data. CEO military experience, Ivy League education and MBA degree are obtained from Marquis Who's Who database. The firm characteristics we control for are size, leverage, return on equity, R&D expenditure, market-to-book ratio and capital expenditure.

We estimate an OLS regression where the dependent variable is the firm risk and the independent variables include the foreign CEO dummy and various controls. If foreign CEOs prefer more risk, we expect a positive relationship between foreign CEOs and risk measures. The results are shown in Table 3. In columns (1-4), the dependent variable is the annualized standard deviation of the firm's daily stock returns, a proxy for the firm's total risk. The

dependent variable in columns (5-8) is the idiosyncratic risk, a measure of firm specific risk. In columns (1) and (5), we regress a firm's measures of risk on only foreign CEOs, holding all other factors constant but include year and industry fixed effects to control for unobserved heterogeneity across industries and years.

We find the coefficient of foreign CEOs to be positive and statistically significant at the 1% level. This suggests that holding all other factors constant, compared with domestic CEOs, foreign CEOs are associated with higher stock return volatility and idiosyncratic risk in the firms they manage, supporting H (1). Specifically, foreign CEO status increases a firm's total risk by 4.4 percentage points and idiosyncratic risk by 2.7 percentage points. We include CEO portfolio delta and vega in columns (2) and (6) to control for the CEO wealth effect for risk taking. We find that the inclusion of these risk-taking compensation incentives in the model do not remove the positive impact of foreign CEOs on a firm's risk. Thus, foreign CEOs corporate risk taking behaviour is not motivated exclusively by the incentives in their compensation package. Columns (3) and (7) include firm characteristics that could have a significant impact on a firm's risk. We find the coefficient on the foreign CEO to be positive and statistically significant at the 1% level for total risk and at the 5% level for idiosyncratic risk when controlling for these variables. Given that the sample means of total risk and idiosyncratic risk are 0.398 and 0.313, respectively, the impact of foreign CEOs on firms' total risk (0.0357/0.398=8.9%) and idiosyncratic risk (0.0192/0.313=6.1%) is economically significant. Columns (4) and (8) include CEO characteristics that have been documented in the literature to impact firm risk but the relationship between foreign CEOs and firm measures of risk remain positive and statistically significant. We test the impact of foreign CEOs on systematic risk, measured by the firm's beta in column (9). We do not find any significant relationship between foreign CEOs and beta. This suggests that foreign CEOs do not impact the firm's beta. Our results suggest that, compared with domestic CEOs, foreign CEOs prefer

more risk because firms managed by foreign CEOs have higher stock return volatility and idiosyncratic risk. Our results are consistent with the theory that openness to experience positively relates to risk taking behaviour (Bono & Judge, 2004; Costa & McCrae, 1992; Judge et al., 2002). Nevertheless, the greater risk-taking behaviour of foreign CEOs does not make diversified investors worse off as idiosyncratic risk is likely to be diversified away and the impact on firms' beta is insignificant.

We find that most control variables in Table 3 have estimates similar to the results of existing studies. For example, Serfling (2014) finds that older CEOs have a negative relationship with firm total and idiosyncratic risk. We find a negative relationship between CEO age and firm total and idiosyncratic risk. Consistent with Cain and McKeon (2016), Faccio, Marchica and Mura (2016) and Serfling (2014), we find a negative relationship between firm size and measures of risk in all models. Firms that have high R&D expenditure are more risky (Bartram, Brown & Stulz, 2012; Comin & Philippon, 2005; Irvine & Pontiff, 2008). We find a positive relationship between R&D expenditure and measures of risk. Long tenure entrenches CEOs and makes them risk averse (Berger, Ofek & Yermack, 1997). We find a negative relationship between CEO tenure and firm risk. Our results are consistent with prior studies.

[Insert Table 3 here]

4.2 Does country of origin impact foreign CEOs' risk taking behaviour?

In this section, we test hypothesis H2 whether foreign CEOs' country of origin matters for firm risk taking behaviour since foreign CEOs come from different countries and have been shaped by the formal and informal institutions of these countries (Hunter, 1988; Markus & Kitayama, 1994; Schwartz, 1999). In this analysis, we want to examine among the foreign CEOs, which origin drives the results in Table 3. To address this issue, we create country

dummies for foreign CEOs of common law and civil law origin as in La Porta et al. (1998). We also create country dummies for CEOs of English origin, French origin, German origin, and Scandinavian origin. We then estimate an OLS regression of firm measures of risk on these origins and control variables and present the results in Table 4.

The dependent variable in columns (1-2) is total risk and the dependent variable in columns (3-4) is idiosyncratic risk. In columns (1) and (3) we include foreign CEO civil law origin and common law origin in the model. We find the coefficient of civil law to be positive and statistically significant at 1% level for both total risk and idiosyncratic risk. This suggests that compared with domestic CEOs, firms managed by foreign CEOs of civil law origin have higher total and idiosyncratic risk. In column (1), we find the coefficient of common law to be negative but statistically insignificant. Column (3) shows a positive and statistically negative relation between foreign CEOs common law and idiosyncratic risk. In columns (2) and (4), we include German, French, Scandinavian, and English origins. We find the coefficient of German origin to positive and statistically significant for idiosyncratic risk but insignificant for total risk. We find the coefficient of French origin to be positive and statistically significant for both total risk and idiosyncratic risk. This suggests that compared with domestic CEOs, firms managed by foreign CEOs of French origin are riskier. We find a negative and statistically significant relation between English origin and idiosyncratic risk. Overall, the results in Table 4 shows that the positive relation between foreign CEOs and firm risk documented in Table 3 is driven by foreign CEOs of civil law origin.

[Insert Table 4 here]

4.2.1 Sub-sample analysis for only foreign CEOs

In this analysis, we drop firm-year observations with American CEOs from our sample and conduct the analysis using firm-year observations with only foreign CEOs (American

CEOs are of common law origin which can impact the results in Table 4). We create a country dummy of one and zero otherwise if a foreign CEO is of a common law origin as in La Porta et al. (1998). We then estimate an OLS regression of firm measures of risk on common law and other control variables. We also estimate firm measures of risk on the continue variable for creditor rights of Djankov, McLiesh and Shleifer (2007).

Table 5 reports the results. The dependent variable in columns (1-2) is total risk and columns (3-4) is idiosyncratic risk. In columns (1) and (3), we regress firm measures of risk on the country dummy for foreign CEOs of common law origin. We find the coefficient of common law to be negative and statistically significant at the 1% level for both total risk and for idiosyncratic risk. The results support H (2) and suggest that, compared with foreign CEOs of civil law origin, foreign CEOs from common law countries reduce firm total and idiosyncratic risk. Specifically, a unit increase in the appointment of a foreign CEO from a common law country reduces firm total and idiosyncratic risk by 4.8% and 3.5%, respectively. In columns (2) and (4), we estimate firm measures of risk on the creditor rights score for each country of origin in our sample. We find the creditor rights coefficient has a negative, significant relationship with firm measures of risk. Thus, foreign CEOs from better creditor rights countries reduces firm risk, further supporting H (2). A unit increase in the appointment of a foreign CEO from better creditor rights country reduces firm total and idiosyncratic risk by 2.4% and 2.1%, respectively. Our results are consistent with our prediction that foreign CEOs from better creditor rights countries reduce firm risk.

[Insert Table 5 here]

To better understand the impact of foreign CEOs' country of origin on firm total and idiosyncratic risks we create country dummies for CEOs of English origin, French origin, German origin and Scandinavian origin because the literature shows that even among common

law and civil law countries, there are differences in investor protection and creditor rights (Djankov et al., 2008; Djankov, McLiesh & Shleifer, 2007; La Porta et al., 1998). For example, La Porta et al. (1998) and Djankov, McLiesh and Shleifer (2007) find that French civil law countries provide the weakest creditor rights protection; among the civil law countries, German origin ranks highest for creditor rights protection.

The results are shown in Table 6. The dependent variable in columns (1-5) is firm total risk and columns (6-10) is idiosyncratic risk[3]. In columns (1) and (6), we regress firm measures of risk on foreign CEOs from English origin and other control variables. We find the coefficient on the foreign CEOs of English origin is negative and statistically significant at the 1% level. This suggests that, compared with foreign CEOs of other legal origins, foreign CEOs from countries of English legal origin take less risk. Specifically, English origin reduces firm total and idiosyncratic risk by 4.8% and 3.5%, respectively. In Columns (2) and (7), we regress risk measures on foreign CEOs of French origin. We find the coefficient of foreign CEOs of French legal origin to be positive and statistically significant at the 1% level. The results are also economically significant since a foreign CEO of French legal origin increases firm total and idiosyncratic risk by 7.6% and 6.3%, respectively. Thus, foreign CEOs from French legal origin take more risk. We then regress firm measures of risk on the dummy variable for foreign CEOs from German legal origin (see columns (3) and (8)). We find a negative, insignificant relationship between German origin CEOs and firm total risk and idiosyncratic risk. Columns (4) and (9) show the results for the regressions with the dummy variable for foreign CEOs from Scandinavian origin. We find that the latter does not affect firm risk. Lastly, we use French origin as the control group and include dummy variables for other origins in Columns (5) and (10). We find that, compared with foreign CEOs of French legal origin, foreign CEOs of other

[3] We do not include a firm's systematic risk in the analysis because Table 3 shows that it is not impacted by the foreign CEO dummy.

origins have a significant negative relationship with firm total and idiosyncratic risk. Thus, CEOs of French legal origin are associated with higher risk than other foreign CEOs.

[Insert Table 6 here]

Overall, our results suggest that foreign CEOs are not a homogeneous group, supporting our H (2), and that the legal origin of foreign CEOs matters for firm risk taking behaviour.

4.3 Endogeneity concerns

4.3.1 Propensity score matching

A major concern with our results in Table 3 is that it is possible that foreign CEOs manage firms that differ from firms managed by domestic CEOs as shown in the univariate analysis in Table 2. This makes the appointment of a foreign CEO endogenous to firm-level characteristics and therefore could bias the coefficient estimates for foreign CEOs in our models. We first employ propensity score matching as in Conyon et al. (2018) and Serfling (2014) to evaluate the impact of foreign CEOs on firm risk. Propensity score matching is a method for estimating treatment effects to reduce bias in a non-randomized sample (Rosenbaum & Rubin, 1983). It is an effective method to alleviate endogeneity concerns of CEO and firm matching when we observe predictable firm characteristics (Angrist & Pischke, 2009; Armstrong, Ittner & Larcker, 2012; Rosenbaum & Rubin, 1983). Propensity score matching requires the treatment group to be matched with a control group that has similar characteristics and similar values of the propensity score as the treatment group. The treatment group in our study is foreign CEOs and the control group (comparison) is domestic CEOs.

We first estimate a probit model to predict the selection of foreign CEOs using firm and CEO characteristics following prior studies (Conyon et al., 2018; Malmendier & Tate, 2009).

The results are reported in Table 7, Panel A[4]. We find that foreign CEOs are more likely to manage smaller firms and that foreign CEOs are younger and have longer tenure. We then use the propensity score of the probit estimates to match firms managed by foreign and domestic CEOs. We use the nearest neighbour algorithm with a caliper 0.001 to match the firms, restricting the observations to be on common support to obtain the average treatment effect on the treated (ATT). The matched sample consists of 1,204 firms managed by foreign CEOs and 1,204 firms managed by domestic CEOs. ATT measures the difference in firm risk between firms managed by foreign CEOs and comparable firms managed by domestic CEOs with similar propensity scores.

The ATT of foreign CEOs on firm total and idiosyncratic risk is presented in Table 7, Panel B. Comparing the means of the unmatched sample, total and idiosyncratic risks are higher by 0.041 and 0.022, respectively, for firms managed by foreign CEOs compared with firms run by domestic CEOs. The differences are statistically significant at the 1% level. We find that, after matching, the differences are still statistically significant. The findings in Table 7 show that the positive relationship between firms' risk and foreign CEOs remains after taking into account selection bias based on firm characteristics.

[Insert Table 7 here]

4.3.2 Instrumental variables approach

Our OLS analysis assumes that CEOs are randomly selected into firms. This might not be true in our case since firms' demand for certain CEO attributes might compel them to choose one CEO over another. For example, a firm may appoint a foreign CEO to take advantage of an international skill set to serve the firm's strategic purpose. Second, a firm may appoint a foreign CEO for his/her risk taking behaviour to fulfil corporate strategies. For instance, if a

[4] The covariate balance is shown in Appendix A3.

firm wants to expand its operations, it might hire a foreign CEO because of cross cultural and international experience. Thus, the demand for the special skills of a CEO and a firm's strategy might lead to their selection (Greve, Biemann & Ruigrok, 2015; Magnusson & Boggs, 2006; Masulis, Wang & Xie, 2012).

To mitigate this concern, we use two-stage least squares (2SLS) estimation to deal with the potential endogenous foreign CEO dummy in our OLS model. Our instrumental variable (IV) identification is based on Knyazeva, Knyazeva and Masulis (2013) who argue that the supply of corporate directors depends on the local availability of qualified prospective directors and therefore used the local director pool as an IV for board composition. Consistent with this argument, Bernile, Bhagwat and Yonker (2018) use supply of non-local potential directors residing one non-stop flight away from the firm headquarters as the instrumental variable for board diversity. Based on these studies, we use the number of foreign born (immigrant) citizens as a percentage of the total population of the state in which the firm is headquartered (foreign borns) as an IV for foreign CEO[5]. We estimate the following two-stage least squares model:

Stage 1: $Foreign\ CEO = \beta_0 + \beta_1(Foreign\ borns) + \beta_2(CEO\ controls) + \beta_3(Firm\ controls) + \beta_4(Fixed\ effects) + \in$ (2)

Stage 2: $Firm\ risk = \beta_0 + \beta_1(Predicted\ value\ of\ Foreign\ CEO) + \beta_2(CEO\ controls) + \beta_3(Firm\ controls) + \beta_4(Fixed\ effects) + \in$ (3)

We perform the Stock and Yogo (2005) weak instrument test to assess the strength of our instrumental variable. We find that the Craig-Donald F-statistics from the first stage regression is 48.661, which is greater than any of the Stock and Yogo (2005) critical F-values

[5] Data on number of foreign born for each state is obtained from the U.S. Census Bureau American Community survey. Data is available for 2000 and 2005 to 2017. We interpolate to obtain data for 2001 to 2004.

for weak instruments. This shows that the instrument in the first stage regression is strong. The results are reported in Table 8. Column (1) shows the first stage results of the probit estimate of Equation (2). We find that the coefficient on foreign borns is positive and statistically significant at the 1% level. This suggests that the number of foreign borns in the state in which the firm is headquartered could be a determinant of the supply of foreign CEOs since it is positively correlated with foreign CEO appointment in Column (1). Columns (2) and (3) are the second stage results of Equation (3). In Column (2), we find the coefficient on the foreign CEO are positive and statistically significant at the 1% level which suggests that, compared with domestic CEOs, foreign CEOs manage riskier firms. Column (3) shows a positive relationship between idiosyncratic risk and foreign CEO that is consistent with our initial results using OLS. The findings from the 2SLS regression suggest that, after taking into account potential endogeneity, foreign CEOs are associated with higher firm total and idiosyncratic risk.

[Insert Table 8 here]

4.4. Channels - what do foreign CEOs do?

4.4.1. Foreign CEOs and firm investment

We examine the impact of foreign CEOs on firm total investment defined as the sum of R&D, advertising and capital expenditure, and net acquisitions scaled by net property plant and equipment (Roussanov & Savor, 2014). We also examine the impact of foreign CEOs on the individual components of firm total investment. The results are shown in Table 9. In Column (1), we estimate the OLS regression where the dependent variable is firm total investment. We find that the coefficient of foreign CEOs is positive and statistically significant at the 1% level. This suggests that, compared with domestic CEOs, foreign CEOs make more investments. In Column (2), we regress R&D expenditure scaled by total assets on foreign

CEOs. The coefficient of foreign CEOs is 0.0067, which is significantly positive at the 1% level. This suggests that compared with domestic CEOs, foreign CEOs spend more on R&D. The results also suggest that foreign CEOs prefer more risk since R&D expenditure has been described as a risky investment because of the high degree of uncertainty in the outcome (Bartram, Brown & Stulz, 2012; Comin & Philippon, 2005; Irvine & Pontiff, 2008). In Column (3), we regress firm advertising expenditure on foreign CEOs and find a positive, statistically significant relationship between foreign CEOs and advertising expenditure at 1% level. Consistent with Jiang et al. (2015) and Roussanov and Savor (2014) this finding suggests that firms managed by foreign CEOs spend more on advertising. This evidence together with the results for R&D expenditure show that foreign CEOs spend more on intangible assets[6]. We thus interpret our finding as foreign CEOs' preference for more risky investments since R&D and advertising expenditure has uncertain outcomes and more so since intangible assets usually have a salvage value of zero. In Column (4), we estimate firm capital expenditure on foreign CEOs and find the coefficient of the foreign CEOs is negative and statistically significant at the 1% level. Thus, compared with domestic CEOs, foreign CEOs invest less on capital expenditure. We estimate net acquisitions defined as acquisitions less asset sales and regress on foreign CEOs in Column (5). We find a positive relationship between foreign CEOs and net acquisitions. Thus, the positive relation we find between foreign CEOs and total investment is fuelled by R&D, advertising, and net acquisitions. Our results therefore suggest aggressive investment behaviour of firms managed by foreign CEOs, which potentially results in higher idiosyncratic risk.

[Insert Table 9 here]

[6] Morck, Shleifer and Vishny (1988) consider R&D and advertising expenditure as a firm's two major intangible assets.

4.4.2. Mergers and acquisitions

M&As have been described as risky investment opportunities because of the uncertainties in their outcomes and the implications for acquiring firm shareholders (Haspeslagh & Jemison, 1991; Malhotra, Zhu & Reus, 2015; Ravenscraft & Scherer, 2011; Wally & Baum, 1994; Zhu & Chen, 2015). Graham, Harvey and Puri (2015) find that compared with other corporate policies, CEOs have a major influence on M&As and therefore their risk preferences are important for such corporate decisions (Graham, Harvey & Puri 2013). We examine the propensity of foreign CEOs to engage in M&As by estimating a logit model for acquisition propensity measured as a dummy of one if a firm engaged in M&A in a fiscal year and zero otherwise. We obtain M&As data from Thomson Reuters SDC Platinum database. Our sample selection criteria follow the previous studies (e.g., Golubov, Petmezas & Travlos, 2012; Golubov, Yawson & Zhang, 2015)[7]. We control for firm size, market-to-book, leverage, free cash flow, loss dummy, dividend yield, capital expenditure (Bauguess & Stegemoller, 2008; Cain & McKeon, 2016; Harford, Humphery-Jenner & Powell, 2012; Malmendier & Tate, 2008). We also control for CEO age (Yim, 2013), gender (Huang & Kisgen, 2013), CEO delta and vega, military experience (Cain & McKeon, 2016), MBA, tenure, and Ivy League education. The results are shown in Table 10.

Model (1) reports the marginal effects of foreign CEOs and other control variables on acquisition propensity. We find the coefficient of the Foreign CEOs dummy to be positive and statistically significant at 1%. This suggests that compared with domestic CEOs, firms

[7] Acquirers must be US publicly traded firms. The transaction value must be greater than or equal to $1million. Acquirers should have less than 10% of initial stake in the target firm and seek over 50% of the target after the transaction. Deals labelled as bankruptcy acquisitions, liquidations self-tender, leveraged buyouts, privatizations, repurchases, restructuring, reverse takeovers, and going private transactions are excluded. Targets are US and non-US public, private or subsidiary firms. The bidder should have accounting data available in Compustat and stock data in CRSP.

managed by foreign CEOs are more likely to engage in M&As. Specifically, foreign CEOs increase the likelihood of M&A activity in a fiscal year by 3.3%. We include CEOs' characteristics in column (2) and still find a positive relationship between foreign CEOs and firm propensity to engage in M&As. This suggests that foreign CEOs risk preference extends to firms' M&As activity.

[Insert Table 10 here]

4.4.2.1 Foreign acquisitions

Cross border (or foreign) acquisitions compared with domestic acquisitions have many uncertainties because of unfamiliar cultural values and the institutional settings of the target firm's country (Anderson et al., 2011; Mantecon, 2009; Piaskowska & Trojanowski, 2014). Cross border acquisitions increase the uncertainty on the firm's future income streams as returns from the investment choice often cannot be predicted (Lu & Beamish, 2004; Mitchell, Shaver & Yeung, 1994; Shrader, Oviatt & McDougall, 2000).

To examine the impact of foreign CEOs on cross border acquisitions, we estimate logit models where the dependent variable is Foreign Acquisition defined as a dummy variable that equals one if the target firm is outside the US and zero otherwise. Table 11 shows the marginal effect of foreign CEOs on cross border acquisitions. In Column (1), we control for firm characteristics, year and industry fixed effects. We find a positive relationship between foreign CEOs and cross border acquisitions. This suggest that compared with domestic CEOs, foreign CEOs are more likely to do cross border acquisitions which are riskier than domestic acquisitions. We control for CEOs' compensation in Column (2) and still find a positive relationship between foreign CEOs and cross border acquisitions. In column (3), we control for CEOs' characteristics that can impact cross-border acquisitions, but the results remain

unchanged. The positive relationship we find between foreign CEOs and cross border acquisitions suggests that foreign CEOs are more likely than domestic CEOs to enter and increase their presence in foreign markets. On one hand, foreign CEOs' experience in other countries other than US provide useful networks and local contacts that can provide easier access to information about foreign targets. On the other hand, foreign CEOs cross-cultural experience gives them higher confidence, decreased uncertainty in terms of cultural differences and country risk of the foreign targets (Andrade, Mitchell & Stafford, 2001; Carpenter, Pollock & Leary, 2003; Herrmann & Datta, 2005; Tihanyi et al., 2000) which increases their likelihood to do cross border deals. Thus, foreign CEOs' risk taking behaviour increases their tolerance for ambiguity.

[Insert Table 11 here]

4.4.2.2 Home-bias acquisitions

Empirical evidence suggests that individual investors are more likely to invest a larger portion of their portfolio domestically than in foreign markets (French & Poterba, 1991; Kang 1997; Tesar & Werner, 1995). These investments are made in local firms (Grinblatt & Keloharju, 2001; Ivković & Weisbenner, 2005; Seasholes & Zhu, 2010). The reasons for home bias investment behaviour have been documented as information asymmetry (Coval & Moskowitz, 1999; Ivković & Weisbenner, 2005), familiarity (Grinblatt & Keloharju, 2001; Huberman, 2001; Pool, Stoffman & Yonker, 2012; Seasholes & Zhu, 2010) and uncertainty avoidance (Anderson et al., 2011; Beugelsdijk & Frijns, 2010). Home-bias investment is less risky. This home-bias investment behaviour is also observed in M&As. For example, Jiang, Qian and Yonker (2018) find that in the US, CEOs are more likely to acquire targets in the state of the CEO's childhood home than targets further away from that state. Similarly, Chung,

Green and Schmidt (2018) document that CEOs are more likely to acquire targets close to their place of birth.

Based on the prior evidence of home-bias investment behaviour and the evidence in Table 11 that foreign CEOs are more likely to do cross border acquisitions, we test whether foreign CEOs also exhibit home-bias when making cross border acquisitions. We define Home target acquisition as a dummy variable equal to one if the target country is same as the CEO's country of origin and zero otherwise. If foreign CEOs acquire targets from their home country, they will have an information advantage of the target firm that could help them identify suitable targets. They will also have a better knowledge of institutional settings and the economic environment in which the target firm operates that helps reduce the uncertainties associated with cross border acquisitions. The familiarity of foreign CEOs in their home country gives them an advantage on the cultural differences that increase integration costs and impact the post–acquisition performance of cross border acquisitions (Ahern, Daminelli & Fracassi, 2015; Barkema, Bell & Pennings, 1996; Datta & Puia, 1995; Slangen, 2006; Very & Schweiger, 2001).

Table 12 reports logit regression of the marginal effect of foreign CEOs on acquisition of targets from their home country. In Column (1), we include firm characteristics, industry and year fixed effects. We find that the coefficient on the foreign CEOs is negative and statistically significant at the 1% level. This suggests that compared with domestic CEOs, foreign CEOs are less likely to acquire targets from their home country. In Column (2), we control for CEOs' compensation and still find a negative relationship between foreign CEOs and home target acquisitions. We control for CEO characteristics in Column (3) but the results remain the same. Our results suggest that foreign CEOs do not show home-bias investment behaviour when they undertake cross border acquisitions. This exacerbates the inherent uncertainties and riskiness of cross border acquisitions by foreign CEOs. We interpret our

findings of a negative relationship between foreign CEOs and home-bias acquisitions as foreign CEOs' preference for riskier acquisitions, which is consistent with our previous results.

[Insert Table 12 here]

4.4.3 Foreign CEOs, firm value, and operating performance

In the previous sections, we find that firms managed by foreign CEOs have a higher total risk and idiosyncratic risk. If the higher risk taken by foreign CEOs is beneficial to shareholders, then we should observe a higher valuation of firms managed by foreign CEOs. We measure firm value using two parameters. The first measure is the residual income approach of Ohlson (1995) as expressed in the following model:

$$P_t = Y_t + \frac{\sum_{t=1}^{\infty}[NI_t - (re * Y_{t-1})]}{(1+re)^t} \quad , \qquad (4)$$

where: P_t is value of the firm at time t, Y_t is book value of the firm at time t, NI is net income and *re* is cost of equity. The second measure is the market-to-book value. In addition to firm value, we also examine the impact of foreign CEOs on operating performance. We measure operating performance using return on assets (ROA) and the industry adjusted ROA. We control for firm size, leverage, capital expenditure, stock return volatility, CEO tenure, CEO age based on prior studies (Coles, Daniel & Naveen, 2008; Giannetti, Liao & Yu, 2015; Knyazeva, Knyazeva & Masulis, 2013), MBA, Ivy League education and military experience. The results of the estimates are shown in Table 13.

In Column (1), Panel A, we find a positive relationship between foreign CEOs and residual income that is statistically significant at the 5% level. This suggests that firms managed by foreign CEOs have a higher valuation using the residual income approach. In Column (2), Panel A, we find a positive and statistically significant relationship between foreign CEOs and return on assets. The coefficient estimate suggests that firms managed by foreign CEOs have a higher operating performance. Column (3) shows a positive but statistically insignificant

relationship between foreign CEOs and the industry adjusted return on assets. Column (4) is the result for firm value using market-to-book. The coefficient on foreign CEOs is positive and statistically significant at the 5% level. This suggests that firms managed by foreign CEOs have a higher valuation. Overall, the results in Panel A, Table 13 show that firms managed by foreign CEOs have a higher valuation and operating performance.

We next consider the geographic segment of the firms. Our basis for this analysis is that since foreign CEOs come from diversified countries, firms that are geographically segmented would benefit more from foreign CEOs' international experience. We test this by interacting geographic segments of the firm with the foreign CEOs dummy. The results are shown in Panel B, Table 13. In all columns, the coefficient estimates on the foreign CEOs dummy is negative with columns (2), (3) and (4) being statistically significant at 1%, 1%, and 5% respectively. This result is not consistent with what we find in Panel A. However, we find that the coefficient on the interaction of foreign CEOs and geographic segments is positive and statistically significant at 5% for residual income, 1% for ROA and industry adjusted ROA and 5% for market-to-book. These results indicate that the positive relationship between foreign CEOs, firm value, and operating performance in Panel A is fuelled by foreign CEOs who manage geographically diversified firms. The implication of this result is that not all firms benefit from the appointment of foreign CEOs.

[Insert Table 13 here]

4.4.4 Foreign CEOs and management practices

We have shown in Tables 4 and 5 that foreign CEOs' legal origin matters for firm risk taking behaviour. In this section, we test whether foreign CEOs from countries with high ranking on management practices and investor protection have an impact on firm productivity and corporate governance. We follow Giannetti, Liao and Yu (2015) and measure management

quality in a country using Bloom et al.'s (2012) monitoring production index that measures the introduction of modern management techniques to reduce costs and improve quality[8]. We create country dummy of one if a foreign CEO has experience from any of the top three countries for monitoring management score in Bloom et al. (2012) and zero otherwise. We measure the corporate governance of a country using Djankov et al.'s (2008) revised anti-director rights index. We create country dummy of one if a foreign CEO has experience from any of the countries that score the highest in the revised anti-director rights in Djankov et al. (2008) for investor protection and zero otherwise. The indicator for management practices is total factor productivity since Bloom and Van Reenen (2007) show that good management practices relate to firm productivity. We follow Giannetti, Liao and Yu (2015) and calculate the total factor productivity as the residual of the following OLS regression:

$$y_{ijt} = \beta_0 + \beta_1 L_{ijt} + \beta_2 K_{ijt} + \beta_3 E_{ijt} + \in_{ijt}, \qquad (5)$$

where: y_{ijt} is the log of firm *i's* sales in industry *j* for year *t;* L_{ijt} is the log of the number of employees of firm *i* in year *t;* K_{ijt} is the log of total assets of firm *i* in year *t;* and E_{ijt} is the log of the expenses for material and other inputs of firm *i* in year *t.*

The corporate governance indicator is earnings management that Leuz, Nanda and Wysocki (2003) find to be negatively related with investor protection across countries. We measure earnings management following Tucker and Zarowin's (2006) construct of discretionary accrual, as the residual of the following OLS regression:

$$TA_{it} = \beta_0 + \beta_1\left(\frac{1}{AT_{it-1}}\right) + \beta_2(\Delta REV_{it}/AT_{it-1}) + \beta_3(PPE_{it}/AT_{it-1}) + \beta_3\left(\frac{ROA_{it}}{AT_{it-1}}\right) + \in_{ijt}, \quad (6)$$

where: TA_{it} is net income minus cash flows from operating activities scaled by lagged total assets; AT_{it-1} is lagged total assets; ΔREV_{it} is change in revenue; PPE_{it} is property, plant and

[8] We also use overall management score and obtain similar results since countries that rank highest on the monitoring score are the same as are ranked highest for overall management.

equipment; and ROA_{it} is return on assets. Table 14 reports regression estimates of Equations 5 and 6.

In Column (1), we regress firm total factor productivity on foreign CEOs from high ranking management practice countries and firm characteristics. The coefficient on the high ranking management practice is positive and statistically significant at 1%. This suggests that foreign CEOs with experience in high management practice countries improves the productivity of the firms they manage in the US. In Column (2), we include CEO characteristics and still find a positive relationship between management practices and total factor productivity. This suggests that foreign CEOs bring management practices they have been exposed to into the firms they manage. Therefore, employing a CEO from a high ranking management country could be beneficial to shareholders because the CEO may transfer knowledge of best practices into the local firm.

In Column (3), we regress earnings management on foreign CEOs from high ranking corporate governance countries and firm characteristics. There is a negative relationship between corporate governance and earnings management since the coefficient on the foreign experience high ranking corporate governance countries is negative and statistically significant at 1%. This result suggests that foreign CEOs with experience from good corporate governance countries reduce earnings manipulation. We include CEOs' characteristics in Column (4) and the negative relationship between earnings management and good corporate governance remains positive and statistically significant. Thus, the corporate governance of firms that appoint a foreign CEO from a good corporate governance country may improve and one channel through which this could be achieved is through reduction in earnings management. The finding is consistent with Giannetti, Liao and Yu's (2015) results that foreign directors from countries with strong management practices improve operational efficiency and those from countries with strong corporate governance structures improve corporate governance in

their firms. The study therefore contributes to the literature on the brain gain for firms that employ foreign executives. The results support Caligiuri, Lazarova and Zehetbauer's (2004) view that the impact of executives' international behaviour on firms may not be complete if we focus solely on their international experience and that top managers nationality should be accounted for when considering their international experience.

[Insert Table 14 here]

5. Conclusion

This chapter examines the impact of foreign CEOs on firm risk and corporate policies. Using hand collected data on CEOs' place of birth, education, and other characteristics, we provide new evidence on why there is variation in managerial decision making. We find that compared with domestic CEOs, foreign CEOs prefer more risk since firms managed by foreign CEOs have both high total risk and idiosyncratic risk. Using 2-stage least squares regression and propensity score matching to control for CEOs selection bias, our robustness checks show the results confirm a causal relationship between foreign CEOs and firm risk. We document that the country of origin of foreign CEOs is an important determining factor for firm risk. We show that foreign CEOs with experience from countries with better creditor rights reduce firm risk and those from poor creditor rights increase firm risk. This suggests that foreign CEOs transfer knowledge of how foreign organizations operate into the firms they manage in the US.

We find that firms managed by foreign CEOs invest more in intangible assets, such as R&D and advertising, which are very risky. We also find that firms managed by foreign CEOs are more likely to do M&As. These investment policies could partially explain the high risk observed for firms managed by foreign CEOs. Our results show the risk taking behaviour of foreign CEOs is beneficial to shareholders since firms managed by foreign CEOs have a higher firm valuation but unaffected market risk. We also find that firms managed by foreign CEOs

have a high operating performance. Further analysis shows that the high firm valuation and operating performance associated with foreign CEOs benefits shareholders of firms that are geographically segmented. We also find that foreign CEOs that come from countries with good management have higher total factor productivity and those from good corporate governance countries manipulate earnings less.

The implication of our study is that policy makers should consider the geographic segments of their firms before recruiting foreign CEOs. The study contributes to the corporate finance literature by showing that foreign CEOs are important determinants of corporate policies, firm risk, and firm performance. In conclusion, this papers shows that foreign CEOs are selected for their characteristics and they impose their style on the firm.

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Appendix A: Stocks of foreign born labour force in OECD countries in thousands and percentages

		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
AUS	Australia	..	..	2 360.2	2 397.1	2 450.6	2 502.0	2 584.0	2 663.1	2 778.9	2 914.9
	% of total labour force	..	..	24.5	24.6	24.7	24.9	25.0	25.2	25.8	26.5
AUT	Austria	470.1	474.2	514.9	507.3	557.3	584.6	624.6	662.0	695.4	682.8
	% of total labour force	12.3	12.4	13.5	13.3	14.3	15.3	15.6	16.2	16.8	16.3
BEL	Belgium	450.5	454.6	456.7	489.1	499.3	512.1	535.9	569.8	498.6	473.8
	% of total labour force	10.4	10.4	10.7	11.3	11.4	11.5	11.7	12.3	10.6	10.0
CAN	Canada	..	..	3 150.8	..	..	..	..	3 634.8	..	..
	% of total labour force	..	..	19.9	..	..	..	..	21.2	..	..
CHE	Switzerland	..	1 007.4	..	..	..	..	..	..	..	..
	% of total labour force	..	26.3	..	..	..	..	..	..	..	..
DNK	Denmark	..	..	..	..	154.4	161.0	167.1	175.3	188.1	202.7
	% of total labour force	..	..	..	..	5.4	5.9	6.1	6.4	6.6	6.8
ESP	Spain	645.1	804.4	1 085.5	1 448.4	1 832.6	2 240.7	2 782.0	3 229.6	3 719.8	4 132.6
	% of total labour force	3.8	4.5	6.1	7.8	9.5	11.2	13.4	15.1	16.9	18.2
FIN	Finland	..	..	..	..	81.3	87.6	96.0	102.1	112.8	124.2
	% of total labour force	..	..	..	..	3.1	3.4	3.6	3.9	4.2	4.6
FRA	France					2 855.8	3 052.9	3 025.6	3 146.6	3 308.6	3 332.8
	% of total labour force					10.7	11.3	11.1	11.4	11.9	11.8
GBR	United Kingdom	..	..	..	..	..	..	..	3 081.0	3 340.0	3 678.0
	% of total employment	..	..	..	..	..	..	..	11.0	11.8	12.6
GRC	Greece	286.7	266.6	290.3	338.2	349.4	402.7	421.7	400.2	426.6	477.7
	% of total labour force	6.4	5.9	6.5	7.4	7.5	8.5	8.9	8.3	8.8	9.8
HUN	Hungary	68.7	66.8	55.2	54.8	77.0	85.2	78.9	73.8	73.7	89.8
	% of total labour force	1.7	1.7	1.4	1.3	1.9	2.1	1.9	1.7	1.8	2.1
IRL	Ireland	128.8	135.8	153.3	170.8	185.9	187.6	232.4	287.3	339.6	443.2

	% of total labour force	7.8	7.9	8.7	9.5	10.1	9.9	11.8	13.9	15.8	20.3
ITA	Italy	..	..	..	..	..	..	1 907.2	2 094.6	2 245.0	2 546.5
	% of total labour force	..	..	..	..	..	..	7.9	8.6	9.2	10.3
LUX	Luxembourg	72.6	75.5	79.0	79.8	84.1	89.1	89.8	91.3	98.3	98.7
	% of total labour force	40.4	41.0	42.0	41.4	43.5	45.0	44.4	44.6	46.6	46.4
MEX	Mexico	..	118.8	..	..	..	..	..	..	..	..
	% of total labour force	..	0.4	..	..	..	..	..	..	..	..
NLD	Netherlands	684.2	895.3	867.9	932.0	906.0	929.1	968.1	931.4	949.4	989.4
	% of total labour force	8.7	11.2	10.7	11.3	10.9	11.2	11.6	11.0	11.1	11.4
NOR	Norway	124.2	138.1	139.9	153.3	163.2	166.4	173.5	186.9	817.0	215.3
	% of total labour force	5.4	6.0	6.0	6.5	7.0	7.1	7.4	7.8	8.4	8.5
NZL	New Zealand	..	..	372.3	..	..	..	..	498.8	..	..
	% of total labour force	..	..	19.9	..	..	..	..	23.8	..	..
POL	Poland	..	..	..	..	..	58.8	55.9	50.9	43.2	51.7
	% of total labour force	..	..	..	..	..	0.4	0.3	0.3	0.3	0.3
PRT	Portugal	232.7	276.9	302.2	321.3	349.2	379.3	405.5	417.1	444.0	497.5
	% of total labour force	4.8	5.6	6.1	6.3	6.8	7.4	7.8	7.9	8.4	9.4
SWE	Sweden	428.3	445.5	448.7	442.5	452.8	461.4	497.8	521.6	..	..
	% of total labour force	9.8	10.1	10.0	9.9	10.1	10.3	10.8	11.2	..	..
USA	United States	17 054.7	18 028.5	18 994.1	20 917.6	21 563.6	21 985.2	22 421.6	23 342.9	24 777.8	25 085.5
	% of total labour force	12.3	12.9	13.4	14.6	14.8	15.1	15.2	15.6	16.3	16.5

Appendix A1: CEO Nationality mix

This table presents the nationality mix of CEOs in our sample. A CEO's nationality is obtained from Marquis Who's Who database, NNDB and company websites.

Nationality	Frequency	Percent	Cum.percent	Cum. frequency
American	8279	86.33	86.33	8279
Argentine	13	0.14	86.47	8292
Australian	95	0.99	87.46	8387
Belgian	9	0.09	87.55	8396
Brazilian	8	0.08	87.63	8404
British	241	2.51	90.15	8645
Canadian	131	1.37	91.51	8776
Chinese	10	0.1	91.62	8786
Colombian	1	0.01	91.63	8787
Croatian	17	0.18	91.8	8804
Cuban	10	0.1	91.91	8814
Cypriot	1	0.01	91.92	8815
Danish	32	0.33	92.25	8847
Dutch	31	0.32	92.58	8878
Egyptian	3	0.03	92.61	8881
Filipino	1	0.01	92.62	8882
French	52	0.54	93.16	8934
German	56	0.58	93.74	8990
Greek	20	0.21	93.95	9010
Hong Kong	10	0.1	94.06	9020
Indian	168	1.75	95.81	9188
Iranian	13	0.14	95.94	9201
Irish	37	0.39	96.33	9238
Israeli	44	0.46	96.79	9282
Italian	51	0.53	97.32	9333
Jamaican	5	0.05	97.37	9338
Lebanese	14	0.15	97.52	9352
Malaysian	6	0.06	97.58	9358
Mexican	12	0.13	97.71	9370
New Zealander	17	0.18	97.88	9387
Norwegian	7	0.07	97.96	9394
Pakistani	10	0.1	98.06	9404
Russian	12	0.13	98.19	9416
South African	58	0.6	98.79	9474
Spanish	14	0.15	98.94	9488
Swedish	23	0.24	99.18	9511
Swiss	36	0.38	99.55	9547
Taiwanese	34	0.35	99.91	9581
Turkish	9	0.09	100	9590

Appendix A2.
Variables definition
This table gives the variables' definitions.

Variable	Definition and data source(s)
Foreign CEO	Dummy variable for one (zero otherwise) if a CEO has nationality other than American and/or bachelor's degree in home country and/or foreign work experience. Source: Marquis Who's Who, NNDB, firm website.
CEO Age	Natural logarithm of age of the CEO. Source: Execucomp.
CEO Tenure	Natural logarithm of the number of years the CEO has held the role in the firm. Source: Execucomp
Female	Dummy variable equals one for female CEOs (zero otherwise). Source: Execucomp.
MBA	Dummy variable equals one if the CEO has received an MBA degree (zero otherwise). Source: Marquis Who's Who, NNDB, firm website.
Ivy League	Dummy variable equals one if the CEO has Ivy League education. (zero otherwise) Source: Marquis Who's Who, NNDB, firm website.
Military Experience	Dummy variable equals one if the CEO has military experience (zero otherwise). Source: Marquis Who's Who database.
Chairman/CEO	Dummy variable equals one if the CEO is the Chairman of the Board, (zero otherwise). Source: Execucomp.
CEO portfolio delta	Dollar change in CEO portfolio value for a 1% change in the stock price (Core & Guay 2002). Source: Execucomp.
CEO portfolio vega	Dollar change in CEO portfolio value for a 0.01 change in stock return volatility (Core & Guay 2002). Source: Execucomp.
Firm size	Log of total assets of the firm. Source: Compustat.
Leverage	Long term debt plus short term debt divided by the book value of total assets. Source: Compustat.
Cash holding	Cash and marketable securities normalised by total assets. Source: Compustat
Tobin's Q	Market value of assets divided by the book value of assets, where market value of asset is equal to the book value of asset plus market value of common stock minus book value of common minus balance sheet deferred taxes. Source: CRSP and Compustat.
Return on assets	Net income divided by total assets. Source: Compustat.
Industry adjusted ROA	Firm ROA minus 2-digit SIC median ROA.
Capital expenditure	Firm capital expenditure divided by book value of assets. Source: Compustat.
R&D expenditure	Firm R&D expenditure divided by book value of assets. Source: Compustat.
Advertising expenditure	Firm advertising expenditure divided by book value of assets. Source: Compustat.
Net acquisitions	Acquisitions minus asset sales. Source: Compustat.

Total investment	R&D plus Advertising expenditure plus Capital expenditure plus Net Acquisitions scaled by net property plant and equipment. Source: Compustat.
Market-to -book CRSP	Market value of firm divided by book value of asset. Source: and Compustat.
Firm total risk	Annualised standard deviation of daily stock returns. Source: CRSP
Idiosyncratic risk	Annualised standard deviation of the residuals from the regression of daily stock returns on the Fama and French three factors. Source: CRSP.
Return on equity	Net income divided by total equity. Source: Compustat.
Tangible asset	Property, plant and equipment divided by book value of assets. Source: Compustat.
Earnings management	Tucker and Zarowin (2006) construct of discretionary accrual, measured as the residual of the following regression: $TA_{it} = \beta_0 + \beta_1(\frac{1}{AT_{it-1}}) + \beta_2(\Delta REV_{it}/AT_{it-1}) + \beta_3(PPE_{it}/AT_{it-1}) + \beta_3\left(\frac{ROA_{it}}{AT_{it-1}}\right) + \in_{ijt}$. Source: Compustat .
Total factor productivity	Giannetti, Liao and Yu's (2015) measure as the residual of the following OLS regression: $y_{ijt} = \beta_0 + \beta_1 L_{ijt} + \beta_2 K_{ijt} + \beta_3 E_{ijt} + \in_{ijt}$. Source: Compustat.
Mergers and acquisitions	Dummy equals one if a firm engaged in mergers and acquisitions in a fiscal year (zero otherwise). Source: SDC.
Loss dummy	Dummy equals one if a firm has negative net income in a given fiscal year (zero otherwise). Source: Compustat.
Dividend yield	Cash dividend per share divided by price at year end. Source: Compustat.
Free cash flow	Operating income before depreciation minus interest expense minus income tax plus changes in deferred taxes and investment tax credits minus dividends on both preferred and common shares divided by book value of total assets. Source: Compustat.
Foreign born	People residing in the state where firm is headquartered who were not US citizens at birth. Source: US Census Bureau American Community Survey.
Geographic segment	Number of geographic segments that the firm operates. Source: Compustat.
Cross border acquisition	Dummy equals one if the target is a non-US firm (zero otherwise). Source: SDC.
Home bias acquisitions	Dummy equals one if target country is same as CEO's country (zero otherwise). Source: SDC.
Overconfidence	Dummy equals one if a CEO holds stocks that are more than 67% in the money (zero otherwise). The measure follows Campbell et al. (2011).

Appendix A3. Covariate balance

This table presents the results of the covariate balance for the matched samples for the propensity score matching. We compare the sample means of each covariate between the treated group (firms managed by foreign CEOs) and the control group (firms managed by domestic CEOs) using t-test. The results show that before the matching, the means of all the covariates between the two groups are different and statistically significant. We find that after the matching, there is no significant different between the means of all the covariates. This shows that the matching method effectively increases the similarities between the treated and control groups.

Variable	Mean		t-Test	
	Treated	Control	t-stat	*p*-value
Firm size				
unmatched	8900.4	10661.3	-2.44	0.025
Matched	8848.2	8663.2	0.20	0.839
Market-to-book				
unmatched	1.644	1.499	3.935	0.000
Matched	1.641	1.645	-0.08	0.935
Geographic segment				
unmatched	1.870	1.629	16.92	0.000
Matched	1.862	1.887	-1.52	0.130
Leverage				
unmatched	0.208	0.223	-2.86	0.004
Matched	0.209	0.206	0.43	0.668
CEO age				
unmatched	63.301	65.428	-9.01	0.000
Matched	63.392	63.434	-0.13	0.899
CEO tenure				
unmatched	6.237	5.728	2.77	0.006
Matched	6.246	6.117	0.52	0.606

Appendix A4.

This table presents the results of foreign CEOs on firm risk controlling for country of incorporation effect.

Variables	(1) Total risk	(2) Idiosyncratic risk
Foreign CEO	0.0357***	0.0209**
	(2.9271)	(2.3178)
Firm size	-0.0421***	-0.0338***
	(-21.6947)	(-22.9317)
Market-to-book	-0.0179***	-0.0163***
	(-7.4345)	(-8.3907)
R&D expenditure	0.7654***	0.7166***
	(9.4039)	(11.1116)
Return on equity	-0.0350***	-0.0227***
	(-4.3632)	(-3.4852)
Leverage	0.1143***	0.1000***
	(5.7453)	(6.7024)
CEO portfolio delta	0.0048**	0.0046***
	(2.5306)	(2.9138)
CEO portfolio vega	-0.0519*	-0.0363*
	(-1.8737)	(-1.6495)
CEO age	-0.0274**	-0.0395***
	(-2.5481)	(-4.7638)
CEO tenure	-0.0099***	-0.0069***
	(-3.1137)	(-2.8800)
Female CEO	0.0068	-0.0064
	(0.5376)	(-0.6265)
MBA	-0.0192***	-0.0174***
	(-4.2713)	(-5.0213)
Ivy League education	-0.0069	-0.0042
	(-1.2985)	(-1.0425)
Military experience	-0.0038	-0.0012
	(-0.6033)	(-0.2485)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Firm country of incorporation effect	Yes	Yes
Observations	8,186	7,813
R-squared	0.281	0.299

Table1

Summary statistics

This table presents the summary statistics for the full sample of our study. Panel A reports summary statistics of CEOs' characteristics. Firm characteristics are presented in Panel B. Data on CEOs' characteristics are from Marquis Who's Who database, NNDB and company websites. Firm level data are from Compustat and CRSP. M&As data are from Thomson Financial SDC database. All variables are defined in Appendix A2.

Variable	No.obs.	Mean	Median	Std dev.	Min	Max
Panel A:CEO characteristics						
Foreign CEO	9590	0.137	0	0.344	0	1
CEO age	9585	65.1	65	8.516	32	96
CEO tenure	9590	5.798	3.8	6.173	0	32.8
Female CEO	9590	0.027	0	0.162	0	1
Chairman/CEO	9590	0.633	1	0.482	0	1
CEO portfolio delta ($000)	9590	709.139	217.826	1586.213	0	11291.1
CEO portfolio vega ($000)	9590	145.993	46.073	248.481	0	1383.247
MBA	9590	0.312	0	0.463	0	1
Ivy League	9590	0.110	0	0.313	0	1
Military experience	9590	0.095	0	0.293	0	1
Panel B: Firm characteristics						
Firm size ($mil)	9590	10420.53	2180.06	38094.73	5.049	797769
Leverage	9555	0.221	0.209	0.181	0	0.820
Cash holdings	9582	0.159	0.100	0.165	0.001217	0.754
Tobin's Q	9560	2.061	1.657	1.243	0.797963	7.478
Capital expenditure	9563	0.047	0.034	0.042	0	0.230
R&D expenditure	9590	0.031	0.005	0.052	0	0.259
Mergers and acquisitions	9590	0.228	0	0.419	0	1
Total firm risk	9405	0.398	0.348	0.200	0.141	1.196
Idiosyncratic risk	9020	0.313	0.273	0.159	0.111	0.961
Systematic risk	9351	1.132	1.084	0.456	0.165	2.535

Table 2

Summary statistic for sub samples

This table compares the summary statistics of domestic and foreign CEOs' sub samples in our study. Panel A presents the differences in means of CEOs' characteristics. Panel B reports the differences in means of firm characteristics. ***, ** and * represent significance level at 1%, 5%, and10%, respectively. Definitions of the variables are presented in Appendix A2.

	Domestic CEOs (1)						Foreign CEOs (2)						(1)-(2)
Variable	Obs.	Mean	Median	Std.dev.	Min	Max	Obs.	Mean	Median	Std.dev.	Min	Max	Diff means
Panel A: CEO characteristics													
CEO age	8274	65.428	65	8.584	32	96	1311	63.301	63	7.831	42	87	2.127***
Female CEO	8279	0.030	0	0.172	0	1	1311	0.005	0	0.068	0	1	0.025***
CEO tenure	8279	5.728	3.800	6.173	0	32.8	1311	6.237	4.100	6.161	0	32.8	-0.0509***
Chairman/CEO	8279	0.646	1	0.478	0	1	1311	0.548	1	0.498	0	1	0.098***
MBA	8279	0.314	0	0.464	0	1	1311	0.301	0	0.459	0	1	0.013
Ivy League	8279	0.120	0	0.325	0	1	1311	0.049	0	0.216	0	1	0.071***
Military experience	8279	0.109	0	0.311	0	1	1311	0.006	0	0.078	0	1	0.103***
Panel B: Firm characteristics													
Firm size ($mil)	8279	10661.3	2219.5	39909.77	5.049	797769	1311	8900.4	2058.8	23557.9	10.231	284421	1760.9**
Cash holdings	8271	0.151	0.093	0.159	0.001	0.754	1311	0.208	0.146	0.186	0.001	0.754	-0.057***
Tobin's Q	8250	2.046	1.635	1.251	0.798	7.478	1310	2.156	1.778	1.187	0.798	7.478	-0.110***
Capital expenditure	8252	0.048	0.035	0.042	0	0.230	1311	0.040	0.030	0.039	0	0.230	0.008***
R&D expenditure	8279	0.028	0.002	0.049	0	0.259	1311	0.053	0.028	0.065	0	0.259	-0.025***
Mergers and acquisitions	8279	0.220	0	0.414	0	1	1311	0.274	0	0.446	0	1	-0.054***
Total risk	8134	0.398	0.348	0.210	0.141	1..155	1271	0.439	0.350	0.431	0.139	2.150	-0.041***
Idiosyncratic risk	7776	0.314	0.274	0.169	0.111	0.928	1244	0.336	0.285	0.323	0.109	1.255	-0.022***

Table 3

Foreign CEOs and firm risk

This table presents OLS regression estimates for foreign CEOs and other control variables on a firm's total and idiosyncratic risk. The dependent variable in columns (1) – (4) is the annualized standard deviation of firm daily stock returns. The dependent variable in columns (5-8) is the firm's idiosyncratic risk. Columns (1) and (5) do not control for firm and CEO characteristics. We control for CEO delta and vega in columns (2) and (6). Firm characteristics are controlled in columns (3) and (7). CEO characteristics are considered in columns (4) and (8). Column (8) reports estimates of systematic risk. We include year and two-digit SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix A2. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

	Total risk				Idiosyncratic risk				Systematic risk
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Foreign CEO	0.0435***	0.0477***	0.0357***	0.0356**	0.0266***	0.0291***	0.0192**	0.0234**	0.0124
	(3.7381)	(3.7061)	(2.9554)	(3.3508)	(3.0062)	(3.0119)	(2.1492)	(2.3089)	(0.2785)
CEO portfolio delta		0.0099***	0.0045**	0.0057**		0.0082***	0.0038**	0.0061***	0.0172***
		(6.1440)	(2.3370)	(2.0905)		(6.1803)	(2.3884)	(2.8712)	(3.1975)
CEO portfolio vega		0.0435*	-0.0658**	-0.0582*		0.0451**	-0.0511**	-0.0293	-0.0794
		(1.9400)	(-2.3088)	(-1.9066)		(2.4851)	(-2.2305)	(-1.2453)	(-1.2239)
Firm size			-0.0421***	-0.0427***			-0.0373***	-0.0343***	-0.0414***
			(-21.1469)	(-19.0509)			(-23.1136)	(-20.2047)	(-10.0483)
Market-to-book			-0.0170***	-0.0174***			-0.0173***	-0.0181***	-0.0104*
			(-7.0935)	(-5.9141)			(-8.7260)	(-6.8979)	(-1.9187)
R&D expenditure			0.7709***	0.7828***			0.6748***	0.6725***	0.6408***
			(9.5032)	(8.8731)			(10.1406)	(7.8754)	(5.1016)
Return on equity			-0.0334***	-0.0403***			-0.0258***	-0.0242***	-0.0512***
			(-4.2907)	(-4.3570)			(-4.1722)	(-3.4881)	(-2.9800)
Leverage			0.1175***	0.0999***			0.0967***	0.0898***	0.1965***
			(5.8957)	(4.5182)			(6.0814)	(6.0572)	(5.5960)
Capital expenditures			-0.0641	-0.0372			-0.0962*	-0.0943*	0.7323***
			(-0.9349)	(-0.5987)			(-1.7197)	(-1.6799)	(4.8153)
CEO age				-0.0244**				-0.0422***	-0.0562**

				(-2.0407)				(-4.3598)	(-2.2828)
CEO tenure				-0.0084***				-0.0082***	-0.0172**
				(-2.6662)				(-3.2059)	(-2.5425)
Female CEO				0.0179				0.0072	-0.0765***
				(1.3977)				(0.6774)	(-2.8384)
MBA				-0.0220***				-0.0179***	0.0116
				(-4.3652)				(-4.5699)	(1.0712)
Ivy League				-0.0091				-0.0070*	-0.0346**
				(-1.5200)				(-1.6532)	(-2.4335)
Military experience				-0.0011				0.0043	-0.0568***
				(-0.1716)				(0.8343)	(-3.3995)
Overconfidence				0.0027 (0.4306)				0.0037 (0.8252)	0.0234* (1.7892)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixe effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,399	8,376	8,289	6,911	9,015	8,096	8,021	6,588	6,875
R-squared	0.188	0.184	0.278	0.283	0.174	0.149	0.270	0.296	0.177

Table 4

Foreign CEOs' country of origin and firm risk

This table presents OLS regression estimates for foreign CEOs and other control variables on a firm's total and idiosyncratic risk. The dependent variable in columns (1) – (2) is the annualized standard deviation of firm daily stock returns. The dependent variable in columns (3-4) is the firm's idiosyncratic risk. Columns (1) and (3) include foreign CEOs of civil and common law origins. Columns (2) and (4) include foreign CEOs of German, French, Scandinavian and English origins. We include year and two-digit SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix A2. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

	Total risk		Idiosyncratic risk	
	(1)	(2)	(3)	(4)
Foreign CEO civil law origin	0.1132***		0.0817***	
	(3.2675)		(3.2201)	
Foreign CEO common law origin	-0.0111		-0.0206***	
	(-1.3498)		(-3.7608)	
German origin		0.0587		0.0519*
		(1.5302)		(1.7446)
French origin		0.1509**		0.1066**
		(2.5244)		(2.4743)
Scandinavian origin		0.0999		0.0614
		(1.3859)		(1.1077)
English origin		-0.0067		-0.0112**
		(-0.8649)		(-2.2175)
Firm Size	-0.0420***	-0.0424***	-0.0338***	-0.0341***
	(-21.8251)	(-20.6938)	(-23.1373)	(-21.6084)
Market-to-book	-0.0170***	-0.0170***	-0.0153***	-0.0153***
	(-7.3835)	(-7.3672)	(-8.3747)	(-8.3461)
R&D expenditure	0.7599***	0.7494***	0.7112***	0.7052***
	(9.4424)	(9.2669)	(11.1899)	(11.0914)
Leverage	0.1154***	0.1158***	0.1007***	0.1010***

	(5.8664)	(5.8504)	(6.8690)	(6.8616)
Return on equity	-0.0349***	-0.0341***	-0.0225***	-0.0220***
	(-4.4020)	(-4.4608)	(-3.5049)	(-3.5335)
CEO portfolio delta	0.0036*	0.0032	0.0035**	0.0032*
	(1.7221)	(1.3711)	(2.0307)	(1.6701)
CEO portfolio vega	-0.0482*	-0.0491*	-0.0337	-0.0346
	(-1.7835)	(-1.7904)	(-1.5655)	(-1.5811)
CEO age	-0.0275**	-0.0282***	-0.0388***	-0.0392***
	(-2.5661)	(-2.5851)	(-4.7505)	(-4.6994)
CEO tenure	-0.0093***	-0.0091***	-0.0065***	-0.0063**
	(-2.9151)	(-2.7267)	(-2.7126)	(-2.5153)
Female CEO	0.0048	0.0043	-0.0089	-0.0093
	(0.3760)	(0.3293)	(-0.8526)	(-0.8898)
Military experience	-0.0051	-0.0051	-0.0028	-0.0025
	(-0.8056)	(-0.7976)	(-0.5465)	(-0.5043)
Ivy league education	-0.0060	-0.0056	-0.0045	-0.0038
	(-1.1181)	(-1.0359)	(-1.0897)	(-0.9252)
MBA	-0.0183***	-0.0183***	-0.0161***	-0.0162***
	(-4.1983)	(-4.2222)	(-4.9034)	(-4.9790)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	8,181	8,181	7,808	7,808
R-squared	0.287	0.288	0.306	0.306

Table 5

Foreign CEOs' country of origin and firm risk- sub-sample analysis

This table presents OLS regression estimates for foreign CEOs' country dummies based on creditor rights and other control variables on a firm's total and idiosyncratic risk. The dependent variable in columns (1) – (2)) is the annualized standard deviation of firm daily stock returns. The dependent variable in columns (3-4) is the firm's idiosyncratic risk. In columns (1) and (3) we regress firm measures of risk on foreign CEOs from common law countries. We estimate firm measures of risk on continues variable for creditor right in columns (2) and (4). We include year and two-digit SIC industry fixed effects in all the models but coefficients are not reported. All variables are defined in Appendix A2. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

Variable	Total risk		Idiosyncratic risk	
	(1)	(2)	(3)	(4)
Foreign CEO Common law	-0.0483***		-0.0349***	
	(-3.8439)		(-3.5203)	
Creditor rights (foreign CEO country)		-0.0241**		-0.0212**
		(-2.0508)		(-2.2619)
CEO portfolio delta	-0.0038	-0.0082	-0.0026	-0.0068
	(-1.0080)	(-1.2114)	(-0.9144)	(-1.3155)
CEO portfolio vega	-0.0842*	-0.2579**	-0.0773**	-0.2080**
	(-1.6953)	(-2.3351)	(-2.0598)	(-2.5322)
Firm size	-0.0436***	-0.0711***	-0.0381***	-0.0595***
	(-8.7438)	(-5.6757)	(-9.4062)	(-6.1837)
Market-to-book	-0.0094	-0.0194*	-0.0073	-0.0143*
	(-1.5015)	(-1.9367)	(-1.4459)	(-1.8581)
R&D expenditure	0.5514***	0.5485*	0.5079***	0.5468**
	(4.8320)	(1.7056)	(5.4215)	(2.1147)
Return on equity	-0.0466***	-0.1179**	-0.0300**	-0.0735*
	(-2.7485)	(-2.0081)	(-2.2723)	(-1.7112)
Leverage	0.0928**	0.0555	0.0702**	0.0255
	(2.1998)	(0.6387)	(2.1334)	(0.3944)
Capital expenditure	0.0186	-0.1702	0.0142	-0.1378

	(0.1165)	(-0.6804)	(0.1140)	(-0.7422)
CEO age	-0.0466*	-0.0908	-0.0398*	-0.0804*
	(-1.6618)	(-1.3805)	(-1.8063)	(-1.6624)
CEO tenure	-0.0102	-0.0086	-0.0118*	-0.0095
	(-1.2299)	(-0.5409)	(-1.7769)	(-0.7869)
Female CEO	-0.1050*	-0.2311***	-0.0792	-0.1638**
	(-1.8971)	(-2.8385)	(-1.6273)	(-2.4076)
MBA	-0.0531***	-0.1173***	-0.0455***	-0.0943***
	(-4.4812)	(-4.1116)	(-4.7083)	(-4.1302)
Ivy League	-0.0488*	-0.0892**	-0.0351	-0.0460*
	(-1.8650)	(-2.4329)	(-1.6126)	(-1.7593)
Military experience	-0.2152***	-0.3292***	-0.1629***	-0.2275***
	(-4.5547)	(-3.4325)	(-4.8352)	(-3.4696)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	1,116	1,116	1,100	1,100
R-squared	0.461	0.228	0.452	0.223

Table 6

Foreign CEOs' country of origin and firm risk -sub-sample analysis

This table presents an OLS regression estimates for foreign CEOs' country dummies based on creditor rights and other control variables on a firm's total and idiosyncratic risk. The dependent variable in columns (1) – (5) is annualized standard deviation of firm daily stock returns. The dependent variable in columns (6-10) is the firm's idiosyncratic risk. In columns (1) and (5) we regress firm measures of risk on foreign CEOs from English legal origin. We repeat the analysis in columns (2) and (6) for foreign CEOs from French legal origin. We estimate firm measures of risk on foreign CEOs from German legal origin in columns (3) and (8). Columns (4) and (9) is foreign CEOs of Scandinavian legal origin. We use French legal origin as the control group in columns (5) and (10). We include year and two digits SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix A2. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

	Total risk					Idiosyncratic risk				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
English origin	-0.0483***				-0.0708***	-0.0349***				-0.0496***
	(-3.8439)				(-4.3691)	(-3.5203)				(-3.9407)
French origin		0.0764***					0.0633***			
		(3.8906)					(4.1484)			
German origin			-0.0087		-0.0614**			-0.0021		-0.0394*
			(-0.3902)		(-2.3624)			(-0.1207)		(-1.9174)
Scandinavian origin				0.0152	-0.0460				0.0161	-0.0271
				(0.4322)	(-1.1863)				(0.5499)	(-0.8637)
CEO portfolio delta	-0.0038	-0.0052	-0.0017	-0.0017	-0.0048	-0.0026	-0.0039	-0.0010	-0.0010	-0.0032
	(-1.0080)	(-1.2142)	(-0.4438)	(-0.4453)	(-1.2642)	(-0.9144)	(-1.2162)	(-0.3542)	(-0.3562)	(-1.1496)
CEO portfolio vega	-0.0842*	-0.0888*	-0.0848	-0.0846	-0.0867*	-0.0773**	-0.0813**	-0.0773*	-0.0775*	-0.0789**
	(-1.6953)	(-1.7725)	(-1.6102)	(-1.6065)	(-1.7696)	(-2.0598)	(-2.1565)	(-1.9570)	(-1.9620)	(-2.1273)
Firm size	-0.0436***	-0.0460***	-0.0444***	-0.0441***	-0.0457***	-0.0381***	-0.0402***	-0.0386***	-0.0386***	-0.0394***
	(-8.7438)	(-8.9470)	(-8.6043)	(-8.6399)	(-8.8862)	(-9.4062)	(-9.6588)	(-9.1802)	(-9.2977)	(-9.4116)
Market-to-book	-0.0094	-0.0102	-0.0119*	-0.0115*	-0.0107*	-0.0073	-0.0077	-0.0091*	-0.0088*	-0.0081
	(-1.5015)	(-1.6314)	(-1.8702)	(-1.8036)	(-1.6943)	(-1.4459)	(-1.5338)	(-1.7695)	(-1.7212)	(-1.6016)
R&D expenditure	0.5514***	0.4643***	0.5377***	0.5475***	0.5144***	0.5079***	0.4446***	0.5092***	0.5169***	0.4812***
	(4.8320)	(4.1223)	(4.5514)	(4.7386)	(4.5934)	(5.4215)	(4.8601)	(5.2616)	(5.4813)	(5.2650)
Return on equity	-0.0466***	-0.0424**	-0.0468***	-0.0473***	-0.0428**	-0.0300**	-0.0266**	-0.0301**	-0.0303**	-0.0277**
	(-2.7485)	(-2.5451)	(-2.6871)	(-2.7141)	(-2.5724)	(-2.2723)	(-2.0486)	(-2.2245)	(-2.2400)	(-2.1221)

Leverage	0.0928**	0.0923**	0.0807*	0.0814*	0.0965**	0.0702**	0.0704**	0.0599*	0.0607*	0.0735**
	(2.1998)	(2.2137)	(1.8690)	(1.8761)	(2.3037)	(2.1334)	(2.1877)	(1.7800)	(1.7955)	(2.2521)
Capital expenditure	0.0186	0.0436	0.0752	0.0725	0.0280	0.0142	0.0341	0.0531	0.0554	0.0189
	(0.1165)	(0.2800)	(0.4726)	(0.4580)	(0.1719)	(0.1140)	(0.2830)	(0.4285)	(0.4496)	(0.1491)
CEO age	-0.0466*	-0.0430	-0.0402	-0.0402	-0.0516*	-0.0398*	-0.0361*	-0.0341	-0.0345	-0.0437**
	(-1.6618)	(-1.5611)	(-1.4311)	(-1.4309)	(-1.8734)	(-1.8063)	(-1.6692)	(-1.5460)	(-1.5661)	(-2.0061)
CEO tenure	-0.0102	-0.0109	-0.0114	-0.0111	-0.0116	-0.0118*	-0.0127*	-0.0129*	-0.0128*	-0.0125*
	(-1.2299)	(-1.3048)	(-1.3148)	(-1.3077)	(-1.3869)	(-1.7769)	(-1.9099)	(-1.8567)	(-1.8824)	(-1.8651)
Female CEO	-0.1050*	-0.1155**	-0.1066*	-0.1050*	-0.1106**	-0.0792	-0.0878*	-0.0797	-0.0783	-0.0828*
	(-1.8971)	(-2.0364)	(-1.8302)	(-1.8231)	(-2.0027)	(-1.6273)	(-1.8092)	(-1.5588)	(-1.5482)	(-1.7163)
MBA	-0.0531***	-0.0593***	-0.0591***	-0.0587***	-0.0561***	-0.0455***	-0.0499***	-0.0493***	-0.0495***	-0.0479***
	(-4.4812)	(-4.9430)	(-4.7843)	(-4.7714)	(-4.5781)	(-4.7083)	(-5.1331)	(-4.8717)	(-4.9471)	(-4.7606)
Ivy League	-0.0488*	-0.0448*	-0.0565**	-0.0581**	-0.0439	-0.0351	-0.0303	-0.0387*	-0.0414*	-0.0318
	(-1.8650)	(-1.7323)	(-2.2229)	(-2.2383)	(-1.6442)	(-1.6126)	(-1.4036)	(-1.8262)	(-1.8938)	(-1.4260)
Military experience	-0.2152***	-0.2468***	-0.1921***	-0.1902***	-0.2351***	-0.1629***	-0.1917***	-0.1451***	-0.1438***	-0.1761***
	(-4.5547)	(-4.6137)	(-4.4722)	(-4.4606)	(-4.6614)	(-4.8352)	(-4.9865)	(-4.6784)	(-4.6848)	(-5.0250)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,116	1,116	1,116	1,116	1,116	1,100	1,100	1,100	1,100	1,100
R-squared	0.461	0.463	0.452	0.452	0.465	0.452	0.457	0.444	0.445	0.455

Table 7

Propensity score matching

Panel A reports the determinants of foreign CEO. The dependent variable is a dummy equal to one if a CEO is foreign and zero otherwise. We include year and industry fixed effects in all the models but coefficients are not reported. All variables are defined in Appendix A2. The z-statistics are in parentheses. Panel B presents the impact of foreign CEOs on firm total and idiosyncratic risk based on propensity scores. The treated variable is foreign CEO which equals one if a CEO has a nationality other than American and zero otherwise. The average treatment effect on the treated (ATT) measures the difference in firm risk between the two groups. The symbols ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

Panel A. Determinant of Foreign CEO

	Foreign CEO
Firm size	-0.0505***
	(-4.1446)
Market-to-book	-0.0027
	(-0.1939)
Geographic segment	0.3279***
	(7.2942)
Leverage	0.0367
	(0.3994)
CEO age	-0.3392***
	(-4.0859)
CEO tenure	0.0586**
	(2.1742)
Industry fixed effects	Yes
Year fixed effects	Yes
Observations	8,149
R-squared	0.0837

Panel B. Impact on risk

Variable	Sample	Treated (n = 1204)	Controls (n = 1204)	Difference	T-stat
Total risk	Unmatched	0.439	0.398	0.041	5.22***
	ATT	0.441	0.396	0.045	3.15***
Idiosyncratic risk	Unmatched	0.336	0.314	0.022	3.76***
	ATT	0.336	0.297	0.039	3.71**

Table 8

Two stage least squares for foreign CEO and firm risk

This table reports the two stage least square regression using the number of foreign born in the state in which the firm is located as an instrumental variable for foreign CEO. Column (1) is the first stage of the regression. Column (2) is the second stage of the regression for firm total risk. Column (3) is the second stage of the regression for idiosyncratic risk. We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix A2. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. We report the first stage Craig-Donald Wald F-statistics and the Stock –Yogo weak ID test critical values for the Craig-Donald Wald F-statistics. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	Foreign CEO Ist stage	Total risk 2nd stage	Idiosyncratic risk 2nd stage
	(1)	(2)	(3)
Foreign born in state	0.0418***		
	(7.1243)		
Foreign CEO		0.3637***	0.2950***
		(3.5005)	(3.5132)
CEO portfolio delta	0.0046*	0.0038*	0.0029*
	(1.6301)	(1.8129)	(1.6632)
CEO portfolio vega	0.0782**	-0.0803***	-0.0606***
	(2.1142)	(-2.8263)	(-2.6722)
Firm size	-0.0066**	-0.0406***	-0.0357***
	(-2.4042)	(-20.2085)	(-22.0184)
Market to-book	-0.0077**	-0.0160***	-0.0169***
	(-2.2452)	(-6.2399)	(-8.0064)
Leverage	0.0489**	0.1030***	0.0829***
	(2.0233)	(5.7356)	(5.7150)
Capital expenditure	-0.1797*	0.0032	-0.0220
	(-1.6921)	(0.0375)	(-0.3224)
Return on equity	0.0041	-0.0348***	-0.0280***
	(0.531)	(-6.6772)	(-6.5994)
R&D expenditure	0.4333***	0.5816***	0.5126***
	(4.7601)	(6.7221)	(7.0827)
Female CEO	-0.1110***	0.0421**	0.0467***
	(-4.8934)	(2.1227)	(2.8675)
CEO age	-0.0434***	-0.0138	-0.0061
	(-2.7494)	(-1.1320)	(-0.6233)
CEO tenure	0.0129**	-0.0147***	-0.0116***
	(2.6521)	(-3.8163)	(-3.8102)
MBA	0.0120	-0.0222***	-0.0225***
	(1.5825)	(-3.6814)	(-4.5728)
Ivy League	-0.1031***	0.0265*	0.0232**
	(-8.472)	(1.9434)	(1.9772)
Military experience	-0.1177***	0.0366**	0.0388***
	(-8.7484)	(2.2904)	(2.9738)
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
First stage Cragg Donald F-stat		48.661	45.681
10% maximal IV size		16.38	16.38
15% maximal IV size		8.96	8.96
Observations	8,131	8,131	7,868
R-squared	0.097	0.097	0.053

Table 9

Foreign CEOs and investment

This table reports the OLS results of firm total investment on foreign CEOs and control variables. We define total investment as the sum of R&D, advertising and capital expenditure and net acquisitions scaled by net property plant and equipment. Column (1) reports the results for total investment. Columns (2-5) report the results of the individual components of total investment. We include year and two digit SIC industry fixed effects in all the models but coefficients are not reported. All variables are defined in Appendix A2. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	Total investment	R&D expenditure	Adverting expenditure	Capital expenditure	Net acquisitions
	(1)	(2)	(3)	(4)	(5)
Foreign CEO	0.0124***	0.0067***	0.0052***	-0.0031***	0.0036*
	(4.2055)	(4.5887)	(4.0779)	(-3.0203)	(1.7566)
Firm size	-0.0064***	-0.0023***	0.0003	-0.0016***	-0.0028***
	(-9.1419)	(-6.9846)	(0.9246)	(-5.9947)	(-5.3742)
Leverage	0.0334***	0.0090***	0.0005	-0.0145***	0.0384***
	(4.4579)	(2.7608)	(0.2175)	(-5.9292)	(5.6934)
Market-to-book	0.0139***	0.0027***	0.0031***	0.0062***	0.0017**
	(12.6816)	(5.1027)	(5.8521)	(16.8126)	(2.4117)
Return on equity	-0.0025	-0.0048***	0.0033***	0.0019***	-0.0029**
	(-1.3220)	(-5.1381)	(3.5360)	(2.8047)	(-2.2629)
Cash holdings	0.0098	0.1147***	0.0017	-0.0446***	-0.0618***
	(1.3033)	(24.7801)	(0.5809)	(-17.8898)	(-11.4857)
CEO portfolio delta	0.0016**	0.0003	0.0012***	0.0007**	-0.0006
	(2.2711)	(0.5380)	(3.0843)	(2.1897)	(-1.5783)
CEO portfolio vega	0.0058	0.0249***	-0.0017	0.0004	-0.0174
	(0.2845)	(3.4416)	(-0.2957)	(0.0669)	(-0.7586)
CEO age	-0.0294***	-0.0091***	-0.0101***	-0.0046***	-0.0054*
	(-7.1539)	(-4.7015)	(-6.1249)	(-2.9146)	(-1.6620)
CEO tenure	0.0024**	0.0011*	0.0007	0.0004	0.0002
	(1.9761)	(1.9465)	(1.3873)	(0.7957)	(0.2597)

Female CEO	-0.0071	-0.0057**	-0.0028	0.0032	-0.0011
	(-1.1533)	(-2.1001)	(-1.2586)	(1.3542)	(-0.2300)
MBA	0.0032	0.0016*	0.0005	-0.0003	0.0014
	(1.5044)	(1.7186)	(0.6093)	(-0.4457)	(0.8033)
Ivy League	0.0100***	0.0066***	0.0003	0.0011	0.0019
	(3.2375)	(4.4498)	(0.2674)	(1.1179)	(0.7903)
Military experience	0.0005	-0.0011	0.0029**	-0.0017	0.0008
	(0.1733)	(-0.8428)	(2.2255)	(-1.5371)	(0.3319)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	9,343	9,361	9,361	9,343	9,361
R-squared	0.175	0.478	0.227	0.445	0.068

Table 10

Foreign CEOs and mergers and acquisitions (M&As) propensity

This table reports logit results of M&As propensity on foreign CEOs and control variables. We define M&As propensity as a dummy equal to one if a firm engaged in M&As in a fiscal year and zero otherwise. Column (1) reports marginal effect of foreign CEO and firm characteristics. We include CEO characteristics in column (2). We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix A2. The z-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	(1)	(2)
Foreign CEO	0.0327***	0.0353***
	(2.7693)	(2.9427)
Firm risk	0.0344***	0.0339***
	(11.5867)	(10.7870)
Market-to-book	0.0039	0.0030
	(1.0823)	(0.7898)
Leverage	0.0021	-0.0029
	(0.0751)	(-0.1029)
Free cash flow	0.1813***	0.1749***
	(3.1736)	(3.0571)
Loss dummy	-0.0695***	-0.0686***
	(-5.0179)	(-4.9045)
Dividend yield	-1.7415***	-1.6294***
	(-5.1673)	(-4.8377)
Capital expenditure	-0.6968***	-0.6860***
	(-4.8062)	(-4.7045)
CEO portfolio delta		-0.0053
		(-1.3724)
CEO portfolio vega		0.0147
		(0.3119)
CEO age		-0.0596***
		(-3.1894)
CEO tenure		0.0047
		(0.8190)
Female CEO		-0.0046
		(-0.1511)
MBA		0.0181*
		(1.9149)
Ivy League		0.0329**
		(2.4347)
Military experience		0.0109
		(0.7096)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Pseudo R-squared	0.0719	0.0746
Observations	9,489	9,335

Table 11
Foreign CEOs and foreign acquisitions
This table reports logit results of foreign acquisitions on foreign CEOs and control variables. We define foreign acquisition as a dummy equal to one if the target firm is outside US and zero otherwise. Column (1) reports the marginal effect of foreign CEOs and firm characteristics. We include CEOs' compensation in column (2). Column (3) includes CEOs' characteristics. We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix A2. The z-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively

	(1)	(2)	(3)
Foreign CEO	0.0541**	0.0544**	0.0513**
	(2.3649)	(2.3752)	(2.2073)
Firm Size	0.0362***	0.0370***	0.0365***
	(6.8296)	(6.7539)	(6.4989)
Market-to-book	0.0139	0.0160*	0.0176*
	(1.5640)	(1.7163)	(1.8512)
Capital expenditure	0.2275	0.2327	0.2093
	(0.7026)	(0.7155)	(0.6365)
Leverage	-0.1061*	-0.1058*	-0.1224*
	(-1.6685)	(-1.6598)	(-1.9116)
R&D expenditure	-0.0483	-0.0900	-0.1577
	(-0.1993)	(-0.3637)	(-0.6280)
CEO portfolio delta		-0.0081	-0.0154
		(-0.8479)	(-1.2858)
CEO portfolio vega		0.1089	0.0998
		(0.9937)	(0.8499)
CEO age			-0.0195
			(-0.5340)
CEO tenure			0.0257**
			(2.2476)
MBA			-0.0004
			(-0.0241)
Ivy League			0.0031
			(0.1238)
Military experience			-0.0139
			(-0.4214)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Pseudo R-squared	0.0675	0.0680	0.0697
Observations	2,637	2,637	2,599

Table 12

Foreign CEOs and home bias acquisitions

This table reports logit results of home target acquisitions on foreign CEOs and control variables. We define home bias acquisition as a dummy equal to one if the target country is same as CEO's country and zero otherwise. Column (1) reports the marginal effect of foreign CEO and firm characteristics. We include CEOs' compensation in column (2). Column (3) includes CEOs' characteristics. We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix A2. The z-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	(1)	(2)	(3)
Foreign CEO	-0.7805***	-0.7806***	-0.7737***
	(-14.6554)	(-14.6506)	(-14.6218)
Firm Size	-0.0298***	-0.0307***	-0.0301***
	(-6.3233)	(-6.2988)	(-6.0453)
Market-to-book	-0.0039	-0.0030	-0.0046
	(-0.4728)	(-0.3511)	(-0.5313)
Capital expenditures	0.1068	0.1084	0.1032
	(0.3546)	(0.3601)	(0.3405)
Leverage	0.1268**	0.1277**	0.1442***
	(2.2901)	(2.3099)	(2.6022)
R&D expenditures	-0.0685	-0.0490	0.0225
	(-0.3109)	(-0.2178)	(0.0981)
CEO portfolio delta		-0.0005	0.0049
		(-0.0655)	(0.5343)
CEO portfolio vega		-0.0637	-0.0704
		(-0.6629)	(-0.6932)
CEO age			0.0183
			(0.5562)
CEO tenure			-0.0184*
			(-1.7772)
MBA			-0.0006
			(-0.0329)
Ivy League			-0.0104
			(-0.4855)
Military experience			0.0116
			(0.4219)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Pseudo R-squared	0.3359	0.336	0.3393
Observations	2,659	2,659	2,621

Table 13

Foreign CEOs, firm value, and operating performance

This table reports the OLS results of firm value and operating performance on foreign CEOs and control variables. Panel A shows the results without the impact of geographic segments. Panel B includes the impact of geographic segments. Column (1), Panel A is the result for residual income. Column (2), Panel A shows the results for return on assets. Column (3), Panel Ais the results for industry adjusted return on assets. The result for market-to-book is presented in Column (4), Panel A. We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix A2. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, ** and * denote significance level at 1%, 5%, and 10% respectively.

Panel A: Foreign CEOs, firm value and operating performance				
	Residual income	Return on assets	Industry adjusted ROA	Market-to-book
	(1)	(2)	(3)	(4)
Foreign CEO	0.0387**	0.0043*	0.0035	0.0715**
	(1.9928)	(1.6920)	(1.4027)	(1.9707)
Firm size	0.9726***	0.0019**	0.0021***	-0.0882***
	(187.2371)	(2.3585)	(2.7604)	(-8.4807)
Leverage	-2.1063***	-0.0296***	-0.0254***	-1.6401***
	(-38.2591)	(-3.9763)	(-3.5606)	(-15.1493)
Capital expenditures	1.7758***	0.6369***	0.5760***	5.5140***
	(9.8373)	(19.8076)	(18.5655)	(12.0786)
Stock return volatility	-0.3407***	-0.0882***	-0.0787***	-0.4507***
	(-6.9512)	(-7.2800)	(-7.4913)	(-6.1774)
CEO age	-0.0109	0.0031	0.0025	-0.4255***
	(-0.3829)	(0.7629)	(0.6281)	(-6.7512)
CEO tenure	0.0195**	0.0023*	0.0026**	0.0596***
	(2.3389)	(1.9508)	(2.2673)	(3.5711)
MBA	0.0213	0.0039**	0.0039**	-0.0458*
	(1.5644)	(2.0785)	(2.1098)	(-1.7528)
Ivy League	0.0243	0.0013	0.0011	0.1852***
	(1.1977)	(0.4564)	(0.3862)	(4.2276)
Military experience	-0.0087	-0.0010	-0.0009	0.1100**
	(-0.3866)	(-0.3173)	(-0.3066)	(2.4608)
Year fixed effects	Yes	Yes	Yes	Yes

Industry fixed effects	Yes	Yes	Yes	Yes
Observations	8,502	9,186	9,186	8,822
R-squared	0.887	0.274	0.181	0.257
Panel B: The impact of geographic segment	Residual income	Return on assets	Industry adjusted ROA	Market-to-book
Foreign CEO	-0.1508	-0.0369***	-0.0405***	-0.1924*
	(-1.6163)	(-2.6134)	(-2.9397)	(-1.6618)
Geographic segment	0.0225*	0.0075***	0.0078***	0.0443*
	(1.7509)	(3.9516)	(4.1217)	(1.7989)
Foreign CEO*Geographic segment	0.0949**	0.0197***	0.0211***	0.1296**
	(2.0051)	(2.7312)	(3.0030)	(2.1681)
Firm size	0.9735***	0.0032***	0.0034***	-0.0891***
	(176.3291)	(3.3417)	(3.7598)	(-8.7494)
Leverage	-2.0584***	-0.0208***	-0.0166**	-1.6368***
	(-38.3506)	(-2.7497)	(-2.2744)	(-15.2715)
Capital expenditure	1.8807***	0.6655***	0.6055***	5.8799***
	(10.2140)	(19.9061)	(18.6524)	(13.0753)
Stock return volatility	-0.3577***	-0.0967***	-0.0872***	-0.2452***
	(-6.5471)	(-6.9282)	(-7.0008)	(-4.5172)
CEO age	0.0061	0.0100**	0.0095**	-0.4022***
	(0.2135)	(2.4271)	(2.3513)	(-6.5402)
CEO tenure	0.0170**	0.0013	0.0016	0.0565***
	(2.0245)	(1.1261)	(1.4107)	(3.4117)
MBA	0.0190	0.0037*	0.0037**	-0.0352
	(1.3973)	(1.9497)	(1.9735)	(-1.3111)
Ivy League	0.0144	-0.0029	-0.0032	0.2599***
	(0.6971)	(-1.0034)	(-1.1013)	(5.6683)
Military experience	-0.0070	-0.0002	-0.0001	0.0897**
	(-0.3104)	(-0.0578)	(-0.0407)	(2.0029)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	8,499	9,186	9,186	8822
R-squared	0.886	0.245	0.145	0.254

Table 14

Foreign CEOs and management practices

This table reports the OLS results of management practices on foreign CEOs and control variables. We create country dummy for good management practices equal to one if a foreign CEO has experience in any of the top three countries for monitoring practices in Bloom et al. (2012). The indicator for monitoring practices is total factor productivity. We create a country dummy for corporate governance equal to one if a foreign CEO has experience in any of the countries that score the highest anti-director right in Djankov et al. (2008) and zero otherwise. The indicator of corporate governance is earnings management. The dependent variable in columns (1) and (2) is total factor productivity and the dependent variable in columns (3) and (4) is earnings management. We include firm characteristics in columns (1) and (3). We include CEOs' characteristics in columns (2) and (4). In all models, we include year and industry fixed effects, but coefficients are not reported. All variables are defined in Appendix A2. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at1%, 5%, and 10% respectively.

	Total factor productivity		**Earnings management**	
	(1)	(2)	(3)	(4)
Foreign CEO from high ranking management country	0.1459***	0.1434***		
	(5.0084)	(4.8052)		
Foreign CEO from high ranking corporate governance country			-0.0199***	-0.0213***
			(-4.5375)	(-4.9701)
Firm size	0.1126***	0.1109***	-0.0042**	-0.0044**
	(16.0405)	(15.4652)	(-2.3689)	(-2.3123)
Leverage	-0.2073***	-0.1652***	-0.0499***	-0.0411**
	(-3.4331)	(-2.6119)	(-2.6514)	(-2.2013)
Return on assets	0.5123***	0.5111***	-0.0520	-0.0351
	(4.1487)	(4.0901)	(-1.0080)	(-0.6813)
Capital expenditure	-0.2140	-0.2253	-0.3045***	-0.3014***
	(-0.9380)	(-0.9863)	(-3.9409)	(-3.9054)
Stock return volatility	-0.0346**	-0.0369***	-0.0038	-0.0036
	(-2.4165)	(-2.6297)	(-0.3320)	(-0.3151)
Market-to-book	-0.0191**	-0.0179**	-0.0014	-0.0019

	(-2.2531)	(-2.1339)	(-0.4870)	(-0.6516)
R&D expenditure	-0.6762***	-0.6883***	-0.2043***	-0.1684***
	(-3.6786)	(-3.7277)	(-3.2165)	(-2.6836)
CEO age		0.0299		0.0027
		(0.8271)		(0.2373)
CEO tenure		0.0071		0.0041
		(0.5844)		(1.4733)
Female CEO		-0.0803		-0.0139
		(-0.6269)		(-0.7637)
MBA		0.0047		0.0051
		(0.1946)		(0.9481)
Ivy League		-0.0227		-0.0204*
		(-0.4844)		(-1.8941)
Military experience		-0.3718***		-0.0249
		(-5.4846)		(-0.9294)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	1,263	1,248	1,266	1,251
R-squared	0.723	0.726	0.136	0.142

CHAPTER THREE

INDIVIDUALISM AND CAPITAL STRUCTURE DECISIONS

Abstract

We examine whether individualism explains a portion of the variation we observe in firm's capital structures. We find that firms managed by foreign CEOs from individualistic cultures have higher leverage. Firms managed by such CEOs are more likely to issue debt than equity and adjust their leverage at a faster speed. We document that firms managed by individualistic CEOs have shorter debt maturity. We extend the study to the US state level and find that firms managed by domestic CEOs born in individualistic states have higher leverage and shorter debt maturity. Overall, the results show that individualism has significant impact on a firm's financing policies.

JEL classification: F23, G41, G32

Keywords: Foreign CEO, Individualism, Creditor right, Leverage, Debt maturity, National culture.

1. Introduction

Since the seminal work of Modigliani and Miller (1958), research has focused on firm, industry and market level determinants of capital structure (see, e.g, Baker & Wurgler, 2002; Bharath, Pasquariello & Wu, 2008; Frank & Goyal, 2009; Titman & Wessels, 1988). Recent studies, however, show that a significant portion of the disparity in capital structure decisions is driven by CEO characteristics[9]. In this chapter, we contribute to the stream of literature on capital structure by evaluating how the CEOs' cultural background affects capital structure decisions. Unlike many CEO attributes that impact capital structure decisions, culture is largely given to individuals throughout their lifetime (Becke, 1996) and, therefore, examining such an intrinsic attribute of CEOs on capital structure decisions is important.

The study follows the epidemiological approach of Fernández (2011) and Fernández and Fogli (2009) and assumes that when individuals migrate to other countries, they leave behind their external environment but carry with them their cultural beliefs, norms and values. Thus, this study differs from existing studies that examine the impact of national culture on capital structure decisions across countries that are characterized by the difficulty of separating the effects of national culture differences from institutional differences since national culture shapes institutional settings (La Porta et al., 1998; Licht, Goldschmidt & Schwartz, 2005; Williamson, 2000). Nielsen (2013, p. 374) notes that "the impact of culture on individual behaviour is acquired in their early childhood because at that time a person is most susceptible to learning and assimilation". Evidence suggests that there is a lasting imprint of people's childhood and formative years' experience that will not change through subsequent experiences (Bernile, Bhagwat & Rau, 2017; Inglehart, 1985; Nielsen & Nielsen ,2013).

[9]For example, Cronqvist, Makhija and Yonker (2012) examine how CEO's personal leverage impacts firm financing policies. Baxamusa and Jalal (2016) find that firms managed by Catholic CEOs have lower leverage.

Culture is defined as “the collective programming of the mind that distinguishes the members of one group or category of people from others” (Hofstede, Hofstede and Minkov, (2010, p. 6). Recent studies have shown that national culture impacts economic outcomes (Anderson et al., 2011; Chen et al,. 2015; Chui, Kwok & Zhou, 2016; Chui, Lloyd & Kwok, 2002; Chui, Titman & Wei, 2010; Eun, Wang & Xiao, 2015; Siegel, Licht & Schwartz, 2011; Zheng et al., 2012). In this chapter, we propose that the national culture of foreign CEOs has a significant impact on the capital structure decisions of their firms. This proposition stems from the fact that, when people are born and raised in society, they are exposed to the laws, customs, values, and organizational practices through formal and informal institutions (Hunter, 1988; Markus & Kitayama, 1994; Schwartz, 1994). North (1991) notes that the informal constraints that arise from culture have a more prevalent impact than formal laws and property rights in shaping people’s choices of economic outcomes. Consequently, we argue that the national culture of foreign CEOs could serve as an informal constraint on the capital structure decisions of their firms.

This assertion follows Graham, Harvey and Puri (2015) in that one most important corporate decision that CEOs influence is the capital structure and that managerial traits are important for capital structure decisions (Graham, Harvey & Puri, 2013; Hackbarth, 2008). The upper echelons theory documents that top managers’ perception of situations and their interpretation are influenced by their experience, values and personalities (Hambrick, 2007; Hambrick & Mason, 1984). Since national culture influences economic outcomes and CEOs have greater influence on capital structure decisions, the distinct cultural values embedded in foreign CEOs’ national culture will impact their preferences and behaviours for firms’ capital structure decisions. Shaw (1990) notes that national culture influences the fundamental values and cognitive skills of individuals, which, in turn, shapes their decisions and strategic choices,

and that, independent of the talent and ability management accrues, values of their country of origin have a deep, lasting impact on their orientation (Nielsen & Nielsen, 2011).

As a measure of cultural background, we focus on individualism versus collectivism because cross cultural studies argue that the individualism versus collectivism measure of Hofstede (2001) is the most significant determinant of cultural variation (Heine, 2007; Heine et al., 1999; Triandis, 2001). "Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself" (Hofstede, Hofstede & Minkov, 2010, p.92). Individualistic cultures put more emphasis on self-actualization, autonomy, and the interests of an individual prevails over the interests of the group (Hofstede, 2001). Kreiser et al. (2010) document that, in individualistic cultures, people make risky decisions based on their own judgement and are motivated to do this to demonstrate their autonomy. People from individualistic cultures are less vulnerable to social influence and, as such, are less likely to follow the opinions of others (Heine et al., 1999; Hofstede, Hofstede & Minkov, 2010; Markus & Kitayama, 1991). In contrast, "collectivism pertains to societies in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (Hofstede, Hofstede and Minkov, 2010, p. 92). People from collectivistic cultures recognize themselves in terms of their relationships with in-groups, seek to accomplish their in-group's goals, obey social rules and react emotionally (Triandis, 1994).

Why would individualism impact the capital structure decisions of a firm? CEOs make financing decisions under uncertainty and, as such, the literature shows that managerial attitudes towards financial risk are important for the capital structure of their firms with a differences in risk attitudes occurring from gender, age, religion, political affiliation and the CEO's personal risk taking (Baxamusa & Jalal, 2016; Cain & McKeon, 2016; Cronqvist, Makhija & Yonker, 2012; Faccio, Marchica & Mura, 2016; Hutton, Jiang & Kumar 2014;

Serlfing, 2014). We propose that the distinct values and preferences embedded in individualism versus collectivism can explain a CEO's attitudes towards risk in financing policies of firms as individualism can influence a CEO's incentives for debt financing as well as perceptions of the risk associated with debt financing (Breuer, Riesener & Salzmann, 2014; Hofstede, Hofstede & Minkov, 2010; Kreiser et al., 2010; Li et al., 2013). Individualism could also cause a firm's capital structure to deviate from its industry peers because individualistic CEOs are less likely to mimic the corporate polices of their peers (Heine et al., 1999; Hofstede, Hofstede & Minkov, 2010; Markus & Kitayama,1991). Thus, though all CEOs in US firms are subject to the same legal, social and institutional conditions, individual CEOs have cultural beliefs and values that are more likely to be different from other CEOs; these differences can influence their capital structure decisions[10].

Using a sample of S&P 1500 firms managed by foreign CEOs from 2000 to 2017 (1304 firm-year observations), we empirically examine the impact of foreign CEOs cultural background on capital structure decisions. The results can be summarized as follows.

First, we find that firms managed by foreign CEOs from individualistic cultures have higher leverage. We subject the results to various robustness tests using alternative measures of individualism (House et al., 2004; Schwartz, 1994; Tang & Koveos, 2008) and alternative measures of leverage (log (1+ total debt); book leverage less leases; book leverage less cash holdings) following Serfling (2016) but the results remain qualitatively the same. We also consider the moderating role of creditor rights. Creditor rights could serve as a formal institution more likely to impact a foreign CEO's demand for debt financing since existing research shows that creditor rights reduce debt financing because managers fear of losing their jobs in a bankruptcy. We find that the moderating role of creditor rights does not take away the

[10] Evidence of culture on individual economic outcomes is provided by Nguyen, Hagendorff and Eshraghi (2018), Tan, Cheong and Zurbruegg (2019), and Tse et al. (1988).

positive relationship between individualism and firm leverage. Additional analysis reveals that the presence of large institutional shareholders helps reduce the impact of individualism on leverage. This suggests that corporate governance helps reduce the tendency of individualistic CEOs to imprint their values and preferences on capital structure.

Second, we find that firms managed by foreign CEOs from individualistic culture are more likely to issue debt than equity and, as such, adjust their leverage ratio towards the target leverage ratio at a faster speed than firms managed by foreign CEOs from collective cultures. Third, we find that individualism is important for the type of debt that firms hold. Specifically, we find that firms managed by foreign CEOs from individualistic cultures hold shorter maturity debt. The impact of individualism on short maturity debt is significant and economically important. The base line results are robust to the use of alternative measures of short maturity debt and an alternative measure of individualism from Tang & Koveos (2008). The result is also robust to controlling for CEO characteristics that could impact short deb maturity.

Next, we carry out robustness tests on the impact of individualism on capital structure by extending the study to the state individualism versus collectivism measure of Vandello and Cohen (1999) in the US to provide a deeper understanding of individualism's effect on capital structure decisions. We base the analysis on a recent study by Jiang, Qian and Yonker (2018) and Yonker (2017) who show that the state in which American CEOs were born impacts their corporate policies. We find that that firms managed by CEOs were born in individualistic states in the US have higher leverage and hold shorter maturity debt. Overall, the results show that individualism explains some of the variation in capital structure decisions across firms.

One concern with this study is that firms may appoint a CEO based on his/her cultural background to take advantage of the CEO's specific attributes to achieve a firm's strategic purpose. This presents selection bias for the appointment of CEOs from individualistic cultures. We control for endogeneity in the study using three instrumental variables (IVs) that suggest a

possible causal relationship of individualism on capital structure. The results remain robust to the use of instrumental variables and propensity score matching when taking into account the potential self-selection bias of CEOs.

The study contributes to the growing strand of literature on CEO characteristics and capital structure decisions. For example, Cronqvist, Makhija and Yonker (2012) find that a firm's leverage is lower for CEOs who have lower personal home leverage. Baxamusa and Jalal (2016) document that firms managed by Catholic CEOs have lower leverage and are less likely to issue debt. Faccio, Marchica and Mura (2016) find that female CEOs have lower leverage. We add to these studies by showing that the cultural background of foreign CEOs has important implications for a firm's capital structure decisions.

The study also contributes to the literature on the impact of different cultural backgrounds on financing decisions. Though existing studies focus on the macro level, such as Chui, Lloyd and Kwok (2002), who conducted a cross country study and find that countries with higher cultural scores for mastery and conservatism have lower leverage. Chui, Kwok and Zhou (2016) show that cost of debt is lower for countries with high cultural values of emdeddedness. Zheng et al. (2012) find that debt maturity is shorter for firms in countries whose cultural values are higer for uncertainty avoidance, power distance and masculinity. We provide evidence at the micro level by showing that the cultural background of individual foreign CEOs matters in the financing decisions of their firms.

The study also adds to the literature on the impact of foreign executives on corporate policies. Existing studies show that foreign executives from good corporate governance countries improve the corporate governance of their firms (Giannetti, Liao & Yu, 2015). Estélyi and Nisar (2016) show that firms with foreign directors have a higher operating performance. Masulis, Wang and Xie (2012) find that firms with foreign independent directors make better cross border acquisitions when the target firm and director are from same country. These

studies focused on foreign executives' experience, we show that, in addition to their international experience, foreign CEOs' cultural background impacts firms' capital structure decisions.

The rest of the chapter is organised as follows. Section 2 provides testable hypotheses. Section 3 describes the data and sample selection. Section 4 presents the empirical results and robustness tests. Section 5 concludes the study.

2. Hypotheses development

There are at least three ways in which individualism can impact the capital structure decisions by foreign CEOs. First, empirical evidence suggests that individualism relates to risk taking behaviour. For example, Kreiser et al. (2010) document that in individualistic cultures, people make risky decisions based on their own judgement and are motivated to do this to demonstrate their autonomy. Firms in individualistic cultures are associated with higher corporate risk taking, such as undertaking investment projects that have higher volatility in earnings and research and development (Li et al. 2013). Breuer, Riesener and Salzmann (2014) find that individualism has a positive association with the financial risk taking behaviour of individuals as well as investment in shares. Further, individualism relates to innovation and investment in R&D (Gorodnichenko & Roland, 2011; Shao, Kwok & Zhang, 2013; Taylor & Wilson, 2012), which is considered a risky investment. Hackbarth (2008) notes that managers risk perceptions are important for capital structure decisions. Since debt financing is riskier than equity financing because of the cost of financial distress, if individualism increases risk taking, then foreign CEOs from individualistic cultures may overlook the risks of debt financing.

Secondly, people from individualistic cultures are less vulnerable to social influence and, as such, are less likely to follow the opinions of others (Heine al., 1999; Hofstede,

Hofstede & Minkov, 2010; Markus & Kitayama, 1991). Beckmann, Menkhoff and Suto (2008) find that asset managers from individualistic cultures show less herding behaviour. Chang and Lin (2015) document that investors in individualistic cultures exhibit less herding behaviour in their trading. In the literature, less herding behaviour correlates with more risk taking behaviour. For example, Christoffersen and Stæhr (2019) suggest that more risk tolerant financial analysts show less herding behaviour and issue forecasts that differ from the consensus forecasts. Lütje (2009) documents that risk averse managers herd more than risk tolerant managers. Consistent with this view, Chevalier and Ellison (1999) find that young mutual fund managers herd more and take less risk because of their career concerns. Scharfstein and Stein (1990) find that the reputational concerns of managers make them herd more and reduce their risk tolerance by mimicking the investment behaviour of other managers. Since managerial traits are important for capital structure decisions (Graham, Harvey & Puri, 2013; Hackbarth, 2008) and managerial herding behaviour affects economic outcomes, the less herding behaviour of individualistic CEOs may result in their firms having a capital structure different from other firms. Since individualistic CEOs herd less, their firms' capital structure may not have any relationship to their industry capital structure since they are less likely to mimic their peers' behaviour.

Thirdly, in individualistic cultures, "employees are economic persons who will pursue the employer's interest if it coincides with their self-interest and task prevails over relationship, whereas in collective cultures, employees are members of in-groups who will pursue the in-group's interest and relationship prevails over task" (Hofstede, Hofstede & Minkov, 2010, p. 124). Brett (2000) and Brett and Okumura (1998) suggest that people from collective cultures will sacrifice their personal self-interest for the interest of the group. This suggests that the concern for stakeholders is not very important in individualistic cultures compared with collective cultures since the individual's interest prevails over the interest of the group. The

stakeholder theory of determinants of capital structure by Titman (1984) suggests that stakeholders (workers, customers and suppliers) of a firm bear the cost when a firm is liquidated and that the more important the stakeholders are to the firm, the lower the firm's debt ratio. Consistent with Titman (1984), several studies show that firms that are concerned about their liquidation cost to their stakeholders have a lower debt ratio (Bae, Kang & Wang, 2011; Banerjee, Dasgupta & Kim, 2008; Kale & Shahrur, 2007; Titman & Wessels, 1988). Since people from individualistic cultures care about their interest more than the group, the cost of financial distress to stakeholders may be of less concern. Therefore, foreign CEOs from an individualistic culture may have a higher firm debt ratio. Based on the three channels discussed above, we formally state the first hypothesis as follows:

> Hypothesis 1 (H2)**:** Firms managed by foreign CEOs from individualistic cultures have a higher debt ratio than firms managed by CEOs from collective cultures.

Hovakimian, Hovakimian and Tehranian (2004) document that in a cash shortage, firms could issue either debt or equity, or both, to stay close to their preferred capital structure. Based on the first hypothesis, if individualistic CEOs prefer debt financing then firms managed by individualistic CEOs should have a higher probability of debt issuance than equity issuance when the firm needs external financing. This could result from the fact that individualistic CEOs may issue debt for risky positive NPV projects and overlook the risk of debt financing because that will satisfy their interest rather than that of stakeholders. Kreiser et al. (2010) document that, in individualistic cultures, people make risky decisions based on their own judgement and are motivated to do so to demonstrate their autonomy. The second hypothesis follows as:

> Hypothesis 2 (H2): Firms managed by foreign CEOs from individualistic culture have a higher probability of debt issuance than firms managed by CEOs from collective cultures.

Survey works by Graham and Harvey (2001) and Brounen, De Jong and Koedijk (2004) show that firms consider a target debt ratio when making financing decisions. Consistent with this evidence, Flannery and Rangan (2006) find empirical evidence that firms have a target capital structure and adjust it at a rate of over 30% per year. Flannery and Rangan (2006) further suggest that the observed capital structure of firms depends on the firm's target ratio. To provide more evidence on the impact of individualism on capital structure decisions, we argue that, since individualistic CEOs take more risk, if their firm's actual leverage is below the desired ratio, then individualistic CEOs with more risk taking behaviour will adjust their target leverage ratio faster through debt issuance than CEOs from collective cultures. The third hypothesis is:

> Hypothesis 3 (H3): Firms managed by individualistic CEOs adjust their target leverage ratio faster than firms managed by CEOs from collective cultures.

Empirical evidence suggests that the capital structure of a firm goes beyond the mixture of debt-equity choices and that debt maturity should also be considered because the maturity of debt has implications for growth opportunities (Barclay, Smith & Morellec, 2006; Barclay & Smith Jr, 1995; Billett, King & Mauer, 2007; Guedes & Opler, 1996; Johnson, 2003) and underinvestment Myers (1977). Short term debt is riskier than long term debt since short term debt exposes the firm to a credit supply shock, refinancing risk and liquidity risk because of frequent renegotiations (Custódio, Ferreira & Laureano, 2013; Diamond, 1991). In addition, firms that issue short term debt are frequently scrutinized and monitored by underwriters, creditors, and rating agencies (Datta, Iskandar-Datta & Raman, 2005; Park, 2000; Stulz, 2001). Given the undiversified nature of managerial wealth in the firm, risk-averse CEOs may demand long term debt financing rather than short term debt to reduce the risk of their holdings in the firm. Prior studies (see, e.g., Brockman, Martin & Unlu, 2010; Chava & Purnanandam, 2010) show that managerial risk preferences are important for debt maturity. Breuer, Riesener and

Salzmann (2014) document that individualism has a positive association with financial risk such as the demand for risky assets. If managerial risk preferences affect debt maturity and short term debt maturity is riskier then individualistic CEOs are more likely to prefer short term debt maturity. Hence the fourth hypothesis is:

> Hypothesis 4 (H4): Firms managed by individualistic CEOs have relatively more short-term debt than firms managed by CEOs from collective cultures.

3. Data and sample

Data on CEOs' birth country, education and work experience are hand collected from Marquis Who's Who biography online database, Notable Names Database (NNDB) and firms' websites. To be included in the sample, a CEO must have been born outside the US and attended school in the home country. This allows us to properly assign them to their nationality and examine the direct impact of their national culture on capital structure decisions. The list of CEOs whose information was obtained from the Marquis Who's Who database were taken from Compustat Execucomp. We obtain accounting and stock market data from the Compustat and Center for Research in Security Prices (CRSP) databases, respectively. We obtain individualism data from Geert Hofstede's website[11]. We exclude foreign CEOs whose countries were not included in the study by Hofstede, Hofstede and Minkov (2010). Following other studies on capital structure, we exclude utility and financial firms from the sample. The final sample consists of 1,304 firm-year observations from 2000 to 2017 for 234 unique foreign CEOs. The nationality mix of CEOs in the sample is presented in Appendix Table A. Most of the CEOs in our sample come from the United Kingdom, Canada and India.

[11] https://geerthofstede.com/research-and-vsm/dimension-data-matrix/ retrieved on 14 May 2018.

3.1 Summary statistics

Table1 reports the descriptive statistics of the sample. Panel A summarises the CEOs' characteristics. The mean (median) age is 63 (63). Firms managed by female CEOs represent 0.5% of the sample and CEOs who are also chair of their firms form 54.1%. The mean (median) CEO tenure is 6.1 (4) years. CEOs who are founder of their firms represent 9.1% of the sample. The mean (median) individualism cultural index is 0.67 (0.7). Panel B summarises the firm characteristics. The mean (median) firm size is $8,939.5 ($2,089.3) million. The mean (median) market-to–book ratio is 1.7 (1.3). Firms hold mean (median) cash of 21.1% (15.1%). The mean (median) R&D expenditure is 5.3% (2.8%) and the mean (median) capital expenditure is 4% (3%). Panel C summarises the dependent variables. We measure book leverage as total debt scaled by total assets and market leverage as total debt scaled by the market value of the assets. The mean (median) book leverage is 20.6% (19.7%) and the mean (median) market leverage is 12.3% (9.8%). Debt issuers represent 19.6% and equity issuers represent 6% of the sample. The mean (median) of proportion of debt maturing within three years is 38.5% (30.6%). All variables are defined in Appendix Table B.

[Insert Table 1 here]

4. Empirical results

4.1 Baseline results

We examine the impact of individualism on total debt by estimating the following regression model:

$$Total\ debt_{ijt} = \beta_0 + \beta_1(Individualism)_j + \beta_2(CEO\ \ controls)_{jt} + \beta_3(Firm\ controls)_{it} + \beta_4(Industry\ fixed\ effect)_{it} + \beta_5(Year\ fixed\ effect)_{it} + \in_{ijt} \quad (1)$$

where: “i” denotes the firm, “j” denotes the CEO, and “t” denotes the year. Total debt is measured by book leverage and market leverage. Book leverage is total debt scaled by total assets and market leverage is total debt scaled by market value of assets (Byoun, 2008; Cronqvist, Makhija & Yonker, 2012; Lemmon, Roberts & Zender, 2008).

The main variable of interest is individualism, which we measure using the individualism index for each foreign CEO’s country of origin (Hofstede 2001; Hofstede, Hofstede & Minkov 2010). In all the estimated regression models, we control for major firm and CEO characteristics that have been found to impact the debt ratio. The firm characteristics we control for are: firm size, market-to-book, tangible assets, profit, cash holdings, R&D expenditure, capital expenditure, and industry median leverage (see, e.g., Frank & Goyal, 2009; Rajan & Zingales, 1995; Welch, 2004). We control for CEO age (Serfling, 2014), tenure, duality and whether a CEO is the founder of the firm to control for CEO power (Adams, Almeida & Ferreira, 2005; Chava, Kumar & Warga, 2009; Morse, Nanda & Seru, 2011).

Table 2 presents the ordinary least square (OLS) results of firm total debt on individualism and the control variables discussed above. In Column (1), we regress book leverage on individualism holding all other factors constant but include two-digit industry and year fixed effects. We find the coefficient on individualism is positive and statistically significant at the 1% level. This suggests that, all things being equal, firms managed by foreign CEOs from an individualistic culture have a higher debt ratio. We include firm characteristics in Column (2) and still find a positive relationship between individualism and book leverage. In Column (3), we include the industry median leverage as Frank and Goyal (2009) show that it is an important determinant of firm leverage. Inclusion of the industry median leverage does not remove the positive relationship between individualism and book leverage. Morse, Nanda and Seru (2011) and Adams, Almeida and Ferreira (2005) find that powerful CEOs have a significant impact on corporate policies. In Column (4), we include Chairman/CEO and

Founder CEO dummies to control for CEO power (Adams, Almeida & Ferreira 2005; Morse, Nanda & Seru 2011). We also include other CEO characteristics in Column (4) and still find the coefficient of individualism to be positive and statistically significant[12]. As an alternative measure of leverage[13], we regress market leverage on individualism in Column (5). We find the coefficient on individualism is positive and statistically significant at the 1% level. Overall, the results presented in Table 2 are consistent with the hypothesis H (1) that firms managed by foreign CEOs from individualistic cultures have a higher debt ratio[14].

Individualism has been related to overconfident behaviour (Chui, Titman & Wei, 2010; Ferris, Jayaraman & Sabherwal, 2013; Heine, Lehman, et al., 1999; Markus & Kitayama, 1991). To ensure that the results are not driven by overconfident behaviour, we regress individualism on the overconfidence measure based on CEOs' compensation as in Campbell et al. (2011) and predict the residual from the regression. We then estimate leverage on the residual from the regression to examine the portion of individualism not explained by overconfidence on firm leverage. We find the coefficient is positive and statistically significant at the 1% level.This suggests that individualism goes beyond overconfidence. The result for the residuals on firm leverage is shown in Appendix Table D.

[Insert Table 2 here]

[12] We use the alternative measures of individualism by Tang and Koveos (2008), Schwartz (1994) and House et al. (2004) and get results consistent with Hofstede (2001). The results are available upon request.

[13] Following Serfling (2016), we measure leverage as:

(i) log (1+ total debt);
(ii) book leverage less leases; and
(iii) book leverage less cash holdings.

[14] We find that the impact of individualism on firm leverage is negative if the firm is managed by a female CEO. Appendix C shows the results.

4.1.2 The moderating role of creditor rights on individualism and leverage

Creditor rights can serve as a formal institution that can impact foreign CEOs' demand for debt financing. This explanation is motivated by the finding in Acharya, Amihud and Litov (2011) that in countries with better creditor rights, firms take fewer risks because managers are afraid of losing their job through bankruptcy filing. Chava and Roberts (2008) and Nini, Smith and Sufi (2009) document that strong creditor rights in the form of restrictive debt covenants and enforcement of debt covenant violations decreases investment. Similarly,, Favara et al. (2017) show that strong creditor rights decrease firm risk taking across countries. Cho et al. (2014) find that strong creditor protection reduces the extent to which firms issue and finance projects with debt. Acharya and Subramanian (2009) and Acharya, Sundaram and John (2011) document that strong creditor rights reduce innovation in high tech industries and lower the use of financial leverage. These studies suggest that creditor rights are important in debt financing across countries because managers fear losing their jobs through bankruptcy. Since theory suggests that foreign CEOs have been shaped by the formal and informal institutions of their home countries, we test whether the baseline results hold when we control for creditor rights for each foreign CEO's country of origin. We also test whether the effect of individualism on leverage remains for CEOs from better creditor rights countries. We measure creditor rights using Djankov, McLiesh and Shleifer's (2007) creditor rights index that aggregates different creditor rights in a country following Bae and Goyal (2009), Cho et al. (2014), and Favara et al. (2017). The results are presented in Table 3.

In Table 3, Column (1), we include creditor rights controlling for industry and year fixed effects. We find the coefficient on individualism to be positive and statistically significant at the 1% level, which is consistent with the results in Table 2. This suggests that the inclusion of creditor rights does not take away the positive relationship between individualism and leverage. We find the coefficient on the creditor rights is negative and statistically significant

at 1% which suggests that foreign CEOs from better creditor rights countries have lower leverage. This result is consistent with prior studies that document low debt financing with creditor rights for the reason that managers are afraid of losing their jobs through bankruptcy. The results in Column (1) are consistent with the theory that foreign CEOs' decision making is shaped by their country of origin. In Column (2), we include GDP growth to control for economic development in the foreign CEO country of origin because Tang and Koveos (2008) suggest that the economic development of a country could impact national culture. We still find a positive relationship between individualism and leverage. Thus, controlling for creditor rights and economic growth does not change the results. We include firm characteristics in Column (3) but the results remain the same. In Column (4), we include CEOs' characteristics, but these do not change the positive relationship we find between individualism and leverage. In Column (5), we interact individualism with creditor rights to test the strength of the impact of individualism on a firm's leverage for foreign CEOs who come from better creditor rights countries. The main variable of interest in Column (5) is the interaction of individualism and creditor rights. We find that the coefficient on the interaction term is positive and statistically significant at 1%. This suggests that firms managed by foreign CEOs who come from individualistic cultures and better creditor rights countries have higher leverage. The results suggest that the impact of individualism on leverage is stronger than the impact of creditor rights, which is consistent with what North (1991) notes that the informal constraints that arise from culture have a more prevalent impact than formal laws and property rights in shaping people's choices in economic outcomes.

[Insert Table 3 here]

4.2 Channels through which individualistic CEOs impact capital structure

4.2.1 Individualism and security issuance

In previous sections, we find that firms managed by foreign CEOs from individualistic cultures are more levered. Such firms can have a higher leverage by retiring equity and issuing more debt. In this section, we investigate the extent to which individualism impacts a firm's likelihood of debt and equity issuance to test the second hypothesis that firms managed by individualistic CEOs have a higher probability of issuing debt than equity. A firm is considered as debt issuer if net debt issuance scaled by total assets is greater than 0.05 and an equity issuer if net equity issuance scaled by total assets is greater than 0.05. A firm is also considered as debt issuer if net debt issuance scaled by market value of assets is greater than 0.03 and equity issuer if net equity issuance scaled by market value of assets is greater than 0.03. We create indicator variables for these two thresholds and use both in the analysis. The 0.05 and 0.03 thresholds for debt and equity issuing are chosen to focus on significant debt and equity issues when firms need external financing for corporate investment (Chang, Dasgupta & Hilary, 2006, 2009; Goh et al., 2017; Hovakimian, Hovakimian & Tehranian, 2004; Hovakimian, Opler & Titman, 2001; Huang & Ritter, 2018; Leary & Roberts, 2005). Net debt issuance is measured as long term debt issuance (Compustat item DLTIS) minus long term debt reduction (DLTR) plus current debt changes (DLCCH). Alternatively, we measure net debt issuance as the change in book value of total debt. Both measures are used in the analysis. We measure net equity issuance as the sale of common and preferred stock (Compustat item SSTK) minus the purchase of common and preferred stock (PRSTKC). The definition of net debt issuance and net equity issuance follow prior studies (Chang, Dasgupta & Hilary, 2006; Hovakimian, Hovakimian & Tehranian, 2004; Leary & Roberts, 2005).

We estimate logit models to examine the impact of individualism on the likelihood of a security issue. The results are presented in Table 4. Column (1) reports the marginal effect of

individualism on the likelihood of a debt issue. The dependent variable is a dummy of one if net debt issue scaled by total assets is greater than 0.05 and zero otherwise. We find the coefficient on individualism is positive and statistically significant at 5%. This suggests that firms managed by individualistic CEOs have a higher probability of issuing debt. A unit increase in individualism increases a firm's probability of debt issue by 1.8%. The results are economically significant. The marginal effect of individualism on net debt issuance scaled by market value of assets is presented in Column (2). We consistently find a positive relationship between individualism and net debt issuance. As an alternative measure of debt issue, Column (3) presents the marginal effect of individualism on a dummy variable that equals one if the annual change in book value of debt is greater than 0.05 and zero otherwise. We find the coefficient on individualism is positive and statistically significant at the 5% level. Overall, the results suggest that firms managed by individualistic CEOs have a higher probability of issuing debt. The marginal effect of individualism on equity issue is present in Column (4). We find the coefficient on individualism is negative and statistically significant at the 5% level. This suggests that firms managed by individualistic CEOs are less likely to issue equity. The results are consistent with the first hypothesis that firms managed by individualistic CEOs have more debt (and proportionally less equity).

[Insert Table 4 here]

4.2.2 Individualism and partial adjustment of leverage

To test the third hypothesis regarding the speed of adjustment for firms managed by individualistic CEOs, we use the partial adjustment model of Flannery and Rangan (2006). We group the sample into high individualism for firms whose CEO's country score is above the median individualism index, and low individualism for firms whose CEO's country score is below the median individualism index, and estimate a dynamic capital structure model for each

group and compare their speed of adjustment. We use the following procedure. First, the target leverage is estimated as follows:

$$Y^{*}_{ijt} = \beta X_{ijt-1} + V_i \quad (2)$$

where: Y^{*}_{ijt} is a target or optimal leverage of the firm; vector X_{ijt-1} contains one year lagged leverage determinants used in Table 2 Column (4); and V_i is firm fixed effect. Second, we estimate the partial adjustment model following Flannery and Rangan (2006) to obtain the dynamic adjustment in leverage ratios as follows:

$$Y_{ijt} - Y_{ijt-1} = \lambda(Y^{*}_{ijt} - Y_{ijt-1}) + \in_{ijt} \quad (3)$$

where: $Y_{ijt} - Y_{ijt-1}$ is the actual change in a firm's leverage; $Y^{*}_{ijt} - Y_{ijt-1}$ is the distance between the firm's leverage and its target leverage; and λ measures the speed of adjustment to the target leverage ratio. We substitute Equation (2) into (3) to obtain the following model[15]:

$$Y_{ijt} = (\lambda \beta)X_{ijt-1} + (1-\lambda) Y_{ijt-1} + \lambda V_i + \in_{ijt} \quad (4)$$

We estimate Equation (4) using Blundell and Bond's (1998) two-step GMM (BB) and the bias-corrected least squares dependent variables estimator (LSDVC) of Bruno (2005) and Kiviet (1995). The estimation approach follows prior studies (such as Cho et al., 2014; Faulkender et al., 2012; Gungoraydinoglu & Öztekin, 2011; Hanousek & Shamshur, 2011 and Öztekin & Flannery, 2012). We use two methods in the analysis because Flannery and Hankins (2013) suggest the two approaches give better estimates. The results of the dynamic panel estimates are shown in Table 5. Column (1) presents the results for high individualism using Blundell and Bond (1998). We find that, the adjustment speed towards the target leverage for firms managed by high individualistic CEOs is 29.66% whereas the adjustment speed for firms managed by low individualistic CEOs using the same approach is 26.08% as shown in Column (3). The coefficients are statistically significant at the 1% level. Columns (2) and (4) show the

[15] The procedure for obtaining Equation (4) is shown in Appendix Table E.

results for high individualism and low individualism respectively using the LSDVC. We find that the adjustment speed for high individualism is 34.03% and low individualism is 28.08% with both coefficients statistically different from zero at the 1% significance level. Overall, the two approaches provide consistent results that firms managed by highly individualistic CEOs adjust their leverage faster towards their target leverage. In terms of economic significance, firms managed by highly individualistic CEOs adjust their target leverage 5.95% faster than firms managed by low individualistic CEOs as shown by the LSDVC (Flannery & Hankins, 2013 suggest the LSDVC is the most accurate of seven methods).

[Insert Table 5 here]

4.2.3 Individualism and debt maturity

In this section, we test the fourth hypothesis that firms managed by individualistic CEOs have shorter debt maturity. We measure short maturity debt (ST3) as the proportion of debt maturing within three years (Billett, King & Mauer, 2007; Brockman, Martin & Unlu, 2010; Dang & Phan, 2016; Johnson, 2003). As an alternative measure, we consider the proportion of debt that is due within two (ST2) and five years (ST5) as in previous studies on debt maturity (Billett, King & Mauer, 2007; Brockman, Martin & Unlu, 2010; Custódio, Ferreira & Laureano, 2013; Dang & Phan, 2016; Datta, Iskandar-Datta & Raman, 2005; Johnson, 2003). Following prior studies on debt maturity, in the analysis, we control for firm size, firm size squared, abnormal earnings, asset maturity, asset volatility, market-to-book, R&D expenditure, firm leverage, term structure of interest rates, CEO age, CEO tenure, Founder CEO, and Chairman CEO. The results are shown in Table 6.

In Table 6, Column (1), we estimate the main measure of short term debt (ST3) on individualism firm characteristics and term structure of interest rates. We find the coefficient is positive and statistically significant at the 5% level. This suggests that firms managed by individualistic CEOs hold debt with shorter maturity. We include CEOs' characteristics,

creditor rights and GDP growth in Column (2), but the results remain unchanged. In Column 3, as an alternative measure of short term debt, we regress the proportion of debt maturing within two years (ST2) on individualism. We find the coefficient on individualism is positive and statistically significant at the 5% level, which is consistent with the initial finding in Column (2). Column (4) shows the results for the proportion of debt maturing within five years (ST5) on individualism. We find a positive relationship between short term maturity and individualism. The results suggest that individualism's positive impact on debt maturity is robust to debt maturity measures. In Column (5), we follow Dang and Phan (2016) and Custódio, Ferreira and Laureano (2013) and estimate a Tobit regression of short term debt on individualism since the measure of short term debt is censored at 0 and 1(thus the OLS results might be biased and inconsistent). The obtained results are consistent with the OLS estimates.

Apart from the main variable of interest, estimates of most of the control variables are consistent with prior studies. Whited (1992) shows that because a small firm's tangible assets are smaller than their future investment opportunities, small firms' access to long term debt is restricted. Smith Jr and Warner (1979) suggest that smaller firms are more likely to face severe agency problems and may use short term debt to mitigate such concerns. In all the models, we find a significant negative relationship between firm size and short maturity debt. We also find a positive relationship between firm size squared and short maturity debt which is consistent with Diamond (1991) who reports a non-monotonic relationship between credit quality and short maturity debt. High uncertainty in R&D result in high information asymmetry, therefore firms that spend more on R&D use short term debt (Custódio, Ferreira & Laureano, 2013). We find a positive relationship between R&D and short maturity debt. The results are thus consistent with prior studies.

[Insert Table 6 here]

4.3 Endogeneity

The OLS analysis above assumes that CEOs are randomly selected into firms. This might not be true since a firm's demand for certain CEO attributes might compel the firm to choose one CEO over another. For example, a firm may appoint a foreign CEO from an individualistic culture to take advantage of specific attributes to fulfil the firm's strategy. Thus, the demand for the special skills of a CEO and firm strategy might lead to their selection (Greve, Biemann & Ruigrok, 2015; Magnusson & Boggs, 2006; Masulis, Wang & Xie, 2012). Therefore, the appointment of foreign CEOs from individualistic cultures presents selection bias. In addition, Nash and Patel (2019) suggest that measurement of national culture may present problems because national culture may be correlated with other omitted variables. To mitigate these concerns, first we use propensity score matching to deal with the issue of selection bias. Secondly, we use instrumental variables and employ two-stage least squares models to address endogeneity.

4.3.1 Propensity score matching

Propensity score matching is an effective method to alleviate endogeneity concerns in CEO and firm matching (Angrist & Pischke, 2009; Armstrong, Ittner & Larcker, 2012; Rosenbaum & Rubin, 1983). Propensity score matching requires the treatment group to be matched with a control group that has similar characteristics and similar values of propensity score as the treatment group. The treatment group in the study are firms with high individualism measured as a dummy variable that equals to one if the individualism score is greater than the median score in the sample and zero otherwise. We first estimate a probit model to predict the selection of individualistic CEOs using firm and CEO characteristics (Conyon et al., 2018; Malmendier & Tate, 2009). The results are reported in Appendix Table F. We then use the propensity score of the probit estimates to match the firms. We use a nearest neighbour

algorithm with a caliper 0.001 to match the firms, restricting the observations to be on common support to obtain the average treatment effect on the treated (ATT). The matched sample consists of 260 firms managed by highly individualistic CEOs and 260 firms managed by low individualistic CEOs. ATT measures the difference in firm leverage between firms managed by highly individualistic CEOs and a comparable firms managed by low individualistic CEOs with similar propensity scores.

The average treatment effect of high individualistic CEOs on book leverage and market leverage is presented in Table 7. Comparing the means of the unmatched sample, firms managed by highly (low) individualistic CEOs have a mean book leverage of 0.219 (0.184) and mean market leverage of 0.126 (0.113). The differences in leverage across the two types of firm are significant at the 1% level. We find that, after matching, the mean book leverage for firms managed by highly individualistic CEOs reduces to 0.211 and market leverage is 0.137. After the matching, the difference between firm leverage for highly individualistic CEOs and low individualistic CEOs is still positive and statistically significant at the 5% level. The results suggest that the positive relationship between firm leverage and individualistic CEOs remains after taking into account CEO selection bias.

[Insert Table 7 here]

4.3.2. Instrumental variable approach

We use the two-stage least squares estimation technique to deal with endogeneity in the OLS models. We identify IVs that do not have any direct impact on capital structure decisions except indirectly through individualism. The first instrumental variable is a measure of the prevalence of the S-allele in the serotonin transporter gene 5-HTTLPR that makes people more sensitive to social stress (Chiao & Blizinsky, 2010). The second IV is a measure of the prevalence of the G-allele in the functional polymorphism (A118G) in the μ-opioid receptor gene that makes people more sensitive to social rejection (Way & Lieberman, 2010). Chiao

and Blizinsky (2010) and Way and Lieberman (2010) find that large population of collective cultures have the S-allele and G-allele. Therefore, the motivation for using these two genetic measures as instruments for the individualism/collectivism cultural dimension is based on the fact that collective cultures shield individuals from social stress and social rejection by integrating individuals into strong cohesive groups that provide psychological support. The third IV is the prevalence of pathogens in a particular geographic area (Fincher et al., 2008). The argument for linking pathogens and individualism/collectivism is based on the fact that cultures prone to the presence of pathogens develop more collective values as defence mechanisms to deal with the pathogen's prevalence (Fincher et al., 2008; Murray & Schaller, 2010). Fincher et al. (2008) find a strong negative relationship between individualism and the presence of pathogens. Data on these three IVs are from Nash and Patel (2019). We use each of these IVs separately in the equations below and also combine each of the S-allele and G-allele with the prevalence of pathogens to estimate the impact of individualism on capital structure. We estimate the following two stage least squares model:

Stage 1: $Individualism = \beta_0 + \beta_1(IV) + \beta_2(CEO\ controls) + \beta_3(Firm\ year\ controls) + \beta_4(Fixed\ effects) + \in$ (5)

Stage 2: $Capital\ structure = \beta_0 + \beta_1(Predicted\ value\ of\ individualsm) + \beta_2(CEO\ controls) + \beta_3(Firm\ year\ controls) + \beta_4(Fixed\ effects) + \in$ (6)

We perform the Stock and Yogo (2005) weak instrument test to assess the strength of the IVs. We also perform Sargan's (1958) over identification test of a combination of the IVs. The Cragg–Donald F-statistics from the first stage regression for each IV is greater than any of the Stock and Yogo's (2005) critical F-values for weak instruments. The Sargan (1958) test is not significant for a combination of the IVs. This shows that the instruments in the first stage regression are strong. The results are reported in Table 8.

Table 8, Column (1) is the first stage results of Equation (5). The coefficient for the S-allele is negative and statistically significant at the 1% level. This is consistent with Chiao & Blizinsky (2010) who find a strong positive relationship between the S-allele and collectivism. Column (2) is the second stage results for the predicted value of individualism on leverage. We find the coefficient on the instrumented individualism is positive and statistically significant at the 1% level, which is consistent with the results in Table 2 using the OLS estimation. In Column (4), we combine the S- allele and pathogens as IVs. Column (5) gives the first stage result for the G-allele; the second stage for leverage is shown in Column (6). We find the individualism coefficient is positive and statistically significant at the 1% level. Column (7) is the first stage result for the combination of the G-allele and pathogens. The second stage result for leverage in Column (8) shows a positive, statistically significant relationship between individualism and leverage. We present the first stage result for pathogens in Column (9). The second stage result for leverage is in Column (10). We find the individualism coefficient is positive and statistically significant at the 1% level. Overall, the second stage results using alternative instrumental variables provide consistent estimates in line with the OLS estimates. We present two-stage least square regression for short term debt maturity in Table 9. The coefficient of the instrumented individualism is positive and statistically significant, which is consistent with the OLS results in Table 6. The results in Tables 8 and 9 suggest that the impact of individualism on capital structure decisions is robust to the use of instrumental variables[16].

[Insert Tables 8 and 9 here]

[16] It may be the case that culture is associated more with uncertainty than with risk-taking. We therefore control for uncertainty avoidance cultural measure in the baseline regression. The results remain qualitatively the same. Results are shown in Appendix G.

4.4 Robustness checks

4.4.1 Evidence of individualism on leverage and debt maturity at the state level in the US

To ensure that the results are robust, we exploit the US state-level variation in individualism. In the study by Hofstede (2001), the US is ranked highest on the individualism index. However, Vandello and Cohen (1999) show that US regions vary in the individualism versus collectivism measure. Vandello and Cohen (1999) note that the study of intra-nation variation in individualism versus collectivism provides more understanding to the study of individualism. Their study was based on an eight-itemised index where higher scores relate to higher collectivism and lower scores relate to higher individualism. The first three items relate to family structure and living arrangements and the next five items relate to social, political, religious and economic practices[17]. Jiang, Qian and Yonker (2018) and Yonker (2017) show that the state in which American CEOs were born impacts their corporate policies. In this section, we examine the impact of individualism at US state level on leverage and debt maturity structure for US born CEOs. Following Chen et al. (2015), we measure state individualism as minus one times the collectivism index, where a higher value indicates higher individualism, to make the interpretation consistent with that by Hofstede (2001). As in the previous analyses, we collect the birthplace, education, and work experience of the American born CEOs from Marquis Who's Who biography online, NNDB, and corporate websites. The list of CEOs is from Compustat Execucomp. We exclude financial and utility firms. The sample consists of 7,077-year observations from 2000 to 2017 for 1,222 unique domestic CEOs. Appendix Table H gives the state where the domestic CEOs in the sample were born.

We estimate firm leverage on state individualism and control variables as in Table 2 to test whether firms managed by CEOs born in individualistic states in the US have higher

[17] See Vandello and Cohen (1999) for a detailed explanation of survey questions.

leverage. We report the results in Table 10. In Column (1), we estimate book leverage on state individualism controlling for firm and CEO characteristics. We find the coefficient on the state individualism is positive and statistically significant at the 1% level. This suggests that firms managed by US CEOs born in individualistic states have higher leverage. This result is consistent with the results in Table 2 where we find a positive relationship between firm leverage and individualism for foreign CEOs. The results provide evidence supporting Vandello and Cohen (1999) about variation in US state individualism and collectivism. For robustness, we regress market leverage on state individualism in Column (2) and find consistent results. In Column (3), we control for state median leverage since the state in which the firm is located can also impact its leverage. We still find a positive relationship between state individualism and firm leverage. We control for state population and civilian labour force, which may correlate with state individualism in Column (4). The results remain positive and statistically significant. Therefore, the results in Table 10 provide further evidence of the impact of individualism on firm leverage.

[Insert Table 10 here]

4.4.2 State individualism and debt maturity

Next, we examine debt maturity and state individualism and report the results in Table 11. The main measure of debt maturity is the proportion of debt maturing with three years (ST3). In Column (1), we regress the proportion of debt maturing within three years on state individualism and control variables. The coefficient of state individualism is positive and statistically significant at the 5% level. This suggests that firms managed by CEOs born in US individualistic states have shorter debt maturity. This result is consistent with the results obtained for firms managed by foreign CEOs from individualistic countries. In Column (2), we control for CEOs' and states' characteristics, but the results remain the same. In Column (3), we regress the proportion of debt maturing within two years on state individualism. We find

the coefficient on state individualism is positive and statistically significant at 5%. Column (4) shows that the relationship between the proportion of debt maturing within five years and state individualism is insignificantly positive. Overall, the results in Table 11 indicate that firms managed by CEOs born in individualistic US states have shorter debt maturity, particularly debt maturing within three years.

[Insert Table 11 here]

4.5 Alternative explanation: -Herding behaviour of individualistic CEOs and leverage

The positive relationship between individualism and firm leverage can be explained by herding behaviour of CEOs since managerial herding impacts CEOs' decisions. For example, Scharfstein and Stein (1990) find that the reputational concerns of managers make them herd more by mimicking the investment behaviour of other managers. Tse and Tucker (2010) show that managers' herding behaviour results in peer effects in timing their earnings warnings. Therefore, higher leverage for firms managed by individualistic CEOs can be because of industry peer effects since Frank and Goyal (2009) show that the industry median leverage is an important determinant of a firm's leverage with a positive relationship. In this section, we provide evidence that our results are not driven by industry effects. Heine et al. (1999), Hofstede, Hofstede and Minkov (2010), and Markus and Kitayama (1991) suggest that people from individualistic cultures are less vulnerable to social influence and, as such, are less likely to follow the opinions of others. Beckmann, Menkhoff and Suto (2008) find that asset managers from individualist culture show less herding behaviour. Chang and Lin (2015) document that investors in individualist cultures exhibit less herding behaviour in their trading. We predict that if individualism shows less herding behaviour, then the capital structure decisions of individualist CEOs are less likely to follow their industry peers. We test this prediction using the industry median leverage to interact with individualism and examine the impact on firm leverage.

We report the results on the herding behaviour of individualist CEOs on firm leverage in Table 12. In Column (1), we estimate the impact of individualism and industry median leverage on firm leverage. We find the individualism coefficient is positive and statistically significant, which is consistent with the initial results. We also find the coefficient on the industry median leverage is positive and statistically significant at the 1% level. This is consistent with Frank and Goyal (2009) who show the industry median leverage is an important determinant of a firm's leverage. When we interact individualism with the industry median leverage in Column (2), there is no significant relationship with firm leverage. This suggests that the leverage of firms managed by individualist CEOs does not have any significant relationship with their industry leverage. This result provides evidence of less herding behaviour by individualist CEOs and, therefore, the positive relationship between individualism and firm leverage is not explained by industry peer effects.

[Insert Table 12 here]

4.6 Impact of institutional block holders

The tendency for individualist CEOs to impact the capital structure decisions of their firms can result in sub-optimal choices for the firm. This tendency for managers to imprint their preferences on the firm can be reduced through corporate governance mechanisms. For example, Agrawal and Mandelker (1990), Shleifer and Vishny (1986), Shleifer and Vishny (1997) and Demsetz (1983) show that large institutional ownership in a firm leads to better monitoring of managers. We test whether the presence of institutional ownership reduces the impact of individualism on leverage. We obtain the data on institutional ownership from Thomson Reuters Institutional Holding (13F) data base. We use the two measures of institutional ownership as in Chen, Harford and Li (2007). These measures are ownership controlled by top 5 institutional investors and ownership controlled by block holders (defined as holdings by institutional investors with at least 5% of the shares). We then interact each of

these measures with individualism and examine the impact on firm leverage. The results are shown in Table 13.

Table 13, Column (1) presents the results of the interaction of individualism and top 5 institutional ownership. The interaction term is negative and statistically significant. This suggests that the presence of large institutional investors helps reduce the impact of individualism on a firm's leverage. Column (2) gives the results of the interaction of block holders and individualism. The coefficient of the interaction term is negative and statistically significant at 5%. Overall, the results in Table 13 show that large institutional shareholders monitor individualistic CEOs. Their monitoring role reduces individualist CEOs' tendency to imprint their preferences on capital structure.

[Insert Table 13 here]

5. Conclusion

We study the impact of individualism on the capital structure decisions of firms managed by foreign CEOs. We argue that the values and preferences embedded in individualism could serve as an informal constraint on capital structure decisions of firms managed by individualist CEOs. We hypothesise that firms managed by foreign CEOs from individualistic cultures have high leverage. The hypothesis is based on the fact that individualism relates to risk taking behaviour and this could reduce the risk of debt financing. Also, people from individualistic cultures show less herding behaviour and, therefore, firms managed by individualistic CEOs' capital structure may deviate from their industry peers. Furthermore, in individualistic cultures, the interest of the individual prevails over the interest of the group and this could impact the stakeholder theory of capital structure. Consistent with the prediction, we find that firms managed by foreign CEOs from individualistic cultures have higher leverage than firms managed by CEOs from collective cultures. We also find that firms

managed by individualist CEOs have a higher probability of issuing debt than equity and adjust their target leverage at faster than firms managed by foreign CEOs from collective cultures.

We then examine the impact of individualism on the type of debt firms hold. We find that firms managed by individualist CEOs hold shorter debt maturity. We extend the study to US state level and find that firms managed by CEOs born in individualistic states have higher leverage and shorter debt maturity. Overall, this study provides evidence on the impact of CEOs' cultural background on capital structure decisions. We use three instrumental variables and propensity score matching to test the robustness of our results because of CEO selection bias and find consistent results.

Our study contributes to the capital structure literature by showing that CEOs cultural background should be considered in estimating regression models for a firm's capital structure. The study also shows that, in addition to foreign executives' international experience, their cultural background has a significant impact on capital structure. An implication from the results is the suggestion that, in appointing foreign executives, policy makers should not only consider their international experience but also their cultural background since cultural background has significant impact on economic outcomes.

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Appendix Table A: Foreign CEOs' nationality mix

This table presents the nationality mix of CEOs in the sample. CEO nationality is obtained from Marquis Who's Who database, NNDB and company websites.

Nationality	Frequency	Percent	Cum. Percent
Argentine	13	1	1
Australian	95	7.29	8.28
Belgian	9	0.69	8.97
Brazilian	8	0.61	9.59
British	240	18.4	27.99
Canadian	130	9.97	37.96
Chinese	6	0.46	38.42
Colombian	1	0.08	38.5
Croatian	17	1.3	39.8
Danish	32	2.45	42.25
Dutch	31	2.38	44.63
Egyptian	3	0.23	44.86
Filipino	1	0.08	44.94
French	52	3.99	48.93
German	56	4.29	53.22
Greek	20	1.53	54.75
Hong Kong	14	1.07	55.83
Indian	168	12.88	68.71
Iranian	9	0.69	69.4
Irish	37	2.84	72.24
Israeli	44	3.37	75.61
Italian	51	3.91	79.52
Jamaican	5	0.38	79.91
Kenyan	10	0.77	80.67
Lebanese	14	1.07	81.75
Malaysian	6	0.46	82.21
Mexican	12	0.92	83.13
New Zealander	17	1.3	84.43
Norwegian	7	0.54	84.97
Pakistani	10	0.77	85.74
Russian	12	0.92	86.66
South African	58	4.45	91.1
Spanish	14	1.07	92.18
Swedish	23	1.76	93.94
Swiss	36	2.76	96.7
Taiwanese	34	2.61	99.31
Turkish	9	0.69	100

Appendix Table B: Variables definition

Variable	Definition and data source(s)
CEO age	Natural logarithm of age of the CEO. Source: Execucomp.
CEO tenure	Natural logarithm of the number of years the CEO has held the role in the firm. Source: Execucomp.
Female CEO	Dummy variable equals one for female CEOs (zero otherwise). Source: Execucomp.
Chairman/CEO	Dummy variable equals one if the CEO is the Chair of the Board (zero otherwise). Source: Execucomp.
Founder CEO	Dummy equals one if the CEO is also a founder of the firm (zero otherwise). Source: Execucomp.
Individualism	Relates to integration of individuals into groups. A higher score indicates high degree of individualism. Source: Hofstede (2001).
State individualism	Minus one times the collectivism –individualism index of Vandello & Cohen (1999).
Firm size	Log of total assets of the firm. Source: Compustat.
Book leverage	Long term debt plus debt in current liabilities divided by the book value of total assets. Source: Compustat.
Market leverage	Long term debt plus debt in current liabilities divided by market value market value of assets. Source: Compustat.
Debt issue	Long term debt issuance (Compustat item DLTIS) minus long term debt reduction (DLTR) minus current debt changes (DLCCH) for firms that report format codes 1 to 3 and DLTIS-DLTR+DLCCH for firms reporting format code 7 scale by total assets. Source: Compustat.
Debt issuer	Dummy equals one if debt issue is greater than or equal to 0.05 (zero otherwise).
Equity issue	Sale of common and preferred stock (Compustat item SSTK) minus purchase of common and preferred stock (PRSTKC). Source: Compustat.
Short maturity debt (ST3)	Debt in current liabilities (Compustat item DLC) plus debt maturating in second year (Compustat item DD2) plus debt maturing in third year (Compustat item DD3) scaled by total debt (Long term debt plus debt in current liabilities)
Short maturity debt (ST2)	Debt in current liabilities (Compustat item DLC) plus debt maturating in second year (Compustat item DD2) scaled by total debt.
Short maturity debt (ST5)	Debt in current liabilities (Compustat item DLC) plus debt maturating in second year (Compustat item DD2) plus debt maturing in third year(Compustat item DD3) plus debt maturing in fourth year (DD4) plus debt maturing in fifth year (DD5) scaled by total debt (Long term debt plus debt in current liabilities)

Cash holding	Cash and marketable securities normalised by total asset. Source: Compustat.
Abnormal earnings	The ratio of the difference between the income before extraordinary items, adjusted for common or ordinary stock (capital) equivalents (IBADJ) for time t and t-1 over the market value of equity used to calculate earnings per share (PRCC_F x CSHPRI). Source: Compustat.
Assets volatility	Standard deviation of the stock return during the fiscal year times market value of equity (CSHO x PRCC_F) divided by market value of assets (AT+CSHOxPRCC_F-CEQ). Source: Compustat
Assets maturity	Ratio of property, plant and equipment (PPEGT) over depreciation and amortization (DP) times the proportion of property , plant and equipment in total assets(PPEGT/AT, plus the ratio of current assets (ACT) over the cost of goods sold (COGS) times the proportion of current assets in total assets (ACT/AT). Source: Compustat.
Capital expenditures	Firm capital expenditure divided by book value of asset. Source: Compustat.
R&D expenditure	Firm R&D expenditure divided by total assets. Source: Compustat.
Market-to -book	Ratio of market value of assets (AT+CSHOxPRCC_F) to total assets (AT) Source: CRSP and Compustat.
Return on equity	Net income divided by total equity. Source: Compustat.
Tangible assets	Property, plant and equipment divided by book value of assets. Source: Compustat.
Profit	Net income divided by total assets. Source: Compustat.
Term structure	The difference between the yield on 10-year government bond and the yield on 6-month government bond. Source: Federal Reserve Bank of St. Louis.
Creditor rights	The extent to which creditors are protected in a country. High scores indicate better protection. Source: Djankov, McLiesh and Shleifer (2007).
S-allele	Country level measure of genetic variation in the serotonin transporter gene (SLC6A4). Source: Nash and Patel (2019).
G-allele	Country-level measure of the genetic variation in a μ-opioid receptor gene. Source: Nash and Patel (2019).
Pathogens	Country-level measure of the relative presence of pathogens in local ecology. Source :(Nash & Patel 2019)
GDP growth	Annual growth of GDP of foreign CEO country of origin: World Bank.
Top 5	Ownership controlled by five largest institutional shareholders.
Block holder	Holding by institutions with at least 5% shares.
Overconfidence	Dummy equals one if a CEO holds stocks that are more than 67% in the money (zero otherwise). The measure follows Campbell et al. (2011).
State population	Population of the state in which an American CEO was born. Source: US Census Bureau American Community Survey.

State civilian labor force	Civilian labor force of the state in which an American CEO was born. Source: US Census Bureau American Community Survey.
High individualism	Dummy equals one if the individualism score is greater than the median score in the sample (zero otherwise).
Uncertainty avoidance	The extent to which people feel uncomfortable with uncertainty and ambiguity. Source: Hofstede (2001

Appendix Table C: interaction of female CEOs with individualism

This table presents the results of the interaction of individualism with female CEOs on firm leverage.

	(1)	(2)
Individualism	0.0646***	0.0230***
	(2.9476)	(2.6015)
Female CEO	0.1135	0.1741
	(1.1788)	(1.5920)
Individualism*Female CEO		-0.3369***
		(-3.2236)
Firm Size	0.0253***	0.0256***
	(8.1889)	(8.1607)
Market-to-book	-0.0004	-0.0002
	(-0.0538)	(-0.0229)
Tangible assets	0.0025	0.0019
	(0.0601)	(0.0455)
R&D expenditure	-0.3232***	-0.3014***
	(-2.8437)	(-2.6465)
Capital expenditure	0.1384	0.1352
	(0.8020)	(0.7902)
Profit	-0.2511***	-0.2484***
	(-3.4376)	(-3.4519)
Cash holdings	-0.0630	-0.0725*
	(-1.5004)	(-1.7735)
Industry median leverage	0.7545***	0.7492***
	(14.1543)	(14.0200)
CEO age	-0.0059	-0.0116
	(-0.2607)	(-0.5292)
CEO tenure	-0.0111*	-0.0115*
	(-1.6704)	(-1.7073)
Founder CEO	-0.0256	-0.0248
	(-1.3091)	(-1.2603)
Chairman/CEO	0.0143	0.0131
	(1.5186)	(1.3775)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Observations	1,284	1,284
R-squared	0.437	0.438

Appendix Table D: OLS regression of residual from the regression of overconfidence on individualism and leverage

This table presents the results of the residuals from the regression of overconfidence on individualism on firm leverage.

	Leverage
Residual from regression of overconfidence on individualism	0.0790***
	(3.0117)
Firm size	0.0240***
	(7.0097)
Market-to-book	0.0008
	(0.1041)
R&D expenditure	-0.1519
	(-1.3533)
Firm profit	-0.2753***
	(-3.5251)
Tangible assets	-0.0225
	(-0.4615)
Capital expenditure	0.1033
	(0.5283)
Cash holdings	-0.1294***
	(-3.0859)
Industry median leverage	0.6753***
	(11.1601)
CEO age	-0.0085
	(-0.3454)
CEO tenure	-0.0014
	(-0.1977)
Founder CEO	-0.0717***
	(-4.6711)
Chairman/CEO	0.0088
	(0.8430)
Year fixed effects	Yes
Industry fixed effects	Yes
Observations	1,085
R-squared	0.447

Appendix Table E: Solving the partial adjustment model

$$Y_{ijt}^{*} = \beta X_{ijt-1} + V_i \quad (2)$$

$$Y_{ijt} - Y_{ijt-1} = \lambda(Y_{ijt}^{*} - Y_{ijt-1}) + \in_{ijt}. \quad (3)$$

Substitute (2) into (3):

$$Y_{ijt} - Y_{ijt-1} = \lambda\,(\beta X_{ijt-1} + V_i - Y_{ijt-1}) + \in_{ijt}.$$

Opening the bracket:

$$Y_{ijt} - Y_{ijt-1} = \lambda\beta X_{ijt-1} + \lambda V_i - \lambda Y_{ijt-1} + \in_{ijt.}$$

Grouping like terms:

$$Y_{ijt} = (\lambda\beta)X_{ijt-1} + Y_{ijt-1} - \lambda Y_{ijt-1} + \lambda V_i + \in_{ijt}.$$

$$Y_{ijt} = (\lambda\beta)X_{ijt-1} + (1-\lambda)Y_{ijt-1} + \lambda V_i + \in_{ijt.} \quad (4)$$

Appendix Table F
Determinants of individualist CEOs

This table reports the determinants of individualistic CEOs. The dependent variable is a dummy which equals one if the individualism score is greater than the median score in the sample (zero otherwise). We include year and industry fixed effects in the model, but coefficients are not reported. All variables are defined in Appendix B. The z-statistics are in parentheses. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	High individualism
Firm size	0.1347***
	(4.4280)
Market-to-book	0.0247
	(0.0370)
R&D expenditure	2.9404***
	(3.6645)
Capital expenditure	-0.2752
	(-0.2574)
CEO age	-0.7346***
	(-3.7724)
CEO tenure	0.2665***
	(4.9472)
Year fixed effect	Yes
Industry fixed effect	Yes
Observations	1,198
Pseudo R-squared	0.1572

Appendix Table G: Individualism and firm leverage, control for uncertainty avoidance

This table presents the results of the impact of individualism on firm leverage controlling for uncertainty avoidance.

	Leverage
Individualism	0.0589**
	(2.5408)
Uncertainty avoidance	0.0029
	(0.1094)
Firm size	0.0230***
	(7.4233)
Market-to-book	-0.0008
	(-0.1155)
R&D expenditure	-0.2139**
	(-1.9658)
Firm profit	-0.2394***
	(-3.4049)
Tangible assets	0.0221
	(0.6526)
Cash holdings	-0.1114***
	(-2.7963)
Industry median leverage	0.7125***
	(13.7527)
CEO age	-0.0305
	(-1.3283)
CEO tenure	-0.0043
	(-0.6557)
Founder CEO	-0.0554***
	(-3.4464)
Chairman/CEO	0.0117
	(1.2199)
Female CEO	0.1161
	(1.1134)
MBA	-0.0029
	(-0.2784)
Ivy League education	-0.0323
	(-1.2662)
Military experience	0.3760***
	(3.4130)
Year fixed effects	Yes
Industry fixed effects	Yes
Observations	1,284
R-squared	0.465

Appendix Table H: States included in the study for American born CEOs

Birth State	Frequency	Percent	Cumulative frequency.	Cumulative percent
Alabama	51	0.72	51	0.72
Arkansas	82	1.16	133	1.88
Arizona	38	0.54	171	2.42
California	371	5.24	542	7.66
Colorado	50	0.71	592	8.37
Connecticut	72	1.02	664	9.38
Delaware	14	0.2	678	9.58
Florida	114	1.61	792	11.19
Georgia	130	1.84	922	13.03
Hawaii	1	0.01	923	13.04
Idaho	21	0.3	944	13.34
Illinois	422	5.96	1366	19.3
Indiana	252	3.56	1618	22.86
Iowa	226	3.19	1844	26.06
Kansas	105	1.48	1949	27.54
Kentucky	143	2.02	2092	29.56
Louisiana	104	1.47	2196	31.03
Maine	29	0.41	2225	31.44
Maryland	110	1.55	2335	32.99
Massachusetts	382	5.4	2717	38.39
Michigan	216	3.05	2933	41.44
Minnesota	176	2.49	3109	43.93
Mississippi	85	1.2	3194	45.13
Missouri	141	1.99	3335	47.12
Montana	42	0.59	3377	47.72
Nebraska	88	1.24	3465	48.96
Nevada	36	0.51	3501	49.47
New Hampshire	55	0.78	3556	50.25
New Jersey	290	4.1	3846	54.35
New Mexico	35	0.49	3881	54.84
New York	967	13.66	4848	68.5
North Carolina	132	1.87	4980	70.37
North Dakota	43	0.61	5023	70.98
Ohio	296	4.18	5319	75.16
Oklahoma	113	1.6	5432	76.76
Oregon	57	0.81	5489	77.56
Pennsylvania	373	5.27	5862	82.83
South Dakota	55	0.78	5917	83.61
Tennessee	151	2.13	6068	85.74
Texas	331	4.68	6399	90.42
Utah	93	1.31	6492	91.73

Vermont	11	0.16	6503	91.89
Virginia	153	2.16	6656	94.05
Washington	189	2.67	6845	96.72
West Virginia	19	0.27	6864	96.99
Wisconsin	204	2.88	7068	99.87
Wyoming	9	0.13	7077	100

Table 1

Summary statistics

This table presents the summary statistics for the study's sample. Panel A reports the summary statistics of CEOs' characteristics. Firm characteristics are presented in Panel B and a summary of dependent variables is shown in Panel C. Data on CEOs' characteristics are from Marquis Who's Who database, NNDB and company websites. Firm level data are from Compustat and CRSP. The individualism measure is from Hofstede (2001) and Hofstede, Hofstede & Minkov (2010). All variables are defined in Appendix Table B.

Variable	No. obs.	Mean	Median	Std dev.	Min	Max
Panel A: CEO characteristics						
CEO age	1304	63.035	63	7.746	42	87
CEO tenure	1304	6.141	4.05	6.077	0	32.8
Female CEO	1304	0.005	0	0.068	0	1
Chairman/CEO	1304	0.541	1	0.499	0	1
Founder CEO	1304	0.091	0	0.288	0	1
MBA	1304	0.309	0	0.462	0	1
Individualism	1304	0.665	0.710	0.209	0.130	0.90
Panel B: Firm characteristics						
Firm size ($Mil)	1304	8939.5	2089.3	23605.5	10.2	284421
Market-to-book	1303	1.667	1.329	1.232	0.051	7.080
Cash holdings	1304	0.211	0.151	0.186	0.001	0.754
R&D expenditure	1304	0.053	0.028	0.065	0	0.259
Tangible asset	1304	0.206	0.159	0.182	0.002	0.864
Firm profit	1304	0.039	0.057	0.111	-0.404	0.273
Capital expenditure	1304	0.040	0.030	0.039	0	0.230
Panel C: Dependent variables						
Book leverage	1300	0.206	0.197	0.167	0	0.820
Market leverage	1300	0.123	0.098	0.115	0	0.616
Debt issuer book value	1304	0.196	0	0.397	0	1
Debt issuer market value	1304	0.123	0	0.328	0	1
Equity issue	1304	0.060	0	0.237	0	1
Proportion of debt maturing within three years	1114	0.385	0.306	0.333	0	1

Table 2

Individualism and firm leverage

This table presents OLS results of the impact of individualism on firm leverage. Firm leverage is measured by the sum of long term debt and debt in current liabilities over assets. Individualism is the individualism cultural dimension of Hofstede (2001). Column (1) presents result of only individualism on book leverage, where book leverage is firm leverage scaled by total assets. We control firm characteristics in Column (2). Industry median leverage is included in Column (3). We include CEO characteristics in column (4). We present the results of individualism on market leverage in Column (5), where market leverage is firm leverage scaled by market value of assets. We include year and two digit SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

	Book leverage				Market leverage
	(1)	(2)	(3)	(4)	(5)
Individualism	0.0728***	0.0451**	0.0538**	0.0561***	0.0315**
	(2.9963)	(2.0071)	(2.5226)	(2.6505)	(2.3411)
Firm size		0.0324***	0.0288***	0.0232***	0.0105***
		(11.6413)	(10.8350)	(7.4907)	(5.8587)
Market-to-book		0.0028	0.0003	-0.0016	-0.0339***
		(0.3908)	(0.0413)	(-0.2270)	(-12.2269)
R&D expenditure		-0.3467***	-0.2922***	-0.2199**	-0.2382***
		(-3.1751)	(-2.8292)	(-2.0174)	(-4.1552)
Profit		-0.3564***	-0.2645***	-0.2410***	-0.1806***
		(-4.8143)	(-3.6037)	(-3.3784)	(-5.9753)
Tangible assets		0.0122	-0.0181	-0.0054	0.0518**
		(0.2700)	(-0.4282)	(-0.1315)	(2.0597)
Capital expenditure		0.0898	0.1319	0.1646	0.0270
		(0.4943)	(0.7650)	(0.9986)	(0.3056)
Cash holding		-0.0890**	-0.0803*	-0.1098***	-0.0484**
		(-2.0549)	(-1.9468)	(-2.8183)	(-2.4783)
Industry median leverage			0.7606***	0.7137***	0.4368***
			(14.5338)	(13.8011)	(12.4196)
CEO age				-0.0293	-0.0254**
				(-1.2896)	(-2.2881)
CEO tenure				-0.0039	0.0010
				(-0.6033)	(0.2894)
Female CEO				0.1176	-0.0052
				(1.1284)	(-0.1537)
Founder CEO				-0.0565***	-0.0331***
				(-3.4865)	(-3.4133)
Chairman/CEO				0.0120	-0.0002
				(1.2567)	(-0.0308)
MBA				-0.0031	-0.0072
				(-0.3087)	(-1.2655)
Ivy League education				-0.0335	-0.0003
				(-1.3130)	(-0.0212)
Military experience				0.3777***	0.0987***
				(3.4718)	(3.3132)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	1,300	1,299	1,299	1,284	1,284
R-squared	0.233	0.356	0.434	0.466	0.580

Table 3
The impact of creditor rights on individualism and firm leverage
This table presents OLS results of the impact of individualism on firm leverage considering creditor rights. Firm leverage is measured as the sum of long term debt and debt in current liabilities over book value of assets. Individualism is the individualism cultural dimension of Hofstede (2001). Creditor rights are the creditor rights score obtained from Djankov, McLiesh and Shleifer (2007). Column (1) presents result of individualism controlling for creditor rights on book leverage, where book leverage is firm leverage scaled by total assets. We control for GDP growth in Column (2). Firm characteristics are included in Column (3). We control for CEO characteristics in Column (4), where market leverage is firm leverage scaled by market value of assets. In Column (5), we interact individualism with creditor right. We include year and two digit SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)
Individualism	0.1021***	0.1259***	0.1009***	0.1186***	0.0494
	(3.8379)	(3.7509)	(3.7465)	(4.3990)	(1.4797)
Creditor rights	-0.0130***	-0.0152***	-0.0105**	-0.0114***	-0.0248***
	(-2.7386)	(-3.1411)	(-2.4406)	(-2.6584)	(-3.9877)
GDP growth		0.0013	0.0010	0.0011	0.0014
		(0.7007)	(0.6214)	(0.6723)	(0.8580)
Individualism*Creditor rights					0.0642***
					(3.2870)
Firm size			0.0286***	0.0241***	0.0235***
			(10.6317)	(7.6591)	(7.5199)
Market-to-book			0.0012	0.0003	0.0009
			(0.1695)	(0.0469)	(0.1260)
R&D expenditure			-0.2828***	-0.2977***	-0.2844**
			(-2.6833)	(-2.6392)	(-2.5429)
Profit			-0.2602***	-0.2427***	-0.2456***
			(-3.4895)	(-3.3003)	(-3.4044)
Tangible assets			0.0043	0.0232	0.0214
			(0.0969)	(0.5283)	(0.4983)
Capital expenditure			0.0893	0.0944	0.0332
			(0.5205)	(0.5489)	(0.1958)
Cash holdings			-0.0653	-0.0473	-0.0647
			(-1.5740)	(-1.1184)	(-1.5370)
Industry median leverage			0.7761***	0.7800***	0.7806***
			(14.7807)	(14.4534)	(14.5010)
CEO age				0.0068	0.0102
				(0.2987)	(0.4447)
CEO tenure				-0.0128*	-0.0151**
				(-1.8470)	(-2.1485)
Founder CEO				-0.0335*	-0.0266
				(-1.6834)	(-1.3224)
Chairman/CEO				0.0162*	0.0154
				(1.6576)	(1.5833)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	1,300	1,249	1,248	1,233	1,233
R-squared	0.240	0.247	0.442	0.445	0.451

Table 4

Individualism and security issuance

This table presents the marginal effects of logit regression of the impact of individualism on debt issuance. Debt issuance is measured as: Long term debt issuance (Compustat item DLTIS) minus long term debt reduction (DLTR) plus current debt changes (DLCCH). Debt issuer is a dummy for one and zero otherwise if debt issuance scaled by total assets is greater than 0.05 or debt issuance scaled by market value of assets is greater than to 0.03. Individualism is the individualism cultural dimension of Hofstede (2001). Column (1) is the marginal effect of individualism on debt issuer scaled by total assets. Column (2) shows the result of debt issuance scaled by market value of assets. Column (3) is the marginal effect of individualism on change in book leverage in book leverage from year t-1 to year t. Column (4) is the marginal effect of individualism on equity issuance. Equity issuance is measured as: sale of common and preferred stock (Compustat item SSTK) minus purchase of common and preferred stock (PRSTKC). We include year and two digit SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, ** and, * denote significance level at 1%, 5%, and 10%, respectively.

	Debt issue			**Equity issue**
	(1)	(2)	(3)	(4)
Individualism	0.0178**	0.0147**	0.0175**	-0.0990**
	(2.1794)	(2.0146)	(2.0303)	(-1.9735)
Firm size	0.0114	-0.0047	0.0151*	-0.0239***
	(1.2755)	(-0.6766)	(1.7449)	(-3.1570)
Market-to-book	-0.0108	-0.0780***	-0.0234*	0.0101
	(-0.8956)	(-4.4543)	(-1.8455)	(1.6441)
R&D expenditure	-0.4902*	-0.5143**	-1.2564***	-0.0137
	(-1.7569)	(-2.3219)	(-4.0323)	(-0.0938)
Profit	-0.1562	0.0162	-0.6000***	-0.3217***
	(-1.1514)	(0.1446)	(-5.0305)	(-4.4530)
Tangible assets	-0.1382	-0.1558	-0.1282	0.1696**
	(-0.9847)	(-1.4374)	(-0.9847)	(2.3529)
Capital expenditure	1.6748***	1.2985***	1.0641**	0.1739
	(3.9681)	(3.5295)	(2.4936)	(0.6638)
Cash holdings	-0.0046	0.1230	0.2296**	-0.0421
	(-0.0483)	(1.5350)	(2.5003)	(-0.7842)
Industry median leverage	1.0776***	0.8576***	1.6380***	-0.4655***
	(4.9153)	(4.5618)	(7.1858)	(-3.6093)
CEO age	-0.0756	-0.0845*	-0.0112	-0.1320
	(-1.4007)	(-1.7490)	(-0.2067)	(-1.5666)
CEO tenure	0.0149	0.0045	0.0016	-0.0076
	(0.8879)	(0.3151)	(0.0993)	(-0.7432)
Founder CEO	-0.0055	0.0032	0.0013	-0.0609*
	(-0.1243)	(0.0805)	(0.0273)	(-1.7113)
Chairman/CEO	0.0484*	0.0163	0.0042	-0.0583***
	(1.7204)	(0.6711)	(0.1525)	(-3.0540)
Creditor rights	-0.0087	0.0002	-0.0051	0.0135*
	(-0.7738)	(0.0162)	(-0.4748)	(1.9542)
GDP growth	0.0110**	0.0036	0.0062	-0.0009
	(2.2764)	(0.8383)	(1.2586)	(-0.2594)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	1,209	1,165	1,051	1,006
Pseudo R-squared	0.1201	0.1688	0.1985	0.2299

Table 5

Individualism and speed of adjustment

This table presents the results of the partial adjustment model with firm fixed effects as in Flannery and Rangan (2006). Firms are grouped into high individualism if the CEO's country score for individualism is above the median score in the sample and low individualism if the CEO's country score is below the median score. The dependent variable is book leverage defined as long term debt plus debt in current liabilities scaled by total assets. Individualism is the individualism cultural dimension of Hofstede (2001). Columns (1) and (3) are estimated using Blundell & Bond (1998) method. Columns (2) and (4) present the results using the least squares dependent variables estimator. We include year fixed effect in all models. All variables are defined in Appendix Table B. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	High individualism		**Low individualism**	
	BB	LSDVC	BB	LSDVC
	(1)	(2)	(3)	(4)
Lag leverage	0.7034***	0.6597***	0.7392***	0.7192***
	(6.9571)	(15.7208)	(10.9805)	(14.6115)
Firm size	0.1058**	0.0082	0.1387***	0.0495***
	(2.1031)	(0.5825)	(3.7835)	(3.1916)
Market-to-book	-0.0126*	-0.0157***	-0.0159	-0.0117*
	(-1.8650)	(-2.6284)	(-1.5657)	(-1.8524)
R&D expenditure	-0.2960	-0.0194	0.3236	0.0097
	(-0.9747)	(-0.0954)	(1.0371)	(0.0496)
Profit	-0.3291***	-0.1748***	-0.2828***	-0.1159*
	(-3.6516)	(-3.9108)	(-4.1708)	(-1.8356)
Capital expenditure	0.3147*	0.2436	0.1020	0.2092
	(1.8760)	(1.5562)	(0.6156)	(1.2022)
Industry median leverage	0.5931***	0.4145***	0.4686***	0.3980***
	(5.3964)	(6.9710)	(4.8569)	(5.7380)
Cash holdings	0.1203	-0.0278	0.0195	0.0459
	(1.3591)	(-0.5721)	(0.2366)	(0.9406)
CEO age	0.0257	0.0255	-0.0133	-0.0483
	(0.7026)	(0.1759)	(-0.1813)	(-0.5022)
CEO tenure	-0.0044	0.0089	-0.0011	0.0054
	(-0.5130)	(0.7356)	(-0.1193)	(0.5966)
Observations	533	536	490	494
Number of firms	94	94	88	88
Speed of adjustment (1-λ)	29.66%	34.03%	26.08%	28.08%

Table 6
Individualism and debt maturity

This table presents the results of the impact of individualism on debt maturity. We measure short debt maturity (ST3) as the proportion of debt maturing within year three. Individualism is the individualism cultural dimension of Hofstede (2001). Column (1) include firm characteristics. Column (2) include CEO characteristics. We present the results of individualism on proportion of debt maturing in year two (ST2) in Column (3). Column (4) is the OLS results of individualism on the proportion of debt maturing in year five (ST5). We show the Tobit regression result of individualism on ST3 in Column (5). We include year and two digit SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	ST3	ST3	ST2	ST5	ST3
	(1)	(2)	(3)	(4)	(5)
Individualism	0.0147**	0.0290***	0.0173**	0.0495***	0.0275***
	(2.5085)	(3.3706)	(2.2296)	(5.6338)	(2.7227)
Firm size	-0.4486***	-0.4354***	-0.4477***	-0.2834***	-0.3493***
	(-7.8859)	(-7.4780)	(-7.8517)	(-5.0881)	(-6.7028)
Firm size squared	0.0245***	0.0235***	0.0249***	0.0133***	0.0184***
	(7.2167)	(6.7768)	(7.3984)	(4.0513)	(6.0650)
Market-to-book	0.0029	0.0075	0.0072	-0.0216*	0.0098
	(0.2591)	(0.6794)	(0.6881)	(-1.9526)	(0.9548)
R&D expenditure	0.3990*	0.4670*	0.5428**	0.2662	0.8220***
	(1.8262)	(1.9076)	(2.2300)	(1.0842)	(3.1794)
Abnormal earnings	-0.0139***	-0.0143***	-0.0149***	-0.0071	-0.0134***
	(-2.7990)	(-2.9698)	(-2.8199)	(-1.5478)	(-3.0525)
Leverage	-0.4922***	-0.5031***	-0.5038***	-0.2690***	-0.5346***
	(-6.2462)	(-6.3937)	(-6.6047)	(-3.0399)	(-7.4579)
Asset maturity	0.0011	0.0006	0.0005	-0.0010	0.0014
	(0.6838)	(0.3673)	(0.3245)	(-0.5114)	(0.8702)
Asset volatility	-0.1723*	-0.1928**	-0.1225	0.0467	-0.1887**
	(-1.8918)	(-1.9937)	(-1.2990)	(0.4864)	(-2.2563)
Term structure	0.1166**	0.1223**	0.0444	0.1200**	0.1356***
	(2.1335)	(2.1742)	(0.8735)	(2.2723)	(2.6426)
CEO age		0.0550	0.0463	0.0951*	-0.0378
		(1.0878)	(0.9646)	(1.7633)	(-0.7463)
CEO tenure		-0.0376**	-0.0335**	-0.0227	-0.0270*
		(-2.5182)	(-2.3787)	(-1.4727)	(-1.9622)
Chairman/CEO		0.0444*	0.0357*	0.0609**	0.0237
		(1.8827)	(1.7203)	(2.4939)	(1.0514)
Founder CEO		0.0755*	0.1004**	0.0379	0.0497
		(1.6497)	(2.3011)	(0.8615)	(1.1131)
Creditor right		-0.0102	-0.0047	-0.0322***	-0.0051
		(-0.9853)	(-0.5033)	(-2.9743)	(-0.5372)
GPD growth		0.0034	0.0009	0.0163***	-0.0001
		(0.8372)	(0.2367)	(3.9459)	(-0.0232)
Year fixed effects	Yes	Yes	Yes	Yes	Yes

Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	1,062	1,015	1,015	1,015	1,015
R-squared	0.272	0.286	0.303	0.267	0.522

Table 7
Propensity score matching
The table presents the impact of individualism on book leverage and market leverage based on propensity scores. The treated variable is high individualism which equals one if the individualism score is above the median score in the sample and zero otherwise. The average treatment effect on the treated (ATT) measures the difference in firm leverage between the two groups.

Variable	Sample	Treated (n=260)	Control (n=260)	Difference	S.E.	t-stat
Book leverage	Unmatched	0.219	0.184	0.035	0.009	3.77***
	ATT	0.211	0.173	0.038	0.014	2.77**
Market leverage	Unmatched	0.126	0.113	0.013	0.006	2.13**
	ATT	0.137	0.113	0.024	0.011	2.26**

Table 8

Endogeneity: The instrumental variable approach

This table reports the two stage least squares regression using instrument variables for individualism. Column (1) is the first stage results using the S-allele as the IV. Column (2) is the second stage of the regression for leverage. Column (3) is the first stage results for a combination of S-allele and prevalence of pathogens as IVs. Column (4) is the second stage of the regression for leverage. Column (5) is the first stage results using G-allele as the IV. Column (6) is the second stage for leverage. Column (7) is the first stage using a combination of the g-allele and pathogens as IVs. Column (8) is the second stage results for leverage. Column (9) is the first stage results using pathogen as the IV. Column (10) is the second stage results for leverage. We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. We report the first stage Cragg-Donald Wald F-statistics and the Stock–Yogo weak ID test critical values for the Craig-Donald Wald F-statistics. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	1st stage S-allele	2nd stage Leverage	1st stage S-allele+pathogens	2nd stage Leverage	1st stage G-allele	2nd stage Leverage	1st stage G-allele+pathogens	2nd stage Leverage	1st stage Pathogens	2nd stage Leverage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
S-allele	-0.0101***		-0.0046***							
	(-10.9632)		(-5.2131)							
Pathogens			-0.1094***				-0.0008		-0.1697***	
			(-12.6089)				(-0.1281)		(-31.3659)	
G-allele					-2.4798***		-2.4731***			
					(-38.2772)		(-30.7962)			
Individualism		0.2298***		0.2225***		0.1607***		0.0718**		0.1278***
		(2.9983)		(3.8136)		(2.9173)		(2.3147)		(3.7296)
Firm size	0.0045*	0.0260***	0.0151***	0.0260***	0.0151***	0.0229***	0.0150***	0.0227***	0.0077**	0.0246***
	(1.6524)	(7.7805)	(5.4586)	(7.8052)	(5.4586)	(6.4536)	(5.3745)	(6.4366)	(2.1381)	(8.0223)
Market -to-book	0.0076**	0.0031	0.0145***	0.0031	0.0145***	0.0057	0.0146***	0.0038	0.0184***	-0.0008
	(2.0425)	(0.7549)	(4.7386)	(0.7591)	(4.7386)	(1.3494)	(4.7020)	(0.9094)	(4.4705)	(-0.2173)
R&D expenditure	0.2022**	-0.3178***	0.2162***	-0.3170***	0.2162***	-0.2820***	0.2164***	-0.2697***	0.5329***	-0.4223***
	(2.4531)	(-3.1242)	(2.8897)	(-3.1225)	(2.8897)	(-2.7881)	(2.8915)	(-2.7361)	(4.9328)	(-4.5802)
Profit	-0.0338	-0.2994***	0.0181	-0.3000***	0.0181	-0.3006***	0.0183	-0.2977***	0.0921*	-0.2699***
	(-0.7454)	(-6.0749)	(0.5042)	(-6.1150)	(0.5042)	(-5.8506)	(0.5070)	(-6.0581)	(1.9201)	(-6.1886)

Tangible assets	-0.0610	-0.0632	-0.0775**	-0.0636	-0.0775**	-0.0752	-0.0769*	-0.0800	-0.0034	0.0063
	(-1.5055)	(-1.3151)	(-2.0014)	(-1.3264)	(-2.0014)	(-1.4861)	(-1.9286)	(-1.5939)	(-0.0734)	(0.1377)
Cash holdings	-0.0697**	-0.0769**	-0.0727***	-0.0777**	-0.0727***	-0.1291***	-0.0725***	-0.1515***	-0.1978***	-0.0337
	(-2.3508)	(-2.3211)	(-2.8309)	(-2.3833)	(-2.8309)	(-3.6657)	(-2.7928)	(-4.6407)	(-5.9729)	(-1.1193)
capital expenditure	0.0911	0.1503	-0.3810**	0.1513	-0.3810**	0.1134	-0.3819**	0.1142	-0.3591**	0.0777
	(0.6541)	(0.9219)	(-2.3148)	(0.9294)	(-2.3148)	(0.6514)	(-2.2923)	(0.6621)	(-2.0605)	(0.4918)
Industry median leverage	-0.0336	0.7234***	0.0012	0.7227***	0.0012	0.6953***	0.0014	0.6866***	-0.0171	0.7496***
	(-0.6867)	(10.6591)	(0.0244)	(10.6851)	(0.0244)	(10.0428)	(0.0281)	(10.0296)	(-0.2998)	(12.7486)
CEO age	-0.1016***	-0.0355	-0.0674***	-0.0363*	-0.0674***	-0.0313	-0.0674***	-0.0486**	-0.0615***	0.0022
	(-4.8073)	(-1.5743)	(-4.0545)	(-1.6540)	(-4.0545)	(-1.4514)	(-4.0244)	(-2.3622)	(-2.9250)	(0.1186)
CEO tenure	0.0282***	-0.0125*	0.0179***	-0.0122*	0.0179***	-0.0012	0.0178***	-0.0010	0.0181***	-0.0138**
	(4.8874)	(-1.9252)	(3.6923)	(-1.9514)	(3.6923)	(-0.1972)	(3.6750)	(-0.1665)	(3.0031)	(-2.5425)
Founder CEO	0.0096	-0.0715***	0.0005	-0.0715***	0.0005	-0.0861***	0.0006	-0.0789***	0.0123	-0.0293*
	(0.5206)	(-3.8604)	(0.0521)	(-3.8615)	(0.0521)	(-5.1012)	(0.0580)	(-4.8456)	(0.6269)	(-1.9353)
Chairman/CEO	-0.0262***	0.0059	-0.0352***	0.0056	-0.0352***	0.0059	-0.0351***	0.0054	-0.0492***	0.0190**
	(-2.6545)	(0.5640)	(-4.0278)	(0.5467)	(-4.0278)	(0.5554)	(-3.9970)	(0.5274)	(-4.8483)	(2.0618)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CragG-donal Wald F-stat	254.167		277.658		1710.279		854.27		757.849	
10% maximal Iv		19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93	19.93
15% maximal IV		11.59	11.59	11.59	11.59	11.59	11.59	11.59	11.59	11.59
Over identification p-value			0.8837				0.2869			
Observations	932	932	932	932	959	959	993	993	1,255	1,255
R-squared	0.483	0.483	0.483	0.483	0.459	0.459	0.454	0.454	0.431	0.431

Table 9

Endogeneity: The instrumental variable approach for short debt maturity

This table reports the two stage least squares regression for short debt maturity using the G-allele and S-allele as instruments for individualism. Column (1) is the first stage results for the S-allele. Column (2) is the second stage result of individualism on ST3. Column (3) is the first stage result for the G-allele. Column (4) is the second stage results for ST3. We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. We report the first stage Cragg-Donald Wald F-statistics and the Stock – Yogo weak ID test critical values for the Craig-Donald Wald F-statistics. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	First stage S-allele	2nd stage short debt maturity	First stage G-allele	2nd stage short debt maturity
S-allele	-0.0105***			
	(-11.1976)			
G-allele			-1.8380***	
			(-19.3043)	
Individualism		0.0806***		0.0642***
		(3.0965)		(3.9186)
Firm size	-0.0449**	-0.4107***	-0.0557***	-0.3515***
	(-2.2427)	(-7.1204)	(-4.0039)	(-6.0433)
Firm size squared	0.0030**	0.0213***	0.0038***	0.0176***
	(2.4455)	(6.0002)	(4.5992)	(4.9408)
Market-to-book	0.0031	-0.0023	-0.0031	0.0109
	(0.9697)	(-0.2161)	(-1.1713)	(1.0439)
R&D expenditure	0.1110	0.4646*	-0.0260	0.4174*
	(1.5831)	(1.9137)	(-0.3750)	(1.8070)
Abnormal earnings	0.0024	-0.0162	0.0021**	-0.0126
	(1.5545)	(-1.5664)	(2.1090)	(-1.1242)
Asset maturity	0.0005	0.0002	-0.0002	-0.0003
	(0.9046)	(0.1210)	(-0.4727)	(-0.1674)
Asset volatility	0.0029	-0.2283**	0.0390	-0.1333
	(0.1016)	(-2.3799)	(1.6379)	(-1.3400)
Leverage	0.0613**	-0.5696***	0.0917***	-0.6192***
	(2.4520)	(-6.4171)	(4.2543)	(-7.6095)
CEO age	-0.1037***	0.0612	-0.0656***	0.0593
	(-4.5251)	(0.8941)	(-4.0647)	(1.0949)
CEO tenure	0.0272***	-0.0551***	0.0147***	-0.0555***
	(4.4785)	(-3.3437)	(3.4880)	(-3.6341)
Chairman/CEO	-0.0210**	0.0951***	-0.0226***	0.0792***
	(-2.1180)	(3.5542)	(-2.8290)	(3.0883)
Founder CEO	0.0046	0.1279**	0.0128	0.0497
	(0.2458)	(2.2870)	(1.1175)	(1.0650)
Creditor right	0.0645***	-0.0679***	0.0397***	-0.0325***
	(15.7222)	(-3.0783)	(13.9441)	(-2.6177)
GDP growth	-0.0090***	0.0076	-0.0137***	0.0151*

	(-2.9408)	(0.9986)	(-4.1166)	(1.8581)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Cragg-Donald F-stat	124.159		504.338	
10% maximal IV	16.38	16.38	16.38	16.38
15% maximal IV	8.96	8.96	8.96	8.96
Observations	762	762	795	795
R-squared	0.732	0.333	0.811	0.357

Table 10
State individualism and firm leverage

This table presents OLS results of the impact of state individualism on firm leverage. Firm leverage is measured as the sum of long term debt and debt in current liabilities. State individualism is the individualism cultural dimension of Vandello and Cohen (1999). Column (1) presents the results of state individualism on book leverage, where book leverage is firm leverage scaled by total assets. We present the results for market leverage in Column (2). State in which the firm is headquartered median leverage is included in Column (3). We include state population and civilian labour force in Column (4). We include year and two digits SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
State individualism	0.0661***	0.0520***	0.0540***	0.0479***
	(2.8991)	(3.3947)	(3.5489)	(3.1065)
Firm size	0.0209***	0.0117***	0.0122***	0.0124***
	(16.3694)	(12.7226)	(13.4909)	(13.6194)
Market-to-book	-0.0165***	-0.0311***	-0.0305***	-0.0302***
	(-7.5080)	(-24.1698)	(-23.9199)	(-23.6920)
Tangible assets	-0.0126	0.0150	0.0078	0.0077
	(-0.8056)	(1.3885)	(0.7415)	(0.7222)
Profit	-0.1861***	-0.2179***	-0.2214***	-0.2262***
	(-6.0272)	(-10.8675)	(-11.2217)	(-11.4200)
Cash holdings	-0.2355***	-0.1165***	-0.0996***	-0.0983***
	(-14.4223)	(-11.9654)	(-10.1054)	(-9.9226)
R&D expenditure	0.1099*	-0.1127***	-0.0511	-0.0486
	(1.8736)	(-3.3141)	(-1.5070)	(-1.4319)
Industry median leverage	0.5672***	0.4058***	0.3801***	0.3807***
	(13.1527)	(13.9728)	(13.2949)	(13.2706)
CEO ae	-0.0142*	-0.0072	-0.0068	-0.0044
	(-1.8386)	(-1.3467)	(-1.2808)	(-0.8329)
CEO tenure	-0.0028	-0.0013	-0.0012	-0.0015
	(-1.1515)	(-0.7887)	(-0.7234)	(-0.8929)
Chairman/CEO	-0.0037	-0.0021	-0.0028	-0.0035
	(-0.8664)	(-0.7412)	(-1.0019)	(-1.2378)
Founder CEO	0.0163**	0.0117**	0.0077*	0.0083*
	(2.0387)	(2.4906)	(1.6936)	(1.8147)
State median leverage			0.2392***	0.2249***
			(12.5448)	(11.3973)
State population				0.0316
				(1.0316)
State civilian labour force				-0.0367
				(-1.1590)
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Observations	6,897	6,889	6,889	6,875
R-squared	0.374	0.492	0.504	0.506

Table 11

State individualism and debt maturity

This table presents the results of the impact of state individualism on debt maturity. We measure debt maturity (ST3) as the proportion of debt maturing within year three. State individualism is the individualism cultural dimension of Vandello and Cohen (1999). Column (1) presents an OLS result of state individualism on ST3. Column (2) includes CEO and state characteristics. We present the results of state individualism on proportion of debt maturing within two years (ST2) in Column (3). Column (4) is the OLS results of state individualism on the proportion of debt maturing within five years (ST5). We include year and two digit SIC industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1) ST3	(2) ST3	(3) ST2	(4) ST5
State individualism	0.1119**	0.1175**	0.1122**	0.0254
	(2.1441)	(2.2110)	(2.3375)	(0.4371)
Firm size	-0.3635***	-0.3581***	-0.3310***	-0.2586***
	(-14.6502)	(-14.2852)	(-13.8427)	(-10.0308)
Firm size square	0.0202***	0.0199***	0.0187***	0.0129***
	(14.0249)	(13.6878)	(13.5387)	(8.5737)
Market-to-book	0.0088*	0.0084*	0.0098**	-0.0017
	(1.8654)	(1.7532)	(2.1883)	(-0.3556)
Leverage	-0.4073***	-0.3981***	-0.3923***	-0.2288***
	(-14.0150)	(-13.3738)	(-14.8746)	(-6.8416)
R&D expenditure	-0.0040	0.0204	0.0745	-0.1774
	(-0.0302)	(0.1480)	(0.5825)	(-1.1780)
Abnormal earnings	-0.0055	-0.0055	-0.0060	-0.0062
	(-1.3485)	(-1.3050)	(-1.4000)	(-1.1797)
Asset maturity	-0.0004	-0.0004	-0.0004	-0.0015**
	(-0.8286)	(-0.8752)	(-0.8259)	(-2.5601)
Asset volatility	0.0912**	0.1179**	0.1133***	0.1797***
	(2.0113)	(2.5367)	(2.5894)	(3.6644)
Term structure	-0.0636***	-0.0542**	-0.0752***	0.0571**
	(-2.8038)	(-2.3395)	(-3.6994)	(2.1629)
CEO age		0.0177	0.0060	0.0049
		(0.9215)	(0.3485)	(0.2304)
CEO tenure		-0.0050	-0.0002	-0.0057
		(-0.8797)	(-0.0374)	(-0.9162)
Chairman/CEO		0.0242**	0.0227***	0.0048
		(2.5038)	(2.6169)	(0.4631)
Founder CEO		0.0273	0.0199	0.0282
		(1.2703)	(1.0200)	(1.2477)
State median leverage		-0.0497	-0.0328	-0.1357*
		(-0.7498)	(-0.5364)	(-1.9481)
State population		0.1312	0.1244	0.1222
		(1.2368)	(1.3218)	(1.0796)
State civilian labour force		-0.1431	-0.1353	-0.1335
		(-1.3086)	(-1.3961)	(-1.1436)
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Observations	5,748	5,635	5,635	5,635
R-squared	0.197	0.200	0.219	0.167

Table 12

Impact of individualism on herding behaviour and leverage

This table presents the results of the impact of individualism on CEO herding behaviour and leverage. Column (1) presents the OLS results of individualism and industry median leverage on firm leverage. Column (2) is the result of the interaction of individualism and industry median leverage on firm leverage. We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	(2)
Individualism	0.1193***	0.1026**
	(4.4144)	(2.2753)
Industry median leverage	0.7792***	0.7171***
	(14.3983)	(4.8374)
Individualism*Industry median leverage		0.0896
		(0.4678)
Firm size	0.0239***	0.0240***
	(7.6334)	(7.6590)
Market-to-book	0.0008	0.0008
	(0.1037)	(0.1042)
R&D expenditure	-0.2929***	-0.2925***
	(-2.5834)	(-2.5800)
Tangible assets	0.0394	0.0402
	(1.0990)	(1.1146)
Profit	-0.2418***	-0.2424***
	(-3.3010)	(-3.3052)
Cash holdings	-0.0482	-0.0486
	(-1.1299)	(-1.1419)
CEO age	0.0060	0.0071
	(0.2572)	(0.3042)
CEO tenure	-0.0130*	-0.0131*
	(-1.8911)	(-1.8956)
Chairman/CEO	0.0161*	0.0157
	(1.6499)	(1.6289)
Founder CEO	-0.0329*	-0.0323
	(-1.6740)	(-1.6317)
Creditor rights	-0.0114***	-0.0116***
	(-2.6608)	(-2.6784)
GDP growth	0.0010	0.0010
	(0.6330)	(0.6229)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Observations	1,233	1,233
R-squared	0.445	0.445

Table 13
Impact of institutional block holders
This table presents the results of the impact of large institutional shareholders on individualism and book leverage. We include year and industry fixed effects in all the models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and firm clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	Book leverage	
	(1)	(2)
Individualism	0.2274***	0.1845***
	(3.4472)	(3.5466)
Top 5 institutional ownership	0.0391**	
	(2.5366)	
Individualism *Top 5 institutional ownership	-0.0615***	
	(-2.6386)	
Block holder		0.1167***
		(3.1338)
Individualism* Block holder		-0.1216**
		(-2.3685)
Firm size	0.0278***	0.0330***
	(8.2367)	(8.5656)
Market-to-book	0.0006	0.0001
	(0.0885)	(0.0143)
R&D expenditure	-0.3105**	-0.3433***
	(-2.5509)	(-2.8471)
Tangible assets	0.0461	0.0132
	(1.1531)	(0.3369)
Profit	-0.3421***	-0.2811***
	(-4.5760)	(-3.3543)
Cash holdings	-0.0846*	-0.0640
	(-1.8523)	(-1.4115)
CEO age	-0.0204	-0.0061
	(-0.8384)	(-0.2807)
CEO tenure	-0.0108	-0.0095
	(-1.5292)	(-1.2869)
Chairman/CEO	0.0088	0.0116
	(0.8688)	(1.0990)
Founder CEO	-0.0338*	-0.0292
	(-1.6995)	(-1.5397)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Observations	1,229	1,169
R-squared	0.365	0.385

CHAPTER FOUR

FOREIGN CEOS AND CORPORATE ACQUISITIONS

Abstract

We study the impact of foreign CEOs on mergers and acquisitions (M&As). We find that firms managed by foreign CEOs are more likely to engage in M&As. We document that firms managed by foreign CEOs are more likely to acquire targets in high-tech industries, targets operating in different industries, and overseas targets. We also find that announcement returns for firms managed by foreign CEOs are lower. Overall, the results show that foreign CEOs have a significant impact on M&A outcomes.

JEL classification: F23, G31, G34

Keywords: Foreign CEO, Acquisition, International experience, Acquirer returns.

1. Introduction

In a globalization world, the demand for foreign executives has become increasingly important. Foreign executives have access to networks and foreign knowledge in other markets that are valuable for a firm's strategic decisions and outcomes (see, e.g. Adams, Hermalin & Weisbach, 2010; Giannetti, Liao & Yu, 2015)[18]. Prior literature has focused on the impact of foreign executives, mainly board of directors, on corporate policies. For example, Masulis, Wang and Xie (2012) document that firms with foreign independent directors are associated with better cross border acquisitions when the target firm and the foreign directors are from the same home region. Estélyi and Nisar (2016) document that firms with foreign nationals on their board have a positive operating performance and Schmid and Dauth (2014) find that the appointment of top managers with international experience impacts stock prices. Yet the impact of foreign CEOs is rarely explored in the literature. This study examines how foreign CEOs impact mergers and acquisitions (M&As).

Foreign CEOs bring to their position institutional knowledge of countries and regions other than the firm's home country. As such, foreign CEOs provide firms with both social capital (foreign networks) and human capital (foreign knowledge of other markets). This experience is valuable because it cannot be substituted or imitated (Barney, 1991; Carpenter, Sanders & Gregersen, 2001; Daily, Certo & Dalton, 2000) and, therefore, their strategic focus and orientation may be different from domestic CEOs. Graham, Harvey and Puri (2015) document that compared with other corporate policies, CEOs have a major influence on M&As. The resource dependency theory notes that firm performance depends on a bundle of unique

[18] The impact of foreign executives on firm strategic outcomes may differ for firms that have long standing dealings with foreign countries. Due to data limitation, this additional analysis cannot be performed.

resources at its disposal (Pfeffer & Salancik, 1978, 2003) of which foreign CEOs' international experience is very important.

The decision to engage in M&As requires choices such as whether to acquire, what to acquire, when to acquire and for how much to acquire. Since the outcomes of these choices are uncertain, a CEO's personal preferences, experience and personality traits may play a role (Chatterjee & Hambrick, 2011; Malhotra, Zhu & Reus, 2015). Furthermore, M&As are important corporate investments because they involve huge sums of money and, therefore, have the potential to destroy shareholder value (Moeller, Schlingemann & Stulz, 2005). We hypothesize that foreign CEOs' international experience would significantly impact strategic choices in M&As, which will subsequently impact acquirer returns.

In additon to their general international experience, the country of origin of foreign CEOs can significantly affect M&A outcomes since a CEO's birth place has been documented as impacting M&As. For example, Jiang, Qian and Yonker (2018) find that, in the US, CEOs are more likely to acquire targets in the state of the CEO's childhood home than targets further away from that state and these acquisitions are followed by negative acquirer returns for small private targets, but positive returns for large public targets. Similarly, Chung, Green and Schmidt (2018) document that CEOs are more likely to acquire targets close to their birthplace and this generates negative acquirer returns. These studies suggest that home bias acquisitions by foreign CEOs can significantly impact acquirer returns. By examining the international experience of foreign CEOs on M&As, this study provides a new perspective for the M&A literature by showing that the international experience of CEOs should be considered in regression models for M&A outcomes.

We empirically test the impact of foreign CEOs on M&As using an S&P 1500 sample of 12,524 firm-years from 2000 to 2017 of which 1,692 firm years are managed by foreign

CEOs. Consistent with our prediction, the results reveal that foreign CEOs significantly impact M&As. The results can be summarised as follows.

First, we find that foreign CEOs are significantly more likely to do M&As. When we control for CEO and firm characteristics that can significantly impact acquisition propensity, the probability that firms managed by foreign CEOs undertake M&As in a fiscal year is 2.5 percentage points higher. Second, we find that foreign CEOs do not only impact acquisition propensity but also the type of acquisition. Specifically, we find that firms managed by foreign CEOs prefer targets operating in high-tech industries and ones operating in different industries. We also find that firms managed by foreign CEOs are more likely to do cross border acqusisitions. The impact of foreign CEOs on these types of acquisition is significcant and economically important.

Third, we examine the impact of M&As undertaken by foreign CEOs on shareholders' value and find that announcement returns for firms managed by foreign CEOs are negative. The results are robust to controlling for deal, firm and CEO characteristics that can impact acquirer returns. Our results suggest that, compared with domestic CEOs, firms managed by foreign CEOs generate more negative acquirer returns with announcement returns being 0.8 percentage points lower than domestic CEOs. We next examine the channels through which the negative acquirer returns for firms managed by foreign CEOs occur by regressing the acquirer 3-day returns by sub-samples of acquisition type (diversified, cross border, high-tech and home target). We find that the negative acquirer returns for firms managed by foreign CEOs occurs when foreign CEOs undertake diversified and home target acquisitions. The result for diversified acquisitions is consistent with prior studies that diversified acquisitions generate negative acquirer returns because of a diversification discount (Laeven & Levine, 2007; Moeller & Schlingemann, 2005; Morck, Shleifer & Vishny, 1990). The result for home target acquisitons is consitent with Chung, Green and Schmidt (2018) and Jiang, Qian and

Yonker (2018) who find that CEO home bias acqusisitions generate negative acquirer returns and attribute this to agency problems such as CEO private benefit. We also consider the geographic segments of firms and find some evidence that foreign CEOs that manage geographically diversified firms generate positive abnormal returns in M&As. Overall, the results show that foreign CEOs have a significant impact on M&A outcomes.

One concern with the study is that firms may appoint a foreign CEO to take advantage of their international skill set to achieve the firm's strategic purpose(s). This presents selection bias for the appointment of foreign CEOs. We control for endogeneity in the study using the foreign born population in the state in which the firm is headquartered and geographic distance between foreign CEO's country and the US as instruments for the supply of foreign CEOs. We also conduct propensity score matching to control for selection bias; the results remain unchanged.

The study makes several contributions to the M&A literature. First, the study contributes to the growing strand of finance literature that documents the impact of CEO characteristics on M&As. For example, Yim (2013) documents that younger CEOs are more likely to do M&As and these are followed by negative but insignificant acquirer returns. Acquirer announcement returns are positive when the acquiring firm CEO has expertise in the target firm's industry (Custódio & Metzger, 2013). Chung, Green and Schmidt (2018) find that CEO home bias acquisitions generate negative acquirer returns. We contribute to these studies by showing that foreign CEOs significantly impact M&As.

Secondly, our study contributes to the literature on the impact of foreign executives on M&As. Masulis, Wang and Xie (2012) analyse the benefit and cost of foreign independent directors and find that firms with foreign independent directors do better in cross border acquisitions when the target country is same as the foreign director. Giannetti, Liao and Yu (2015) document that foreign directors are more likely to do cross border acquisitions. These

studies focus on the board of directors, but we focus on the impact of foreign CEOs on acquisitions.

The rest of the chapter is organized as follows: Section 2 provides a literature review. Section 3 describes the data and sample selection method. Section 4 presents the empirical results and Section 5 concludes the study.

2. Literature review

The upper echelons theory suggests that managerial experience has a significant effect on strategic choices (Hambrick, 2007; Hambrick & Mason, 1984). In support of this theory, the literature shows that international experience impacts executives' decisions in strategic choices and enhances their ability to process complex information in a dynamic environment (Athanassiou & Nigh, 2002; Carpenter, Sanders & Gregersen, 2001). Consistent with that view, Carpenter, Pollock and Leary (2003), Herrmann and Datta (2005) and Tihanyi et al. (2000) find that managers' international experience relates to firm diversification strategies. Similarly, the literature documents that firms' international expansion strategy positively relates to the appointment of foreign executives (Estélyi & Nisar, 2016; Nielsen & Nielsen, 2010) because foreign executives may have foreign networks that could help the firm participate in international markets (Daily, Certo & Dalton, 2000; Roth, 1995). Herrmann and Datta (2002, 2006) and Nielsen and Nielsen (2011) find that international experience impacts managers' choices of foreign entry mode. Giannetti, Liao & Yu (2015) show that directors' international experience increases cross border acquisitions. These studies show that the international experience of foreign CEOs would significatntly impact their strategic choices in M&As such as acquisition type, target selection and payment method. Consequently, we propose that these strategic choices of foreign CEOs would significantly impact acquirer returns.

The literature provides several explanations why there are variations in M&A outcomes. Some studies focus on firm characteristics, such as Moeller, Schlingemann and Stulz

(2004) who document that large firms engage in big acquisitions that result in large losses to shareholders whereas small firms deal with small acquisitions with small gains to shareholders. They conclude that acquisitions do not provide value for acquirer shareholders since the losses for the large firms far outweigh the gains for small firms. Li, Qiu and Shen (2018) find that acquirers with more organizational capital perform better in M&As. Fich, Nguyen and Officer (2018) show that acquirers gain in large M&A deals when the target firm is smaller than the acquirer and when the acquiring firm has a high valuation. Lee, Mauer and Xu (2018) find that human capital relatedness between the acquirer and the target firm generates positive acquirer returns in diversified acquisitions. Another stream of research examines the impact of CEOs' attributes on M&As. Malmendier and Tate (2008) show that overconfident CEOs are more likely to engage in M&As at any time, with negative announcement returns of 90 basis points compared with 12 basis points for other CEOs. Male executives undertake more acquisitions with announcement returns approximately 2% lower than acquisitions made by female executives (Huang & Kisgen, 2013). Aktas et al. (2016) find that acquirer returns are negative for firms whose CEOs are narcissists.

We propose that, in addition to their general international experience, the specific country of origin of foreign CEOs matters for acquirer returns. For example, Masulis, Wang and Xie (2012) find that firms with foreign independent directors are associated with better cross border acquisitions when the target firm and the foreign directors are from the same home region. Chung, Green and Schmidt (2018) find that CEOs are more likely to do home bias acquisitions, and this generate negative acquirer returns. Jiang, Qian and Yonker (2018) find that, in the US, CEOs are more likely to acquire targets in the state of the CEO's childhood home than targets further away from that state. These acquisitions are followed by negative acquirer returns for small private targets, but positive returns for large public targets. Therefore, home bias acquisitions undertaken by foreign CEOs can significantly impact acquirer returns.

3. Sample selection

Data on the CEOs' country of birth, education and work experience are hand collected from Marquis Who's Who biography online database, Notable Names Database (NNDB), as well as companies' websites. The list of CEOs whose information is obtained from Marquis Who's Who database are taken from Compustat Execucomp. We obtain accounting and stock market data from Compustat and the Center for Research in Security Prices (CRSP) databases, respectively. Our final sample consists of 12,524 firm-year observations from 2000 to 2017 with 2,136 unique CEOs. The nationality mix of CEOs in our sample is presented in Appendix Table A. The majority of foreign CEOs in the sample come from the United Kingdom, Canada and India.

We collect data on M&As from the Securities Data Company (SDC). Transactions announced from 2000 to 2017 are considered. The criteria for selection are as follows:

- The bidder must be a US publicly traded firm.
- The transaction value must be greater than or equal to $1million.
- Bidder should have less than a 10% initial stake in the target firm and wish to seek over 50% of the target after the transaction.
- Deals labelled as bankruptcy acquisitions, liquidations self-tender, leveraged buyouts, privatizations, repurchases, restructuring, reverse takeovers and going private transactions are excluded.
- Targets are US and non-US public, private or subsidiary firms.
- The bidder should have accounting data available in Compustat and stock data in CRSP.

3.1 Summary statistics

Table1 reports the summary statistics of the sample. Panel A shows that firms managed by foreign CEOs form 13.6% of the sample. The mean (median) age is 65 (65). Firms managed by female CEOs represent 2.6% of the sample and CEOs who are chair of their firms form

63.4%. We find that 11.4% of the CEOs in our sample have Ivy League education and 9.3% have military experience. Panel B summarises the firm characteristics. Mean (median) firm size is $25,056 (2,956) million. Firms hold a mean (median) cash of 14.8% (8.6). Firms exhibit mean (median) Tobin's Q of 1.93 (1.52). The mean (median) R&D expenditure is 2.5% (0.0%)

Panel C provides summarises the deal characteristics. The mean (median) deal value is $788.2 ($131.7) million. The mean (median) relative size is 10.6% (3.6%). The largest proportion of the targets are private (40.7%) followed by subsidiary targets (38.2%) and public targets (20.5%). Diversified acquisitions are 43.6% of the deals in the sample. Hostile deals represent 0.2% and for tender offers 5.3%. The mean (median) premium is 38.8% (32.8%) and mean (median) acquirer 3-day CAR is 0.2% (0.2%).

[Insert Table 1 here]

In Table 2, we compare the means of CEO, firm-level and deal characteristics for domestic and foreign CEOs. Panel A shows that the average foreign CEO is over 63 years old but are younger than domestic CEOs. Foreign CEOs have a longer tenure and are less likely to hold the dual position of CEO and Chair of the Board. In Panel B, we show that firms managed by foreign CEOs are relatively smaller than firms managed by domestic CEOs. Firms managed by foreign CEOs hold more cash than firms managed by domestic CEOs. Using Tobin's Q as a measure of firm performance, foreign CEOs perform better than domestic CEOs. Foreign CEOs invest more in R&D and less in capital expenditure. We see that firms managed by foreign CEOs are more likely to do M&As. Panel C, Table 2, presents the deal characteristics, revealing several differences between M&A deals undertaken by foreign and domestic CEOs. Firms managed by foreign CEOs do more cross border and high-tech acquisitions. Foreign CEOs undertake fewer pure stock deals. Firms managed by foreign CEOs pay a higher premium and earn lower announcement returns. Overall, Table 2 provides initial insights into the strategic choices of foreign CEOs in M&As that are consistent with our prediction.

However, these differences may be because of to time trends, firm characteristics and CEO characteristics that may correlate with the appointment of foreign CEOs by firms. In the next section, we test the impact of foreign CEOs on M&As by multivariate analysis.

[Insert Table 2 here]

4. Empirical results

To examine the impact of foreign CEOs on M&As' outcomes, we estimate the following regression model:

$$Z_{ijt} = \beta_0 + \beta_1(Foreign\ \ CEO)_j + \beta_2(CEO\ \ controls)_j + \beta_3(Deal\ controls) + \beta_4(Firm\ year\ controls\ )_i + \beta_5\ (Year\ fixed\ effect\ )_{it} + \beta_6\ (Industry\ fixed\ effect\ )_{it} + \in_{ijt} \quad (1)$$

where: "i" denotes the firm; "j" denotes the CEO; "t" denotes year; and Z denotes the following seven M&A outcomes:

(I) Acquisitiveness of foreign CEOs measured by three parameters (acquisition propensity, acquisition frequency and acquisition size).

(II) Cross-border acquisitions measured as dummy equal to one if the target firm is outside the US and zero otherwise.

(III) A diversified acquisition measured as dummy equal to one if the acquirer and the target are operating in industries with different a 2-digit SIC code and zero otherwise.

(IV) High-tech acquisitions measured as a dummy equal to one if the acquirer and the bidder are operating as technology firms and zero otherwise.

(V) Home bias acquisitions measured as a dummy equal to one if the target nation is same as CEO's country of origin and zero otherwise.

(V1) Acquisition premium measured as the ratio of the offer price to the target market value one week before the deal announcement.

(VII) Acquirer returns measured as the 3-day CAR.

Foreign CEO is the main variable of interest and is measured as a dummy equal to one if the CEO was born outside the US and/or has a bachelor's degree in the home country and/or foreign work experience and zero otherwise. In all the estimated regression models, we follow prior studies on M&As and control for deal, firm and CEO characteristics that have been shown to impact M&A outcomes. The deal characteristics we control for are: relative size, whether the deal is diversified, hostile or tender, the target listing status, and payment method. We control for firm size, Tobin's Q, leverage and Cash holdings. We also control for CEO age, gender, military experience, MBA degree, tenure, and Ivy League education. All variables are defined in Appendix Table B.

4.1 Foreign CEOs and acquisitiveness

Our univariate results in Table 2 show that the acquisition propensity for firms managed by foreign CEOs is significantly higher by 3.8%. We conduct further analysis into this initial result by estimating multivariate regression models. First, for acquisition propensity measured as a dummy equal to one if a firm engaged in M&As in a fiscal year and zero otherwise, we estimate a logit model. Second, we estimate a Poisson regression model for acquisition frequency measured as the number of M&As made by a firm in a fiscal year. Third, for acquisition size measured as the natural logarithm of the acquisition value, we estimate an ordinary least squares (OLS) regression model. Table 3 reports the results of these three regression estimates.

Table 3, Column (1) reports the marginal effect of foreign CEOs and firm control variables on a firm's propensity to engage in M&As in a fiscal year. The coefficient on foreign CEO is

positive and statistically significant at the 5% level. This suggests that firms managed by foreign CEOs are more likely to undertake M&As in a fiscal year, which is consistent with our initial results in Table 2. Specifically, a foreign CEO increases the likelihood of M&As in a year by 2.4 percentage points. In Table 3, Column (2), we include CEO characteristics, but the results remain positive and statistically significant at 5%. In Table 3, Column (3), we include CEO compensation because Harford and Li (2007) show that CEOs have different incentives to undertake M&As and capital expenditure because of the uncertainty and information asymmetry surrounding M&As. The inclusion of CEO compensation does not remove the positive relationship between foreign CEOs and acquisition propensity. Overall, the results in Columns (1) to (3) show that firms managed by foreign CEOs have a higher likelihood of undertaking M&As.

Apart from the main variable of interest, we find that most control variables in Column (3) are consistent with prior studies. Firms with free cash flow are more likely to do M&As (Jensen 1986). We find a positive relationship between free cash flow and acquisition propensity. Acquisition propensity increases with firm size (Malmendier & Tate, 2008). We find firm size is positive in all models. Firms with more cash flow commitments, as shown in dividend yield, and firms with a net loss are less likely to do M&As (Bauguess & Stegemoller, 2008). We find the loss dummy and dividend yield to be negative and statistically significant (see Table 3, Column (2)). Yim (2013) finds that younger CEOs are more acquisitive. We find an inverse relationship between a CEO's age and acquisition propensity. CEOs are more likely to undertake M&As later during their tenure with a firm (Yim, 2013). The tenure coefficient is positive and statistically significant. The results are thus consistent with prior studies. Table 3, Columns (4) and (5) report the results for number of acquisitions and acquisition size, respectively, but we find no significant relationship between foreign CEOs and these two

measures of firm acquisitiveness. These results suggest that the impact of foreign CEOs on firm acquisitiveness is significant only for acquisition propensity.

[Insert Table 3 here]

4.2 What types of acquisitions do foreign CEOs undertake?

In the previous section, we find that firms managed by foreign CEOs are more likely to do M&As. In this section, we examine the impact of foreign CEOs on M&As type because the literature shows that international experience impacts a manager's strategic choices. The nature of the M&As data allows us to examine the impact of foreign CEOs on specific aspects of M&As decisions such as the choice of target. More so, the type of acquisition foreign CEOs undertake can significantly impact acquirer returns. For example, the market's reaction to high-tech acquisitions is positive because of synergies perceived by investors (Higgins & Rodriguez 2006; Humphery-Jenner 2014; Kohers & Kohers 2004). Diversified acquisitions have been found to generate negative acquirer returns because of diversification discount (Laeven & Levine 2007; Moeller & Schlingemann 2005). Eckbo and Thorburn (2000) and Moeller and Schlingemann (2005) document poor performance for acquirers in cross border acquisitions.

4.2.1 Cross border acquisitions

First, we consider cross border acquisitions. Masulis, Wang and Xie (2012) and Adams, Hermalin and Weisbach (2010) note that foreign executives' international experience is important for firms' foreign acqusitions because these executives have access to networks and foreign knowledge in other markets that are valuable for a firm's international expansion strategy. In addition, cross border acquisitions compared with domestic acquisitions have a lot of uncertainties because of unfamiliar cultural values and institutional settings of the target firm's country (Anderson et al., 2011; Mantecon, 2009). International experience gives managers more confidence, decreased uncertainty in terms of cultural differences and country risk of the foreign targets (Andrade, Mitchell & Stafford, 2001; Carpenter, Pollock & Leary,

2003; Herrmann & Datta, 2005; Tihanyi et al., 2000) which can increase their likelihood of engaging in cross boder deals. For example, Giannetti, Liao and Yu (2015) document that foreign directors are more likely to do cross border acquisitions. Carpenter, Pollock and Leary (2003), Herrmann and Datta (2005) and Tihanyi et al. (2000) find that managers' international experience relates to a firm's international diversification strategies. Our descriptive statistics in Table 2 show that foreign CEOs are more likely to do cross border acquisitions.

We empirically test the impact of foreign CEOs on cross border acquisitions using a logit model that estimates the likelihood of cross border acquisitions of firm i in year t. Cross border acquisition is a dummy equal to one if the target firm is outside the US and zero otherwise. The results are presented in Table 4. Column (1) reports the marginal effect of a foreign CEO on cross border acquisitions holding all other factors constant. The coefficient of the foreign CEO dummy is positive and statistically significant at the 1% level. This suggests that, all things being equal, firms managed by foreign CEOs are more likely than firms managed by domestic CEOs to undertake cross border acquisitions. In Table 4, Column (2), we include firm controls, year, and industry fixed effects. We find that the coefficient estimate for the foreign CEO dummy is positive (0.054) and statistically significant at 5%. We include CEO characteristics in Table 4, Column (3), and still find a positive, statistically significant relationship between the foreign CEO dummy and cross border acquisitions. This result suggests that firms managed by foreign CEOs are 4.9 percentage points more likely to make cross border acquisitions than firms managed by domestic CEOs. The results are consistent with prior studies that relate managers' international experience to cross border acquisitions.

[Insert Table 4 here]

4.2.2 Home bias acquisitions

Given that firms managed by foreign CEOs are more likely to engage in cross border acquisitions as shown in Table 4, it is possible that foreign CEOs tend to acquire international

targets located in their home country. This prediction is based on existing studies that CEOs are more likely to show home bias in their investments (Chung, Green & Schmidt, 2018; Jiang, Qian & Yonker, 2019). We investigate that prediction in this section. We define home bias acquisition as a dummy equal to one if the target country is same as the CEO's country of origin and zero otherwise. Table 5 reports the logit results of the estimates. Column (1) is the marginal effect of foreign CEOs on home bias acquisitions holding all other factors constant but includes year and industry fixed effects. The coefficient on foreign CEOs is negative and statistically significant at the 1% level. This suggests that, all things being equal, firms managed by foreign CEOs are less likely to acquire targets in their home country. In Table 5, Column (2), we include firm characteristics and still find a negative relationship between foreign CEOs and home biased acquisitions. We include CEO characteristics in Table 5, Column (3), and the result remains unchanged. These results suggest that foreign CEOs do not show home bias investment behaviour when they undertake cross border acquisitions. The results contrast with Jiang, Qian and Yonker (2018) and Chung, Green and Schmidt (2018) who find that CEOs are more likley to make home bias acquisitions. We interpret this result as foreign CEOs' tolerance for uncertainty since Anderson et al. (2011) and Beugelsdijk and Frijns (2010) show that individuals who show high levels of tolerance for ambiguity do not show home bias in their investments.

[Insert Table 5 here]

4.2.3 Diversified acquisitions

Prior literature argues that firms make diversified acquisitions to reduce risk. This is because diversification reduces the idiosyncratic risk of a firm and, as such, reduces risk for the CEO given the undiversified nature of their holdings in the firm (Amihud & Lev, 1981; Gormley & Matsa, 2016; May, 1995). However, one can argue that though diversification reduces the idiosyncratic risk of a firm, there are several reasons to suggest that one CEO would

engage in diversified acquisitions less than another. This is because diversified acquisitions encompass mangerial talent and expertise that may not be found within the existing firm. There could also be a high degree of information asymmetry associated with targets operating in different industries. Thus the increased complexity of diversified acqusition may cause a CEO to acquire firms in the industry with which they are already familiar. Athanassiou and Nigh (2002) and Carpenter, Sanders and Gregersen (2001) suggest that international experience enhances executives' ability to process complex information in a dynamic environment. Therefore, it is possible that foreign CEOs' international experience would impact diversified acquisitions.

To test the impact of foreign CEOs on diversified acquisitions, we run a logit regression. Diversified acquisition is defined as a dummy equal to one if the acquirer and the target firm operate in industries with different 2-digit SIC code and zero otherwise. We report the results in Table 6. Column (1) reports the marginal effect of foreign CEOs and firm controls on diversified acquisitions. The coefficient of foreign CEO is positive (0.050) and statistically significant at 5%. This suggests that firms managed by foreign CEOs are more likely to make diversified acquisitions than firms managed by domestic CEOs. We include CEOs' characteristics in Table 6, Column (2), and still find the coefficient of foreign CEO to be significantly positive at the 5% level. The results suggest that a unit increase in the appointment of a foreign CEO increases a firm's likelihood of diversified acquisitions by 5 percentage points.

[Insert Table 6 here]

4.2.4 High-tech acquisitions

The literature suggests that the acquisition of external technologies is complementary to a firm's internal R&D to enhance its innovative capability (Cassiman & Veugelers, 2006; Chesbrough, 2006). Ahuja and Katila (2001) note that R&D intensive firms can increase their

knowledge base by either engaging in a series of internal projects or the acquisition of external technologies. Bena and Li (2014) show that acquisition likelihood is higher when both the acquirer and target operate as technology firms. In our univariate results in Table 2, we find that firms managed by foreign CEOs spend more on R&D and, therefore, it is possible that foreign CEOs would engage in high-tech acquisitions for their firm's innovative capabilities. We examine the impact of foreign CEOs on high-tech acquisitions by estimating a logit regression. High-tech acquisition is a binary dummy defined as equal to one if both the acquirer and the target operate as technology firms and zero otherwise. The definition of high-tech acquisition follows Harford, Humphery-Jenner and Powell (2012) and Masulis, Wang & Xie (2007). We present the results in Table 7.

Column (1), reports the marginal effect of foreign CEOs on high-tech acquisitions holding all other factors constant. The coefficient estimate of foreign CEO is positive and statistically significant at the 1% level. This suggests that, all things being equal, firms managed by foreign CEOs have a higher likelihood of undertaking high-tech acquisitions. We include firm controls, industry, and year fixed effects in Column (2), and still find the coefficient of foreign CEO is positive (0.053) and statistically different from zero at 1% significance. We control for CEO characteristics in Column (3), but the results remain positive (0.067) and statistically significant at 1%. The positive relationship between foreign CEOs and high-tech acquisitions is consistent with our univariate results in Table 2, where we find that firms managed by foreign CEOs spend more on R&D. The multivariate results also show a positive, significant relationship between R&D expenditure and high-tech acquisitions. These results are consistent with studies that suggest the acquisition of external technologies as relevant to a firm's innovation capabilities.

[Insert Table 7 here]

4.3 Foreign CEOs and acquirer returns

In the previous section, our analysis revealed the statistically significant impact of foreign CEOs on M&A type. However, it is not clear whether this impact helps increase shareholder value. In this section, we analyse the impact of foreign CEOs on shareholders' value by estimating an OLS regression of the acquirer's stock price reaction to M&A announcements. In the analysis, we use acquirer 3-day CAR, which we calculate from day -1 to +1, where the announcement day is zero (i.e., t = 0). The acquirer 3-day CAR is calculated using the market model over days -210 to -11. We control for the deal, firm, and CEOs' characteristics discussed in Section 4. Table 8 reports the results of the estimates. Column (1) presents the relationship between acquirer returns and foreign CEOs, holding all other factors constant but including year and industry fixed effects. We find the coefficient of foreign CEO is negative (-0.0076) and statistically significant at the 1% level. The result is consistent with the descriptive statistics in Table 2 and suggests that, all things being equal, acquirer returns for firms managed by foreign CEOs are lower. In Table 8, Column (2), we control for deal characteristics that can impact acquirer returns but the coefficient of foreign CEO is still negative and statistically significant but at the 5% level. Table 8, Column (3), controls for firm characteristics and the results remain unchanged. We control for CEO characteristics in Table 8, Column (4), and find the coefficient of the foreign CEO is negative (-0.008) and statistically different from zero at 5% significance. Our results suggest that, compared with domestic CEOs, firms managed by foreign CEOs have lower acquirer returns. The acquirer returns are 0.8 percentage points lower than for domestic CEOs[19].

We find that most of the control variables in Table 8 have estimates similar to the results of existing studies. For example, Moeller, Schlingemann and Stulz (2004) document

[19] We obtain consistent results when we use (-2, +2) and (-3, +3) event windows for acquirer returns.

that large firms engage in large acquisitions that result in large losses to shareholders. We find the coefficient of size is significantly negative in all specifications. The diversification dummy is also negative and significant throughout the models. Diversified acquisitions generate negative acquirer returns (Laeven & Levine, 2007; Moeller & Schlingemann, 2005). Draper and Paudyal (2006) show that public acquisitions financed with stock destroy value. We find that the interaction of public target and payment, including stock, generates negative returns. Our results are therefore consistent with prior studies.

[Inset Table 8 here]

4.4 Channels through which foreign CEOs impact acquirer returns.

4.4.1 Acquisition type

To test the channel through which foreign CEOs impact acquirer returns, we group the M&As sample into sub-samples based on whether an acquisition is diversified, high-tech, cross border or home bias. We then examine the impact of foreign CEOs on the acquirer 3-day CAR for each of acquisition type. The results for the sub-sample analysis are reported in Table 9.

Column (1) presents the results of the impact of foreign CEOs on acquirer 3-day CAR for diversified acquisitions. We find the coefficient of foreign CEO is negative and statistically significant at the 5% level. This suggests that firms managed by foreign CEOs generate negative acquirer returns when they undertake diversified acquisitions. This result is consistent with prior studies that document negative acquirer returns for diversified acquisitions. Columns (2) and (3) present the results for high-tech and cross border acquisitions, respectively, but we find no significant relationship between foreign CEOs and acquirer returns for these two types of acquisition. Column (4), is the results for home bias acquisitions. We find the coefficient of foreign CEO is negative and statistically significant at the 10% level. This suggests that foreign CEOs generate negative acquirer returns when they make home bias acquisitions. The result for home bias acquisitions is consistent with Chung, Green and Schmidt (2018) and Jiang, Qian

and Yonker, (2019) who find that CEO home bias acquisitions generate negative acquirer returns because of CEO private benefits.

[Insert Table 9 here]

4.4.2 Method of payment and target selection

Empirical evidence shows that the method of payment and target selection impact acquirer returns in M&As. The literature shows that, compared with cash financed acquisitions, stock financed acquisitions generate negative acquirer returns (Andrade, Mitchell & Stafford, 2001; Heron & Lie, 2002; Huang & Walkling, 1987; Travlos, 1987). This negative return associated with stock financed acquisitions has been generally attributed to the signalling effect suggested by Myers and Majluf (1984) that managers issue stock when their firm is overvalued. The literature on target listed status shows that acquirers of private targets generate positive abnormal returns (Chang, 1998; Faccio, McConnell & Stolin, 2006; Fuller, Netter & Stegemoller, 2002; Moeller, Schlingemann & Stulz, 2004). The reason for the positive outcome for private targets relates to the less market liquidity effect associated with private targets which results in a lower premium being paid by the acquirer (Fuller, Netter & Stegemoller, 2002; Officer, 2007). Draper and Paudyal (2006) note that private benefits to acquiring managers are less for private targets and, as such, the acquiring firm does not overpay for private targets, which results in positive acquirer returns. The interaction of method of payment and target status also impacts acquirer returns. For example, Chang (1998) and Fuller, Netter and Stegemoller (2002) find that stock acquisitions of private targets generate positive acquirer returns. They attribute this to the monitoring role that the merged firm would enjoy from the private target.

We test this channel on acquirer returns for firms managed by foreign CEOs by estimating the regression of sub-samples of pure cash deals, pure stock deals, private targets, public targets, private target pure cash, private target pure stock, public target pure cash or

public target pure stock deals. The results are shown in Table 10. Column (1) presents the regression results of the impact of foreign CEOs on acquirer 3-day CAR for pure cash deals. Column (2) is the result for pure stock deals. Column (3) is the result for private targets. Column (4) is the results for public targets. Column (5) is the result for cash acquisition of private targets. Column (6) is the results for stock acquisition of private targets. Column (7) is the result for cash acquisition of public targets. Column (8) is the result for stock acquisition of public targets. In all the columns, we do not find any significant impact of foreign CEOs on acquirer returns for these sub-samples. Table 10's results suggest that the negative acquirer returns for firms managed by foreign CEOs is not because of the method of payment and target selection.

[Insert Table 10 here]

4.4.3 Acquisition premium

A high premium for quality deals can generate positive announcement returns (Higgins & Rodriguez, 2006; Humphery-Jenner, 2014; Kohers & Kohers, 2004). However, firms that over pay for an aqcuisition because of managerial hubris (Malmendier & Tate, 2008; Roll, 1986) and private benefits (Grinstein & Hribar, 2004; Harford, Humphery-Jenner & Powell, 2012; Morck, Shleifer & Vishny, 1990) destroy value. In addition, firms can pay a higher premium for acquisitions to serve their strategic purpose (Kim, Haleblian & Finkelstein, 2011).

We examine the impact of foreign CEOs on the acquisition premium by conducting an OLS regression of premium, defined as the ratio of offer price to the target market value one week before the deal announcement, on foreign CEOs. The sample size in this analysis reduces because data are available for only public targets. The results are presented in Table 11. Column (1) presents the relationship between foreign CEOs and the acquisition premium, holding all other factors constant, but includes year and industry fixed effects. We find the coefficient on the foreign CEO is positive and statistically significant at the 5% level. This suggests that,

compared with domestic CEOs, firms managed by foreign CEOs pay a higher premium in acquisitions. Column (2) includes deal characteristics that can impact the acquisition premium, but the results remain positive and statistically significant at the 1% level. We include firm controls in Column (3) and still find the coefficient of foreign CEO is positive (12.8%) and statistically different from zero at 5% significance. Column (4) includes CEO characteristics; but the coefficient on the foreign CEO dummy becomes even stronger, being positive and statistically significant at 1%. Overall, our results show that acquisition premiums for firms managed by foreign CEOs are higher.

[Insert Table 11 here]

4.4.4 The impact of geographic segment.

We now consider the geographic segment of the firms. Our basis for this analysis is that since foreign CEOs come from diversified countries, firms that operate in diversified geographic segments would gain more from their international experience. To test this prediction, we interact geographic segment with foreign CEO and estimate the impact on the acquirer 3-day CAR. The results are shown in Table 12.

Table 12, Column (1), gives the results for the interaction of foreign CEOs and geographic segment. We find the coefficient of foreign CEO is negative and statistically significant at 5%, which is consistent with our results in Table 8. However, we find that the interaction term is positive and statistically significant at 10%. This suggests that even though firms managed by foreign CEOs generate negative acquirer returns, the impact on acquirer returns is positive when the firm is geographically segmented. Given that the average geographic segment of firms managed by foreign CEOs is 1.818, the average impact on acquirer returns is -0.8% (-0.0250+(0.0092*1.818) = -0.008). However, a foreign CEO who manages a firm with three geographic segments generates a positive return of 0.3% (0.0250+(0.0092*3) =0.0026). We control for deal characteristics in Column (2) and still find

a positive, and statistically significant relationship between the interaction term and acquirer returns. In Column (3), we include firm and CEO characteristics, but the results remain unchanged. This result suggests that shareholders of firms that are geographically segmented benefit from acquisitions made by foreign CEOs.

[Insert Table 12 here]

4.5 Endogeneity

4.5.1 Propensity score matching

A major concern with our results is that foreign CEOs manage firms that differ from firms managed by domestic CEOs as shown in the univariate analysis in Table 2. This makes the appointment of a foreign CEO endogenous to firm-level characteristics and, therefore, could bias our coefficient estimates for foreign CEO in our models. We use propensity score matching to evaluate the impact of foreign CEOs on M&As to address this issue. Propensity score matching is a method for estimating treatment effects to reduce bias in a non-randomised sample (Rosenbaum & Rubin, 1983). It is an effective method to alleviate the endogeneity concern of CEO and firm matching when we observe predictable firm characteristics (Angrist & Pischke, 2009; Armstrong, Wettner & Larcker, 2012). Propensity score matching requires the treatment group to be matched with a control group that has similar characteristics and similar values of the propensity score as the treatment group. The treatment group in our study is foreign CEOs and the control group (comparison) is domestic CEOs.

The procedure for the matching is as follows: first, we estimate a probit model to predict the selection of foreign CEOs using firm and CEO characteristics. Second, the propensity scores of the probit estimates are used to match firms managed by foreign and domestic CEOs. In the matching, we use a nearest neighbour algorithm with a caliper of 0.0001 with no replacement to match firms restricting the observations to be on common support to obtain the average treatment effect on the treated (ATT). The matched sample consists of 1,291 firms

managed by foreign CEOs and 1,291 firms managed by domestic CEOs. ATT measures the difference in M&A outcomes between firms managed by foreign CEOs and comparable firms managed by domestic CEOs with similar propensity scores.

The average treatment effect of foreign CEOs on M&A outcomes is presented in Table 13. We find that tThe unmatched sample shows a significant difference in means for M&A outcomes for firms managed by foreign CEOs and domestic CEOs. After the matching, the difference in M&A outcomes still exists and each difference is significantly different from zero. For example, the unmatched difference in means for M&A propensity is 3.8% higher for foreign CEOs, the matched sample is 4% higher and statistically significant at the 5% level. The unmatched difference in means for acquirer 3-day CAR is -0.005. After matching, the difference in means is -0.013 and statistically significant at 5%. The results suggest that after considering CEO selection bias, the impact of foreign CEOs on M&A outcomes is still significant.

[Insert Table 13 here]

4.5.2 Instrumental variable approach

The OLS analysis used assumes that CEOs are randomly selected into firms. This might not be true in our case since firms' demand for certain CEO attributes might compel them to choose one CEO over another. For example, a firm may appoint a foreign CEO to take advantage of an international skill set to serve the firm's strategic purposes. For instance, if a firm wants to expand its operations abroad, it might hire a foreign CEO because of their cross-cultural and international experience. Thus, the demand for special skills in a CEO and a firm's strategy might lead to their selection (Greve, Biemann & Ruigrok, 2015; Magnusson & Boggs, 2006; Masulis, Wang & Xie, 2012).

We use two-stage least squares estimation to deal with endogeneity in the study. We use two instrumental variables that do not have a direct impact on M&A outcomes except

indirectly through foreign CEOs. The first instrumental variable is based on the geographic proximity to the US. We argue that countries closer to the US are more likely to migrate to the US and therefore the supply of foreign CEOs could be influenced by geographic proximity. We therefore use geographic distance measured in kilometres as our first instrumental variable for the supply of foreign CEOs[20]. Our second instrumental variable identification is based on Knyazeva, Knyazeva and Masulis (2013) who argue that the supply of corporate directors depends on the local availability of qualified prospective directors and therefore they use the local director pool as an instrumental variable for board composition. Consistent with this argument, Bernile, Bhagwat and Yonker (2018) use the supply of non-local potential directors residing one non-stop flight away from the firm headquarters as an instrumental variable for board diversity. Based on these studies, we use the number of foreign born (immigrants) as a percentage of total population of the state in which the firm is headquartered as an instrumental variable for foreign CEO[21]. We estimate the following two-stage least squares model:

Stage 1: $Foreign\ CEO = \beta_0 + \beta_1(Foreign\ borns) + \beta_2(Geographic\ distance) + \beta_3(CEO\ controls) + \beta_4(Deal\ controls) + \beta_5(Firm\ year\ contols) + \beta_6(Year\ fixed\ effect) + \beta_7(Industry\ fixed\ effect) + \in$ (2)

Stage 2: $M\&A\ outcome = \beta_0 + \beta_1(predicted\ value\ of\ Foreign\ CEO) + \beta_2(CEO\ controls) + \beta_3(Deal\ controls) + \beta_4(Firm\ year\ contols) + \beta_5(Year\ fixed\ effect) + \beta_7(Industry\ fixed\ effect) + \in$ (3)

We perform Stock and Yogo (2005) weak instrument test to assess the strength of our instrumental variables. We find that the Craig–Donald F-statistic from the first stage regression is greater than any of the Stock and Yogo (2005) critical F-values for weak instruments. We

[20] We measure geographic distance in kilometres between a CEO's country of origin and the US based on latitude and longitude.

[21] Data on number of foreign born for each state are from the US Census Bureau American Community survey. Data are available for 2000 and 2005 to 2017. We interpolate to obtain data for 2001 to 2004.

also perform the Sargan (1958) over identification test of the two instruments and find that they are not overly identified with a p-value of 0.2972. This suggests that our instruments are acceptable for use in the two-stage least square regression. The results are reported in Table 14. Column (1) is the first stage results of the probit estimates of Equation (2). We find that the coefficient of geographic distance is positive and statistically significant at 1%. This suggests that geographic proximity to the US could be determinant of the supply of foreign CEOs.

Column (2) is the second stage results of equation (3) for M&A propensity. We find the coefficient of M&A propensity is positive and statistically significant at the 5% level, which is consistent with our initial results in Table 3. Column (3) is the second stage result for cross border acquisitions. We find a positive and statistically significant relationship between foreign CEO instrumented and cross border acquisitions, which is consistent with our results in Table 4. Column (4) is the second stage results for home bias acquisitions. The estimate for the foreign CEO dummy is negative and statistically significant at 1% level, which is consistent with the results in Table 5. Column (5) is the second stage results for diversified acquisitions. We find the coefficient is positive but statistically insignificant. Column (6) is the second stage results for high-tech acquisitions. We find the coefficient on the foreign CEO instrumented is positive and statistically significant at the 5% level, which is consistent with our results in Table 7.

We present the two stage results for acquisition premium and acquirer 3-day CAR in Table 15. Column (1) is the first stage results of the probit estimate of Equation (5). Column (2) is the second stage results for acquisition premium. We find that the coefficient of foreign CEO instrumented is positive and statistically significant at 1%, which is consistent with our initial results in Table 11 using OLS. Column (4) is the second stage results for acquirer 3-day CAR. We find a negative relationship between the foreign CEO instrumented variable and acquirer 3-day CAR, which is consistent with our initial results in Table 8 using OLS.

Moreover, the estimated coefficients of the remaining control variables are consistent with the OLS estimates. Overall, the results from the two-stage least squares regression suggest that firms managed by foreign CEOs are associated with higher M&As propensity, high-tech acquisitions, cross border acquisitions, a higher premium, and negative acquirer returns.

[Insert Tables 14 & 15 here]

5. Conclusion

This chapter examines the impact of foreign CEOs on M&As of publicly traded US firms from 2000 to 2017. Following the literature that international experience impacts managers' strategic choices, we examine the impact of foreign CEOs on firms' M&As decisions. Further, we examine the value implications of M&As undertaken by foreign CEOs. Our results provide new evidence on why there are variations in acquisition outcomes.

We find that foreign CEOs are more likely to engage in M&As than domestic CEOs. The results are robust to controlling for standard M&A determinants as well as year and industry fixed effects. Our analysis also examines the impact of foreign CEOs on the type of acquisition and find that foreign CEOs prefer targets operating in high tech industries whose valuation depends on future developments in unproven and unexplored fields, and targets operating in different 2-digit SIC code industries that could have a high degree of information asymmetry. We also find that firms managed by foreign CEOs are more likely to acquire foreign targets.

We analyse the market's reaction to M&A announcements by foreign CEOs and find that announcement returns are negative. We next examine the channels through which a foreign CEO impacts acquirer returns. The results show that the negative returns exist in diversified and home bias acquisitions. We also find that the acquisition premium for firms managed by foreign CEOs is higher. We conduct additional analyses and find that foreign CEOs who managed geographically diversified firms generate positive returns even though the evidence

is weak. This suggests that shareholders of geographically diversified firms benefit from M&As made by foreign CEOs. The implication of this result is that not all firms benefit from the appointment of foreign CEOs and, therefore, policy makers should consider the geographic segment(s) of their firms when hiring a foreign CEO.

Using instrumental variables for foreign CEOs and propensity score matching, our results are robust to alternative explanations of CEO and firm matching. Overall, our study shows that foreign CEOs are important determinants of a firm's strategic choices that subsequently impact acquirer returns. Our study's results imply that the general and country specific international experience of CEOs should be accounted for when estimating regression models for acquirer returns. Our study contributes to the takeover literature by highlighting the impact of foreign CEOs on M&A outcomes.

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Appendix Table A: CEO Nationality mix

This table presents nationality mix of CEOs in our sample. CEO nationality are obtained from Marquis Who's Who database, NNDB and company websites.

Nationality	Frequency	Percent	Cum. percent
American	10832	86.49	86.49
Argentine	13	0.1	86.59
Australian	104	0.83	87.42
Austrian	7	0.06	87.48
Belgian	9	0.07	87.55
Brazilian	8	0.06	87.62
British	262	2.09	89.71
Canadian	175	1.4	91.11
Chilean	4	0.03	91.14
Chinese	32	0.26	91.39
Colombian	3	0.02	91.42
Croatian	17	0.14	91.55
Cuban	12	0.1	91.65
Cypriot	1	0.01	91.66
Czech	3	0.02	91.68
Danish	32	0.26	91.94
Dutch	36	0.29	92.22
Egyptian	3	0.02	92.25
Filipino	1	0.01	92.25
French	74	0.59	92.85
German	59	0.47	93.32
Greek	26	0.21	93.52
Hong Kong	14	0.11	93.64
Hungarian	11	0.09	93.72
Indian	228	1.82	95.54
Iranian	43	0.34	95.89
Irish	37	0.3	96.18
Israeli	54	0.43	96.61
Italian	55	0.44	97.05
Jamaican	5	0.04	97.09
Japanese	5	0.04	97.13
Kenyan	10	0.08	97.21
Lebanese	14	0.11	97.33
Malaysian	6	0.05	97.37
Mexican	25	0.2	97.57
New Zealander	32	0.26	97.83

Norwegian	13	0.1	97.93
Pakistani	10	0.08	98.01
Polish	17	0.14	98.15
Russian	12	0.1	98.24
Singaporean	4	0.03	98.28
South African	58	0.46	98.74
South Korean	7	0.06	98.79
Spanish	14	0.11	98.91
Swedish	23	0.18	99.09
Swiss	48	0.38	99.47
Taiwanese	34	0.27	99.74
Turkish	13	0.1	99.85
Venezuelan	6	0.05	99.9
Vietnamese	13	0.1	100

Appendix Table B: Defintions of the variables

Variable	Definition and data source(s)
Foreign CEO	Dummy variable for one (zero otherwise) if a CEO has nationality other than American and/or bachelor's degree in home country and/or foreign work experience. Source: Marquis Who's Who, NNDB, firm website.
CEO Age	Natural logarithm of age of the CEO. Source: Execucomp.
CEO Tenure	Natural logarithm of the number of years the CEO has held the role in the firm. Source: Execucomp
Female	Dummy variable equals one for female CEOs (zero otherwise). Source: Execucomp.
MBA	Dummy variable equals one if the CEO has received an MBA degree (zero otherwise). Source: Marquis Who's Who, NNDB, firm web.
Ivy League	Dummy variable equals one if the CEO has Ivy League education, (zero otherwise). Source: Marquis Who's Who, NNDB, firm website.
Military Experience	Dummy variable equals one if the CEO has Military experience (zero otherwise). Source: Marquis Who's Who database.
Chairman/CEO	Dummy variable equals one if the CEO is the Chairman Of the board (zero otherwise). Source: Execucomp
Foreign born in state	People residing in the states who were not US citizens at birth. Source: US Census Bureau American Community Survey.
Geographic distance	Distance in kilometres between a CEO's country of origin and the US based on latitude and longitude.
Size	Log of total assets of the acquiring firm. Source: Compustat.
Leverage	Long term debt plus short term debt divided by the book value of the acquirer's total assets. Source: Compustat.
Cash	Cash and marketable securities normalised by total assets. Source: Compustat.
Tobin's Q	Market value of assets divided by the book value of assets, where market value of assets is equal to the book value of assets plus market value of common stock minus book value of common minus balance sheet deferred taxes. Source: CRSP and Compustat.
Capital expenditures	Firm capital expenditure divided by book value of assets. Source: Compustat.
R&D expenditure	Firm R&D expenditure divided by book value of asset. Source: Compustat.
Geographic segment	Number of geographic segments firm operates. Source: Compustat.
Run–up	Market-adjusted buy- and -hold returns of the acquirer's stock over a 200-day window (-210,-11). Source: CRSP.
Deal value	Value of the transaction in US$ million. Source: SDC.
Relative Size	Deal value divided by the market value of the acquiring firm's equity 10 days before the deal announcement

	Source: SDC and CRSP.
Hostile Deals	Dummy variable equals one if the deal is hostile or unsolicited (zero otherwise). Source: SDC.
Tender offers	Dummy variable equals one if the deal is tender offer (zero otherwise). Source: SDC.
Private Target	Dummy variable equals one for acquisition of private firms (zero otherwise). Source: SDC.
Public Target	Dummy variable equals one for acquisition of public firms (zero otherwise). Source: SDC
Subsidiary Target	Dummy variable equals one for acquisition of subsidiary firms (zero otherwise). Source: SDC.
Pure cash deals	Dummy variable equals one for deals fully financed with cash (zero otherwise). Source: SDC.
Pure stock deals	Dummy variable equals one if deal is fully financed with stock (zero otherwise). Source: SDC.
Pmt. Incl. stock	Dummy variable equals one if the deal is either partially or fully financed with stock (zero otherwise). Source: SDC.
CAR (-1, +1)	Cumulative abnormal returns of the acquiring firm's stock in the 3-day event window (-1, +1) where 0 is the announcement day. The returns are calculated using the market model parameters estimated over the period staring 210 days and ending 11 days before the announcement. The model parameters are estimated using CRSP value weighted index.
Takeover Premium	A ratio of the offer price to the target market value one week before the deal announcement. Source: SDC.
Diversified acquisition	Dummy variable equals one if the acquirer and the target are operating in different industries with different 2-digit SIC code (zero otherwise). Source: SDC.
Cross border acquisition	Dummy variable equals one if the target is a non-US firm. (zero otherwise). Source: SDC.
Payment method	Dummy variable equals one if the deal was purely paid with cash (zero otherwise). Source: SDC.
High-tech acquisitions	Dummy equals one if both the acquirer and the target are high tech firms with SIC codes 3571, 3572, 3575, 3577, 3578, 3661,3663, 3669, 3674, 3812, 3823, 3825, 3826, 3827, 3829, 3841, 3845, 4812, 4813, 4899, 7370, 7371, 7372, 7374, 7375, 7378, 7379, (zero otherwise).
Home bias acquisitions	Dummy equals one if target country is same as CEO country (zero otherwise). Source: SDC.

Table 1

Summary statistics of the sample

This Table presents summary statistics for the full sample in our study. Panel A reports the summary statistics of CEO characteristics. Firm characteristics are presented in Panel B. Panel C reports the summary statistics of merger and acquisition transactions of US firms from 2000-2017. Data on CEO characteristics are from Marquis Who's Who database and Execucomp. Firm level data are from Compustat and CRSP. M&As data are from Thomson Financial SDC database. All variables are defined in Appendix Table B.

Variable	No. obs.	Mean	Median	Std dev.	Min	Max
Panel A: CEO characteristics						
Foreign CEO	12524	0.136	0	0.343	0	1
CEO age	12519	65.230	65	8.462	32	96
CEO tenure	12524	5.865	3.9	6.210	0	32.8
Female CEO	12524	0.026	0	0.159	0	1
MBA	12524	0.322	0	0.467	0	1
Ivy league	12524	0.114	0	0.318	0	1
Military experience	12524	0.093	0	0.290	0	1
Chairman/CEO	12524	0.634	1	0.482	0	1
Panel B: firm characteristics						
Firm size($mil)	12524	25056.9	2956.2	120750.2	5.049	2264909
Leverage	12468	0.227	0.209	0.184	0	0.820
Tobin's Q	12072	1.929	1.520	1.204	0.798	7.478
Cash holdings	12104	0.148	0.086	0.163	0.001	0.754
R&D expenditure	12524	0.025	0	0.048	0	0.259
Capital expenditure	11938	0.042	0.031	0.042	0	0.230
M&A propensity	12524	0.227	0	0.419	0	1
Panel C: Deal characteristics						
Deal value (%Mil)	2843	788.2	131.7	3065.2	1.000	67285.7
Relative size	2743	0.106	0.036	0.185	0	1.115
Tender offer	2843	0.053	0	0.224	0	1
Hostile deal	2843	0.002	0	0.049	0	1
Diversifying acquisition	2843	0.436	0	0.496	0	1
Cross border acquisition	2843	0.237	0	0.426	0	1
Public target	2843	0.205	0	0.404	0	1
Private target	2843	0.407	0	0.491	0	1
Subsidiary target	2843	0.382	0	0.486	0	1
High tech acquisition	2843	0.239	0	0.426	0	1
Pure cash deal	1915	0.602	1	0.490	0	1
Pure stock deal	1915	0.081	0	0.273	0	1
Premium (%)	536	38.764	32.800	35.752	-33.950	217.430
CAR (-1,+1)	2660	0.002	0.002	0.049	-0.165	0.174

Table 2

Summary statistic for sub samples

This table compares the summary statistics of the domestic and foreign CEO sub samples in our study. Panel A presents differences in means of CEO characteristics. Panel B reports differences in means of firm characteristics. Differences in the means of the M&A transactions are shown in Panel C. ***, **, and * represent significance level at 1%, 5%, and 10%, respectively. The definitions of the variables are presented in Appendix Table B.

	Domestic CEOs (1)						Foreign CEOs (2)						**(1)-(2)**
	No. obs.	Mean	Median	Std.dev.	Min	Max	No. obs.	Mean	Median	Std.dev.	Min	Max	diff means
Panel A: CEO characteristics													
CEO age	10818	65.448	65	8.462	32	96	1692	63.889	64	8.322	42	92	1.614***
Female CEO	10823	0.029	0	0.168	0	1	1692	0.008	0	0.087	0	1	0.021***
CEO tenure	10823	5.786	3.800	6.173	0	32.8	1692	6.390	4.2	6.431	0	32.8	-0.604***
Chairman/CEO	10823	0.647	1	0.478	0	1	1692	0.556	1	0.497	0	1	0.091***
MBA	10823	0.325	0	0.468	0	1	1692	0.303	0	0.460	0	1	0.022
Ivy League	10823	0.122	0	0.328	0	1	1692	0.061	0	0.240	0	1	0.0615***
Military experience	10823	0.106	0	0.308	0	1	1692	0.009	0	0.094	0	1	0.0974***
Panel B: Firm characteristics													
Size ($Mil)	10823	25797	3104	120709	5	2264909	1692	20435.06	2278.932	121258.2	10.231	2187631	5361.94*
Cash holdings	10427	0.138	0.078	0.155	0.001	0.754	1668	0.212	0.146	0.191	0.001	7.478	-0.074***
Tobin's Q	10401	1.905	1.490	1.206	0.798	7.478	1662	2.082	1.718	1.183	0.798	7.478	-0.177***
Capital expenditure	10262	0.043	0.032	0.043	0	0.230	1667	0.037	0.026	0.039	0	0.230	0.007***
R&D expenditure	10823	0.021	0	0.045	0	0.259	1692	0.048	0.022	0.064	0	0.259	-0.026***
M&A dummy	10823	0.222	0	0.416	0	1	1692	0.260	0	0.439	0	1	-0.038***
Panel C: Deal characteristics													
Deal value ($mil)	2402	767.987	135.000	2892.546	1	67285.700	440	899.840	120	3879.174	1	59515.02	-131.853
Relative size	2318	0.106	0.036	0.187	0	1.115	424	0.101	0.036	0.178	0.0003	1.115	0.005
Tender offer	2402	0.051	0	0.220	0	1	440	0.061	0	0.240	0	1	-0.010
Hostile deal	2402	0.002	0	0.046	0	1	440	0.005	0	0.067	0	1	-0.002
Diversifying acquisition	2402	0.437	0	0.496	0	1	440	0.432	0	0.496	0	1	0.005

Cross border acquisition	2402	0.227	0	0.419	0	1	440	0.295	0	0.457	0	1	-0.069***
Public target	2402	0.209	0	0.407	0	1	440	0.186	0	0.390	0	1	0.023
Private target	2402	0.402	0	0.490	0	1	440	0.434	0	0.496	0	1	-0.032
Subsidiary target	2402	0.383	0	0.486	0	1	440	0.373	0	0.484	0	1	0.010
High-tech acquisition	2402	0.213	0	0.410	0	1	440	0.380	0	0.486	0	1	-0.166***
Pure cash deal	1598	0.596	1	0.491	0	1	316	0.630	1	0.484	0	1	-0.034
Pure stock deal	1598	0.087	0	0.282	0	1	316	0.051	0	0.220	0	1	0.036**
Premium (%)	460	37.068	30.945	35.216	-33.950	217.430	76	49.026	39.96	37.464	-1.33	217.43	-11.958***
CAR (-1, +1)	2245	0.003	0.003	0.049	-0.165	0.174	414	-0.002	-0.001	0.052	-0.165	0.174	0.005**

Table 3

Foreign CEOs and Acquisitiveness

This table presents regression estimates for foreign CEOs and other control variables on a firm's acquisitiveness. Column (1) reports the logit regression and marginal effects of foreign CEOs and firm control variables on acquisition propensity. Column (2) presents the marginal effect of foreign CEOs and firm controls on acquisition propensity. We include CEO compensation in Column (3). Column (4) reports the Poisson regression estimates of foreign CEOs and other control variables on acquisition frequency. Column (5) reports the OLS results of foreign CEOs and other controls on acquisition size. We include year and 2-digit SIC code industry fixed effects in all the models, but the coefficients are not reported. All variables are defined in Appendix Table B. The t/z-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)
	M&A propensity	M&A propensity	M&A propensity	M&A frequency	M&A size
Foreign CEO	0.0236**	0.0259**	0.0250**	-0.0417	-0.0370
	(2.2111)	(2.3840)	(2.2917)	(-1.5292)	(-0.4344)
Firm size	0.0324***	0.0321***	0.0259***	0.0371***	0.4860***
	(12.4320)	(11.9919)	(7.8921)	(5.1682)	(19.6010)
Tobin's Q	-0.0036	-0.0056	-0.0046	0.0120	0.0513
	(-1.0018)	(-1.5213)	(-1.1961)	(1.0144)	(1.4444)
Free cash flow	0.1795***	0.1738***	0.1743***	-0.0219	1.3022***
	(3.2945)	(3.1671)	(3.1676)	(-0.1324)	(2.6906)
Leverage	0.0248	0.0225	0.0158	0.0158	1.0677***
	(1.0169)	(0.9142)	(0.6349)	(0.2300)	(4.5902)
Loss dummy	-0.0804***	-0.0795***	-0.0779***	-0.0061	-0.1135
	(-6.2849)	(-6.1595)	(-6.0057)	(-0.1695)	(-1.1009)
Dividend yield	-0.9387***	-0.8414***	-0.8111***	-2.1841**	0.9191
	(-3.7714)	(-3.4767)	(-3.3701)	(-2.3600)	(0.4400)
R&D expenditure	0.3359***	0.2819***	0.2818***	0.0056	1.4672*
	(3.3279)	(2.7472)	(2.7248)	(0.0205)	(1.8290)
Capital expenditure	-0.6314***	-0.6297***	-0.6132***	0.2618	-3.5750***
	(-4.6488)	(-4.6111)	(-4.4760)	(0.5139)	(-3.1181)
CEO age		-0.0729***	-0.0730***	-0.0365	-0.0864
		(-4.3727)	(-4.3344)	(-0.7455)	(-0.6671)

Female CEO		-0.0276	-0.0277	-0.0265	-0.0505
		(-1.0053)	(-1.0060)	(-0.4034)	(-1.2094)
CEO tenure		0.0091*	0.0111**	0.0089	0.3927**
		(1.8135)	(2.1621)	(0.5916)	(2.0506)
MBA		0.0154*	0.0140*	-0.0484**	0.0039
		(1.8588)	(1.6815)	(-2.1351)	(0.0594)
Ivy League education		0.0347***	0.0362***	0.0259	-0.0250
		(2.9321)	(3.0597)	(0.8335)	(-0.2915)
Military experience		0.0095	0.0090	0.0359	-0.2157**
		(0.6850)	(0.6461)	(0.8743)	(-2.1303)
CEO portfolio delta			-0.0056	0.0047	-0.0482*
			(-1.5381)	(0.2917)	(-1.9336)
CEO portfolio vega			-0.0155	0.1180	-0.6605*
			(-0.3277)	(0.7716)	(-1.8427)
CEO total compensation			0.0137***	0.0003	0.0642***
			(3.2399)	(0.0327)	(2.6469)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	11,860	11,670	11,634	2,643	2,643
Pseudo/R-squared	0.068	0.071	0.073	0.013	0.347

Table 4

Foreign CEOs and cross border acquisitions

The table presents the results of the logistic estimates of foreign CEOs and cross border acquisitions. The dependent variable is a dummy equal to one if the target nation is outside the U.S. and zero otherwise. Column (1) presents the marginal effect of foreign a CEO on cross border acquisitions holding all other factors constant. Column (2) includes firm controls. Colum (3) controls for CEO characteristics. All models include year and 2-digit SIC code industry fixed effects, but coefficients are not reported. The z-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
Foreign CEO	0.0638***	0.0537**	0.0493**
	(3.0984)	(2.3424)	(2.1016)
Firm size		0.0395***	0.0391***
		(7.4106)	(7.2099)
Tobin's Q		0.0184**	0.0179*
		(1.9948)	(1.9122)
Free cash flow		-0.3591***	-0.3545***
		(-2.7721)	(-2.7174)
Leverage		-0.0990	-0.1129*
		(-1.6064)	(-1.8216)
Loss dummy		-0.0257	-0.0265
		(-0.8266)	(-0.8377)
Dividend yield		-1.8753***	-1.7512**
		(-2.6435)	(-2.5056)
R&D expenditure		-0.1623	-0.2227
		(-0.6509)	(-0.8871)
Capital expenditure		0.3171	0.2908
		(0.9737)	(0.8820)
CEO age			-0.0119
			(-0.3291)
Female CEO			-0.0246
			(-0.3342)
CEO tenure			0.0207*
			(1.8460)
MBA			0.0023
			(0.1221)
Ivy league			-0.0008
			(-0.0318)
Military experience			-0.0203
			(-0.6173)
Year fixed effects	No	Yes	Yes
Industry fixed effects	No	Yes	Yes
Pseudo R-squared	0.003	0.073	0.074
Observations	2,842	2,637	2,596

Table 5
Foreign CEOs and home bias acquisitions
The table presents the results of the logistic estimates of foreign CEOs and home bias acquisitions. The dependent variable is a dummy that equals one if the target nation is same as CEO country of origin and zero otherwise. Column (1) presents the marginal effect of foreign CEO on home bias acquisitions holding all other factors constant. Column (2) includes firm controls. Colum (3) controls for CEO characteristics. All models include year and 2-digit SIC code industry fixed effects, but coefficients are not reported. The z-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	2	3
Foreign CEO	-0.7544***	-0.7751***	-0.7698***
	(-14.1665)	(-14.1810)	(-14.1370)
Firm size		-0.0195***	-0.0203***
		(-3.8931)	(-4.0011)
Tobin's Q		-0.0080	-0.0077
		(-0.9965)	(-0.9550)
Free cash flow		0.3688***	0.3508***
		(3.3335)	(3.1279)
Leverage		0.0504	0.0656
		(0.9481)	(1.2264)
Loss dummy		0.0467	0.0411
		(1.6292)	(1.4248)
Dividend yield		0.6706	0.6699
		(1.2559)	(1.2579)
R&D expenditure		0.1467	0.2223
		(0.7046)	(1.0543)
Capital expenditure		-0.1247	-0.1182
		(-0.4060)	(-0.3800)
CEO age			0.0462
			(1.3673)
CEO tenure			-0.0175*
			(-1.6587)
MBA			-0.0010
			(-0.0596)
Ivy league			-0.0058
			(-0.2792)
Military experience			0.0114
			(0.4161)
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Pseudo R-squared	0.349	0.348	0.351
Observations	2,842	2,640	2,596

Table 6

Foreign CEOs and diversified acquisitions

The table presents a logit regression of a foreign CEOs' decision to engage in diversified acquisitions. The dependent variable is a dummy variable which takes value of one if both the target and the acquirer operate in different 2-digit SIC code industry. Column (1) presents the marginal effects of foreign CEO and firm control on diversified acquisitions. Column (2) includes CEO characteristics. All models include year and 2-digit SIC code industry fixed effects, but coefficients are not reported. All variables are defined in Appendix Table B. The z-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	(1)	(2)
Foreign CEO	0.0504**	0.0502**
	(2.0177)	(1.9671)
Firm size	0.0371***	0.0383***
	(6.0320)	(6.1037)
Tobin's Q	0.0141	0.0118
	(1.3774)	(1.1723)
Cash holdings	-0.1180	-0.2701*
	(-1.4163)	(-1.8648)
Leverage	-0.0283	-0.0107
	(-0.4139)	(-0.1564)
Loss dummy	-0.0130	-0.0257
	(-0.3890)	(-0.7479)
Dividend yield	0.7624	0.7396
	(1.2083)	(1.1536)
R&D expenditure	-0.2298	-0.4582*
	(-0.8544)	(-1.7382)
Capital expenditure	0.0426	0.3343
	(0.1187)	(0.9264)
CEO age		-0.0195
		(-0.4628)
Female CEO		0.0058
		(0.0793)
CEO tenure		0.0061
		(0.4745)
MBA		0.0450**
		(2.2883)
Ivy League		0.0263
		(0.9810)
Military experience		-0.0145
		(-0.4029)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Pseudo R-squared	0.123	0.124
Observations	2,640	2,596

Table 7

Foreign CEOs and high-tech acquisitions

The table presents a logit regression of a CEO's decision to engage in high tech acquisitions. The dependent variable is a dummy variable which takes value of one if both the target and the acquirer operate in technology firms and zero otherwise. Column (1) presents the marginal effects of foreign CEOs on high-tech acquisitions holding all other factors constant. Column (2) include firm controls. Column (3) include CEO characteristics. We include year and 2-digit SIC code industry fixed effects, but coefficients are not reported. All variables are defined in Appendix Table B. The z-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	(1)	(2)	(3)
Foreign CEO	0.1445***	0.0530***	0.0670***
	(7.5880)	(2.6471)	(3.2395)
Firm size		0.0134**	0.0145**
		(2.2617)	(2.4359)
Tobin's Q		0.0539***	0.0519***
		(6.2651)	(5.9268)
Free cash flow		-0.0355	-0.0093
		(-0.3011)	(-0.0786)
Leverage		-0.1284**	-0.1195*
		(-2.1341)	(-1.9391)
Loss dummy		0.1144***	0.1166***
		(4.6311)	(4.7581)
Dividend yield		-0.4385	-0.2516
		(-0.6127)	(-0.3726)
R&D expenditure		0.3144***	0.3068***
		(12.9539)	(12.9844)
Capital expenditure		0.0676	0.1120
		(0.2108)	(0.3467)
CEO age			-0.1024***
			(-2.9055)
Female CEO			-0.0201
			(-0.3601)
CEO tenure			0.0288***
			(2.6590)
MBA			0.0046
			(0.2646)
Ivy League			0.0434*
			(1.7213)
Military experience			0.0645*
			(1.8799)
Year fixed effects	No	Yes	Yes
Industry fixed effects	No	Yes	Yes
Observations	2,842	1,686	1,659
Pseudo R-squared	0.017	0.502	0.512

Table 8

Cross sectional regression analysis (OLS) of acquirer CAR and foreign CEOs

The table reports results of the cross sectional OLS analysis of acquirer 3-day CAR (-1, +1) on foreign CEO dummy and other CEO, firm and deal characteristics for a sample of U. S public, private and subsidiary acquisitions for the period 2000-2017. Column (1) reports the OLS results for the foreign CEO dummy holding all other factors constant. Columns (2) includes deal characteristics. We control for firm characteristics in column (3). Colum (4) includes CEO characteristics. We include year and 2-digit SIC code industry fixed effects in all models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
Foreign CEO	-0.0076***	-0.0074**	-0.0076**	-0.0081**
	(-2.7229)	(-2.1613)	(-2.1532)	(-2.2938)
Relative size		0.0245***	0.0198**	0.0202**
		(2.6983)	(2.0474)	(2.0837)
Diversifying deals		-0.0046*	-0.0047*	-0.0044*
		(-1.7223)	(-1.7390)	(-1.6490)
Hostile deals		-0.0152	-0.0162	-0.0167
		(-1.4747)	(-1.3657)	(-1.4003)
Tender offers		-0.0045	-0.0035	-0.0033
		(-0.8388)	(-0.6446)	(-0.6118)
Public target*pure cash deals		-0.0002	0.0029	0.0029
		(-0.0443)	(0.6991)	(0.6876)
Private target* pure cash deals		-0.0028	-0.0030	-0.0030
		(-0.9067)	(-0.9397)	(-0.9287)
Public target *Pmt.incl. stock		-0.0431***	-0.0423***	-0.0428***
		(-8.1461)	(-7.6983)	(-7.7398)
Private target *Pmt.incl. stock		-0.0055	-0.0038	-0.0043
		(-1.0077)	(-0.7077)	(-0.7935)
Firm size			-0.0023***	-0.0021**
			(-2.6826)	(-2.4319)
Tobin's Q			0.0010	0.0009
			(0.6806)	(0.6141)
Leverage			0.0274***	0.0276***
			(2.9233)	(2.9385)
Cash holdings			0.0119	0.0107
			(1.0641)	(0.9516)
Run-up			-0.0068	-0.0068
			(-1.5891)	(-1.5792)
CEO age				-0.0162
				(-1.1729)
CEO tenure				0.0030
				(1.6403)
MBA				-0.0009
				(-0.3122)
Ivy League				-0.0020
				(-0.5318)
Military experience				-0.0013
				(-0.2745)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes

Observations	2,659	1,782	1,723	1,723
R-squared	0.066	0.131	0.134	0.136

Table 9

Sub-sample analysis of foreign CEOs on acquirer 3-day CAR for acquisition types

The table reports the results of the cross sectional OLS analysis of acquirer 3- day CAR (-1, +1) on foreign CEO dummy and other controls for a sample of US public, private and subsidiary acquisitions for the period 2000-2017. Column (1) reports the OLS results for diversified acquisitions. Column (2) reports the results for high -tech acquisitions. Column (3) reports the results for cross border acquisitions. Column (4) reports the results for home bias acquisitions. All models include year and industry fixed effects, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10% respectively.

	(1)	(2)	(3)	(4)
	Diversify acquisitions	**High-tech acquisitions**	**Cross border acquisition**	**Home bias acquisitions**
Foreign CEO	-0.0105**	-0.0072	0.0056	-0.0230*
	(-2.0429)	(-0.9555)	(0.6850)	(-1.6622)
Relative size	0.0266	0.0338	0.0661**	0.0109
	(1.5739)	(1.2480)	(2.2247)	(1.0272)
hostile deals	-0.0206	-0.0154	-0.0017	-0.0136
	(-1.1906)	(-0.6626)	(-0.0602)	(-0.9517)
Tender offers	-0.0035	0.0116	0.0015	0.0006
	(-0.5614)	(1.0461)	(0.1420)	(0.0843)
Public target*pure cash deals	0.0054	0.0035	-0.0007	-0.0033
	(0.9846)	(0.3993)	(-0.0701)	(-0.6736)
Public target*pmt.incl. stock	-0.0357***	-0.0512***	-0.0365	-0.0440***
	(-3.9812)	(-3.5868)	(-1.4925)	(-6.9102)
Private target*pure cash deals	0.0044	-0.0001	-0.0091	-0.0032
	(0.9151)	(-0.0080)	(-1.1507)	(-0.7574)
Private target*pmt. incl. stock	-0.0027	-0.0149	-0.0092	-0.0064
	(-0.2653)	(-1.2824)	(-0.5083)	(-0.9996)
Firm size	-0.0006	-0.0010	-0.0033	-0.0031***
	(-0.5077)	(-0.6184)	(-1.5565)	(-2.7960)
Tobin's Q	-0.0012	0.0022	-0.0021	0.0014
	(-0.4683)	(0.7762)	(-0.5791)	(0.7412)

Leverage	0.0022	0.0715***	0.0018	0.0368***
	(0.1548)	(2.8311)	(0.0785)	(2.9864)
Cash holdings	0.0234	0.0447**	-0.0115	0.0170
	(1.3778)	(2.0992)	(-0.4872)	(1.1365)
Run-up	-0.0129***	-0.0046	-0.0087	-0.0086*
	(-3.4102)	(-0.6171)	(-1.2565)	(-1.6739)
CEO age	-0.0048	-0.0019	0.0023	-0.0215
	(-0.5447)	(-0.1582)	(0.1422)	(-1.2625)
CEO tenure	0.0008	-0.0046	-0.0044	0.0042*
	(0.2790)	(-1.2082)	(-0.9472)	(1.8898)
Ivy League	0.0040	0.0031	0.0210**	-0.0074*
	(0.7893)	(0.3822)	(2.4489)	(-1.7102)
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	683	482	342	1,155
R-squared	0.170	0.135	0.274	0.198

Table 10

Sub-sample analysis of foreign CEOs' effect on acquirer 3-day CAR for method of payment and target selection

The table reports the results of cross sectional OLS analysis of acquirer 3- day CAR (-1, +1) on the foreign CEO dummy and other controls for a sample of US public, private and subsidiary acquisitions from 2000-2017. Column (1) reports the OLS result for pure cash deals. Column (2) reports the results for pure stock deals. Column (3) has the results for private targets. Column (4) is the results for public targets. Column (5) is the results for pure cash acquisition of private targets. Column (6) is the results for pure stock acquisition of private targets. Column (7) is the results for pure cash acquisition of public targets. Column (8) is the results for pure stock acquisition of public targets. All models include year and industry fixed effects, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pure cash deals	Pure stock deals	Private target	Public target	Private target*pure cash deals	Private target*pure stock deals	Public target*pure cash deals	Public target* pure stock deals
Foreign CEO	-0.0064	-0.0515	-0.0066	-0.0104	-0.0051	-0.1141	0.0081	-0.0224
	(-1.5980)	(-1.5157)	(-1.5356)	(-1.1964)	(-0.6644)	(-0.9545)	(0.9151)	(-0.5014)
Relative size	0.0575***	-0.0336	0.0838***	0.0516***	0.1306***	-0.6996	0.0446	-0.0267
	(4.0264)	(-0.6034)	(5.5094)	(-4.1370)	(4.1966)	(-0.7653)	(1.2833)	(-0.2862)
Hostile deals	-0.0181	0.0930		0.0121			-0.0059	0.1167
	(-0.7842)	(1.3243)		(0.4995)			(-0.2137)	(1.0506)
Tender offers	0.0009	0.1006***	0.0319***	0.0070	0.0340**		-0.0023	-0.1352***
	(0.1916)	(-2.9363)	(3.6154)	(1.0604)	(2.1357)		(-0.3622)	(-2.7148)
Firm size	-0.0018*	-0.0093**	0.0014	-0.0019	0.0014	-0.0044	-0.0025	-0.0107
	(-1.7304)	(-2.0893)	(1.3210)	(-1.0144)	(0.6614)	(-0.2313)	(-1.1171)	(-1.6383)
Tobin's Q	0.0000	0.0034	-0.0005	0.0060*	-0.0019	0.0165*	0.0034	0.0010
	(0.0260)	(0.5058)	(-0.3066)	(1.8353)	(-0.7077)	(1.6936)	(0.8871)	(0.0617)
Leverage	0.0214*	0.1697**	0.0191*	0.0502**	0.0283	0.3450	0.0434*	0.1604*
	(1.9394)	(2.3623)	(1.7446)	(2.3089)	(1.2790)	(1.4933)	(1.6712)	(1.6823)
Cash holdings	0.0160	0.0850	0.0200	-0.0222	0.0367*	0.0318	-0.0161	0.0093

	(1.1541)	(1.3148)	(1.5626)	(-0.7559)	(1.6969)	(0.2589)	(-0.4949)	(0.0796)
Run-up	0.0006	-0.0052	-0.0019	-0.0202**	0.0103	-0.0097	-0.0056	-0.0148
	(0.0949)	(-0.7661)	(-0.3338)	(-1.9816)	(1.1639)	(-0.8412)	(-0.3995)	(-0.5000)
CEO age	-0.0035	-0.0551*	-0.0090	0.0122	-0.0338***	-0.2407*	0.0290*	-0.0415
	(-0.4832)	(-1.7265)	(-1.2860)	(0.9351)	(-2.6990)	(-1.7782)	(1.7186)	(-0.7694)
CEO tenure	0.0018	-0.0133	-0.0011	0.0006	0.0018	-0.0207	-0.0001	-0.0150
	(0.8247)	(-1.5381)	(-0.5194)	(0.1686)	(0.4807)	(-0.4928)	(-0.0206)	(-1.1387)
MBA	0.0002	0.0043	0.0002	0.0077	-0.0009	-0.0729	0.0065	0.0146
	(0.0486)	(0.3522)	(0.0755)	(1.4993)	(-0.1633)	(-1.1372)	(0.9031)	(0.7610)
Ivy League	-0.0032	0.0186	0.0039	-0.0018	0.0018	0.0270	-0.0024	0.0185
	(-0.6772)	(1.1355)	(0.8764)	(-0.2621)	(0.2298)	(0.3935)	(-0.2681)	(0.6113)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,034	135	1,039	505	405	37	232	88
R-squared	0.168	0.456	0.150	0.265	0.266	0.745	0.337	0.530

Table 11
Foreign CEOs and the acquisition premium
This table reports the OLS results for the impact of foreign CEOs on the takeover premium of US public acquisitions from 2000-2017. We measure takeover premium as the ratio of the offer price to the target market value one week before the deal announcement. Column (1) presents the results of foreign CEOs on the acquisition premium, holding all other factors constant. Column (2) includes deal characteristics. Colum (3) controls for firm characteristics. Column (4) includes CEO characteristics. We include year and 2-digit SIC code industry fixed effects in all models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, *, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
Foreign CEO	0.1141**	0.1303***	0.1281**	0.1430***
	(2.2507)	(2.5927)	(2.4768)	(2.7255)
Deal value		-0.0269**	-0.0230*	-0.0231*
		(-2.3143)	(-1.8790)	(-1.7215)
Relative size		-0.0064	-0.0479	-0.0633
		(-0.0961)	(-0.6660)	(-0.8499)
Tender offer		0.1224**	0.0970*	0.0927*
		(2.5127)	(1.9292)	(1.8596)
Hostile deal		-0.0426	-0.0323	-0.0079
		(-0.3935)	(-0.2965)	(-0.0761)
Diversifying deal		0.0129	0.0189	0.0123
		(0.3159)	(0.4433)	(0.2991)
Pure cash deal		0.0662	0.0615	0.0614
		(1.2628)	(1.1058)	(1.0937)
Pure stock deal		-0.0558	-0.0908*	-0.0848*
		(-1.2352)	(-1.8234)	(-1.7045)
Tobin's Q			-0.0281	-0.0337
			(-1.3049)	(-1.4877)
Leverage			-0.0201	-0.0258
			(-0.1532)	(-0.1909)
Cash holding			0.0907	0.0983
			(0.5785)	(0.6224)
Run up			0.0613	0.0623
			(1.1344)	(1.1055)
CEO tenure				-0.0249
				(-0.8755)
CEO age				-0.1272
				(-0.5622)
MBA				0.0618*
				(1.7096)
Ivy League				0.0145
				(0.3107)
Military experience				0.0919
				(1.3407)

Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	536	492	453	453
R-squared	0.196	0.268	0.272	0.287

Table 12

The impact of geographic segment on foreign CEOs and acquirer 3-day CAR

The table reports results of the cross sectional OLS analysis of acquirer 3-day CAR (-1, +1) on the interaction of foreign CEO dummy and geographic segment and other CEO, firm and deal characteristics for a sample of US public, private and subsidiary acquisitions from 2000-2017. Column (1) reports the OLS results for the interaction term holding all other factors constant. Column (2) includes deal characteristics. Colum (3) includes firm and CEO characteristics. We include year and 2-digit SIC code industry fixed effects in all models, but coefficients are not reported. All variables are defined in Appendix Table B. The t-statistics in parentheses are adjusted for heteroscedasticity and acquirer clustering. The symbols ***, ** and * denote significance level at 1%, 5% and 10%, respectively.

	(1)	(2)	(3)
Foreign CEO	-0.0250**	-0.0272**	-0.0292**
	(-2.4567)	(-2.2969)	(-2.2260)
Geographic segment	-0.0007	-0.0038	-0.0028
	(-0.2917)	(-1.2868)	(-0.9070)
Foreign CEO*geographic segment	0.0092*	0.0113*	0.0112*
	(1.7438)	(1.8236)	(1.6551)
Relative size		0.0286***	0.0279***
		(2.9387)	(2.7060)
Diversifying deals		-0.0054*	-0.0047
		(-1.9192)	(-1.6071)
Hostile deal		-0.0186	-0.0145
		(-1.5095)	(-1.1983)
Tender offer		-0.0041	-0.0046
		(-0.7483)	(-0.8127)
Public target *Pure cash deal		0.0025	0.0039
		(0.5839)	(0.8500)
Public target*pmt.incl. stock		-0.0496***	-0.0501***
		(-7.2012)	(-6.9868)
Private target*Pure cash deal		-0.0021	-0.0026
		(-0.6815)	(-0.8089)
Private target*pmt.incl. stock		-0.0029	-0.0055
		(-0.4615)	(-0.8503)
Firm size			-0.0014
			(-1.4735)
Tobin's Q			-0.0003
			(-0.1810)
Cash holdings			0.0075
			(0.6394)
CEO age			-0.0038
			(-0.5828)
Tenure			0.0024
			(1.1727)
MBA			-0.0016
			(-0.3546)
Year fixed effects	Yes	Yes	Yes

Industry fixed effects	Yes	Yes	Yes
Observations	2,443	1,598	1,546
R-squared	0.060	0.128	0.136

Table 13
Propensity score matching
Panel A reports the determinants of foreign CEOs. The dependent variable is a dummy equal to one if a CEO is foreign and zero otherwise. We include year and industry fixed effects in all the models, but coefficients are not reported. The z-statistics are in parentheses. Panel B presents the impact of foreign CEOs on M&As outcomes based on propensity scores. The treated variable is foreign CEO equal to one if a CEO has a nationality other than American and zero otherwise. The average treatment effect on the treated (ATT) measures the difference in M&A outcomes between the two groups. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

Panel A: Determinants of foreign CEO appointment	
Firm size	-0.0089
	(-0.8345)
Cash holdings	0.0.6468***
	(5.5103)
Leverage	0.1019
	(0.2231)
Tobin's Q	-0.0349**
	(-2.4112)
R&D expenditure	1.4718***
	(3.9643)
CEO age	-0.1541**
	(-2.3524)
CEO tenure	0.0284
	(1.3942)
Year fixed effects	Yes
Industry fixed effects	Yes
Observation	11,031
Pseudo R-squared	0.1021

Panel B: Impact on M&A outcomes

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
M&A propensity	Unmatched	0.260	0.222	0.038	0.011	2.52
	ATT	0.268	0.228	0.040	0.017	2.3
High-tech acquisitions	Unmatched	0.380	0.213	0.166	0.022	7.09
	ATT	0.288	0.212	0.076	0.034	2.21
Cross border acquisitions	Unmatched	0.295	0.227	0.069	0.022	2.88
	ATT	0.313	0.231	0.082	0.035	2.33
Home bias acquisitions	Unmatched	0.016	0.772	-0.756	0.020	-37.02
	ATT	0.022	0.769	-0.747	0.025	-29.69
Acquisition premium	Unmatched	0.490	0.371	0.119	0.045	2.32
	ATT	0.534	0.259	0.275	0.103	2.68
Acquirer 3-day CAR	Unmatched	-0.002	0.003	-0.005	0.003	-2.19
	ATT	-0.005	0.008	-0.013	0.005	-2.63

Table 14

Two-stage least squares regression for M&As type

The table presents the results of two-stage least squares estimate for acquisition propensity and M&As type. Column (1) presents the results of the first stage of the IV regression of foreign CEOs on geographic proximity and foreign born in the state in which the firm is headquartered. Column (2) presents the second stage regression of the foreign CEO instrumented on M&A propensity. Column (3) is the second stage for cross border acquisitions. Colum (4) is the second stage for home bias acquisitions. Column (5) is the second stage results for diversify acquisitions. Column (6) is the second stage result for high-tech acquisitions. We control for industry and year fixed effects in all regressions, but coefficients are not reported. The z-statistic are in parentheses. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	1st stage	2nd stage	2nd stage	2nd stage	2nd stage	2nd stage
	Foreign CEO	M&A propensity	Cross border acquisitions	Home bias acquisitions	Diversified acquisition	High-tech acquisition
Geographic distance	0.1125***					
	(986.4)					
Foreign born in the state	0.0007					
	(1.3664)					
Foreign CEO (instrumented)		0.0282**	0.0483**	-0.7124***	0.0353	0.0418**
		(2.2669)	(2.0482)	(-33.5894)	(1.2210)	(2.0762)
Firm size	-0.0716***	0.0327***	0.0378***	-0.0209***	0.0302***	0.0130***
	(-3.4279)	(12.1001)	(6.9982)	(-4.0972)	(5.0736)	(3.9260)
Tobin's Q	-0.0156	-0.0039	0.0181**	-0.0063	0.0132	0.0270***
	(-0.5877)	(-1.0484)	(2.0505)	(-0.7965)	(1.3576)	(4.9814)
Free cash flow	0.6828*	0.1438***	-0.3424***	0.3828***	-0.2491*	0.0046
	(1.7362)	(2.7152)	(-2.6588)	(3.2839)	(-1.7589)	(0.0578)
Leverage	0.1993	0.0183	-0.1142**	0.0619	0.0369	-0.0439
	(1.0494)	(0.7286)	(-1.9850)	(1.1554)	(0.5831)	(-1.2449)
Loss dummy	0.1965**	-0.0742***	-0.0282	0.0310	-0.0013	-0.0076
	(2.1930)	(-6.2080)	(-0.9620)	(1.1776)	(-0.0407)	(-0.4229)

Dividend yield	-2.0054	-0.2519**	-1.3453***	0.5428	1.5904***	0.3958
	(-0.7788)	(-2.5061)	(-2.5841)	(1.1204)	(2.7776)	(1.2401)
R&D expenditure	2.3838***	0.2892***	-0.2174	0.2466	-0.9764***	2.7724***
	(3.5555)	(2.7283)	(-0.9064)	(1.2063)	(-3.7020)	(18.8559)
Capital expenditure	-3.1932***	-0.5052***	0.2867	-0.2359	0.5003	-0.1968
	(-2.7873)	(-4.0949)	(0.9414)	(-0.8138)	(1.4935)	(-1.0536)
CEO age	-0.1247	-0.0702***	-0.0138	0.0398	-0.0045	-0.1053***
	(-1.0220)	(-4.2173)	(-0.3819)	(1.1953)	(-0.1130)	(-4.7403)
Female CEO	-1.3547***	-0.0288	-0.0069	0.0694	-0.0224	-0.0293
	(-4.2114)	(-1.1875)	(-0.1114)	(1.2257)	(-0.3287)	(-0.7709)
CEO tenure	0.0285	0.0090*	0.0205*	-0.0180*	-0.0010	0.0109
	(0.7447)	(1.7962)	(1.8275)	(-1.7552)	(-0.0810)	(1.5873)
MBA	0.0400	0.0160*	0.0034	-0.0008	0.0164	-0.0143
	(0.6169)	(1.9061)	(0.1888)	(-0.0487)	(0.8359)	(-1.3029)
Ivy League	-0.9096***	0.0390***	-0.0023	-0.0030	0.0616**	0.0032
	(-7.8149)	(3.1228)	(-0.0935)	(-0.1380)	(2.2986)	(0.2118)
Military experience	-2.5816***	0.0070	-0.0220	0.0207	-0.0575*	0.0479**
	(-8.8495)	(0.5046)	(-0.7179)	(0.7466)	(-1.7036)	(2.5436)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
First stage Cragg -Donald F statistics		49656.3	98258	96563.47	96563.47	96563.47
Overidentification *p*-value		0.2972	0.6935	0.8706	0.2162	0.1627
10% maximal IV		19.93	19.93	19.93	19.93	19.93
15% maximal IV		11.59	11.59	11.59	11.59	11.59
Observations	11,633	11,633	2,637	2,637	2,637	2,637
Pseudo R-squared	0.071	0.071	0.086	0.397	0.166	0.661

Table 15

Two-stage least squares regression for the acquisition premium and acquirer 3-day CAR

The table presents the results of two-stage least squares estimate for acquisition premium and acquirer 3-day CAR. Column (1) presents the results of the first stage of the IV regression of foreign CEOs on geographic proximity and foreign born in the state in which the firm is headquartered. Column (2) presents the second stage regression of the instrumented foreign CEO dummy on acquisition premium. Colum (3) is the results of the first stage of the IV regression of foreign CEOs on geographic proximity and foreign born in the state in which the firm is headquartered. Colum (4) is the second stage regression of the instrumented foreign CEO dummy on acquirer 3-day CAR. We control for industry and year fixed effects in all regressions, but coefficients are not reported. The t-statistics are in parentheses. The symbols ***, **, and * denote significance level at 1%, 5%, and 10%, respectively.

	Acquisition premium			Acquirer 3-day CAR	
	(1)	(2)		(3)	(4)
	Foreign CEO 1st stage	Acquisition premium 2nd stage		Foreign CEO 1st stage	3-day CAR 2nd stage
Foreign born in state	0.0032		Foreign born in state	0.0014	
	(0.8703)			(0.8610)	
Geographic distance	0.1165***		Geographic distance	0.1132***	
	(139.9)			(343.6)	
Foreign CEO (instrumented)		0.1372***	Foreign CEO (instrumented)		-0.0100***
		(2.8981)			(-2.8571)
Deal value	0.0011	-0.0228**	Relative size	-0.0037	0.0185***
	(0.6843)	(-2.0150)		(-0.6643)	(2.7372)
Relative size	-0.0089	-0.0716	Tender offer	-0.0046	-0.0037
	(-0.7425)	(-0.9157)		(-0.9610)	(-0.6484)
Tender offer	-0.009*	0.0971**	Hostile deal	-0.0084	-0.0068
	(-1.614)	(2.3975)		(-0.3721)	(-0.2487)
Hostile deal	(-0.1282)	0.0084	Diversifying deal	0.0052**	-0.0040
	-0.3921	(0.0368)		(2.3243)	(-1.5031)
Diversifying deal	(-0.0003)	0.0123	Public *pure cash deal	0.0011	0.0024
	-0.0610	(0.3463)		(0.2942)	(0.5438)
Pure cash deal	(-0.0020)	0.0621	Private target * pure cash deal	-0.0063**	-0.0026

	-0.3321	(1.4522)
Pure stock deal	(-0.0023)	-0.0815*
	-0.3130	(-1.6613)
Tobin's Q	(0.0002)	-0.0362*
	0.0710	(-1.8241)
Leverage	(0.0077)	-0.0288
	0.4132	(-0.2216)
Cash holding	(0.0302)	0.1070
	-1.3642	(0.6979)
Run-up	(-0.0039)	0.0583
	-0.5531	(1.1999)
CEO tenure	0.0065**	-0.0235
	(2.1044)	(-1.0878)
CEO age	-0.0094	-0.1310*
	(-0.8333)	(-1.6603)
MBA	0.0081*	0.0612*
	(1.6923)	(1.8272)
Ivy League	-0.0062	0.0126
	(-0.9222)	(0.2674)
Military experience	-0.0019	0.1005*
	(-0.2341)	(1.7334)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
First stage Cragg- Donald F statistics		9839.96
Overidentification *p*-value		0.4256
10% maximal IV		19.93
15 % maximal Iv		11.59
Observations	447	447
R-squared	0.294	0.294

	(-2.3241)	(-0.7918)
Public target*pmt.incl. stock	0.0047	-0.0431***
	(1.2012)	(-9.3687)
Private target * pmt.incl. stock	0.0012	-0.0061
	(0.2843)	(-1.2017)
Firm size	0.0012*	-0.0026***
	(1.7121)	(-3.0378)
Tobin's Q	-0.0003	0.0010
	(-0.2942)	(0.7818)
Leverage	0.0076	0.0293***
	(0.9901)	(3.2142)
Run-up	0.0005	-0.0063**
	(0.2312)	(-2.2612)
CEO tenure	-0.0014	0.0026
	(-1.0124)	(1.5534)
CEO age	0.0001	-0.0045
	(0.0141)	(-0.8174)
MBA	-0.0008	-0.0019
	(-0.3834)	(-0.7147)
Ivy league	-0.0038	-0.0009
	(-1.1802)	(-0.2293)
Military experience	-0.0066	-0.0009
	(-1.72413)	(-0.1878)
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
First stage Cragg -Donald F statistics		59016.1
Overidentification *p*-value		0.1722
10% maximal IV		19.93
15% maximal IV		11.59
Observations	1,699	1,699
R-squared	0.148	0.148

CHAPTER FIVE

CONCLUSION

1. Summary of findings

This study conducts an in-depth analysis of the impact of foreign CEOs on three aspects of corporate behaviour of publicly traded US companies from 2000 to 2017. In the study, we hypothesize that foreign CEOs' international experience will impact firms' risk taking behaviour and corporate policies because the literature shows that international experience impacts managers' strategic choices. In addition, we hypothesize that variations in the national culture of foreign CEOs will impact their firm's capital structure decisions because national culture has values and preferences that act as a constraint on individual's decision making.

Chapter 2 examines the impact of foreign CEOs on firm risk taking behaviour and management practices. Chapter 3 investigates how the cultural background of foreign CEOs impacts their firms' capital structure decisions. Chapter 4 examines the impact of foreign CEOs on mergers and acquisitions (M&As). Using a sample of S&P 1500 firms from 2000 to 2017, this study provides empirical evidence that foreign CEOs have a significant impact on firms' strategic decisions and performance. The main results of the study are as follows.

First, compared with domestic CEOs, foreign CEOs manage riskier firms. We empirically test this evidence using total risk measured using the stock return volatility, idiosyncratic risk and systematic risk of firms. The results show that firms managed by foreign CEOs have both high stock return volatility and idiosyncratic risk. We find no evidence for systematic risk. The results provide evidence of the risk tolerance attitude of foreign CEOs. Nevertheless, greater risk taking behaviour of foreign CEOs does not make diversified investors worse off because idiosyncratic risk is likely to be diversified away and the impact on a firm's systematic is insignificant. Additional analysis shows that the risk taking behaviour

of foreign CEOs is benenficial to shareholders because firms managed by foreign CEOs have a higher valuation using both the residual income and market-to-book approaches and a higher operating performance. However, the higher valuation and operating performance are found only in firms that have multiple geographic segments. The implication of this result suggests that not all firms enjoy the benefit of the risk taking behaviour of foreign CEOs and, therefore, policy makers should consider the geographic segments of firms when hiriing a foreign CEO.

Further analysis into the corporate policies of firms managed by foreign CEOs shows that firms managed by foreign CEOs invest more in intangaible assets. Specifically, the results show that foreign CEOs invest more in R&D and advertising, which have been described as risky investments because their outcomes are uncertain and usually have a zero salvage value. We show that firms managed by foreign CEOs are more likely to engage in M&As. We document that the legal origin of foreign CEOs matters for firm risk and management practices. The results show that foreign CEOs who come from common law countries (i.e., countries with better creditor rights) manage less risky firms than foreign CEOs from civil law countries. Additional analysis provides evidence that foreign CEOs who come from good management practice countries improve the productivity of their firms and those from countries with good corporate governance manage earnings less. This evidence shows that foreign CEOs transfer the knowledge of how foreign organisations operate into their firm, which benefits shareholders.

Second, the cultural background of foreign CEOs impacts the capital structure decisions of their firms. The results show that firms managed by foreign CEOs from individualistic cultures have higher leverage. These results are robust to the use of alternative measures of individualism and leverage. However, the tendency for individualist CEOs to positively impact the leverage of their firm is reduced in the presence of large institutional investors. This suggests that some form of corporate governance helps to reduce managerial ability to imprint

their preferences on corporate policies. We also document that firms managed by individualist CEOs are more likely to issue debt than equity and adjust their target leverage faster than foreign CEOs from collective cultures. Further analysis shows that individualism does not only impact the debt ratio but also the type of debt that firms hold. We find that firms managed by individualist CEOs hold shorter debt maturity. Thus, firms managed by individualist CEOs have a risky financing policy. This could be explained by the fact that individualism has been documented to be related to risky behaviour. We extend the analysis to the state level in the US and find that firms managed by American CEOs born in individualist states have higher leverage and shorter debt maturity. Overall, individualism explains a portion of the variation we observed in capital structure decisions.

Third, the acquisition propensity for firms managed by foreign CEOs is higher than for domestic CEOs. We find that firms managed by foreign CEOs are more likely to acquire targets in high-tech industries, foreign targets and targets operating in a different 2-digit SIC code industry. We also find that announcement returns are lower for firms managed by foreign CEOs in diversified and home bias acquisitions. The results show that foreign CEOs pay a higher premium in M&As. In conclusion, our analysis shows that foreign CEOs have a significant impact on M&As.

2. Contribution

This study makes several contributions to the corporate finance literature by showing that a CEO's background explains variations in corporate decisions. The specific contributions are as follows.

First, this study contributes to the growing strand of literature on CEO attributes and corporate policies. Specifically, it contributes to studies that show CEOs' attributes impacting firms' risk. Existing studies include CEO age, gender, pilot certificate, overconfidence, and marital status. This study shows that a CEO's identity (domestic or foreign) is important for

firm risk and that a foreign CEO's country of origin also impacts firm risk. The study shows that the risk taking behaviour of foreign CEOs is beneficial to shareholders of firms operating in multiple geographic segments. The study also adds to the literature on CEOs' characteristics and capital structure decisions. Previous studies include CEO personal leverage, ownership, compensation, and managerial entrenchment. This study adds to that research by showing that the cultural background of foreign CEOs has important implications for a firm's capital structure decisions. The major contribution of this study is that, unlike most CEO attributes that impact capital structure decisions, culture is given to individuals throughout their lifetime. The study also contributes to the literature on M&A outcomes. This study shows that foreign CEOs impact M&A outcomes and that the announcement returns for firms managed by foreign CEOs are lower in diversified and home bias acquisitions.

Second, this study contributes to the literature on the impact of foreign executives on corporate policies and firm performance. Though prior studies focus on international experience, this thesis shows that, in addition to their international experience, foreign CEOs cultural background matters for their firm's capital structure. This study also shows that foreign CEOs experience in a legal origin has a significant impact on management practices. Specifically, foreign CEOs from countries with better corporate governance reduce earnings management, and foreign CEOs from countries ranked high on management practices improve firm productivity. This suggests that foreign experience is not homogenous.

Third, the study contributes to the literature on the role of country of origin in influencing individual outcomes. Previous studies focused on country of origin in shaping corporate misconduct, tax evasion, shirking at work, the parking behaviour of United Nations officials and savings behaviour. This study's contribution is that foreign CEOs' legal origin and cultural background are important for corporate behaviour.

Fourth, the study contributes to the literature on the impact of different cultural backgrounds on financing decisions. While existing studies have focused on the macro level (Chui, Kwok & Zhou 2016; Chui, Lloyd & Kwok 2002; Zheng et al. 2012), this study provides evidence at the micro level by showing that the cultural background of individual foreign CEOs determines the financing decisions of their firms.

3. Future research

This study provides empirical evidence that foreign CEOs have a significant impact on firms' strategic choices and performance. We also show that the legal origin and national culture of foreign CEOs are important factors to consider when examining the impact of foreign CEOs on corporate policies. In what other ways do firms that employ foreign CEOs benefit? Corporate litigation can result in significant losses to shareholders. As a result, it would be interesting to consider the impact of foreign CEOs' legal origin on corporate litigation. Specifically, future research could examine whether firms managed by foreign CEOs who come from high litigation risk countries have a higher or lower probability of being sued than firms managed by foreign CEOs from lower litigation risk countries. The findings of Djankov et al. (2008) and La Porta, Lopez-de-Silanes and Shleifer (2006) show that variations in investor protection across countries expose managers to different levels of litigation risk, with litigation risk higher in better investor protected countries. Since foreign CEOs have been shaped by the formal and informal institutions of their birth countries this could impact their firms' probability of being sued. The results from such a study would provide evidence whether firms that employ foreign CEOs benefit from the impact of their legal origin.

Variations in the national culture of foreign CEOs could be examined for any effect on corporate innovation. The values and preferences embedded in some cultures will spur innovation in their firms because some cultures have values that increase risk taking because such cultures reward individuals for important discoveries and innovation. There are also some

cultures that emphasize the importance of trust in economic transactions. Therefore, foreign CEOs from cultures with a high level of trust may build a culture of trust in their firms that would increase knowledge sharing among its employees and increase firm innovation. Prior studies show that trust has important implications for innovative outcomes because trust in organizations may increase the flow of knowledge among employees. Therefore, it would be interesting to test different cultures' impact on innovation. Also, trust could reduce the information asymmetry of a firm. Such firms are less risky which is beneficial to investors.

This study examines the impact of foreign CEOs on publicly traded firms in the US that have a different ownership structure from firms in other countries. A comparable study of foreign CEOs in other countries (i.e., international evidence) would give a general idea of the impact of foreign CEOs on corporate behaviour. However, limited time and resources did not make it possible to make comparable study of other countries in this study.

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