



**DIRECTOR'S NETWORK, GOVERNANCE BUNDLES AND CASH HOLDING IN  
FOREIGN CROSS LISTED COMPANIES**

A thesis submitted for the degree of Doctor of Philosophy

By

Jaskaran Kaur

Brunel Business School  
College of Business, Arts and Social Sciences  
Brunel University London

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## Abstract

A well-connected director within the boardroom can affect governance positively. As discussed by Larcker, So, and Wang (2013), director's networks can serve as a channel for good business practices by exchanging valuable information among other directors. It is much easier for a well-connected director to receive important information through their connections that they then allow board to implement in the companies. This common practice is then revealed by many scholars. Bertrand, Kramarz, Schoar, and Thesmar, (2004), finds that directors with large networks receive favourable benefits from government agencies. Hochberg, Ljungqvist, and Lu (2007) show that director's networks seem to improve value by facilitating information flow in a variety of contexts such as venture capital investment and analyst recommendation (Cohen, Frazzini, and Malloy, 2010). According to Larcker, So, and Wang (2013) companies with well-connected directors demonstrate higher stock returns and superior financial performance. However, little research focus on director's networks and cash holdings, an essential asset on company's balance sheet.

In this thesis I study in detail the topological structure of director's network<sup>1</sup> that arise from this phenomenon. This thesis examines how governance bundles<sup>2</sup> and director's network relates to cash holdings<sup>3</sup> for foreign cross listed companies<sup>4</sup>. Using a large cross-country sample of 1,477 publicly listed companies from 32 countries during the period of 2004 –

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<sup>1</sup> A social network consists of a set of actors and the relationships among them, and the actors can be individual people, groups of people, objects, or events held together by certain relationships (Papakyriazis & Boudourides, 2001).

<sup>2</sup> corporate governance bundle is viewed as a combination of corporate governance practices or mechanisms (Chaney, Faccio, and Parsley, 2011)

<sup>3</sup> Cash holding, according to Gill and Shah (2012) is defined as cash in hand or readily available for investment in physical assets and to distribute to investors. Cash holding is therefore viewed as cash or cash equivalent that can be easily converted into cash.

<sup>4</sup> Companies usually list on a domestic stock exchange but occasionally opt for a foreign exchange as either substitute or supplement; the practice of listing on a nondomestic exchange is referred to variously as foreign listing, overseas listing, or cross-listing, (Sarkissian and Schill, 2014)

2015, I construct the implicit director's network with shared directors using their current, and previous employment.

**Purpose:** The purpose of this study is to measure the impact of governance bundles and director's networks on cash holding decision in foreign cross listed companies.

**Methodology:** Using Social Network Analysis<sup>5</sup>, I examine whether a pattern of director's network exist among 1,477 publicly listed companies based on the data from director's biography collected from Bloomberg.

**Findings:** I find a significant negative relation between governance bundles and directors' network in relation with companies' cash holdings. Additionally, I find complementary effect between governance bundles and director's networks and its impact on cash holdings. These finding are robust to alternative model specifications, different variable measurements and tests for endogeneity.

**Research Implications:** The findings of this study contribute to the academic literature related to cash holdings, governance bundles, director's network as well as cross listed companies and assist policymakers in understanding the importance of governance bundles and director's network when deciding companies' cash holdings for foreign cross listed companies.

**Key words:** Corporate Governance, Social Network Analysis, Governance Bundles, Cash Holdings, Cross-Listing, Cross-Country.

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<sup>5</sup> Social networks are broadly defined as webs of personal connections and relation- ships intended to secure favours in terms of personal and/or organizational action (Burt, 1992; Granovetter, 1985)

## Declaration

I declare that this thesis is the result of my own independent research and that all the sources have been duly acknowledged. The work presented here has not been submitted to any other institute of learning in support of any other degree or qualification.

Some of the material herein are presented at the conference with co-authors:

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## Abbreviations

CEO	Chief Executive Officer
CFO	Chief Financial Officer
CH	Cash holdings
CAPX	Capital expenditure
NWC	Net Working Capital
ROA	Return on Assets
REA	Retained earnings
CF	Cash flow
GDP	Gross Domestic Product
CG	Corporate Governance
CHE	cash and marketable securities
AT	Total Assets

## Dedication

**To my Husband, Akshay-** *For being my strength*

**To my Brother, Navkaran** – *Keeping me close to your heart*

**My Nephew, Jujhar Singh** – *Always cheering me in my dark days*

**My Niece, Jannat Kaur** – *Pushing me to reach the end*

# Chapter 1: Introduction

## 1.1 Introduction

Cash holdings have received considerable amount of attention from academics and practitioners in recent decades (Bates, Kahle and Stulz, 2009). These provide an important means through which companies ensure liquidity, especially during a period of crisis (Almeida et al., 2014; Florackis and Sainani, 2018). In the US, on average companies 'holdings doubled the amount of cash from what it was in 1980s (Dittmar and Mahrt-Smith 2007). Holding a large amount of cash provides a form of both certainty and uncertainty, as, on the one hand a company wants to hold cash for last minute investments, while, on the other hand, it shows the company is uncertain about their future. Jensen (1986) posits that the deployment of cash is central to the agency conflict between managers and shareholders. Managers have strong incentives to build large piles of cash due to the relative ease with which cash can be expropriated or used for non-value-maximising corporate activities for their own private benefit. Cash is also viewed as an idle and unproductive asset, earning a minimal rate of return. This perspective implies that holding less cash is desirable due to its relatively high marginal cost compared to more productive assets (Huang, Elkinawy and Jain, 2013). Dittmar et al. (2003) investigate cash holdings for international firms in 1998 and find that firms from low shareholder protection countries actually held more cash than those from better shareholder protection countries. The authors attribute these findings to an agency problem that allows managers in weak protection countries to hold cash, which can then be misappropriated (Huang, Elkinawy and Jain, 2013).

The literature on cash holdings shows that the value of cash holdings depends on how investors expect to use the cash (Dittmar and Mahrt-Smith, 2007; Fre´sard and Salva, 2010). Because cash holdings are liquid assets, managers can easily turn these resources into personal gains (Myers and Rajan 1998; Graham and Leary, 2018). Therefore, investors assign a lower value to cash holdings if management expects that the company's cash holdings may

turn into private gains to the disadvantage of the shareholders, that is, if the agency problem<sup>6</sup> is high. This claim has been confirmed by empirical evidence. For example, the relationship between cash holdings and the performance of a company tends to be weaker in countries with poor shareholder rights. Also, the presence of multiple significant shareholders enhances corporate scrutiny and, thus, increases the market value of cash holdings (Tong, 2011; Attig et al., 2013). According to Huang, Elkinawy and Jain (2013), investors value liquid asset more highly where a strong investor protection environment is available. Hence, to commit themselves to increased investors protection, directors decide to foreign cross-list their company to provide better investor protection.

It is well-established that a company's commitment to a foreign cross-listing has significant valuation effects (Bris et al., 2012). Previous research on home bias and information asymmetry considers geographical distance, difference in languages, and culture as three main factors that explain home bias (see Brennan and Cao, 1997; Coval and Moskowitz, 1999; Grinblatt and Kelohatju, 2001; Hau, 2003). Brennan and Cao (1997) and Coval and Moskowitz (1999) argue that local investors have easier access to information about local companies near them than they have with distant companies. For example, local investors may talk with local employees, managers and suppliers of the local companies. They can also read local media, contact local executives with whom they have a close relation and get important information more readily than they can with distant companies. Consequently, the cost of gathering information about local companies and a local economy is much less than the cost of gathering information about foreign companies and a foreign economy. For example, Schenk (2003) states that domestic investors who are interested in foreign security would have to become familiar with foreign accounting standards, markets and economies. This can arise agency issues between companies and the market for a company willing to

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<sup>6</sup> Following Opler et al., (1999) I define agency problems as the conflicts of interest between insiders and outsiders that may generate excess cash held or invested inefficiently.

cross-list. This will result in a higher information cost, a higher shadow cost and a higher expected return, as suggested by Merton (1987), and, thus, prevent domestic investors from investing in foreign security.

Empirical studies demonstrate that, when a company enters a foreign market, it faces implicit costs, including cost that arises from informational disadvantages (Ahearne, Grier and Warnock, 2004). A firm's commitment to a higher level of disclosure and scrutiny associated with cross-listing can alter the incentives for different types of informed market participants to collect and trade on private information, and thereby influence a firm's information environment and stock price formation process (Fernandes, Miguel and Ferreira, 2008). The impact of the cross-listing on the information environment can vary across countries. The enhanced disclosure associated with the cross-listing in the US can produce different results depending on a country's legal requirements. Prior literature argued that foreign companies are at an informational disadvantage relative to local companies in host countries (Brennan and Cao 1997; Kang and Stulz 1997; Choe, Kho, and Stulz 2005). This thesis focuses on information asymmetries that can arise from differences in accounting disclosure, disclosure requirements and regulatory environments across countries. For example, when investors contemplate purchasing equity in a foreign (outsider company) country, they must glean from published accounts information that is based on accounting principles and disclosure requirements that may differ greatly from those in their home (insider company) country . Moreover, the credibility of this information is determined to a large extent by the regulatory environment, which also varies considerably from country to country. Hence, information costs associated with investing in some countries may be significantly higher than in other countries (Ahearne, Grier and Warnock, 2004). Directors can use their connections to reduce the information asymmetry by sharing and gathering valuable information related to differences in accounting disclosure, disclosure requirements and regulator environments.



The disclosure of financial information is a way of communicating companies' financial activities to external users. The need for financial information can stem from the objective specified by IASC, FASB and ASB, which emphasises the need for accounting information as a means of helping investors in valuing the financial positions of companies and making investment decisions. Providing sufficient and high-quality information to investors has been the main concern of all national and international accounting organisations (e.g., the SEC). There are two types of accounting disclosure: mandatory and voluntary. Mandatory disclosure is imposed by national and international accounting bodies around the world (e.g., the SEC, IASC and ASB) through various forms of legislation and standards. On the other hand, voluntary disclosure is related to the choice of the manager whether to disclose certain types of information or not. In many cases, voluntary disclosures are provided through financial press, meeting with analysts and conference calls. Some motives for voluntary disclosure, as discussed by Gray et al. (1995) and Healy and Palepu (2000), are capital market transactions, corporate control contests, stock compensation, litigations, proprietary costs and information signalling. The evidence above suggests that the choice of voluntary disclosure is based on the directors' perception of the costs and benefits of increasing disclosure. Companies who are cross-listing may benefit from this increased disclosure, for example, directors can utilise their connections to attract more funding and reduce the cost of capital against the costs of gathering and processing this information in the foreign market, hence, reducing information asymmetry. Building on this notion, I advance the idea that information asymmetries between foreign and host markets are particularly pronounced with respect to the evaluation of a company's governance structure.

The benefits of foreign cross-listing include increasing a company's reputation, lower cost of capital, higher valuation of companies, lower private benefits and future growth prospects (Amira and Muzere, 2011). Velnampy (2013) finds that good corporate governance maximises the profitability and long-term value of the company for shareholders, as a result

increasing company performance. The findings from previous studies highlight the impacts of cross-listing and cash holdings on a company's financial performance. However, the ways in which country level governance interacts with company governance, which then affects a company's cash holding decision, remains unknown. Banalieva and Robertson (2010), suggest that cross-listing enhances company's financial performance as cross-listing companies can establish a reputation with their stakeholders in local and foreign markets. Cross-listing in a foreign market with better accounting standards allows companies to commit to greater transparency, thereby reducing the monitoring costs of their shareholders (Amira and Muzere, 2011). Huang, Elkinawy and Jain (2013) find that foreign cross-listed companies hold significant higher cash than domestic listed companies. However, I argue that, as companies get cross-listed in a foreign market, they gain access to external capital; therefore, companies can afford to hold less cash. Previous research finds the value of cash is substantially higher in companies with good governance<sup>7</sup> compared to those with poor governance (Dittmar and Mahrt-Smith, 2007). Seifert and Gonenc (2016) investigate the impact of governance bundles using national and company level governance on cash holdings and their results show that national level governance increases value of cash; however, they did not find clear evidence on company level governance. Many scholars suggest that company performance is dependent on the effectiveness of the governance bundles rather than any one mechanism of corporate governance, (Aguilera, Desdender and Castro, 2011; Schepker and Oh, 2013; Yoshikawa, Zhu and Wang, 2014). Therefore, it is important to build the understanding of national and company level governance bundles that affect a company's cash holding decision for foreign cross-listed companies.

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<sup>7</sup> Following [Aguilera](#) and [Cazurra](#) (2009), I define good governance as a set of best practice recommendations regarding the behaviour and structure of the board of directors.

Huang et al. (2013) indicate that the improvement of corporate governance associated with cross-listing enables firms to maintain higher cash levels, thus allowing them to take advantage of the benefits associated with larger cash balances with a lower risk of managers making improper use of this resource. When a company enters foreign markets, companies undertake more robust governance mechanisms and provide a greater degree of protection for shareholders and transparency; it is expected, therefore, to have a positive association with the companies' cash levels (Huang et al., 2013).

According to previous studies, for example, Fernandes, Miguel and Ferreira (2008), companies who want to cross-list in the foreign market might anticipate the likelihood of cross-listing for particular needs (e.g., raising external capital) or growth opportunities. Such firms would be more likely to adhere to more stringent disclosure requirements, adopt better governance standards and practices, and attract foreign analysts in advance of cross-listing.

Chahine and Filatotchev (2008) state that good governance enhances the quality of information disclosure and reduces information asymmetry. Based on the trade-off theory of cash holdings, higher information transparency makes firms more capable of raising external funds for capital investments (Chen, 2008). As firms with good governance increase the quality of information disclosure, they have more chances to cross-list their firms in a foreign country and increase their chances of raising external funds, which allows them to hold less cash. On the other hand, companies with lower governance quality will find it difficult to adhere to the strict rules and regulations of the foreign market and can only rely on the home market for capital investments, so home listed companies will have extra cash holdings. Therefore, when a company decides to cross-list in a foreign market, it will follow a rigorous set of laws by improving governance, which will reduce the opportunities for managers to use the cash for personal benefits.

Another stream of literature demonstrates directors' significant positions are considered to be more influential and powerful and should possess more network connections due to their large networks (Fogel, Jandik and McCumber, 2018). Through their networks, directors can gather important information about corporate strategies, industry trends, as well as foreign markets, which may lead to more influence in board room discussion. These networks are formed through various channels, such as employment activities, educational institutes, or social clubs and charitable organisations (Fracassi and Tate, 2012; Renneboog and Zhao, 2014; Chahine et al., 2019). Research shows that directors' personal characteristics, such as their connections, provide an effective channel for information exchange, allowing transmission of knowledge, ideas, or private information (Engelberg, Reed and Ringgenberg, 2012; Fracassi and Tate, 2012; Larcker, So and Wang, 2013; El-Khatib, Fogel and Jandik, 2015), which can become useful for directors when they decide to cross-list their company in a foreign market. Larcker, So and Wang (2013), show that well-connected directors are central to the network's aggregate flow of valuable information and resources, which can have direct impact on cash holdings and company performance as the information advantage can help the directors to make better decisions and reduce information asymmetry.

However, little research has focused on the investigation of the impact of governance bundles and directors networks on companies' cash holdings. This study continues this line of inquiry by examining the impact of governance bundles and directors' networks' connections on cash holdings for foreign cross-listed companies. More specifically, I ask how governance bundles and directors' networks' connections affect a foreign cross-listed company's cash holding decision and how it is manifested in corporate policies. Prior research suggests that foreign cross-listing is typically followed by increased monitoring and higher corporate governance requirements (e.g., Coffee, 1999; 2002; Stulz, 1999; Reese and Weisbach, 2002; Doidge, Karolyi and Stulz, 2004), as well as their country characteristics, such as their legal environment (Jaggi and Low, 2000; Hope, 2003) resulting in companies holding less cash. In

other words, cross-listing is conducive to foreign companies “bonding” themselves to better investor protection and higher governance standards, including company level and national level.

## 1.2 Research Problem

Studying the relation between cash holdings and cross-listing companies is essential due to the recent acceleration of the cross-listing phenomenon . Previous research on the factors that determine the cross-listing focused on two aspects, the level of financial disclosure required by the host market and the quality of investor protection in the host country (Biddle and Saudagaran, 1989; Saudagaran and Biddle, 1992; 1995; Pagano et al., 2002; Reese and Weisbach, 2002). La Porta et al. (1999) argue that the investors in countries with better shareholder protection prefer to hold large blocks of equity to protect their interests from self-interested managers. La Porta et al. (1998) show that the quality of investor protection in a country is highly correlated with the legal origin of its laws (common law vs. civil law origin). La Porta et al. (1998; 1999) also provide empirical evidence for their argument that countries with a common law system have better investor protection than countries with a civil law system. Their data also show that companies are widely held in countries with good investor protection, whereas companies in countries with poor investor protection are characterised by concentrated control.

Previous research on cash holdings and directors’ networks focused on the domestic context and ignored the impact of cross-listing on the cash holdings and corporate governance. By cross-listing, I mean the listing of the company’s shares on the foreign market when the shares are also listed on the home market. Studies find that managers consider the increase of the shareholder base as an important motive to cross-list their company in the foreign market

(Sarkissian and Schill, 2014). Studying the relation between cross-listing and cash holdings is essential due to the acceleration of the cross-listing phenomenon since 1990. The increase in the activity of cross-listing has been facilitated by the deregulation and liberalisation of financial markets, and the major advances in the communications and information technology which has made flow of information across capital markets feasible. In addition, companies can choose the market on which they cross-list their securities and raise capital. This fosters global competition between stock exchanges that differ in their ability to attract foreign companies.

Corporate cash holdings have received increased academic attention in recent years. This is mainly because many corporations hold large amounts of cash (Ferreira and Vilela, 2004). Cash and cash equivalents usually constitute an important component of a company's assets (Kusnadi, 2011). Cash represents a major portion of corporate wealth and is easily accessible by managers. It is also important to analyse corporate cash holdings because of associated costs, such as the opportunity cost of not investing in positive Net Present Value (NPV) projects (Al-Najjar, 2013).

Studies finds that cash balances have been significantly growing throughout the years. Bates, Kahle and Stulz (2009) found that, in 2006, companies in the United States held double the amount of cash compared to 1980 figures. Iskandar-Datta and Jia (2012) extend this analysis to other major industrial countries, namely the United States (US), the United Kingdom (UK), Canada, Australia, Germany, France and Japan from 1991 to 2008. The only country that had a decrease in cash holdings is Japan. This was attributed to the country's strong banking sector. All other countries experienced an increase in corporate cash holdings over time, predominantly due to precautionary motive. Corporate governance is vital for deterring managers from destroying firm value (Dittmar and Mahrt-Smith, 2007). The academics find that better governance significantly increases the value of a dollar of cash. The agency cost of free cash flow theory suggests that managers hoard cash because they want to increase

resources under their control so as to increase their personal power and managerial discretion (Jensen, 1986). Therefore, it is important to highlight that good corporate governance practices should, in theory, decrease managerial discretion and force managers to take decisions that are value adding to shareholders. Dittmar et al. (2003) and Kusnadi (2011) confirm that, in the presence of poor corporate governance practices, firms prefer to hold higher cash levels. Al-Najjar (2013) highlights the importance of further academic enquiry into corporate cash holdings in developing countries.

Nevertheless, none of the studies has examined whether the corporate governance bundles and directors' networks affects cash holding decision for foreign cross-listed companies. Many studies focusing on the measure of cash holdings in an international context have only focused on a single country. Some of the studies use corporate governance variables at country and company level separately rather than as country and company governance bundles. As cash represents a major portion of corporate wealth and it has many benefits, such as being able to provide liquidity for day-to-day operations and having sufficient funds for upcoming investment opportunities. and directors' networks and governance bundles have vital influence in the decision of cash holdings, no studies have yet looked at the importance of directors' networks and governance bundles in relation to cash holdings for cross-listed companies.

### 1.3 Research Rationale

Millar (2014) argues that the consistency of governance bundles, which include both formal and informal governance mechanisms, reflects the culture and ethical demands of the society in which the companies operate. Aguilera and Cuervo-Cazurra (2009) find that “studies on codes of good governance have focused on the codes issued in each country rather than on codes issued by transnational institutions that have a wider applicability and speak to the important debate of worldwide governance”. This makes it clear that it is important to

understand the role of governance bundles and directors' network on foreign cross listed company's cash holding decision.

The initial catalyst for this research stemmed from existing literature which motivated me to expand the research on governance mechanisms, director's networks and cash holdings. Although researchers have attempted to impose different mechanisms of governance bundles and network connections (Cheng, Felix, and Zhao, 2019; Aslan and Kumar, 2014), the scholars have adopted to see the effect of governance bundles and director's networks separately. Therefore, this thesis attempts to find the relationship between governance bundles and director's networks on cash holdings of foreign cross listed companies in a cross-country setup.

Studying the relation between cash holdings and cross listing companies are essential due to the acceleration of the cross listing phenomenon lately. Previous research on the cross listing factors determine that cross listing in foreign market focus on the two aspects 1.) the level of financial disclosure required by the host market and 2.) the quality of investor protection in the host country (Biddle and Saudagaran, 1989; Reese and Weisbach, 2002). La Porta et al., (1999) argue that the investors in countries with better shareholder protection prefer to hold large blocks of equity to protect their interests from self-interested managers. La Porta et al. (1998) shows that the quality of

investor protection in a country is highly correlated with the legal origin of its laws (common law vs. civil law origin). La Porta et al. (1998,1999) provide empirical evidence for their argument that countries with a common law system have better investor protection than countries with a civil law system. Their data also shows that companies are widely held in countries with good investor protection, whereas companies in countries with poor



investor protection are characterised by concentrated control.

Studies find that cash balances have been significantly growing throughout the years. Bates, Kahle and Stulz (2009) found that in 2006, companies in the United States held double the amount of cash compared to 1980 figures. Iskandar-Datta and Jia (2012) extend this analysis to other major industrial countries, namely United States (U.S.), United Kingdom (U.K.), Canada, Australia, Germany, France and Japan from 1991 to 2008. The only country that had a decrease in cash holdings is Japan. This was attributed to the country's strong banking sector. All other countries experienced an increase in corporate cash holdings over time predominantly due to precautionary motive. Corporate governance is vital for deterring managers from destroying firm value (Dittmar and Mahrt-Smith, 2007). The academics find that better governance significantly increases the value of a dollar of cash. The agency cost of free cash flow theory suggests that managers hoard cash because they want to increase resources under their control to increase their personal power and managerial discretion (Jensen, 1986). Therefore, it is important to highlight that good corporate governance practices should in theory decrease managerial discretion and force managers to take decisions that are value adding to shareholders. Dittmar et al. (2003) and Kusnadi (2011) confirm that in the presence of poor corporate governance practices firms prefer to hold higher cash levels. Al-Najjar (2013) highlights the importance of further academic enquiry into corporate cash holdings in developing countries.

Nevertheless, none of the studies has examined whether the corporate governance bundles and director's networks effects cash holding decision for foreign cross listed companies. Many studies focusing on the measure of cash holdings in an international context have only focused on single country. Some of the studies use corporate governance variables at country

and company level separately rather than as a country and company governance bundles. As cash represents a major portion of corporate wealth and it has many benefits such as being able to liquidity for day to day operations and having sufficient funds for upcoming investment opportunities and directors networks and governance bundles have vital influence in the decision of cash holdings, none of the study yet looked at the importance of directors networks and governance bundles in relation to cash holdings for cross listed companies.

## 1.4 Research Questions

The overall aim of the thesis is to analyse the impact of governance bundles and directors' networks on cash holdings for cross-listed companies. The aim is achieved by testing the research hypothesis which determines if the governance bundles and directors' networks have negative or positive impact on cash holdings for cross-listed companies. In order to contribute to the understanding of cash holdings for cross-listed companies, the following research questions are formulated:

- 1: How do governance bundles affect companies' cash holding for foreign cross-listed companies?
- 2: How do directors' networks' connections affect companies' cash holding decision for foreign cross-listed companies?

### Research objectives

In order to address the research questions, the following objectives are formulated:

To examine the effects of governance bundles on cash holdings for cross-listed companies.

To examine the incorporation of directors' networks in cash holdings decision for cross-listed companies.

To investigate whether governance bundles, when interacted with directors' connections, affects cash holdings decision for cross-listing companies.

Reviewing the literature on cash holdings, governance bundles, directors' networks and cross-listing from a corporate governance perspective.

Selecting an appropriate data collection technique and the best possible multivariate regression estimator.

Analysing empirical findings in comparison with previous literature and providing recommendations for companies, directors, investors, and policy makers.

Providing a conclusion, highlighting the contribution of the findings, presenting research limitations, and recommending areas of future research.

#### Motivations

Prior researchers on the cash holdings and cross-listing focused on the domestic context and ignored the impact of cross-listing on the cash holdings (Mittoo, 1992; Fatemi and Rad, 1996; Yamori and Baba, 1999; Bancel and Mittoo, 2001). By the cross-listing, I mean when the company enters a foreign market to list their stocks in other markets. Evidence shows that directors consider the increase of shareholder base as an important motive to cross-list in the foreign market. However, none of the studies have examined the relationship between the cash holdings, corporate governance and directors' networks for cross-listing companies in a cross-country setup. The increase in the activity of the cross-listing has been facilitated by the deregulation and liberalisation of financial markets and the major advances in

communications and information technology ,which has made the flow of information across capital markets feasible. Therefore, it is important to examine factors such as corporate governance and directors' networks that affect the cross-listing.

This thesis fills the gap in research through combining company's governance with country level governance variables by measuring their effect on the cash holding decision for cross-listed firms. This study finds that governance bundles play an important role to make cash holdings decision for cross-listing companies.

### Contributions

Dittmar et al. (2003) conducted a cross-country analysis on corporate cash holdings. They analysed around 11,000 companies from 45 different countries and found that the overall median cash ratio is 6.6%. This study is the first to investigate the determinants of corporate governance and company and country level and cash holdings for cross-listed companies. Previous research found that firms operating in countries with weak shareholder protection hoard more cash than those operating in countries with strong shareholder protection due to higher managerial discretion exercised by top management (Dittmar, Mahrt-Smith and Servaes, 2003; Pinkowitz, Stulz and Williamson, 2006; Al-Najjar, 2013). This study investigates a large set of variables in order to gain a comprehensive understanding of the determinants of cash holdings decision for cross-listed companies. This includes the investigation of variables that are underrepresented in the literature on corporate cash holdings, such as country level governance, directors' networks, and cross-listed companies.

Theoretically, this study contributes to extending the cash holdings and governance bundles literature by studying governance bundles and directors' networks' effect in cross-listed

companies in a cross-country setup. The focus of previous research on cash holdings has been mainly on Europe and the US, such as Ferreira and Vilela (2004), Ozkan and Ozkan (2004), Drobetz and Gruninger (2007), Harford, Mansi and Maxwell (2008) and Bates et al. (2009). Recently, studies have started to focus more on emerging markets, such as Brazil, Russia, India, China (Al-Najjar, 2013), Nigeria (Ogundipe, Salawu and Ogundipe, 2012), China (Chen et al., 2014; Kusnadi, Yang and Zhou, 2015), East Asia (Song and Lee, 2012) and Iran (Rezaei and Saadati, 2015). Al-Najjar (2013) highlights the importance of investigating developing countries due to greater market imperfections and higher bankruptcy-related costs as compared to developed markets. Nevertheless, there has been no research on the determinants of cash holdings, governance bundles and directors' networks in cross-listed companies in a cross-country study.

Cash holdings and cross-listing have been receiving increased attention in recent years from academics and practitioners around the world. The New York Times has recently reported that companies in the US hold \$1.9 trillion in cash collectively (Davidson, 2016). One of the examples is Google, having \$80 billion cash in bank accounts and short-term investments (Davidson, 2016). These significant amounts of cash are idle funds that could be invested to generate future profits. Therefore, academics and practitioners, such as boards of directors, managers, investors and policy makers, need to know why companies keep such significant cash balances and how governance bundles and directors' networks influence their decision. This research will help explain the reasons behind cash holdings in cross-listed companies around the world. This study will contribute to academic literature by extending the literature for cross-listing companies, cash holdings, corporate governance, and directors' networks. In practice, the policy makers will benefit from this study by applying the findings of this study when determining the policies in their companies, for example, selecting directors with high connections who can bring valuable information regarding cross-listing markets.

### 1.4.1 Summary of Key Findings

In order to analyse the impact of governance bundles and directors' networks on cash holdings for cross-listing companies, this study addresses the following questions: (1) How do governance bundles affect companies' cash holding for foreign cross-listed companies? 2: How do directors' networks connections affect companies' cash holding decision for foreign cross-listed companies? After performing a number of analyses, I find that companies with better governance bundles hold less cash when cross-listing their companies in the foreign market. These results are supported by stakeholder theory where it is mentioned that directors should make decisions taking into account the interest of all the stakeholders of the company. This finding is consistent with Kusnadi (2011) and Boubaker and Derouiche (2015) who agree that, when corporate governance increases monitoring, companies hold less cash. To answer the second research question, I use directors' centrality measures, such as degree centrality, closeness centrality, betweenness centrality, eigenvector centrality and composite score of centralities. After performing a number of regressions, I find that directors' networks play an important role to collect important information for foreign markets. So cross-listed companies with high directors' networks hold less cash. Again, these results are supportive of network theory where one can utilise their connections to gain valuable information ultimately to improve the company's financial performance. These findings are consistent with Miranda-Lopez and Orlova (2018) who find that companies with high centrality hold less cash. This study only focuses on US listed companies, hence ignoring the important factor of cross-listings.

I regress the governance bundles and directors' networks on companies' cash holding decisions for foreign listed companies by controlling company and countries characteristics. In addition, and most important for the research question, I include an interaction term between governance bundles and directors' networks' connections and find their effects on cash holdings. In this study, I find companies with good governance bundles and directors' high network connections hold less cash. Companies with good governance mechanisms and directors' high networks will receive favourable treatments, such as liability of foreignness benefits, which will reduce the need to keep high level of cash. Companies with good governance mechanisms can also have better access to meet the stringent cross-listing requirements in the foreign market, making the process of listing in other markets quicker.

### Limitations

This study has a number of limitations. Firstly, the research is limited to hand collected data from Bloomberg. In Bloomberg there is directors' biographical information from around the world. However, it was very time-consuming to collect all the directors' information, so I ended up collecting only 5000 directors' information. Some of the information for the companies was not available in the data stream, so I have had to drop firms.

## 1.5 Thesis Structure

### Chapter 1: Introduction

This chapter provides a background on cash holding, governance bundles, cross-listing companies and directors' networks and why it is an important area of research. It overviews the basic managerial decisions regarding cash holdings for cross-listing companies. The chapter explains how the original contribution addresses the gap in the literature. More specifically, it highlights the theoretical contribution of the research and the important practical implications.

## Chapter 2: Literature Review

This chapter aims to focus on reviewing previous studies and showing how governance bundles and directors' networks can be very important in cash holdings decision for foreign cross-listed companies. It reviews previous research on country level and company level corporate governance and how they can have a significant impact on cash decisions. Based on the network theory and stakeholders, the hypotheses for corporate governance characteristics are formulated.

## Chapter 3: Theoretical Framework

The third chapter provides the conceptual framework of the studies. It describes the theories related to directors' networks and corporate governance factors. More specifically, it describes the factors determining cash holding decisions under each governance factor, such as governance bundles and directors' networks. Based on the theories used in this study, the hypotheses for company characteristics are formulated.

## Chapter 4: Methodology

The fourth chapter provides the methodology section, explaining the methods used in this study in detail and provide justification for the research design and the chosen methods to carry out the investigation that lies within. This chapter discusses in-depth justification of the chosen methods of this research. I exercise secondary data collected from Bloomberg, DataStream and World Bank. Adoption of this method contributed to answer the above-mentioned research questions in this study by enabling insights into governance mechanism, directors' activities that affect their networks and their impact on cash holdings. Using sample period from 2004 to 2015, I construct annual network ties using software "R" for each year and measure centrality for each director. The final sample consists of 6,571 company year observations and 1,477 foreign cross-listed companies from 32 countries. I



have used OLS (ordinary least squares) regression as the baseline model. In addition, I have used 2SLS and lagged variables to take care of reverse causality. In addition, I have performed robustness tests to see if the impact of governance bundles and directors' networks changes on cash holding decision. However, I found the results stay similar even after performing a number of robustness tests.

#### Chapter 5: Empirical Analysis

The fifth chapter demonstrate the empirical analysis by providing the findings after running various types of estimations. This chapter depicts empirical analysis and research findings of the collected sample. I regress the governance bundles and director's networks on companies' cash holding decisions for foreign listed companies by controlling company and countries characteristics. In addition, and most important for the research question, I include an interaction term between governance bundles and directors' networks' connections and find their effects on cash holdings. In this study, I find companies with good governance bundles and directors' high network connections hold less cash. Companies with good governance mechanisms and directors' high networks will receive favourable treatments, such as liability of foreignness benefits, which will reduce the need to keep high level of cash. Companies with good governance mechanisms can also have better access to meet the stringent cross-listing requirements in the foreign market, making the process of listing in other markets quicker.

#### Chapter 6: Discussion

Chapter six illustrates the research gaps, contribution and limitations of the research, including areas for future research, whilst highlighting contributions to both theory and practice.

## Chapter 7: Conclusion

This chapter concludes the thesis, summarising the research methods and results. It also presents how the research objectives are achieved and how the research gap is filled. The theoretical and practical contributions are highlighted in terms of the research findings.

## Chapter 2: Literature Review

## 2.1 Literature Review

This chapter reviews the relevant studies on the development of governance bundles, directors' networks and cash holdings to identify the gap and lack of evidence in the literature. The chapter also describes the importance of foreign cross-listed companies and explains the shortcomings of the previous studies in addressing the importance of directors' networks' connections and governance bundles factors in a company's cash holding decision. It provides an overview of the prominent role of complementarities between governance bundles and directors' networks with cash holdings and concludes by drawing together the main themes of this part of the literature.

### 2.1.1 Foreign Cross-listing

Over the last few years, the number of foreign cross-listed companies has increased dramatically on the major US and European stock exchanges (Charitou and Louca, 2017). The empirical literature has documented evidence on the benefits of cross-listing companies in foreign markets; firstly the benefits include lower cost of capital (Stapleton and Subrahmanyam, 1977) and secondly, increased stock liquidity through facilitating the trade in the share of the cross-listed companies for foreign investors (e.g., Fatemi and Rad, 1996). Thirdly, is commitment to increase the company's valuation and lowering private benefits (Amira and Muzere, 2011) and fourthly, obligation to increase the level of disclosure (Leuz and Verrecchia, 2000) and finally, to increase level of investors' protection (Amira and Muzere, 2011). Other benefits include such as lower concentration ownership and control, raising capital and increasing the company's visibility at international level (Charitou and Louca, 2017).

Literature describes that foreign cross-listing can be done using two methods: primary and secondary listing. A company listing in a foreign market for the first time without having their company listed on domestic market is known as primary listing or initial public offering

(IPO). In primary listings, a company should go through the strict listing requirements of the foreign stock exchange (Arauner, 1996). When a company cross-lists in a foreign market as well as on domestic market, it is known as secondary listing or dual listing on foreign markets. Companies listing with secondary listing can list existing shares on the foreign market or raise capital by issuing new shares, such as ADR level 3 (Bosco and Misani, 2016). Cross-listed companies follow a set of foreign listing rules and disclosure requirements prepared by the foreign stock exchange. Having said that, this thesis only focuses on foreign cross-listing companies, as its aim is to explore the level of cash holdings when companies go into international markets. When a company cross-list on a foreign market, it represents the desire to access extra capital (Bosco and Misani, 2016). Another stream of literature evidences that a company listing on a foreign market makes it easier for investors to acquire and trade the shares, as holding shares in a foreign market that is only listed on the domestic market can become costly and riskier. One reason for this could be information barriers coming from differences in language or difference in financial reporting and lack of interest of local security analysts (Abdallah and Goergen, 2016). Foreign cross-listing diminishes these barriers as the company must periodically prepare information complying with local requirements and securities laws (Boubarki et al., 2016).

Corporate governance largely determines the rights that shareholders possess, especially non-controlling or minority shareholders (Ferris, Kim and Noronha, 2009). Strong corporate governance is a function of both the firm's charter regarding shareholder rights and those provided to shareholders via national statutes or codes. Controlling shareholders are less in need of strong governance than minority shareholders as they ultimately make all of the firm's major decisions. The minority shareholders are at risk of expropriation by these controlling shareholders. To the extent that either the firm's charter or the country's securities laws provide protection to the minority shareholders, we are able to claim that these firms enjoy strong corporate governance. The bonding hypothesis contends that a firm's corporate

governance can be improved when a firm becomes subject to the minority shareholder protection laws of another country by cross-listing on that country's stock exchange. For foreign firms cross-listing on US exchanges, improved corporate governance results because of the strong shareholder protections available in US law, along with the stringent disclosure requirements of US exchanges that include the regular release of audited financial statements, Coffee (1999) describes a firm's listing on an exchange in a strong governance country as:

“a credible and binding commitment by the issuer not to exploit whatever discretion it enjoys under foreign law to overreach the minority investor. That is, the issuer ties its own hands by subjecting itself to mandatory requirements of US law in order to induce minority shareholders to invest in it.”

More formally developing the bonding arguments he originally presented (Coffee, 1999), in his more recent study, Coffee (2002) argues that issuers that cross-list jointly select a market and a regulatory regime with strong legal standards and reiterates that deep and liquid securities markets develop where minority shareholder rights are protected, as documented by LaPorta et al. (1999). The strict legal and regulatory standards that accompany a firm's decision to cross-list on the exchange of a country with a stronger system of corporate governance involve a number of factors. There are the increased shareholder protections, which emphasise the rights of minority shareholders, allow for the easy transfer of shares, maintain the integrity of corporate elections, and allow shareholders to bring a suit against managers or directors. But Brenner and Schwalbach (2009) caution that private measures of shareholder protection cannot substitute for important national legal institutions and procedures.

According to John and Kedia (2006), companies that cross-list in a better legal environment than their domestic market and subject themselves to stricter rules have better corporate governance. Moreover, the company's decision to cross-list in a foreign market may also

vary. A company may choose to cross-list in a foreign market with the same level of shareholder protection as in its domestic market, to cross-list in a foreign market with better shareholder protections or choose to cross-list in a foreign market with lower shareholders protection. Each of the above choices is likely to have different implications for a company's choice of foreign market. If the company chooses to foreign cross-list on a market with a similar level of shareholder protection, I do not expect it to undertake a major governance change because the legal rules in the foreign and domestic markets are similar. However, when a company cross-lists on a market with better shareholder protection, it is likely to have better governance to concentrate after cross-listing.

### 2.1.2 Governance Bundles

Corporate governance has become a lightning rod for a wide variety of issues, ranging from business standards to accounting standards, from corporate social responsibility to supply chain management, from a band aid to financial crisis, via a tool for ensuring macro/microeconomic stability to a way of improving political economy. Corporate governance is a system used to direct and control a company, which includes links between a company's stakeholders as well as rules and regulations, procedures and principles that affect the company's direction and control (Cadbury, 1992). Almost all strands of interdisciplinary studies in law, economics and finance have been invaded by the omnipresent spectre of corporate governance. For a long time this battle was ideological and mostly theoretical, whilst, on the ground, the impact of scholarly work on corporate governance was at best ignored and at worst ridiculed. However, over the years, with repeated accounting frauds and related crises, there has been a growing clamour for a magic bullet to solve these problems, and so theoreticians and practitioners dusted off these old ideas and "reinvented" corporate governance in the early 1990s. Due to the high-profile scandals like WorldCom and Enron,

company and country level governance have become one of the most important issues in the modern business world (Brown and Caylor, 2006).

The international financial organisations promised the improvement of corporate governance practices, widely seen as an important element in strengthening the foundation for individual countries' long-term economic performance and in contributing to a strengthened international financial system. All the companies followed the OECD Principle of Corporate Governance, which was based primarily on the shareholder value corporate governance model. The claim was that, if a country adopted a shareholder primacy corporate governance model, then foreign investors would invest in that country, stimulating the financial market, and local investors would also pitch in, leading to further growth of the financial market. Surplus capital can be used for economically useful but less well-funded – activities, leading to economic growth and a sustainable future. The present research empirically investigates these claims and tries to find out if corporate governance of a country for the “better”, that is, by implementing a pro-shareholder approach, has any link with financial market growth in that country.

Cross-listing companies must meet the mandatory disclosure and listing requirements of the foreign market in addition to the existing disclosure requirements in the home market (Dodd and Gilbert, 2016). Several theoretical papers focus on the rationale to cross-list on stock exchanges with stringent listing and disclosure requirements. Fuerst (1998) shows that firms cross-list on stock exchanges with strict disclosure requirements to signal their quality. Huddart, Hughes and Brunnermeier (1999) show that stock exchanges increase disclosure requirements in order to compete for order flow; that is, greater disclosure reduces costs of trading and attracts liquidity. Chemmanur and Fulghieri (2006) show that cross-listing on a foreign exchange with high disclosure standards enhances investors' effectiveness in producing information and reduces investors' monitoring costs. Cross-listing is typically followed by increased monitoring and higher corporate governance requirements (e.g.,



Coffee, 1999; 2002; Stulz, 1999; Reese and Weisbach, 2002; Doidge et al., 2004; Abdallah and Goergen, 2008; Lel and Miller, 2008; Abdallah and Goergen, 2015). In other words, cross-listing is conducive to foreign firms “bonding” themselves to better investor protection and higher governance standards. These studies show that companies with better corporate governance are more likely to cross-list their stock on a foreign market compared to companies with weak corporate governance (Abdallah and Goergen, 2015).

One of the major challenges of corporate governance research since its inception has been the definition of measures of “good corporate governance”, i.e., corporate governance mechanisms that lead to financial efficiency in economy, social legitimacy or more generally goal attainment (Aguilera et al., 2008). To create corporate governance bundles, academics have used different measures of corporate performance, such as board independence and ownership structure. It is important for a company to structure their governance mechanisms as corporate governance affects the development and functioning of capital markets and exerts a strong influence on the managerial decision-making process (Baidhani, 2014), which impacts on company performance. Corporate governance bundles play an important role in monitoring the companies by forcing the directors to efficiently utilise the cash holdings (Aguilera, et al., 2008). This thesis investigates the role of governance at company and country level to see the effect on cash holding for foreign cross-listing companies.

### 2.1.3 Cash Holdings

Corporate cash holding plays an important role at the heart of companies’ policies. In fact, cash holding is the most common way for companies to ensure liquidity (Almeida et al., 2014). According to literature, cash holding enables companies to respond to unexpected changes in cash flows, to fund daily operations, to finance long-term investment, and to hedge risk (Opler et al. 1999; Almeida, Campello and Weisbach, 2004; Acharya, Almeida and Campello, 2007; Bates, Kahle and Stulz, 2009;). In recent years, a dramatic increase in cash

holdings has been noticed in companies around the world (Marcum, Martin and Strickland, 2011; 2013; Le Guyader, 2012; Almeida et al., 2014; Cole, 2014; Prescott, 2015; Bates, Chang and Chi, 2018; Orlova and Rao, 2018; Phan et al., 2019). Among nonfinancial S&P 500 companies, cash holdings increased fivefold from 1996 to 2012, reaching \$1,334 billion (Almeida et al., 2014).

Ferreira and Vilela (2004) find cash holdings are closely related to companies' financing choices. As a financing instrument, cash holdings can be used to undertake profitable investment opportunities, and to minimise the cost of accessing external financing (Almeida et al., 2014), as well as to service debt during economic distress (Acharya, Almeida and Campello, 2007). Cash holdings are also linked to risk management strategy. As a risk management tool, cash might reduce cash flow volatility and consequently mitigate financial risks that could affect a companies' future profits (Acharya, Almeida and Campello, 2007). However, holding a large amount of cash also comes with cost, such as maintaining the cost of holding (Ferreira and Vilela, 2004). Another cost of holding cash includes the lower rate of return of these assets because of a liquidity premium and, possibly, tax disadvantages (Opler, 1999). Opler (1999) explains two main benefits from cash holdings. Firstly, the companies save transaction costs to raise funds and do not have to liquidate assets to make payments. Secondly, the companies can use the liquid assets to finance activities and investments if other sources of funding are not available immediately or are excessively costly. Keynes (1934) describes the first benefit as the transaction cost motive for holding cash, and the second one as the precautionary motive. According to Dittmar, Smith and Sarvaes, (2003), during the transaction cost motive, companies hold more cash when the costs of raising it and the opportunity costs of shortfalls are higher. The current literature uses several variables to substitute for these costs. Given the substantial fixed costs associated with external financing, small companies are likely to be expensive to procure. Precautionary motivations for holding cash are based on the effect of asymmetric information on funding

capacity. Even if a company has access to the capital markets to raise funds, the securities it plans to issue may be undervalued and the companies may not want to do so at certain times. The costs considered in the literature have evolved from brokerage costs, in the classic paper by Miller and Orr (1966), to inefficient investment resulting from insufficient liquidity (Jensen and Meckling, 1976; Myers and Majluf, 1984; Myers, 1997), as well as in empirical papers that build on Fazzari, Hubbard and Petersen, (1988).

Theories that focus on the trade-off between the costs and benefits of cash holdings can make it possible to answer the question of whether a company holds too much cash from the perspective of shareholder wealth maximisation. In general, however, managers and shareholders view the costs and benefits of liquid asset holdings differently. Agency theory can, therefore, explain why companies do not hold the amount of cash that maximises shareholder wealth and helps to identify companies that are likely to hold too much cash. Managers have a greater preference for cash, because it reduces company risk and increases their discretion. This greater preference for cash can lead managers to place too much importance on the precautionary motive for holding cash. One would, therefore, expect companies where agency costs of managerial discretion are more important to hold more liquid assets than would be required to maximise shareholder wealth.

#### 2.1.4 Director's Networks and Corporate Governance

Networks connections are broadly defined as a set of personal and professional connections and relationships; consisting of a set of actors and the relationships among them (Granovetter, 1985; Burt, 1992). These actors can be groups of people, or individuals by certain relationships or interactions; these interactions between groups of people are building blocks used to sustain and define network connections (Wasserman and Faust, 1994). Researchers describe networks connections as resources that create more strategic connections and bring

significant organisational advantages (Schneider and Cunetto, 2006). Burt (1997) describes networks connections as a flow of resources which channel knowledge sharing.

A number of studies suggest network connections alter uncertainty and risk (Ferris, Javakhadze and Rajkovic, 2019). Researchers propose that increased networks connections strengthen individuals' power (Brass and Burkhardt, 1993) which drives them to take more risks (Keltner, Gruenfeld and Anderson, 2003). Another study suggest networks connections as instrumental for access to jobs (Schneider and Cunetto, 2006; Zhou, 2014), as individuals with large network connections are likely to find new employment after departure.

In the finance literature, networks connections have been considered an essential mechanism for information flows between directors (Bebchuk, Cohen and Ferrell, 2008). Renneboog and Zhao, (2014) suggest that networks connections are instrumental for corporate decision-making as they provide access to important information. Such information is generated by a director (or company) in the connection and it then spreads across the individual's (or company's) connections. Other individuals (companies) with connections to the information source are also able to take advantage of the information. Directors with a large number of network connections take advantage of receiving better access to private information than directors with fewer network connections (Omer, Shelley and Tice, 2018).

More specifically, the benefits of networks connections in terms of their information value have been highlighted for corporate decision-making. For example, Cai and Sevilir (2012) and Renneboog and Zhao (2014) show that directors' networks increase the efficiency of merger & acquisitions transactions, in that board connections between the bidder and the target reduce asymmetric information about the target. This results in a shorter negotiation time, a larger proportion of cash used as a means of payment, and a greater probability of successfully completing the negotiation. More generally, Geletkanycz and Boyd (2011) find that the CEO's non-executive directorships are positively related to the long-term

performance of the company when it faces competitive challenges. Finally, Omer Shelley, and Tice (2018), report that non-executive directors' networks provide information on market trends, business innovations and effective corporate practices.

### 2.1.5 Cross-listing and Cash Holding

A company may choose to list on a domestic market, but occasionally decide to list their company on a foreign market as either substitute or complement (Sarkissian and Schill, 2014). In foreign cross-listing literature, there exist two conflicting hypotheses – the bonding and the market segmentation hypotheses (Coffee, 1999; Miller, 1999; Stulz, 1999; Licht, 2003; Siegel, 2009).

The bonding hypothesis was first introduced by Coffee (1999) who explains that companies intentionally cross-list on foreign markets that have more stringent legal and regulatory requirements than the domestic market so as to limit the private benefits of control and to signal their quality. This “bonding” effect forces the companies to raise their corporate governance and disclosure levels to (at least) the bare minimum required for a foreign listing (Jaggi and Low, 2000). Similarly, Stultz (1999) raises the issues of agency conflicts and information asymmetry and highlights the importance of corporate governance as one prospective factor of the foreign cross-listings decision. A stronger corporate governance system limits managers' consumption of the private benefits of control, which could be beneficial to minority shareholders. As a result, cross-listings improve the information environment of foreign companies (Lang, Lins and Miller, 2003) and a company's valuations (Doidge, Karolyi and Stulz, 2004).

As cross-listed companies are required to bind themselves to stricter disclosure requirements, the cross-listing process helps to mitigate the agency conflicts between corporate managers and minority shareholders. Corporate managers have less of an incentive to expropriate minority shareholders and they will be forced to direct their efforts towards investing in

growing sectors, preventing them from overinvesting in declining sectors or engaging in dysfunctional behaviour (Kusnadi, 2015).

The legal bonding hypothesis suggests that a company can improve weak governance in the home country by cross-listing in the country with stricter listing rules and regulations to signal their true quality to potential investors. The segmentation hypothesis implies that weak governance in the home-country could still harm cross-listed stocks due to, inter alia, the company's continued exposure to sovereign risk and any residual home-asset bias. The bonding hypothesis relates specifically to “corporate governance” traits such as shareholder protection. The segmented (or separated) market hypothesis relates to (inter alia) “sovereign-governance” traits such as regulation, corruption and government effectiveness (Kusnadi, 2015). In this study I show that foreign cross-listing can assist companies to overcome a weak shareholder governance environment.

On the other hand, the market segmentation hypothesis suggests that a higher company valuation from foreign cross-listing comes as a company's costs of capital are reduced when they help investors to overcome the barriers to international investments (Miller, 1999). In support of this view, Miller (1999) discovered significantly higher announcement returns for the US foreign cross-listing of companies from emerging markets. Foreign companies seek to overcome investment barriers by listing their stocks on the US exchanges. These companies enjoy the benefits from cross-listing their stocks, including improved access to external capital markets, a lower cost of capital, an expanded shareholder base, increased liquidity in trading and positive reputational effects.

Foreign cross-listing and cash holdings are two key corporate decisions that directors of international firms must consider (Kusnadi, 2015; Yang et al., 2017). When a company lists on a foreign markets, the decision could be rewarding, such as increased visibility in international markets, which, in turn, would enhance the company's reputation and future

growth prospects. Recent literature has discovered that companies that are foreign cross-listed tend to hold more cash than companies who are not foreign cross-listed (Huang, Elkinawy and Jain, 2013). As the stock prices of cross-listed firms increases, one possible channel to efficiently utilise the higher cash holdings of these companies will be to finance the corresponding increase in their investment needs. Huang, Elkinawy and Jain, (2013) further find that the positive effect between cross-listing and cash holdings is more significant in countries with weak legal protection. Thus, if the bonding hypothesis is valid, an improvement in the cash savings sensitivity to stock price should be more prominent for companies situated in countries with weak investor protection, as these companies are expected to be those that benefit the most from the cross-listing process (Kusnadi, 2015).

Researchers such as Baker, Nofsinger and Weaver (2002), Hertz and Li (2010) and Campello and Graham (2013) have shown that overvalued companies tend to issue external equity to increase their cash holdings to fund the increase in investment needs. This effect is observed to be more prominent for financially constrained companies (or companies located in countries with low access to external financing) (Kusnadi, 2015). So foreign cross-listing is typically one important way through which foreign companies can alleviate the financing constraints they face in the home markets and facilitates access to external financial markets to help these companies finance their investment opportunities (Leuz, Lins and Warnock, 2009).

### 2.1.6 Governance Bundles and Cash Holding

As mentioned before, holding cash has many advantages and disadvantages. Maintaining sufficient cash allows firms to maintain their daily operations, reduce financing from expensive external sources and decrease the risk of financial distress. The main disadvantage of holding cash is the opportunity cost of not investing it in profitable projects. Most literature on cash holdings has examined the determinants of corporate cash holdings in

order to get a full understanding of the factors that affect managerial decisions regarding cash levels (Fernandes and Gonenc, 2015). Some researchers have examined the issue from a different angle. A number of studies attempt to link cash holdings with firm value (Duchin, 2010; Cai et al., 2016). This is beyond the scope of this study because this study aims to investigate the determinants affecting governance bundles regarding cash holdings in cross-listing companies and not the effect of cash holdings on firm value.

Corporate governance is vital for deterring managers from destroying firm value (Dittmar and Mahrt-Smith, 2007). Dittmar et al. (2003) and Kusnadi (2011) confirm that, in the presence of poor corporate governance practices, firms prefer to hold higher cash levels. Al-Najjar (2013) highlights the importance of further academic enquiry into corporate cash holdings in developing countries and specifically suggests that research in developing countries should focus more on firm-level corporate governance factors that impact cash holdings, namely board of directors, audit features and CEO characteristics. Rezaei and Saadati (2015) also suggest the investigation of ownership structure and board of director parameters. Research on cash holdings has found that managerial discretion affects cash holding decisions. In fact, as cash is the most liquid asset, it is the most subject to managerial expropriation, leading to severe agency problems. Pinkowitz et al. (2006) expect that controlling shareholders invest excessively in liquid assets because they can be easily turned into private benefits. Therefore, it is important to investigate the agency theory with regard to the level of liquidity of underlying assets. This investigation is specifically important in countries with low shareholder protection because people in control of corporations can easily gain their private benefits due to poor corporate governance structures. Jensen (1986) explains that managers will prefer to hold high cash levels because of their own personal self-wealth maximising motives. According to Pinkowitz et al. (2006), those who control firms only pay-out to shareholders the part of cash that they cannot use for



their own private benefits. They try to make the business safer in order to stay in control for the longest time possible and, hence, increase the resources under their control and increase their personal wealth. At times of uncertainty, cash serves as a buffer for controlling shareholders and allows them to stay in control. However, at other times, they will just try to extract private benefit. Liquid assets give controllers the opportunity to extract private benefits so much easier than fixed assets (Pinkowitz et al., 2006).

Corporate governance shapes the company's operating environment and its behaviours affect corporate financial decisions. Prior law and finance literature identify governance as a key institutional factor and report that a good governance promotes macroeconomic growth (Frye and Shleifer, 1996; La Porta et al., 1999; Beck and Laeven, 2006), and governance policy affects stock market volatilities (Pastor and Veronesi, 2012). However, there is fairly limited research at the micro level on the role of governance quality (and its interaction with managerial incentives) in shaping companies' financial policies, such as cash holding decisions, despite Stulz's (2005) "twin agency" argument. Cash is vulnerable to extraction by both external parties (e.g., the governance, shareholders) and entrenched managers in the company (Myers and Rajan, 1998). It is, therefore, interesting to see how governance quality and its interaction with the insider agency problem affect corporate cash holding decisions.

## 2.1.7 Control Variables

### 2.1.7.1 Company Size

Following the recent literature, I define company size as *the logarithm of the companies' book value of assets (AT)* (Ferreira and Vilela, 2004). As this study focuses on large companies around the world, this variable will allow me to control for company size. Larger companies are expected to hold more cash because managers of larger firms have higher

discretionary power (Ferreira and Vilela, 2004). This is because of dispersed ownership, inability to speak with one voice, free riding problems and lower probability of takeover. Therefore, according to agency theory, the relationship between firm size and cash holdings is expected to be positive. Firms with more investment opportunities are expected to forgo them because they will fail to identify the positive net present value projects. Firms with more leverage are expected to hold less cash because they are better monitored from capital markets and so managers are forced to decrease cash levels. Similarly, managers of large firms keep high levels of cash because shareholders are unable to control cash decisions. This argument leads to the conclusion that stronger corporate governance mechanisms will decrease managerial opportunism and force managers to take decisions in favour of shareholders' best interests. This strongly suggests that corporate governance has a significant impact on the managerial decisions regarding cash.

#### 2.1.7.2 Leverage

Following previous studies, I define leverage as long-term debt (DLTT), scaled by total assets (AT) (Al-Najjar and Belghitar, 2011). The trade-off theory views the relationship between leverage and cash holdings from different standpoints. One view assumes a positive relationship between leverage and cash because cash acts as protection from possible bankruptcy (Garcia-Teruel and Martinez Solano, 2008; Al-Najjar and Belghitar, 2011; Ogundipe et al., 2012; Locorotondo et al., 2014). The second view assumes a negative relationship between leverage and cash holdings because they can be regarded as substitutes (Al-Najjar, 2013). When there is a cash deficit, companies use up all of the retained cash before they turn to borrowing; similarly, in the case of cash surplus, companies use the extra money to pay back principal on debts before accumulating cash. For these reasons, cash and leverage always go in different directions. Opler et al. (1999) find that cash holdings decrease with leverage. The agency theory also supports a negative relationship between

leverage and cash holdings because directors are forced to keep lower levels of cash due to higher monitoring brought about by capital markets. In this study, I expect a negative relation between cash holdings and leverage. Ferreira and Vilela (2004), Ozkan and Ozkan (2004), Drobetz and Grüninger (2007), D’Mello et al. (2008), Harford et al. (2008), Iskandar-Datta and Jia (2012), Song and Lee (2012), Wu et al. (2012), Belghitar and Khan (2013), Gao et al. (2013), Orens and Reheul (2013), Chen et al. (2014), Masood and Shah (2014), Kusnadi et al. (2015), Al Najjar and Clark (2017) and Guizani (2017) all find a negative relationship between leverage and cash holdings.

#### 2.1.7.3 Company Performance (ROA)

In this thesis, I control for company performance which is measured by the financial ratio Return on Assets (ROA) following the literature (Goddard, Tavakoli and Wilson, 2005; Asimakopoulos, Samitas and Papadogonas, 2009; Yazdanfar, 2013; Nunes and Serrasqueiro, 2015; Lazăr, 2016b). The ratio is one of the most important financial figures, often forming the starting point for profitability analyses, and it measures the return on total capital, i.e., debt and equity. It is an indicator about how profitable or successful a company is relative to its total assets and how efficient a company’s management is at using its assets or invested capital to generate earnings, or rather allocating its resources. As the ROA reflects the efficiency of the ways in which assets are allocated and managed, it is often used as a proxy for profitability and in particular accounting performance. I define ROA as income before extraordinary items (IB) scaled by total assets (AT). ROA will allow to me answer the research question by finding out how profitable or successful a company is relative to its total assets and how efficient a company’s management is at using its assets or invested capital to generate earnings, or rather allocating its resources.

#### 2.1.7.4 Cash Flow (CF)

Following the previous studies, I define CF as cash flow from operating activities (OANCF), scaled by the book value of total assets (AT) (Iskandar-Datta and Jia (2012)). Firms with higher cash flows are expected to hold lower cash levels because cash flows are regarded as a substitute to cash (Ferreira and Vilela, 2004). Iskandar-Datta and Jia (2012) support a negative relationship between cash flows and cash holdings in the UK and Germany. Therefore, the relationship between cash flows and cash holdings is expected to be negative. This variable contributes to the research questions by finding the level of cash flow companies hold.

#### 2.1.7.4 Net Working Capital (NWC)

Firms with more liquid asset substitutes are expected to hold less cash as they can easily sell those liquid assets to make up for possible cash shortages (Ferreira and Vilela, 2004). Most empirical research on cash holdings uses the net working capital to assets ratio as a proxy for liquid asset substitutes. A firm with higher net working capital will have less need to keep cash out of precautionary motives, as liquid current assets can be easily converted into cash in case of financial distress. Therefore, according to the trade-off theory, the relationship between liquid asset substitutes and cash holdings is expected to be negative. I define NWC as the working capital (WCAP) minus cash (CHE), scaled by total assets (AT). NWC will allow me to answer the research question by finding out how companies used their net working capital to substitute for cash holdings for cross-listing companies.



## 2.2 Theoretical Framework

### 2.2.1 Introduction

This chapter shows the components of the conceptual framework. To start with, how the dominant theoretical perspective translates into a single dominant governance logic combining interdisciplinary theory and governance literature. The focus of this chapter is to examine the existing literature on the conceptual framework on development of foreign cross-listed companies in a cross-country study.

By examining the impact of governance bundles and directors' networks on cash holdings, this study explores the conceptual framework before moving on to a methodology that describes the relationship between governance bundles, networks of directors, and cash holdings. The conceptual framework of this study is based on three different theories. The justification of these three theories is presented in this section.

### 2.2.2 The Bonding Hypothesis and the Agency Cost Theory

The bonding hypothesis is the law approach of corporate governance which emphasises the importance of the legal system in explaining the differences in corporate governance systems around the world and the rules that protect investors. The bonding hypothesis suggests that companies that seek external financing will bond themselves to protect the interest of their minority shareholders through cross-listing on an exchange with a higher level of investor protection regulation (Coffee, 1999). This hypothesis stems from the "agency cost theory", which looks at the conflict of interest between directors and investors. The agency cost theory, developed by Jensen and Meckling (1976), implies that the cost of external financing rises with the increase in the private benefits of control that have occurred for the

firm's insiders, such as controlling shareholders. The bonding hypothesis paves the way of an alternative explanation for these inconclusive results and may explain the share price reaction upon cross-listing. According to the bonding hypothesis, if the controlling group signals to the outside shareholders their commitment to consume fewer private benefits, then outside investors would react favourably to such a signal. Listing on an exchange with a stringent regulatory environment and strict rules to protect shareholders curbs the private benefits of control enjoyed by insiders. This argument gets some support from previous empirical findings. In general, empirical studies (Lau et al., 1994) do not find a positive effect for US companies that cross-list abroad, whereas there is a positive abnormal return for companies that cross-list on the US market. The "bonding" hypothesis does not reject the relevancy of the segmentation hypothesis, rather it is an alternative hypothesis which may also attribute to the favourable effect of cross-listing.

Companies that cross-list in countries with good shareholder protection, i.e., common law countries, may do so in order to protect their minority shareholders. But why do company insiders want to protect the minority shareholders? Previous research (Biddle and Saudagaran, 1989; Saudagaran and Biddle, 1992; 1995) finds that companies are less likely to list on foreign exchanges with higher disclosure levels than their domiciles. In addition, if the cross-listing in common law countries provides minority shareholders with some extra protection, then this will influence the desirability of corporate insiders to cross-list on such markets because increased shareholder protection will curtail the private benefits of control. Company insiders may want to commit themselves to protect minority shareholders in order to raise capital at better conditions. This is an essential reason if the company wants to pursue all available growth opportunities. Reese and Weisbach (2002) state that the increase in shareholder protection enables the managers to invest in profitable projects for which financing was not previously available, or only available at a higher cost of capital which

made the projects unattractive. Therefore, an increase in shareholder protection will enhance the value of the company. Furthermore, some argue that companies cross-list on stock exchanges with a stricter regulatory environment regarding shareholder protection in order to signal their quality. Forst (1998) models the managers' choice of the market to cross-list and demonstrates that managers of highly profitable foreign companies may credibly convey their private information regarding their company's future prospects, through their decision to list on a market with strict shareholder protection regulations. This is because the damage amount borne by the directors will be higher if they are held liable for misreporting the company's profitability. By cross-listing on a market with good shareholder protection, these directors are separating their companies from companies with low future profitability. Accordingly, the directors are compensated by higher market values of their equity stakes in the company. However, the directors' gain from cross-listing should be large enough to offset the increased exposure related to the regulatory strictness, otherwise the directors will be reluctant to cross-list.

### 2.2.3 Network Theory

Network theory refers to the power of networks between individuals and that included in the network, which constitutes the core of the global network society over those human collectives or individuals not included in these global networks (Rowley, (997). This theory was initially introduced by Freeman, Borgatti and White, (1991). Network power can be better understood in the conceptualisation proposed by Grewal (2008) to theorise globalisation from the perspective of network analysis. In this view, globalisation involves social coordination between multiple networked actors. This coordination requires standards:

*‘The standards that enable global coordination display what I call network power. The notion of network power consists in the joining of two ideas: first, that coordinating standards are more valuable when greater numbers of people use them, and second that this*



*dynamic—which I describe as a form of power—can lead to the progressive elimination of the alternatives over which otherwise free choice can be collectively exercised. . . . Emerging global standards . . . [provide] the solution to the problem of global coordination among diverse participants but it does so by elevating one solution above others and threatening the elimination of alternative solutions to the same problem.’ (Grewal (2008), p. 5)*

Another form of networks theory is social capital theory, which is defined by Bourdieu (1986, p.248) as ‘the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition- or in other words, to membership in a group - which provides each of its members with the backing of the collectively-owned capital, a “credential” which entitles them to credit, in the various senses of the world. These relationships may exist only in the practical state, in material and/or symbolic exchanges which help to maintain them/’ So, "being based on indissolubly material and symbolic exchanges, the establishment and maintenance of which presuppose acknowledgement of proximity, they are also partially irreducible to objective relations of proximity in physical (geographical) space or even in economic and social space’ (Bourdieu, 1986, p. 249).

The network of connections is determinant on the relevance of social capital, as Bourdieu (1986, p.249) observes: ‘the volume of the social capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilise and on the volume of the capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected.’ Hence, ‘capital is seen as a social asset by virtue of actor's connections and access to resources in the network or group of which they are members’ (Lin, 2001).

Lin (2001) provides four explanations as to why embedded resources in social networks enhance the outcomes of actions. First, the flow of information is facilitated; this implies that

social ties in certain strategic locations and/or hierarchical positions can provide an individual with useful information about opportunities and choices otherwise not available. Second, social ties may exert influence on the agents who play a critical role in decisions involving the actor. Also, some social ties, due to their strategic location and positions, carry more valued resources and exercise greater power on organisational agents' decision-making. Third, social ties, and their acknowledged relationships to the individual, may be conceived by the organisation or its agents as certifications of the individual's social credentials, some of which may be useful to the organisation. Fourth, social relations are expected to reinforce identity and recognition. Being assured of and recognised for one's worthiness as an individual and a member of a social group sharing similar interests and resources not only provides emotional support, but also public acknowledgment of one's claim to certain resources.

In the corporate governance literature, the most popular trend in the literature of business and society is a management of stakeholders. For understanding the stakeholder environment many scholars have used the concept of social network analysis, and the impact on the board, rather than the influence of individual stakeholders. Employing the concept of a social network generates an explicit theory of stakeholder impact based on the structural characteristics of the organisation's relationship network (Rowley, 1997). Researchers are increasingly using social network analysis to extend their understanding of many behavioural and social phenomena. Wasserman and Faust (1994) provide a comprehensive list, including community elite decision-making (Laumann and Pappi, 1973), social influence (Marsden and Friedkin, 1994), power (Brass and Burkhardt, 1993), and innovation diffusion (Burt, 1987). In many cases, underestimated relational systems are a fundamental aspect of social life and have helped increase the "explained differences" in some social science models. But what exactly is a social network perspective?

Some social science researchers consider organisational attributes as determinants (e.g., size, age, structure, diversification structure, current technology utilisation), while social network theorists examine relational data (Wasserman and Faust, 1994). These theorists argue that, by considering only the patterns of relationships between relevant network members, the structure of the network and the location of the organisation within the network determine the tendency to adopt new technologies. Burt (1987) distinguishes between attribute data and relational data. Attribute data are 'related to agent attitudes, opinions, and behaviours, but these are considered properties, qualities, or characteristics belonging to individuals or groups' (Freeman, Borgatti and White 1991, p. 2). In contrast, relational data comprise a relationship that associates one actor with another, and exists only as part of a group of actors and cannot be categorised as a property of an individual actor. In other words, relational data are the property of the actor system (Wellman and Berkowitz, 1988).

#### 2.2.4 Stakeholder Theory

Stakeholder theory is administrative in that it reflects and directs how managers work, rather than dealing primarily with management theorists and economists (Freeman, Wicks and Parma, 2004). The focus of the stakeholder theory has been clarified on two central questions (Freeman, 1999). First, what is the purpose of the company? This purpose encourages directors to explain what creates a shared sense of the value they create and their core stakeholders, which allows companies to move forward and generate superior performance, determined by both objectives and market financial metrics. Second, the stakeholder theory states what responsibilities management has to their stakeholders. This purpose requires directors to clarify how they want to do their business and, correctly, what relationships they need to build with stakeholders to achieve their objectives. Today's economic reality emphasises the fundamental fact I propose to be at the heart of stakeholder theory. Directors need to build relationships, inspire stakeholders and create communities where everyone strives to do their best to deliver the value promised by the company. Indeed, while a

shareholder is an essential component and profit is a crucial feature of this activity, interest in profit is a result, not a driver, in the value creation process.

Many companies operate from a perspective that is very consistent with stakeholder theory. Companies such as J & J, eBay, Google, Lincoln Electric, AES, and companies featured in *Built to Last* and *Good to Great* (Collins and Porras, 1994; Collins, 2001) have found that management has a core insight in stakeholder theory. All these companies value shareholders and the profitability of the company. These companies view the values of the stakeholders' relationships as an essential part of their continued success.

Stakeholder theory starts with the assumption that value is part of the business and is explicitly part of the company, and rejects semantics (Freeman, 1999). Separation theory begins by assuming that ethics and economics can be separated. In this context, the challenge of implementing business ethics or improving the reliable performance of a business is difficult, as business ethics are contradictory by the definition of an oxymoron. Many supporters of shareholders describe a single objective view of a company, distinguish economic and ethical consequences and values. The resulting theory is a narrow view that may not be able to justify the whole picture of value creation and trade.

Sundaram and Inkpen (2004) cover stakeholder theory in a five-point argument for the importance of creating value for stakeholders. They suggest (1) The goal of maximising shareholder value is stakeholders. (2) Maximising shareholder value creates an appropriate incentive for managers to take on entrepreneurial risks. (3) Having multiple objective functions makes governing difficult, if not impossible. (4) Eliminating shareholders from stakeholders is more accessible than the reverse. (5) In the event of a breach of contract or trust, stakeholders will be protected (or may seek relief) through agreements and the legal system as compared to shareholders.

Summary

To sum up the theoretical framework, bonding hypothesis theory suggests that foreign cross-listed companies signal their commitment to protect the interests of minority investors by bonding themselves to cross-list on foreign exchanges with better and stricter regulations, and its effects on home investors. The network theory studies show the structure of relationships around directors and how it affects their behaviours. Ostgaard and Birley (1994) describe networks as a dichotomy, as they are classified as either weak or strong ties. The strength of directors' ties reflects the closeness of the relationship between directors. Directors with strong network ties indicate similar background and are in frequent contact. Directors with weak network ties are characterised as "distant" and infrequent connections between directors (Brown et al., 2012). Granovetter (1985) argues that strong network ties provide similar information as each tie of network can make marginal contribution to the information base. In contrast, weak network ties are more likely to be sources of new information with higher value to the network ties (Strahilevitz, 2005). Network theory will help me to answer the research question by investigating how directors' networks can bring valuable information for foreign markets. Similarly, stakeholder theory explains the relationship between shareholders (principle) and directors (agent). Stakeholder theory addresses how directors perform their duties, i.e., directors should make decisions taking into account the interest of all the stakeholders of the company (Fama and Jensen, 1983; Lausten, 2002; Laplume, Sonpar and Litz, 2008). Stakeholder theory will help me to examine all three hypotheses to examine the interaction between governance mechanisms and managers and how their decision affects cash holdings for foreign cross-listed companies. One of the main goals of a company is to improve their performance, which can be achieved by balancing the interests of these different stakeholders, such as employees and shareholders to whom the corporation is responsible (Freeman, 1994; Clarkson, 1995). While previous literature viewed shareholders and governance mechanisms as an aggregated measure, there is a strong view

that the different dimensions of directors, such as governance bundles and directors' networks, affect cash holdings, which I examine in this study.

### 2.3 Conceptual Framework

This study examines the impact of corporate governance bundles and directors' networks on cash holding decision for foreign cross-listed companies. Therefore, it is important to understand the conceptual framework that explains the complementarities between governance and directors' networks in order to understand its effect on cash holdings. The literature reveals that less research has been conducted on the relationships between governance bundles and cash holdings (De Vries, Bekkers and Tummers, 2016; Sørensen, 2017). Interestingly, scholars extremely rarely address this relationship through intermediating factors (Mahoney and Kor, 2015; Aguilera, Florackis and Kim, 2016). It is important to investigate the effect of intermediary factors in order to identify the motivational factors through which governance bundles provide intellectual stimulation to encourage directors to use their networks to bring invaluable information to maximise company performance.

The literature review identified a potential lack of understanding in the relationship between corporate governance and cash holdings, mainly for foreign cross-listed companies. This section will develop the conceptual framework that will be used to develop the research propositions which, in turn, will give the necessary direction to the research. Conceptual frameworks are grounded in the review of the literature. More specifically the conceptual framework chosen should be able to accomplish two goals. The first is a backwards connection which links the problem with the literature while the second is a forward connection which links the problem to the collection and analysis of data. In order to understand the conceptual framework for any study, Shields and Tajalli (2006) recommend the use of micro conceptual frameworks, of which there are, two kinds: those that are ready-

made and those that must be created. By using the micro-conceptual approach, once a conceptual framework and purpose are linked, the methodology to be used can be determined.

In order to correctly classify the research purpose and, therefore, develop the research proposition, a number of questions have to be answered, all of which will start with determiners: what, why, who and how? The research purpose can be classified into a number of categories, such as exploratory, descriptive, explanatory, decision-making and gauging. The research statement for this study relates to the selection of the explanatory category that will be used to study the impact of corporate governance bundles and cash holdings for foreign cross-listed companies. The explanatory framework is most suitable because it looks into formal hypothesis using quantitative experimental.

In order to be able to test the research problem and research questions stated in this study, a number of research hypotheses were developed. Yin (2003) states that 'each hypothesis directs attention to something that should be examined within the scope of the study.' Using the stakeholder and networks theory to investigate the relationship between directors, corporate governance and cash holdings, I applied three hypotheses and chose the explanatory framework, which allows me to investigate the relationship between dependent and independent variables. The hypothesis developed in the next chapter was initiated and organised as a result of the literature review and with reference to the conceptual framework of this research that was discussed in this chapter.

Figure 1: Classifying Micro Conceptual Frameworks

Research Purpose	Research Question	Micro-Conceptual Framework	Research Technique	Statistical Techniques
Exploration	Anything goes: What, When, Where, Why, Who, How or any combination of above.	Working hypothesis	Usually qualitative techniques: field research, structured interviews, focus groups.	Qualitative evidence may not be statistical. But anything goes. Any type of statistical analysis possible.
Description	What	Descriptive categories	Survey and content analysis	Simple descriptive statistics: Mean, median, mode frequency distribution, percentages, t- statistics.
Gauging	How close is process/policy to an ideal or standard? How can x be improved?	Practical ideal type.	Case study, survey, content analysis, document analysis, structured interviews.	Simple descriptive statistics: Mean, median, mode frequency distribution, percentages, t- statistics.
Decision making	What is the best decision? which approach?	Models of operations research.	Cost benefit analysis, cost effectiveness analysis, linear programming, decision tree, etc.	Quantitative techniques of operations research.



Explanatory	Why?	Formal hypothesis: if x then y.	Usually quantitative, experimental, design, survey, existing data analysis.	t-statistics, correlation, chi- square, analysis of variance, simple and multiple regression.
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Source: Shields, P. M. and Taialli, H. (2006) *Intermediate Theory: The Missing Link to Successful Student Scholarship*. *Journal of Public Affairs Education*, 12 (3): 318.

## Chapter 3: Hypothesis Development

### 3 Hypothesis Development

#### 3.1 Governance Bundles and Cash Holdings

According to Stiglitz (1974), in the absence of market imperfections, a company's financial decisions would not affect their value. In this theoretical situation, external finance is always readily available and at a reasonable price. The absence of a premium for liquidity or taxes would mean that keeping cash would have neither an opportunity cost nor fiscal disadvantages. So, keeping liquid financial assets would be irrelevant and decisions about investment in liquid assets would not affect shareholder wealth (Opler et al., 2001). However, in practice, the irrelevance of cash does not hold. The existence of market imperfections implies a possible optimum cash level that balances costs and benefits and maximises the value of the companies (Martínez-Sola, García-Teruel and Martínez-Solano, 2013).

One of the main aspects of this study is related to cash holdings literature, which offers four main theories to explain a company's cash holdings decision. The trade-off theory argues that the optimal cash holding level is a trade-off between the costs and the benefits of holding cash. Companies keep cash as a protection against financial distress and high costs of retaining external funds and liquidating assets. However, holding cash implies that companies bear an opportunity cost of capital invested in liquid assets (Ferreira and Vilela, 2004). The transaction theory argues that companies demand cash when they incur cost of transaction associated with converting noncash assets to cash and utilising cash for payments (Baumol, 1952; Miller and Orr, 1966; Belkhir, Boubaker and Chebbi, 2018). Under this theory, larger companies should hold less cash than smaller companies because larger companies enjoy economies of scale. Hill et al. (2014) find that, because the magnitudes of cash flows are unpredictable, the precautionary theory suggests that companies often hold more cash as a

buffer against adverse shocks and financial distress. Han and Qui (2007) find that cash holdings of constrained companies increases with the cash flow volatility and argue that companies hold more cash to protect them against future cash volatility.

Opler et al. (1999) and Dittmar and Mahrt-Smith (2007) point out that large companies with more investment opportunities should hold more cash because the loss to them of not being able to take advantage of these opportunities is greater than for companies with fewer investment opportunities. On the other side, Florackis and Sainani (2018) find negative relationship between CFOs and cash holding, suggesting that companies with strong CFOs hold less cash. Devos and Rahman (2018) find negative relationship between unemployment insurance and a company's cash holding, suggesting that companies with stronger unemployment insurance hold less cash. Since cash is a liquid asset, it is less valued by the major shareholders and directors may easily turn these resources into private benefits (Myers and Rajan, 1998; Arouri and Pijourlet, 2017). Harford, Mansi and Maxwell, (2008) argue that, when governance mechanisms are weak, excess cash leads to inefficient investment and reduces the value of the company. Agency theory suggests that directors hold ample amount of cash to increase their private benefit or increase their power via greater control of resources, resulting in increasing conflicts between shareholders and directors. However, prior literature suggests that agency problems can be mitigated by showing high quality accounting disclosure, which can limit the flexibility of directors to potentially abuse corporate assets and, in turn, increase company valuation (Hope, Langli and Thomas, 2012).

As for the negative aspects of holding cash, the financial literature identifies two main costs. On the one hand, holding liquid assets implies an opportunity cost, due to the lower return of these assets relative to other investments of the same risk, especially if the company gives up more profitable investments to hold that level of cash. Dittmar, Mahrt-Smith and Servaes (2003) refer to cost-of-carry as the difference between the

return on cash and the interest that would arise to finance an additional dollar of cash (Martínez-Sola, García-Teruel and Martínez-Solano, 2013).

On the other hand, without wealth maximisation, the benefit of corporate liquidity in undertaking projects without rising outside funds could turn into a cost, on account of the lack of monitoring by capital markets. Large cash reserves can increase agency conflicts between managers and shareholders, since managers can waste funds on inefficient investment which offers non-pecuniary benefits, but which destroys shareholder value (Jensen and Meckling, 1976), or on their own pet projects. Following the free cash flow theory (Jensen, 1986), an overinvestment costs exists in those situations where cash facilitates investment in negative NPV projects. The existence of large free cash flow may also generate discretionary behaviours in the managers that are harmful to shareholders' interests (Jensen, 1986), as increased managerial discretion could lead managers to squander corporate liquidity resources (Martínez-Sola, García-Teruel and Martínez-Solano, 2013).

Another factor explaining cash holdings should be national level governance (Seifert and Gonenc, 2018). Governance shapes the corporate operating environment and its behaviour, which affects corporate financial decisions (Dittmar and Mahrt-Smith, 2007). Bae and Goyal (2009) find that good country governance reduces agency issues as it implies rule of law, which every company must follow. Following precautionary theory, I propose that a good country level governance may help financial constraints facing companies, enabling them to hold less cash.

When the company decides to go public, they normally list the company's shares on the home stock exchange; however, many companies choose to cross-list their shares on foreign stock exchange afterwards, and some float their shares simultaneously on the home and foreign market. In some cases, the reasons to cross-list may be similar to the reasons to list on the home market. For example, if going public is a way to achieve the firm's optimal

ownership and control structure, cross-listing on the foreign market may facilitate and accelerate this process. Nevertheless, companies will choose their cross-listing destination according to their motives for cross-listing. For instance, traditional motives of cross-listing the shares in a foreign market could be raising capital and growth opportunities, increasing product market and increasing liquidity of the company's shares and improving share price.

I propose that companies operating under good governance bundles (company and national governance) will impact negatively on the decisions to hold more cash for foreign cross-listed companies, because good governance bundles should reduce any misallocation of funds, as well as reduce the monitoring costs (Chaney, Faccio and Parsley, 2011). Companies with good governance bundles discipline directors to spend their liquid assets wisely, resulting in lower level of cash holdings. Previous studies utilised the Gompers, Ishii and Metrick (2003) index as a measure of corporate governance, which shows the higher the index, companies have a weaker governance. Building on the above literature, I construct the first hypothesis in this study:

H1: Foreign cross-listed companies with good governance bundles will hold less cash.

Cross-listing is also essential for companies that have large investment projects and require a substantial amount of funds. Companies use equity finance when internally generated funds are insufficient to meet their investment programmes, and further debt-financing is no longer possible due to the company's high leverage (Fischer, 2000). Hence, leverage is another indicator of the financing needs of companies and one expects companies with a higher level of leverage are more likely to cross-list on common law markets.

Furthermore, cross-listing facilitates foreign mergers and acquisitions (Saudagaran, 1988; Radebaugh et al., 1995; Eiteman et al., 1998). Pagano et al. (2002) point out that companies may pursue external growth rather than expanding by organic growth. They may choose to expand via a merger and acquisition involving a foreign company. In this case, the bidder's

shares are an acceptable currency for the target's shareholders when the two companies are listed on the same stock market. Tolmunen and Torstila (2002) find that European companies that cross-list on the US market, a common law market, are acquirers of US companies, and are more likely to use equity as a payment.

Directors have an important role in directing and overseeing strategy which involves making specific choices for the international companies (Bhuiyan and Hooks, 2019). Directors' networks, introduced by Putnam, Leonardi and Nanetti (1994), have received significant attention in social sciences, as well as corporate finance. The concept of a directors' network provides us with powerful insights into various socioeconomic phenomena (Ferris, Javakhadze and Rajkovic, 2019). Directors' network theories can be divided into two groups: cognitive theory, where mental processes and their resulting ideas and reinforced by norms, values, attitudes and beliefs (Putnam, Leonardi and Nanetti, 1994; Coleman, 1998), and structural theory which highlights connections and participation in various networks (Bourdieu and Wacquant, 1992). Four different mechanisms, the flow of information, trust, ability to punish and reward, and the ability to alter, emerge from the above two directors' network theories (cognitive and structural), which affects the practice of corporate directors (Javakhadze, Ferris and French, 2016).

For this thesis, I follow graph theory studies (Freeman, Roeder and Mulholland, 1979; Bonacich 1987) to argue that network centrality- a set of characteristics that assess one's position within a whole network – is a relevant proxy for directors' networks because it captures the directors' ability to gather and transmit information in foreign markets at less cost. I capture the dimensions of directors' networks following the literature (El-Khatib, Fogel and Jandik, 2015; Chuluun, Prevost and Upadhyay, 2017). Notably, I examine not only the role played by the size (degree centrality, professional and personal networks) of the directors' networks, but also the effects afforded by their importance. The closeness centrality measures the distance between two directors. It shows how efficiently directors can gather

information from other directors about other markets using their connections. The betweenness centrality measures how often the director is on the shortest path between two directors. It shows how much control a director can have on the flow of information, as a director positioned between two directors can either interrupt or facilitate the information flow between those two directors. The eigenvector centrality is measured by the influence of a directors' network by the importance, in turn, of the director's direct connections. It considers the extent to which a director is connected with other highly connected directors. Further, I construct an aggregate measure to cover the multiple dimensions of centrality using principal analysis. I find that all seven measures of hierarchical positions affect cash holdings decisions for foreign cross-listed companies.

Previous literature argues that directors with central positions can gather better important information and have better impact on company performance (Karloyi, 2018). Cheng, Felix and Zhao (2019), find that better connected boards have higher level of informed stock trading. Engelberg, Reed and Ringgenberg (2012) and Karloyi (2018), find that previous social connections between lenders and borrowed decreases the cost of loans and in support of social network affects increasing information flows. Directors' personal connections have been found beneficial due to improved transfer of knowledge, which leads to better analyst performance (Bebchuk, Cohen and Spamann, 2010; Fogel, Jandik and McCumber, 2018).

Directors have an important role in directing and overseeing strategy which involves making specific choices for the companies (Bhuiyan and Hooks, 2019). Their prior experience and their networks influence the strategic decisions they make (Post, Rahman and McQuillen, 2015; Bhuiyan and Hooks, 2019) as the information advantage view argues that directors with a high network can have better access to valuable and important information, which includes industry trends, products and pricing in foreign markets. Therefore, it is likely that directors with high networks may have better access to promising investment opportunities in a foreign market, resulting in lower cash holdings. Prior research by Engelberg, Reed and



Ringgenberg (2012) finds that directors' connections with bank executives can help them reduce the level of cash companies hold. Since, directors maintain good relationship with banks, they can have access to cash anytime and at lower cost. Directors with high networks can bring tax favourable benefits, which helps reduce the need to maintain a high level of cash holdings (Miranda-Lopez, Orlova and Sun, 2018). Therefore, the preceding literature suggests a negative relationship between directors with high networks and companies' cash holdings for foreign cross-listed companies. I, therefore, construct the second hypothesis in this study:

H2: Directors with a high network of foreign cross-listed companies will hold less cash

Corporate governance bundles appear to interact with each other and may display a substitutability or complementary relationship. Much research to date has focused on the different governance mechanisms to measure companies and country level governance (Dittmar and Mahrt-Smith, 2007). Many of these studies apply substitute or complementary relationship to monitor and incentive system. As defined by Ward, Brown and Rodrigues (2009), when there is a direct functional replacement of the first mechanism by the second, this refers to substitute mechanisms acting for another mechanism. They show that, when there is an increase in one mechanism, it directly replaces a portion of the first mechanisms while overall functionality remains the same. However, in some situations, governance mechanisms act as a complement to one another, where the presence of one mechanism strengthens the other mechanism. This leads to more effective governance system, which then improves company performance. In this study, I empirically examine the complementary or substitute effects of governance bundles and directors' networks. Most of the studies employ single corporate governance mechanisms and, therefore, fail to provide a comprehensive picture of the effectiveness of corporate governance arrangements. I follow Ernstberger and Gruning (2013), who argue that research should focus on companies' corporate governance bundles rather than on single corporate governance mechanisms. In response to these

concerns, I construct governance bundles by examining important companies and country level factors that affect companies' cash holdings decision.

Prior studies have examined the link between corporate governance and cash holdings. Many of these studies investigate how companies with good corporate governance affect its decision to hold cash using G-index and employment protection as good governance proxies (Cui et al., 2018). Other studies focus on the relationship between companies' characteristics, such as multiple directorships (Chou and Feng, 2018), CFO (Florackis and Sainani, 2018), companies' CSR performance (Oh, Chang and Kim, 2018), labour unemployment insurance (Devos and Rahman, 2018), companies' structure (Subramaniam et al., 2011), political connections (Hill et al., 2014) and cash holdings. Another stream of literature investigates the determinants of governance and cash holdings at a country level. For example, Dudley and Zhang (2016) find that companies in countries with higher level of trust hold more cash. Dittmar and Mahrt-Smith (2007) show that value of cash is much lower in poorly governed companies, as cash is degenerated in ways that significantly reduce future operating performance. Similarly, Kalcheva and Lins (2007) find that, when country level governance is weak, outside investors discount the value of cash held by companies with managerial agency problems. In other words, value of cash is lower when controlling directors hold more cash.

The second line research relevant to this study focuses on directors' networks and companies' value. Directors' networks can influence access to external capital through their social networks, which are considered as channels for information and knowledge where existing relationships are enhanced and new relationships are developed. Prior studies discover that directors' networks provide better access to valuable information (Larcker, So and Wang, 2013), from which the companies can benefit when entering a foreign market. Directors' networks also resolve the information asymmetry problem and enable the companies to gain benefit from foreign cross-listing. On one hand, the information advantage view argues that

directors' high networks can have access to valuable and important information (Schoorman, Bazerman and Atkin, 1981), whereas other literature argues that directors with high networks may abuse their social influence and power over other board members, leading to entrenchment. This literature suggests that directors' high networks may weaken the corporate governance and internal control, leading to more agency conflicts (e.g., Core, Holthausen and Larcker, 1999; Fich and Shivdasani, 2006; Omer, Shelley and Tice, 2018).

Although most of these studies find that governance factors and directors' networks exert an impact on a company's cash holding decision, they are studied separately, and I find mixed results. One of the reasons for these mixed results might be that these studies focus on either governance or directors' networks individually in a single country setting. In this study, I provide a new and novel angle by examining whether governance bundles and directors' networks act as a complement or substitute for corporate cash holdings. By studying a diverse group of countries with various forms of governance structures and directors' connections, I show that cash holding decisions cannot be effectively studied without considering governance bundles and directors' networks together. I hypothesise a complementary relation between good governance bundles in relation with directors' high networks and cash holding for foreign cross-listed companies. I, therefore, construct the third hypothesis as below:

H3: In foreign cross-listed companies, governance bundles and directors' networks act as complements in cash holdings decision.

Researchers have viewed cash holdings from different perspectives. Country specific factors have a significant impact on the determinants of cash holdings (Guney et al., 2007). Recent research on the determinants of corporate cash holdings has been focusing on political and economic factors that may affect cash holding decisions. Kusnadi et al. (2015) claim that prior studies show that there is discrimination in regulations against the private sector in China. They also claim that there should be more knowledge regarding managerial actions to

protect company assets from political extraction, especially cash, as it is the most liquid asset and possibly the most subject to political extraction. Ullah and Kamal (2017) find that board size and board independence have a significant positive effect on cash holdings in a democratic regime, but are insignificant in a dictator regime. They provide evidence that female directors increase cash levels in dictator regimes only. This is due to precautionary motives, which could be heightened during dictator regimes. Directors play key role in terms of how much cash a company should hold.

This study posits a negative relation between cash holdings and directors' networks because prior research argues that better-connected directors can gain an information advantage and other benefits. For example, these directors can have better access to valuable information on better investment opportunities and better (i.e., more efficient) managerial practices, resulting in a lower level of cash. Further, prior research (e.g., Engelberg et al. 2012) finds that companies with better-connected directors maintain close relationships with banks and receive high bond credit ratings, making the process of acquiring capital easier and quicker. For example, Yu et al. (2015) find that companies with a larger number of banking relationships hold less cash. Prior research also suggests that companies with better-connected CEOs may receive favourable treatments, such as tax benefits from governmental agencies, which may help reduce the need to keep a high level of cash.

Fresard and Salva (2010) suggest that the decision to cross-list in the foreign market as a governance mechanism to prevent managers from turning cash into private benefits. Cross-listing in the foreign markets calls for legal and monitoring changes within the company, as the company needs to meet new requirements imposed by the host country markets. Stulz (1999) indicates that, after cross-listing, companies no longer need to hold large amounts of

cash, which means that companies will decrease their cash holdings after cross-listing. Lins, Strickland and Zenner (2005) and Chang Noorbaksh (2006) find that decrease of cash holdings upon cross-listing results in improvements in economic development and corporate governance standards.

However, current studies ignore an important factor of directors' networks and corporate governance and how it affects cash holdings decisions for foreign cross-listing companies. It is important to examine how companies can benefit from directors' connections to gain valuable information regarding cross-listing markets. By applying the stakeholder theory and network theory, this study investigates the relationship between governance bundles and cash holdings for cross-listed companies, which supports the first hypothesis. This hypothesis will expand our knowledge related to types of governance bundles that can affect cash holdings for foreign cross-listed companies. Secondly, network theory allows me to examine the relationship between directors' networks and their influence in cash holdings in cross-listed companies; this theory supports the second hypothesis. This hypothesis will contribute to the literature of directors' networks and how their connections can affect companies' cash holding decision. The third hypothesis investigates how, when governance bundles and directors' s networks interact with other, they affect directors' decision for cash holdings for cross-listed companies. This hypothesis will contribute to our knowledge by seeing the effect of interaction between governance bundles and directors' networks and its effect on cash holdings decisions for foreign cross-listed companies.

# Chapter 4: Methodology

## 4.1 Introduction

In the previous chapter, I developed a conceptual framework to analyse the impact of the complementarity of directors' networks and governance bundles on cash holdings at cross-country level. This section is intended to explain and justify the methodology chosen for the study, and to explain and discuss the procedures and methods used to validate the proposed framework. This section establishes the suitability and reliability of the methodology used to address the research questions in this thesis. The research strategy employed hand collected data for each director from Bloomberg. This chapter describes how to select a sample and collect and analyse detailed quantitative data at each stage.

First, I discuss fundamental research paradigms intending to select the best model for the proposed framework. The following are some of the precise reasons for using a quantitative approach in this study. I will then elaborate on the measures on directors' networks, followed by a description of the study population and samples used. Next, this chapter discusses statistical procedures and data analysis with the final section giving the conclusion.

## 4.2 Research Philosophy

Before choosing a research, method and starting a research design, it is vital to select the right research philosophy (Creswell, 2009). A major critical study design step is to determine the most appropriate study paradigm. A research paradigm can be defined as a philosophical outline that characterises how research is performed considering the worldview of the people and the type of information involved (Collis and Hussey, 2009) which includes three critical research philosophy approaches, positivist, interpretive and critical research.

Rodela, Cundill and Wals (2016) defined positivism as an epistemological assumption that reality is given and exists independently of humans. Under the paradigm of interpretation,

‘the reality is socially constructed and cannot be captured by a single interpretation shared by all observers, or rather, real participants’ (Rodera, Candil and Wales, 2016, p. 17). Therefore, it focuses on understanding human behaviour from participants' own reference frames (Hussey and Hussey, 1997). Similarly, critical research ‘is trying to reveal the interpretation of reality, but often does it through a lens of power relations’ (Rodera, Candil and Wals, 2016, p. 18).

#### 4.3 Rationale for Adopting a Positivist Paradigm

Research is described as a systematic study that collects, analyses and interprets data in some ways to understand, explain, predict, or control phenomena in such situations (Burns, 1997; Mertens, 2005). Therefore, unless we specify a paradigm as the first step, there is no basis for subsequent choices in methodologies, literature, or study design. The nature and conditions of all research questions and problems will determine which research approach is best.

The positivist paradigm assumes the desire to distinguish between discovery and verification (Fay, 1975). According to Fay (1975), positivism can be defined as ‘a research approach that uses empirical methods and uses quantitative analysis extensively along with logical calculations to build a formal explanatory theory.’ Under this model, ‘Theory provides the basis for the explanation, enables prediction of phenomena, predicts the occurrence of phenomena, and thereby enables control of phenomena’ (Collis and Hussey, 2013). To be considered an empirical study, studies should focus on quantifiable variable measures, formal propositions, hypothesis evaluation and sample phenomena in specific populations (Orlikowski and Baroudi, 1991). In addition, Collis and Hussey (2013) suggested that the usual procedure under an empirical approach is to consult the literature to establish appropriate theories and make hypotheses.



My thesis considers a broad positivist paradigm. The purpose of this thesis is to examine the impact of directors' networks on governance bundles for foreign cross-listed companies. Taking into account various theories and models about governance, this study has developed a hypothesis-based framework. To test the research hypothesis employed in this study, the proposed framework and a positivist (quantitative) approach were used to be compatible with the topic.

The foundation of this thesis is based on positivist instead of an interpretive approach for the following reasons. After thorough research on the area of directors' connections and governance bundles, I planned a research hypothesis for this study, which is then confirmed by collecting data from various databases. Second, positivist methodologies often emphasise that existing theories are the most important source of knowledge (Schrag, 1992; Saunders, 2011). In fact, positivist studies are generally established based on previously investigated relationships (Meredith et al., 1989). Besides, studies remain neutral throughout the research process. Finally, this approach is appropriate because it allows a clear theoretical focus of the study, facilitates the collection of economic data, and produces data that can be compared (Hussey and Hussey, 1997). The study employs an inductive approach to create and test a theoretical framework using empirical data from various databases. The collected data are then analysed statistically to 'generalize the results into a population' (Collis and Hussey, 2013, p. 62).

#### 4.4 Research Design

This section of the thesis describes how and where data were collected and analysed (Collis and Hussy, 2013). The research design helps set the limits of the study and reduces the chances of inaccurate causal effects from the data collected using various databases (Hair et al., 2006; Creswell, 2009). In other words, the research design is a function of research goals. Therefore, it is essential to agree on the appropriate method of the research design. "Research

design" here refers to the framework and the systematic approach I have adopted to meet the purpose and the objective of the research questions used in this thesis (Bryman and Bell, 2007). The main elements of the study design are described in the following subsections. Figure 1 shows the study design for this study.

I started the process of this thesis with selection of topic of interest. Next, a critical review of the literature was undertaken to identify gaps in the existing literature and complementing the directors' networks and cash holdings for foreign cross-listed companies. In response, research questions, objectives and aim of this thesis were identified and justified three hypotheses based on the existing literature of directors' networks and cash holdings decisions for foreign cross-listed companies. Later, a research framework was developed. Before collecting the data for directors' networks and cash holdings, I considered ethical issues. In the final sample, 5,456 directors' biographies were considered and analysed by a suite of analytical tools. This was followed by a deep discussion on the results obtained. Finally, the conclusions provide a summary, theoretical and practical contribution of the entire thesis, along with some recommendations for future research.

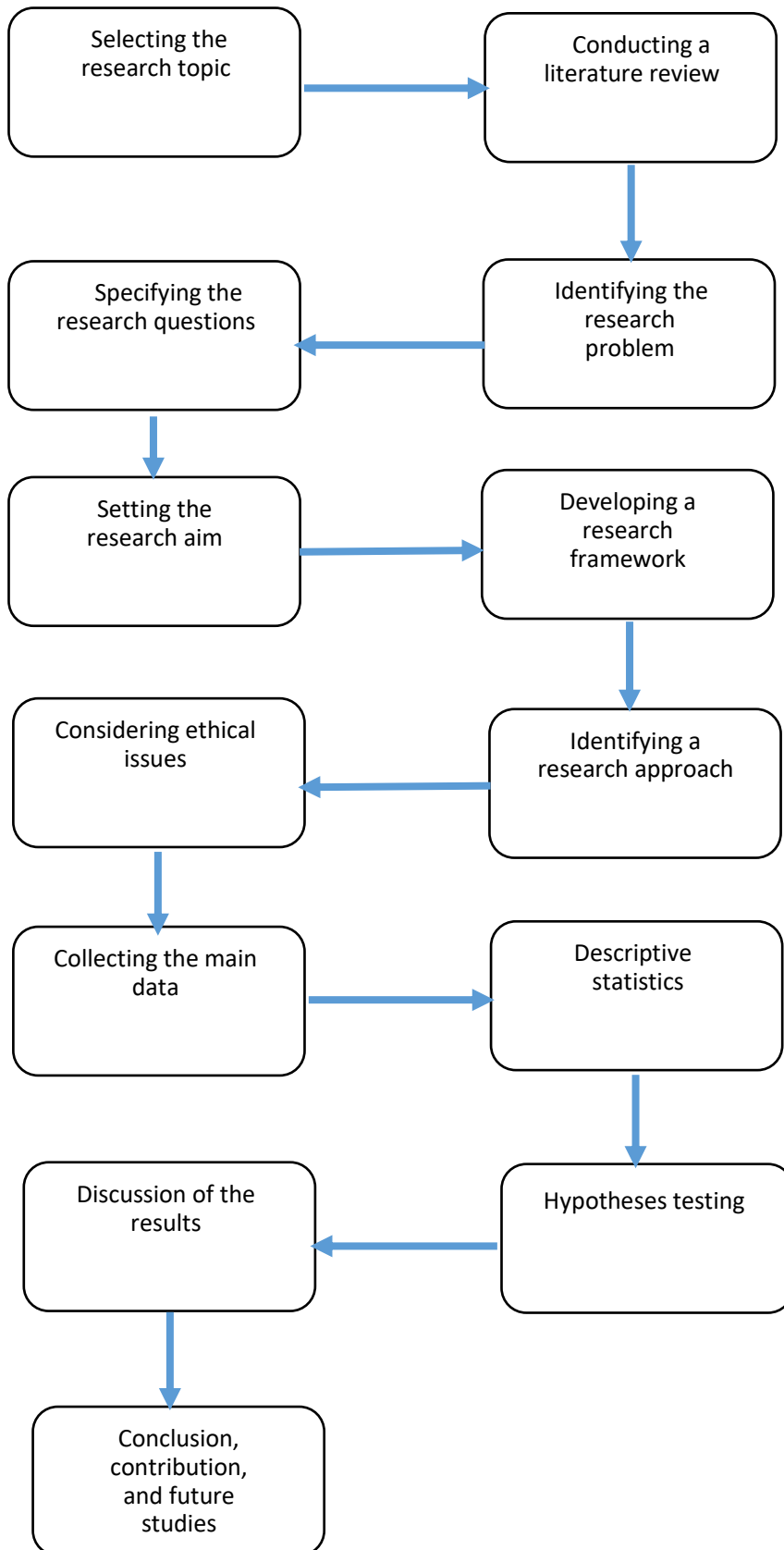


Figure 2.

#### 4.5 Research approaches

In this thesis I have utilised quantitative methods to analyse the data. In the majority of studies, quantitative methods are employed to examine the theory by testing and confirming the relationships between hypotheses (Creswell, 2009). Therefore, the main purpose of using this approach in this research is to measure data. This allows us to generalise the results attained from the sample to make conclusions about the population of interest. According to Goldkhul (2012), most studies which use quantitative methods to collect the data and investigate the research questions are linked with positivism. Figure 1 shows the process by which quantitative studies can be performed using a sample data (Bryman, Teevan and Bell, 2009). The development of these studies begins by choosing a theory that addresses the research question to investigate and, accordingly, elicit hypotheses. Then researchers can plan what and how the data can be collected and analysed, which then leads to reporting the results obtained and drawing conclusions.

#### 4.6 Rationale for Using the Quantitative Approach

After looking at the various research approaches, I have adopted one of them to analyse the model in the current research question. To choose the correct method depends on different factors, for example, the nature of the research and what problem needs to be solved. What kind of data are required to solve the problem, and how to get access to the data. The purpose of my thesis is to explore the relationship between governance bundles and directors' networks and their decision for cash holdings for foreign cross-listed companies, which requires a more context-oriented perspective of research. This study uses a quantitative method for the following reasons: firstly, quantitative approaches are mainly linked to positivism, which has been selected as the optimal research paradigm for this study (Saunders, 2011; Goldkuhl, 2012; Collis and Hussy, 2013). Also, quantitative approaches are often related to inductive methods that fully understand the variables and theories of the study

before conducting the research (Creswell, 2009). Secondly, quantitative procedures are considered to play an essential role in measuring behavioural factors, such as attitudes, sentiments and emotions, which are the primary outcomes of this thesis (Amaratunga and Baldry, 2002). And finally, according to the nature of this thesis, the sample size for this study must be relatively large, so that it can be generalised from the results (Kothari, 2004). Therefore, a quantitative method by collecting secondary data is the best approach for this research (Teddlie and Tashakkori, 2010; Saunders, 2011).

#### 4.7 Research Strategy

Many scholars have tended to define research strategies as general plans that enable researchers to answer research questions and achieve goals in an academic manner (Saunders, 2011). Individually, research strategies are usually viewed as a relation between research paradigms or philosophies and experimental strategies, the methods employed for data collection and analysis (Saunders, 2011). A good research strategy will help researchers adopt a particular research method and define why they conduct research in an effective way to support the objectives of the research. According to the research objectives and questions, good research strategies have several distinct characteristics (Saunders, 2011; Collis and Hussey, 2013) (1) specify resources needed for data collection; (2) taking into account the restrictions that may affect the data collection process, such as access, location, time and ethical issues.

Considering the quantitative approach, one of the critical features of this approach is the sample of the studies that reflects the attributes of the population of interest (Sarandakos, 1998). When selecting samples when the generalisation of results is essential, to choose an unbiased subset of the population (Collis and Hussey, 2013; Fielding, Lee and Blank, 2017), which allows the results from the sample to address research questions and generalise to the entire population (Collis and Hussey, 2013). According to Churchill and Iacobucci (2005),

the purpose and scope of the research play a vital role in choosing the right sample. In this study, I select a very focused sample.

#### 4.8 Sample Size

I first collected 24,500 directors' biographies from the Bloomberg database. These directors were from 4,900 companies. Bloomberg database stores information about directors' name, age, address, current companies they work for, previous emolument held, their education and clubs they are members of, etc. I then collected firm level governance from Asset4 for these companies. Due to the missing information, I was left with 3,000 companies when I merged the directors' biographies with firm level governance. Then, I collected firm control variables from Asset4; as there were missing observations, the majority from developing countries, I was left with 1,477 companies. The final sample consists of 6,571 company year observations and 1,477 foreign cross-listed companies from 32 countries from 2004 - 2015. The data collected for this study are a sample of the foreign cross-listed companies. The data collected are divided into two main categories, namely financial data for company financial variables and corporate governance data at company and country level. All the data gathered for this study are based on secondary data disclosed by financial software available at Brunel University London library. For empirical analysis in this thesis, I required information for foreign cross-listed companies across the world, which I collected from Datastream. I considered companies cross-listed in any foreign stock exchange. The second major component of analysis is information regarding governance bundles. The country level governance data are drawn from the World Bank and companies' level governance data are drawn from ASSET4 database. The third major component this analysis is directors' networks data, which include their social ties with other directors and has been hand collected from Bloomberg. The financial variables are collected from Datastream. I began with all the foreign cross-listed companies listed in the Datastream database. I then hand

collected these data from the Bloomberg database. The database contains the information on directors' characteristics such as previous employment, educational background and membership to social clubs, etc. In the main analysis, I construct yearly connections based on directors' employment history.

In addition, I collected demographic information on each of the company's directors, including information on the inside and outside directorships they were holding. I also collected data on their current place of employment, their job title and all the boards on which they sat. Finally, I found their education history, including the institutions they attended, the years they graduated, and the degrees they earned. Following the literature, I used degree, closeness, betweenness, and eigenvector to calculate centrality to evaluate the position of a director within a network (El-Khatib, Fogel and Jandik, 2015). Degree measures all the direct links that each director has with other directors in the networks. This measure takes the most information in an account to which a director is visible because it measures the fraction of directors to which the director is connected (see El-Khatib, Fogel and Jandik, 2015 for more information). Closeness measures the number of steps that a director needs to take within their networks to reach another director. This measure captures the connection to highly influential directors. Betweenness measures the shortest path linking two directors in the connections. This measure is most effective and captures the absolute position of a director in the networks. Finally, eigenvector networks extend the degree measure of connections by weighing degree networks by the importance of a director's direct connections. Eigenvector networks can be interpreted as capturing notions of power and prestige, giving it a special advantage in obtaining resources and valuable information (Please see Figure 2 formulas used to calculate centrality). Following El-Khatib, Fogel and Jandik, (2015) and Omer, Shelley and Tice, (2018), to make the networks measures comparable across time, I generate percentile values of the networks measures annually, with 1 being the least central and 100 being the most central. These percentiles measure the position of the directors within the

networks of all listed companies in the entire sample. This transformational preserves the rank order of the connection importance of each director and permits a clear and simple interpretation of the variables. The networks percentile values also make the size of the networks irrelevant and, therefore, are directly comparable across different years.

I then merge the sample with company level governance data and directors' biography data, such as their education background, current and past employment, and other relevant information. Using sample period from 2004 to 2015, I construct annual network ties using software "R" for each year and measure centrality for each director. Since the cross-listed company's data are at company level, I then collapse the centrality data at the company level to merge the data with the Datastream database.

#### 4.8.1 Validity and Reliability

Research findings must have certain evaluation criteria regarding validity and reliability. Validity is divided into internal validity and external validity. Internal validity is the criterion that evaluates if the identified cause truly creates the interpreted effects (Gill and Johnson, 2002). On the other hand, external validity evaluates the generalisability of the findings beyond the sample of the study. External validity is divided into population validity and ecological validity. Population validity deals with generalising from the sample involved in the research to a larger population. However, ecological validity deals with generalising from the actual social context in which the data of the research are gathered to other contexts (Gill and Johnson, 2002). This study aim for population validity in which the findings of the sample can be generalised to all companies listed on foreign markets.

#### 4.8.2 Measuring Governance Bundles

Following Lim, Makhija and Shenkar (2016) the country level governance bundle is a measure of broad six dimensions: (1) voice and accountability, (ii) political stability and



absence of violence, (iii) government effectiveness, (iv) regulatory quality, (v) rule of law, and (vi) control of corruption. I define the score of particular country for a specific year as the average score of these six dimensions. This measure of country governance contains many attributes that should foster an environment conducive to good country governance. The country governance bundle is denoted by CG\_Score. Following Seifert and Gonenc (2018), I construct a company level governance bundle for each company for a particular year based on the five categories: (i) functions of the board of directors, (ii) compensation policy of the board of directors, (iii) structure of the board of directors, (iv) company vision and strategy, and (v) shareholder rights. The company governance bundle is denoted by FG\_Score. I then average the score of country and company level governance to create governance bundles.

#### 4.8.3 Dependent and Control Variables

The dependent variable, CH, measures the level of corporate cash holdings. I measure CH variable as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. This measure has been widely used in accounting and finance literature (Bhuiyan and Hooks, 2019; Cui et al., 2018; Devos and Rahman, 2018). I compute a “Foreign\_Listing” count variable to measure the number of foreign stock exchanges on which the company cross-lists its shares in each year (Bris et al., 2012). With this variable, I can investigate the varying extent of cross-listing destinations of companies, instead of a dichotomous decision to cross-list or not.

Control variables for year and industry are applied. Yearly dummies are used to control for macroeconomic events (Ferreira and Vilela, 2004). For example, how companies used their cash holdings during financial crisis. Yearly dummies have been used by most major studies, such as Opler et al. (1999), Ferreira and Vilela (2004), Bates et al. (2009), Drobetz and Grüninger (2007), Kusnadi (2011), Chen et al. (2014), Kusnadi (2015) and Al-Najjar and Clark (2017). Industry dummies are used to control for differences in cash holdings across

industries which may not be accounted for by the other variables in the model (Ferreira and Vilela, 2004). Some industries hold larger amounts of cash than others, such as financial sectors (Opler et al., 1999). Industry dummies have been applied by Opler et al. (1999), Dittmar et al. (2003), Ferreira and Vilela (2004), Ozkan and Ozkan (2004), Chang and Noorbakhsh (2006), Guney et al. (2007), Bates et al. (2009), Kusnadi (2011; 2015), Chen et al. (2014) and Al-Najjar and Clark (2017).

As used in previous research, I control for financial variables as related to studies by Opler et al. (1999) and Arouri and Pijourlet (2017). I control for company size, leverage, company performance measured at ROA, cash flow from operating activities measured as CF, capital expenditures measured as CAPX, net working capital measures as NWC, and retained earnings measured as REA. I also control for country level variables such as GDP and WGI.

#### 4.8.4 Baseline Model:

I utilise the following two equations to estimate the impact of governance bundles and directors' network centrality on the corporate cash holdings.

$$CH_{i,t} = \beta_0 + \beta_1 CG\_Bundles_{i,t} + \beta_2 Company\ governance_{i,t} + \beta_3 Country\ governance_{i,t} + \beta_4 Company\ Size_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 ROA_{i,t} + \beta_7 CF_{i,t} + \beta_8 CAPX_{i,t} + \beta_9 REA_{i,t} + \beta_{10} NWC_{i,t} + \beta_{11} Foreign\ Listed_{i,t} + \beta_{12} GDP\ per\ capita_{i,t} + \beta_{13} WGI\ Indicators_{i,t} + Industry\ Indicators + Year\ Indicators + \epsilon_{i,t} \dots \dots \dots (1)$$

$$CH_{i,t} = \beta_0 + \beta_1 CENTRALITY_{i,t} + \beta_2 Professional\ Network_{i,t} + \beta_3 Personal\ Network_{i,t} + \beta_4 Company\ Size_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 ROA_{i,t} + \beta_7 CF_{i,t} + \beta_8 CAPX_{i,t} + \beta_9 REA_{i,t} + \beta_{10} NWC_{i,t} + \beta_{11} Foreign\ Listed_{i,t} + \beta_{12} GDP\ per\ capita_{i,t} + \beta_{13} WGI\ Indicators_{i,t} + Industry\ Indicators + Year\ Indicators + \epsilon_{i,t} \dots \dots \dots (2)$$

*Ch<sub>i,t</sub> is the cash holdings for a company i at period t*

*CG\_Bundles<sub>i,t</sub> is the average of company and country level corporate governance*

*Centrality<sub>i,t</sub> is the measure of director's networks using Degree, Closeness, Betweenness, Eigenvector and Composite score*

*Company Governance<sub>i,t</sub> is the score for each component of board functions, board structure, compensation policy, vision and strategy and shareholder rights*

Country Governance<sub>i,t</sub> is the score for each component for voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regular quality, rule of law and control of corruption

Company size<sub>i,t</sub> is the size of the company measured by total assets

Leverage<sub>i,t</sub> is the leverage of the company

ROA<sub>i,t</sub> is the return on assets of the company

CF<sub>i,t</sub> is the cash flow of the company

CAPX<sub>i,t</sub> is the capital expenditure of the company

REA<sub>i,t</sub> is the retained earnings

NWC<sub>i,t</sub> is the net working capital

Foreign Listed<sub>i,t</sub> is the number of markets a company cross listed their stock in a foreign market

GDP<sub>i,t</sub> is the gross domestic product

WGI<sub>i,t</sub> indicators are the World Bank Governance indicators

Following Miranda-Lopez, Orlova and Sun, (2018), I use clustered by (company and year) standard errors regressions as a primary regression model because I use a panel sample in this study. I include the industry and year dummy variables and winsorise financial variables at the 1% and 99% levels in the regression analysis.

#### 4.8.5 Preliminary data analysis statistics

Choosing the best statistical method for the analysis is the first and most crucial step in quantitative studies. Research factors must be considered, such as research questions, objectives and the suitability of the data, and characteristics of the statistical tools (Malhotra, 1999). I need to consider these critical tools before the actual implementation of the

analytical method so that research efforts and resources are utilised according to a precise plan that produces accurate conclusions (Cooper and Schindler, 2001).

Quantitative data obtained from various databases were analysed using the statistics package STATA version 14.2 software. Researchers in different administrative disciplines widely use this software package because it is easy to use and takes only a limited amount of time to learn the required features (Zikmund, 2003). Perhaps more importantly, the choice is based on the rationale that this statistical package provides most of the necessary and basic calculations, such as descriptive and reliability analysis, correlation techniques, outlier identification, validation tests, and regression, which is important for final review.

Hence, these econometric tools have been exercised to test the hypothesis and establish the data, such as frequency, percentage, mean, standard deviation, correlation analysis and reliability. These analyses were performed separately for each variable to get a feel for the preliminary information and data (Sekaran, 2000). The data collection for this quantitative study uses primarily nominal and ordinal scales and returns data in a format suitable for this technique (Kline, 2005).

#### 4.8.6 Missing Data

Even though there are no set guidelines for what establishes a large amount of missing data, Kline (1998, p. 75) pointed out that missing values should be less than 10% of the total sample. According to Cohen and Cohen (1983), even 5 or 10% of missing data in the sample for a particular variable is not significant. Olinsky, Chen and Harlow (2003) suggests that, if the proportion of data with missing observations is less than about 5% then it should be ignorable, as the most straightforward analysis should give reliable results. This thesis proposed the incompleteness by Byrne (2001) to (1) investigate the total amount of missing data in the sample, and (2) investigate if some data were found to be missing following the steps for handling missing data and finding out these missing data patterns, and (3) the

appropriate technique for handling missing data. Following these methods, I deleted the companies with missing data.

#### 4.8.7 Outliers

As suggested by Hair et al. (2016), I first checked the data collected for outliers, serial correlation and multicollinearity. Kline (2005) and Hair et al. (2006) explain outliers' cases with scores that differed from other observations in the sample. Most researchers find that problematic outliers can dramatically affect statistical analyses, such as model fit estimates and parameter estimates (West, 1995) and can generate negative variances (Dillon and Mulani, 1989). The outliers can be divided into two parts: univariate and multivariate outliers. Univariate outliers have one variable with extreme value, while multivariate outliers have an unusual combination of two or more variable values (Tabachnick and Fidell, 2001; Kline 2005). There is no absolute determination of extreme values. Still, generally accepted rules of thumb may state that scores that are more than three standard deviations from the mean are considered outliers (Kline, 2005). Univariate outliers can be easily detected by diagnosing the frequency distribution of Z scores (Kline, 2005). In this study, to deal with outliers, in the robustness analysis I have removed countries with most observations, such as Australia, the UK and the US. As the sample used in this study has a majority of the companies from these three countries, there are possibilities that these countries draw the results. So, to mitigate this concern, I remove these countries from the sample and after removing these countries from regressions the results still stay similar.

#### 4.9 Conclusion

The purpose of this chapter was to discuss and select the most appropriate methodology and to discuss the statistical methods used in this thesis. In the area of methods, two primary research approaches were found to be widely used: positivist and interpretivist. Positivist methods are also popularly known as scientific approaches, and are also quantitative, while

interpretivism approaches are generally known as qualitative approaches. Although both philosophical approaches have different and positive effects on different research environments in different ways, the main concerns are the same. Both of these approaches were discussed in detail with appropriate reasons for choosing a particular research methodology.

This thesis has taken a quantitative (positivist) approach. Previous work shows that the usual process under a positivist approach is to study the literature to establish an appropriate theoretical framework and build hypotheses accordingly. Therefore, this study fell within the sphere of the positivist approach, not the interpretivist approach. Because the model was developed through a thorough search of the literature, a hypothetical model was proposed.

To collect directors' connections and their biographies, such as their age, current employment etc., I have used Bloomberg database. Bloomberg provides detailed information about directors' biographies and their current and previous employments. Financial and country control variables are collected from DataStream. And governance bundles data from the World bank. To analyse the data collected from the above mentioned databases, the STATA 14.2 was used. Because this software package is widely accepted and used by researchers in numerous disciplines, the tool was used to test and establish the state of the data. In addition, R was also applied to calculate the measure for each director's connections: Degree, Closeness, Betweenness, and Eigenvector centrality.

## Chapter 5: Empirical Analysis

## **Results**

### **5.1 Introduction**

This chapter presents the empirical results of the sample designed in Chapter 4 of governance bundles, directors' networks and companies' cash holdings for foreign cross-listed companies. I have used different statistical techniques to measure the analysis, such as ordinary least squares (OLS), two-staged least squares (2SLS), and robustness.

In the early 1900s, there were no formal accounting standards and, at that time, accounting guidelines, bulletins and principles, which were issued by the accounting profession, were regarded as the best reporting practice. According to Zeff (1972), one of the most important documents in the history of accounting regulation was produced during the 1930s, when the US accounting profession, together with the New York Stock Exchange (NYSE), developed a list of broadly used accounting principles. This publication provided the foundation for the codification and acceptance of Generally Accepted Accounting Principles (GAAP) (Zeff, 1972).

Almost all the countries have a national set of accounting standards to be followed by the companies operating within the national boundaries. These accounting standards have been developed over time, with the purpose to keep a check and balance on the transactions and events of a company by bringing in quality and control. It is understandable to us that the public listed companies have a broad set of creditors and investors, and these stakeholders need to be presented with financial reports as per certain accounting standards in order to provide them with the knowledge and understanding of the firm's financial position and performance. Accounting differences among different countries and economies toughen the job for investors, lenders and other users to understand and compare different financial



reports. The benefits of global financial reporting cannot be limited only to the benefits achieved by the providers of debt and equity capital; other entities, like the ones who seek to generate capital from the market, benefit from it in terms of reduction in their compliance cost and lower the uncertainties which affect the cost of capital. Consistency in audit quality is improved by the implementation of global standards and facilitates the training and education of these standards at a global level (IASB Foundation Education, 2009, p. 1).

Generic accounting standards are issued by the principle-based systems, which, in turn, creates ambiguity in terms of referring to the controversial problems at hand as opposed to the rules-based system. Ambiguity arises in the principle-based system while addressing certain processes, like book keeping and measurement. IAS/IFRS has gained worldwide popularity and has been employed by many countries. Australia and New Zealand being common law countries, and Italy and Spain with a civil-law system also employs the IFRS accounting standards (Carmona and Trombetta, 2008, pp. 456-457). IFRS was adopted by Germany and United Kingdom, which prior to it had followed national level rule-based and principle-based systems, with the aim of improving the quality and comparability of financial reporting (Verriest, Gaeremynck and Thornton, 2010). Verriest, Gaeremynck and Thornton, (2010) find that there is weak evidence that stronger governance firms engage in less earnings management (Klein, 2002; Larcker et al., 2007). Firms with more independent boards are found to have a lower likelihood of committing fraud (Beasley, 1996). Higher quality compliance and disclosure include more transparent information relating to the restatement process itself as well as stricter compliance with IFRS. With regard to timing of compliance with IAS 39, stronger governance companies seek to provide more transparent information regarding their financial assets and liabilities; hence, they are more likely to apply the standard immediately rather than postponing adoption.

## 5.2 Descriptive Statistics

Descriptive statistics are employed to describe key characteristics of a study sample using STATA 14.2 software. Following the guidelines proposed by Gefen, Straub and Rigdon (2011) for the minimum reporting required for the analysis, this study examines the frequency of cases for categorical variables. Simple descriptive statistics, such as mean, median and standard deviation, look at ordinal numbers.

**Table 1. Sample distribution across countries**

	Freq.	Percent	Cum.
Australia	494	7.52	7.52
Austria	37	0.56	8.08
Belgium	86	1.31	9.39
Brazil	22	0.33	9.72
Denmark	113	1.72	11.44
Finland	100	1.52	12.97
France	386	5.87	18.84
Greece	38	0.58	19.42
Hong Kong	302	4.60	24.01
India	2	0.03	24.05
Israel	36	0.55	24.59
Italy	105	1.60	26.19
Japan	728	11.08	37.27
South Korea	21	0.32	37.59
Luxembourg	13	0.20	37.79
Malaysia	51	0.78	38.56
Mexico	22	0.33	38.90
Netherlands	139	2.12	41.01
New Zealand	40	0.61	41.62
Norway	56	0.85	42.47
Poland	45	0.68	43.16
Portugal	36	0.55	43.71
Russian Federation	26	0.40	44.10
Singapore	133	2.02	46.13
South Africa	156	2.37	48.50
Spain	116	1.77	50.27
Sweden	121	1.84	52.11
Switzerland	176	2.68	54.79
Thailand	31	0.47	55.26
Turkey	24	0.37	55.62
United Kingdom	1299	19.77	75.39
United States	1617	24.61	100.00

Table 1 shows the sample distribution of each country. The United States has the largest number of observations (1,617), followed by the United Kingdom (1,299) and Japan (728). India (2), Luxembourg (13) and South Korea (21) have the lowest number of observations in this sample, a possible reason for this being the limitation of the data availability. These results are consistent with Bosco and Misani (2016), where they find the impact of cross-listing on corporate social responsibility.

Table 2 Panel A Sample descriptive statistic

Variable	Obs.	Mean	Std Dev.	25 <sup>th</sup> Pctl	Median	75 <sup>th</sup> Pctl
CH	6,571	0.211	0.697	0.044	0.096	0.210
Deg_Cen	6,571	0.520	0.290	0.270	0.528	0.773
Close_Cen	6,571	0.441	0.336	0.148	0.323	0.772
Betw_Cen	6,571	0.529	0.300	0.274	0.559	0.787
Eigen_Cen	6,571	0.466	0.302	0.176	0.486	0.734
Compo_Score	6,571	0.490	0.294	0.231	0.495	0.743
Prof_Net	6,571	0.520	0.291	0.274	0.531	0.777
Prsnl_Net	6,571	0.511	0.275	0.281	0.519	0.741
CAPX	6,571	0.057	0.056	0.022	0.042	0.073
Leverage	6,566	0.237	0.183	0.106	0.223	0.331
NWC	6,571	-0.002	0.147	-0.080	-0.008	0.073
Company Size	6,571	9.152	2.499	7.541	8.747	10.337
ROA	6,571	0.054	0.156	0.023	0.051	0.091
CF	6,567	0.106	0.088	0.059	0.096	0.144
REA	6,560	0.196	0.533	0.063	0.209	0.385
GDP	6,571	43584.900	13498.400	38403.800	44305.600	48603.500
Control of Corruption	6,571	1.519	0.549	1.330	1.586	1.853
Government Effects	6,571	1.538	0.402	1.496	1.583	1.740
Regular Qualities	6,571	1.457	0.388	1.260	1.562	1.770
Political Stability	6,571	0.615	0.475	0.412	0.585	0.976
Rule of Law	6,571	1.504	0.441	1.436	1.611	1.743
Voice Accountability	6,571	1.142	0.402	1.071	1.218	1.361
CG_Score	6,571	1.296	0.375	1.235	1.315	1.484
Board Structure	6,571	55.828	28.215	32.470	62.170	81.770
Board Functions	6,571	52.875	28.598	26.330	57.660	81.970
Vision & Strategy	6,571	56.246	31.200	21.980	58.910	88.510
Compensation Policy	6,571	58.395	27.517	39.760	66.230	81.910
Shareholder Rights	6,571	57.449	25.375	63.520	68.100	69.120
FG_Score	6,571	56.159	18.358	44.564	60.312	69.872

This table presents the descriptive statistics of the sample variables. Specifically, this table reports the number of observations, pooled mean, standard deviation, 25th percentile, median, and 75th percentile of the dependent variables, independent variables and control variables. The sample consists of 6,551 company-year observations from 2004-2015, reporting 1,477 individual companies. All continues variables are winsorised at 1% and 99%. Refer to "Appendix 2" for definitions.

Table 2 Panel A displays the sample summary statistics of foreign cross-listed companies. The mean and median values of CH are 0.21 and 0.096, respectively. The mean values for Degree centrality (0.520), Closeness centrality (0.441), Betweenness (0.529), Eigenvector (0.466) and Composite Score (0.490) are consistent with the literature (Chuluun, Prevost and Upadhyay, 2017). The mean values of professional and personal network are 0.520 and 0.511, respectively. The mean and median values of company size are 9.152, 8.747, respectively. The mean and median values of ROA are 0.054 and 0.051, respectively, which is in line with Miranda-Lopez, Orlova and Sun, (2018). This suggests that the sample companies demonstrate normal operating performance.

Table 2 Panel B Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
CH	1.000																													
Deg_Cen	-0.019	1.000																												
Close_Cen	-0.026	0.502	1.000																											
Betw_Cen	-0.030	0.858	0.330	1.000																										
Eigen_Cen	-0.010	0.800	0.587	0.604	1.000																									
Compo_Score	-0.015	0.984	0.487	0.841	0.790	1.000																								
Prof_Net	-0.021	0.277	-0.030	0.324	0.176	0.274	1.000																							
Prsnl_Net	0.004	0.148	0.280	0.056	0.162	0.154	0.088	1.000																						
capex_w	-0.036	-0.082	-0.098	-0.080	-0.053	-0.082	0.016	-0.013	1.000																					
CAPX	-0.083	-0.017	0.017	0.006	-0.020	-0.019	0.009	-0.013	0.044	1.000																				
Leverage	-0.041	-0.032	0.061	-0.048	-0.010	-0.039	-0.029	0.018	-0.148	-0.242	1.000																			
NWC	-0.091	-0.145	-0.270	-0.096	-0.298	-0.146	-0.001	-0.022	-0.036	0.102	-0.047	1.000																		
Company Size	-0.082	0.038	0.035	0.034	0.040	0.026	-0.016	-0.006	-0.043	-0.149	0.172	0.040	1.000																	
ROA	-0.112	0.053	0.095	0.052	0.063	0.044	-0.033	-0.004	0.182	-0.089	-0.055	-0.044	0.411	1.000																
CF	-0.136	0.003	0.021	0.002	0.010	-0.001	-0.028	-0.012	-0.031	-0.224	0.219	0.169	0.436	0.308	1.000															
REA	0.048	0.103	0.240	0.089	0.125	0.115	-0.023	0.101	-0.007	-0.048	0.074	-0.253	-0.086	-0.063	-0.091	1.000														
GDP	-0.000	0.063	0.015	0.026	0.103	0.064	0.057	-0.001	0.119	-0.003	-0.044	-0.111	0.043	0.050	0.013	-0.419	1.000													
Control of Corruption	0.025	0.137	0.059	0.149	0.196	0.115	0.034	-0.008	-0.040	-0.051	0.038	-0.284	-0.042	-0.050	-0.066	0.709	-0.472	1.000												
Government Effects	0.018	0.160	0.162	0.150	0.243	0.130	0.027	0.060	-0.052	-0.051	0.047	-0.214	-0.025	-0.027	-0.039	0.684	-0.500	0.937	1.000											
Regular Qualities	0.025	0.221	0.220	0.181	0.354	0.202	0.031	0.026	-0.030	-0.049	0.022	-0.414	-0.046	-0.035	-0.081	0.665	-0.375	0.901	0.879	1.000										
Political Stability	0.029	-0.129	-0.267	-0.071	-0.119	-0.127	-0.008	-0.032	-0.008	-0.042	0.028	0.041	-0.056	-0.096	-0.036	0.570	-0.503	0.660	0.637	0.549	1.000									
Rule of Law	0.021	0.196	0.271	0.168	0.280	0.184	0.011	0.063	-0.057	-0.042	0.050	-0.322	-0.053	-0.041	-0.076	0.762	-0.497	0.926	0.925	0.917	0.615	1.000								
Voice	0.018	0.141	0.221	0.162	0.076	0.115	-0.015	-0.024	-0.053	-0.027	0.078	-0.316	-0.055	-0.046	-0.093	0.619	-0.410	0.664	0.565	0.597	0.377	0.713	1.000							
Accountability																														
Board Structure	0.026	0.135	0.119	0.139	0.194	0.115	0.016	0.015	-0.045	-0.050	0.049	-0.283	-0.052	-0.056	-0.073	0.760	-0.523	0.970	0.941	0.920	0.733	0.967	0.733	1.000						
Board Functions	-0.020	0.326	0.593	0.232	0.447	0.338	0.052	0.172	-0.027	-0.043	0.084	-0.422	0.017	0.093	0.001	0.304	0.039	0.240	0.268	0.371	-0.072	0.370	0.270	0.270	1.000					
Vision & Strategy	-0.010	0.352	0.653	0.227	0.444	0.359	0.079	0.233	-0.016	0.011	0.028	-0.297	0.019	0.066	-0.015	0.226	0.073	0.092	0.154	0.219	-0.177	0.238	0.150	0.124	0.659	1.000				
Compensation Policy	-0.053	0.069	-0.142	0.128	-0.073	0.087	0.080	-0.082	-0.033	0.047	-0.008	0.355	0.033	0.022	0.117	-0.126	-0.059	-0.094	-0.116	-0.151	-0.011	-0.109	-0.007	-0.093	-0.070	-0.067	1.000			
Shareholder Rights	-0.020	0.372	0.508	0.290	0.490	0.381	0.096	0.129	-0.023	-0.003	0.037	-0.472	0.007	0.064	-0.023	0.283	0.072	0.264	0.262	0.397	-0.062	0.362	0.288	0.283	0.608	0.585	-0.039	1.000		
FG_Score	0.016	0.184	0.315	0.113	0.262	0.198	0.085	0.140	0.052	-0.016	-0.014	-0.349	0.002	0.040	-0.041	0.122	0.229	0.034	0.038	0.151	-0.103	0.102	0.043	0.048	0.418	0.402	-0.068	0.363	1.000	

### 5.3 Correlation

One of the important assumptions of ordinary least squares regression is that there should not be perfect multicollinearity between the independent variables (Brooks, 2008).

Multicollinearity is measured using two methods, namely a correlation matrix and the Variance Inflation Factor (VIF) test. It is important to see the relationship between all variables and check for multicollinearity, hence I perform correlation analysis.

Table 2 Panel B represents the correlation matrix of variables used in this study. The multicollinearity issues were analysed in this study by applying the correlation matrix test (Hair et al., 2016). As expected, with regard to cash holdings, the correlation with independent is negative. According to all other variables, the highest correlation is between eigenvector centrality and composite score.

However, the correlation is not considered strong, because it is less than 0.8. Therefore, no problem of multicollinearity is evident between the variables. The correlation coefficient refers to the strength measure or linear association degree between the variables. The result provides evidence of a linear association among the research constructs and the gathered data, so conducting this study does not generate any multicollinearity issues or lack of identification. Unreliable estimates due to a lack of identification occur when the observed correlation for the measured variables is 0.99 (Hair, Babin and Krey, 2017).

### 5.4 Empirical results

**Table 3: Impact of governance bundles on cash holdings for foreign cross listed companies**

	Column (1) OLS F-CG	Column (2) 2SLS F-CG	Column (3) OLS C-CG	Column (4) 2SLS C-CG	Column (5) OLS Bundles	Column (6) 2SLS Bundles
CG_Bundles					-0.0029*** (0.0004)	-0.0091*** (0.0025)
Board Structure	-0.0007 (0.0004)	0.0141*** (0.0030)				
Board Functions	0.0015*** (0.0004)	-0.0048*** (0.0013)				
Vision and Strategy	-0.0013*** (0.0003)	-0.0017*** (0.0003)				
Compensation Policy	-0.0032*** (0.0004)	-0.0066*** (0.0008)				
Shareholders Rights	-0.0005 (0.0004)	-0.0026*** (0.0006)				
Control of Corruption			-0.0757 (0.0518)	1.5477*** (0.4662)		
Government Effectiveness			0.2183*** (0.0755)	-1.1260*** (0.3909)		
Regulatory Quality			-0.1867*** (0.0576)	-0.8491*** (0.2068)		
Political Stability			0.0819*** (0.0249)	-0.1456** (0.0674)		
Rule of Law			-0.0991 (0.0776)	-0.0003 (0.0913)		
Voice and Accountability			-0.0929** (0.0367)	-0.4638*** (0.1110)		
Leverage	-0.6767*** (0.0467)	-0.6404*** (0.0510)	-0.6857*** (0.0468)	-0.6798*** (0.0501)	-0.6851*** (0.0468)	-0.6171*** (0.0548)
NWC	-0.5452*** (0.0587)	-0.6768*** (0.0686)	-0.5670*** (0.0589)	-0.5308*** (0.0639)	-0.5558*** (0.0587)	-0.5275*** (0.0608)
Company size	-0.0393*** (0.0045)	-0.0232*** (0.0058)	-0.0451*** (0.0044)	-0.0519*** (0.0051)	-0.0376*** (0.0039)	-0.0609*** (0.0101)
CF	-1.0152*** (0.1042)	-1.2779*** (0.1241)	-1.0630*** (0.1044)	-1.0062*** (0.1128)	-1.0050*** (0.1043)	-0.9241*** (0.1110)
ROA	0.0512 (0.0605)	0.0831 (0.0657)	0.0562 (0.0607)	0.0294 (0.0655)	0.0644 (0.0607)	0.0590 (0.0618)
REA	-0.2319*** (0.0177)	-0.2431*** (0.0192)	-0.2437*** (0.0177)	-0.2349*** (0.0191)	-0.2382*** (0.0177)	-0.2178*** (0.0198)
GDP	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
WGI	-0.0826** (0.0346)	-0.2256*** (0.0469)			0.0075 (0.0374)	0.2733** (0.1124)
No. foreign listed	0.0237*** (0.0059)	0.0438*** (0.0075)	0.0183*** (0.0058)	0.0132** (0.0064)	0.0205*** (0.0058)	0.0398*** (0.0097)
_cons	1.0037*** (0.0737)	0.8670*** (0.0842)	0.9763*** (0.0969)	2.0680*** (0.3124)	0.8005*** (0.0626)	0.9268*** (0.0812)
Obs.	6551	6551	6551	6551	6551	6551
Adj R-squared	0.1196	.	0.1129	.	0.1129	.
Industry Dummy	YES	YES	YES	YES	YES	YES
YEAR Dummy	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES

Table 3, reports the results companies and country level governance on companies' cash holdings. The dependent variable is CH measured as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. The primary independent variable is CG\_Bundles. Companies size is calculated as total assets of the companies in a particular year. Please refer to appendix 2, for definitions of companies and country level control variables. In all regressions I control industry and time fixed effects. Errors robust to company's heteroscedasticity are reported in parentheses. Statistical significance of the coefficients is designated as \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.



Using equation 1, Table 3 reports the regression results. I use pooled OLS robust (models 1, 3 and 5) and 2SLS (2, 4, and 6) to empirically test the model mentioned in equation 2. In Models 1 and 2, I include companies' governance measures to see the impact of each of them on companies' cash holdings along with other control variables and regress it on companies' CH. As, the coefficient for compensation policy is negative and statistically significant ( $\beta_1 = -0.0032$ ,  $p < 0.01$  in Model 1) and it stays significant and negatively related for 2SLS in model 2. The coefficient shareholders rights were negative but not statistically significant; however, in column 2 the coefficient stays similar, but becomes statistically significant ( $\beta_1 = -0.0026$ ,  $p < 0.01$ ). In Models 3 and 4, I include country level governance measures to see the impact of each of them on companies' cash holdings, including all the control variables used in Models 1 and 2. As, the coefficient for regular quality is negative and significant ( $\beta_1 = -0.1867$ ,  $p < 0.01$  in Model 3) it stays significant and negatively related for 2SLS in Model 4. In Models 5 and 6, I create governance bundles using average score of companies and country level governance to see the impact on companies' cash holdings, including all the control variables used in previous models. As, the coefficients for CG\_bundles are negative and significant ( $\beta_1 = -0.0029$ ,  $p < 0.01$  in Model 5) it stays significant and negatively related for 2SLS in Model 6. Overall, these results suggest that companies with good company and country governance bundles hold less cash, which supports the first hypothesis. These findings are consistent with Kuan et al. (2012), Masood and Shah (2014) and Al-Najjar and Clark (2017), where these studies find that an effective board provides better monitoring, hence the company will hold less cash.

In Table 3, I observe that CH is positively related to ROA in all the models, and negative related to companies' size, leverage CAPX, MWC and REA. The above relation between CH and control variables is in line with Miranda-Lopez, Orlova and Sun, (2018), except CFO. The negative relationship between CH and companies size suggests that larger companies tend to hold less cash, consistent with Miranda-Lopez, Orlova and Sun, (2018).

## 5.5 Two-Stage Least Squares Regression (2SLS)

Two-stage least squares regression extends ordinary least squares regression to address endogeneity-related issues. Chen (2008) argues that many corporate decisions are made endogenously. Ozkan and Ozkan (2004) state that, when analysing cash holdings, it is not appropriate to assume that the holdings are strictly extrinsic. Endogeneity occurs when the independent variable is correlated with the error term. 2SLS is an instrumental variable approach to address the issue of independent variable endogeneity (Wooldridge, 2009). Instrument variables are added to the endogenous independent variables. These instruments are the lagged values of the independent variables because they will be correlated with the current values of the independent variables, but uncorrelated with the current error term. Second lags are preferred because they are not correlated with the current error term like first lags (Mileva, 2007). The 2SLS procedure is composed of two stages. The first stage is estimating the equation using OLS and saving the fitted values for the dependent variable (Brooks, 2008).

It is important to note that any estimator that uses instrumental variables will have higher variance than OLS due to the increased uncertainty introduced by the instruments (Wooldridge, 2009). Also the  $R^2$  in an instrumental variable estimator has no interpretation (Wooldridge, 2009). It is not the percentage of explained variation of the dependent variable because, when there is endogeneity, it is not possible to divide the variation of  $y$  into two components (Wooldridge, 2009).

Even though endogeneity is an important issue when analysing cash holdings, there still remains a gap in the literature in addressing this issue. D'Mello et al. (2008) use OLS and also 2SLS to address the problem of endogeneity. Gao et al. (2013) use instrumental variable approach to measure the effect of a firm being public on cash holdings. However, only the

public firm indicator variable is treated as endogenous. Al-Najjar (2013) uses the Hausman test to detect endogeneity and applies 2SLS instrumental variable analysis. Al-Najjar (2013) controls for endogeneity of financial policies, namely endogeneity between capital structure, dividend policies and cash holdings. Al-Najjar (2013) uses only asset tangibility and free cash flows as instruments. It is also important to consider the studies that formulate more dynamic models than the ones previously mentioned.

Appendix 1. VIF Values

Variable	Dependent = CH									
	Column 1	Column 2	Column 3	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
FG_Score	1.22									
CG_Score		1.99								
CG_Bundles			1.37							
Deg_Cen				1.080						
Close_Cen					1.210					
Betw_Cen						1.070				
Eigen_Cen							1.140			
Compo_Score								1.060		
Prof_Net									1.010	
Prsnl_Net										1.020
Leverage	1.22	1.10	1.22	1.130	1.140	1.130	1.130	1.130	1.130	1.130
NWC	1.3	1.13	1.3	1.160	1.160	1.160	1.160	1.160	1.160	1.160
Company size	1.47	1.22	1.47	1.300	1.350	1.280	1.370	1.290	1.260	1.260
CF	1.38	1.27	1.38	1.310	1.320	1.310	1.310	1.310	1.310	1.310
ROA	1.38	1.35	1.38	1.420	1.420	1.420	1.420	1.420	1.420	1.420
REA	1.41	1.34	1.41	1.410	1.410	1.410	1.410	1.410	1.410	1.410
GDP	2.55	1.89	2.55	2.720	2.940	2.710	2.710	2.720	2.720	2.770
WGI	2.6		2.65	2.890	3.000	2.890	2.910	2.890	2.890	2.920
No. foreign listed	1.3	1.11	1.29	1.170	1.150	1.180	1.150	1.170	1.150	1.150

Following Eberhard and Craig (2013) and Miranda-Lopez, Orlova and Sun, (2018), I examine the issue about multicollinearity in the regression analysis by calculating Variables Inflation Factor (VIF). Results reported in Appendix 1 shows the value of each VIF variable is small (less than ten), suggesting that this study is not sensitive to multicollinearity.

**Table 4 : Impact of director's network on cash holdings for foreign cross listed companies**

	(1) Dependent- CH	(2) Dependent- CH	(3) Dependent- CH	(4) Dependent- CH	(5) Dependent- CH	(6) Dependent- CH	(7) Dependent- CH
Leverage	-0.7061*** (0.1280)	-0.7042*** (0.1271)	-0.7064*** (0.1281)	-0.7018*** (0.1277)	-0.7076*** (0.1282)	-0.7158*** (0.1298)	-0.7166*** (0.1298)
NWC	-0.5770*** (0.0876)	-0.5641*** (0.0857)	-0.5763*** (0.0876)	-0.5779*** (0.0876)	-0.5775*** (0.0877)	-0.5737*** (0.0879)	-0.5689*** (0.0869)
Company Size	-0.0316*** (0.0084)	-0.0303*** (0.0087)	-0.0294*** (0.0080)	-0.0340*** (0.0087)	-0.0314*** (0.0083)	-0.0271*** (0.0075)	-0.0266*** (0.0074)
CF	-1.0357* (0.5456)	-1.0276* (0.5435)	-1.0384* (0.5468)	-1.0330* (0.5459)	-1.0352* (0.5455)	-1.0561* (0.5521)	-1.0401* (0.5491)
ROA	0.0712 (0.1225)	0.0656 (0.1226)	0.0694 (0.1230)	0.0679 (0.1213)	0.0707 (0.1224)	0.0657 (0.1233)	0.0668 (0.1233)
REA	-0.2453*** (0.0720)	-0.2442*** (0.0717)	-0.2461*** (0.0724)	-0.2416*** (0.0712)	-0.2453*** (0.0720)	-0.2481*** (0.0735)	-0.2476*** (0.0730)
GDP	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
WGI	-0.1177*** (0.0368)	-0.1405*** (0.0442)	-0.1100*** (0.0353)	-0.1040*** (0.0351)	-0.1184*** (0.0369)	-0.1125*** (0.0358)	-0.1123*** (0.0357)
No. of foreign listed	0.0202*** (0.0067)	0.0128** (0.0056)	0.0181*** (0.0067)	0.0163*** (0.0059)	0.0202*** (0.0067)	0.0131** (0.0057)	0.0114** (0.0053)
Deg_Cen	-0.1821*** (0.0437)						
Close_Cen		-0.0787** (0.0338)					
Betw_Cen			-0.1305*** (0.0384)				
Eigen_Cen				-0.1664*** (0.0370)			
Compo_Score					-0.1779*** (0.0431)		
Prof_Net						-0.0848** (0.0394)	
Prsnl_Net							0.0282 (0.0232)
_cons	0.8561*** (0.1750)	0.8053*** (0.1732)	0.8091*** (0.1675)	0.8643*** (0.1719)	0.8372*** (0.1711)	0.7894*** (0.1630)	0.7257*** (0.1496)
Obs.	6551	6551	6551	6551	6551	6551	6551
Adj R-squared	0.1104	0.1064	0.1081	0.1097	0.1103	0.1065	0.1054
Industry Dummy	YES	YES	YES	YES	YES	YES	YES
YEAR Dummy	YES	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES	YES

Table 4 reports the results of directors' network on companies' cash holdings. The dependent variable is CH measured as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. Independent variables are directors' network is measured as directors' Deg\_Cen, Close\_Cen, Betw\_Cen, Eigen\_Cen and Compo\_Score. I also measure directors' network size by measuring their Prof\_Net and Prsnl\_Net. Companies size is calculated as total

assets of the companies in a particular year. Please refer to appendix 2 for definition of companies and country level control variables. I also control for year, and industry fixed effects in all the regressions. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

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Using equation 2, in Table 4, I report the relation between CH and directors networks. Following Miranda-Lopez, Orlova and Sun, (2018), I use pooled OLS robust to measure the above-mentioned relation. In Models 1 to 5, I include directors' centrality measures along with other control variables and regress it on companies' CH. The coefficient for Degree centrality is negative and statistically significant ( $\beta_1 = -0.1821$ ,  $p < 0.01$  in Model 1). Higher degree means, directors at the company's level are active and connected with many executives and non-executives of their own or other companies. The coefficient Closeness, Betweenness and Eigenvector centrality are also negatively related to CH ( $\beta_1 = -0.0787$ ,  $p < 0.01$ ;  $\beta_1 = -0.1305$ ,  $p < 0.01$ ;  $\beta_1 = -0.1664$ ,  $p < 0.01$ ). The primary independent variable of interest is the composite score of the four individual centrality measures, the coefficient on Composite score is  $-0.1779$ ,  $p < 0.01$ .

In Models 6 and 7 in Table 4, I include directors' professional and personal networks. The coefficient for professional network is  $-0.0848$ ,  $p < 0.01$ . The coefficient for personal network is positive and not statistically significant. Together, the results indicate a significant negative relation between CH and all six directors' networks measures, suggesting that foreign listed companies with higher directors' networks hold less cash. Overall, the results support the second hypothesis. The findings of this study are consistent with Miranda-Lopez, Orlova and Sun (2018), where this study finds that a powerful CEO holds less cash and relies on their connections. However, this study only focuses on US listed companies.

**Table 5: Impact of governance bundles interacted with director's networks on cash holdings (OLS)**

	(1) Dependent- CH	(2) Dependent- CH	(3) Dependent-CH
Leverage	-0.5837*** (0.0481)	-0.7074*** (0.0466)	-0.5841*** (0.0481)
NWC	-0.6283*** (0.0618)	-0.5788*** (0.0587)	-0.6285*** (0.0618)
Company Size	-0.0364*** (0.0039)	-0.0315*** (0.0037)	-0.0362*** (0.0039)
CF	-1.0631*** (0.1065)	-1.0310*** (0.1043)	-1.0598*** (0.1065)
ROA	0.0202 (0.0601)	0.0721 (0.0608)	0.0219 (0.0601)
REA	-0.2035*** (0.0178)	-0.2453*** (0.0177)	-0.2037*** (0.0178)
GDP	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
WGI	-0.0694** (0.0343)		-0.0313 (0.0346)
No. foreign listed	0.0144** (0.0060)	0.0205*** (0.0058)	0.0141** (0.0060)
FG_Score X Compo_Score	-0.0025*** (0.0004)		
CG_Score X Compo_Score		-0.1442*** (0.0217)	
CG_Bundles X Compo_Score			-0.0019*** (0.0003)
_cons	0.8356*** (0.1317)	0.7712*** (0.0623)	0.7837*** (0.1314)
Obs.	6551	6551	6551
R-squared	0.1423	0.1056	0.1427
Industry Dummy	YES	YES	YES
YEAR Dummy	YES	YES	YES
Country Dummy	YES	YES	YES

Table 5, reports the results of main hypothesis using OLS where I find the impact of CG\_Bundles and Directors' network on companies' cash holdings. The dependent variable is CH measured as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. Independent variables are companies level governance interacted with composite score of centralities (FG\_Score X Compo\_Score), country level governance interacted with composite score of centralities (CG\_Score X Compo\_Score) and governance bundles interacted with composite score of centrality (CG\_Bundles X Compo\_Score). Companies size is calculated as total assets of the companies in a particular year. Please refer to appendix 2 for definition of companies and country level control variables. I also control for year, and industry fixed effects in all the regressions. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 5 reports the coefficients from using an OLS regression with heteroscedasticity-robust standard errors to estimate Eq. (1) and (2). The three columns indicate the results for the impact of country and company level governance on the relation between directors''

networks and cash holdings. In the first column, the independent variables are  $FG\_Score \times Composite\_Score$ , which is an average score of overall company's governance variables (as described in Appendix 2). In the second column of the results, the dependent variable is  $CG\_Score \times Composite\_Score$  which is an average score of overall country governance score (as described in Appendix 2). In the third column, the dependent variable is  $CG\_bundles \times Composite\_Score$  which is average score of company and country level governance interacted with composite score of centralities. In the first column, the coefficient  $FG\_Score \times Composite\_Score$  ( $\beta_1 = -0.0044$ ,  $p < 0.01$ ) is significantly negative, indicating that the impact of companies with directors' high networks hold less cash when these companies have good corporate governance. In the second and third column, the coefficient  $CG\_Score \times Composite\_Score$  ( $\beta_1 = -0.1879$ ,  $p < 0.01$ ) and  $CG\_bundles \times Composite\_Score$  ( $\beta_1 = -0.0031$ ,  $p < 0.01$ ) is again negative and significant, providing evidence between governance and directors' networks with respect to the effects of these factors on cash holdings. Overall, I find the impact of interaction between  $CG\_bundles$  and directors' networks on cash holdings for foreign listed companies. As governance bundles and directors' networks both play an important role in determining the cost and benefits of information processing, so I interact them and explain the impact of the interaction term in determining the cash holding of foreign cross-listed companies.

### 5.5.1 Instrumental Variables



**Table 6: Impact of governance and centrality on cash holdings (2sls)**

	(1) Dependent- CH	(2) Dependent-CH	(3) Dependent- CH
Leverage	-0.5159*** (0.0559)	-0.5243*** (0.0570)	-0.5027*** (0.0596)
NWC	-0.6037*** (0.0664)	-0.6223*** (0.0682)	-0.5994*** (0.0692)
Company Size	-0.0594*** (0.0086)	-0.0584*** (0.0087)	-0.0630*** (0.0098)
CF	-1.0009*** (0.1154)	-1.0367*** (0.1178)	-0.9624*** (0.1224)
ROA	0.0324 (0.0642)	0.0609 (0.0673)	0.0480 (0.0672)
REA	-0.1867*** (0.0197)	-0.1984*** (0.0197)	-0.1848*** (0.0207)
GDP	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
WGI	-0.1065*** (0.0385)	0.2802*** (0.1060)	0.1617** (0.0741)
No. foreign listed	0.0684*** (0.0188)	0.0692*** (0.0200)	0.0788*** (0.0223)
FG_Score X Compo_Score	-0.0152*** (0.0042)		
CG_Score X Compo_Score		-0.9756*** (0.2824)	
CG_Bundles X Compo_Score			-0.0140*** (0.0040)
_cons	1.0707*** (0.1601)	0.8006*** (0.1448)	0.7474*** (0.1462)
Obs.	6551	6551	6551
R-squared	0.0238	.	.
Industry Dummy	YES	YES	YES
YEAR Dummy	YES	YES	YES
Country Dummy	YES	YES	YES

Table 6, reports the results of CG\_Bundles and Directors' network on companies' cash holdings using 2SLS approach. The dependent variable is CH measured as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. Independent variables are companies level governance interacted with composite score of centralities (FG\_Score X Compo\_Score), country level governance interacted with composite score of centralities (CG\_Score X Compo\_Score) and governance bundles interacted with composite score of centralities (CG\_Bundles X Compo\_Score). Companies size is calculated as total assets of the companies in a particular year. Please refer to appendix 2 for definition of companies and country level control variables. I also control for year, and industry fixed effects in all the regressions. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

To mitigate reverse causality concerns, I follow recent studies (Miranda-Lopez, Orlova and Sun, (2018) to perform a two-staged ordinary least squares regression analysis (2SLS). In the first stage of 2SLS, I estimate the instruments' variables of directors' networks (national

culture, board size, directors studied MBA). These variables are clearly related to the directors' networks of a given company, but not related to the company's CH. In the first stage, I include all the control variables and industry/year dummy variables from the model mentioned in equation 1 and 2. I have also performed Sargan test of overidentifying the instrument variables, the results shows that p value greater than 5% , so H0: overidentifying restrictions are valid. All the instruments used in this study are valid.

The 2SLS results are reports in Table 6 in Models 1-3. The coefficient of company governance x composite\_score ( $\beta_1 = -0.0152$ ,  $p < 0.01$ ), country governance x composite\_score is ( $\beta_1 = -0.9756$ ,  $p < 0.01$ ), and CG\_bundles x composite score ( $\beta_1 = -0.0140$ ,  $p < 0.01$ ) are all negative and significant at 1%. Overall, all coefficients are significant and negatively related to CH, supporting primary findings that companies and countries with strict governance bundles and high directors' networks hold less cash.

## 5.6 Lagged Measures of Directors' Networks

Table 7: Lagged Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	t-1	t-1	t-1	t-1	t-1	t-1	t-1	t+1	t+1	t+1	t+1	t+1	t+1	t+1
Deg_CenXCG_Bundles	-0.0157*** (0.0035)													
Leverage	-0.4181*** (0.0577)	-0.3724*** (0.0613)	-0.3620*** (0.0691)	-0.4522*** (0.0515)	-0.4267*** (0.0609)	-0.4935*** (0.0418)	-0.4957*** (0.0429)	-0.5743*** (0.0688)	-0.5244*** (0.0727)	-0.5273*** (0.0765)	-0.5824*** (0.0651)	-0.5244*** (0.0727)	-0.6256*** (0.0596)	-0.6187*** (0.0604)
NWC	-0.4384*** (0.0646)	-0.2943*** (0.0706)	-0.4628*** (0.0678)	-0.4709*** (0.0570)	-0.4502*** (0.0700)	-0.4568*** (0.0522)	-0.4370*** (0.0534)	-0.6142*** (0.0826)	-0.4297*** (0.0883)	-0.6404*** (0.0854)	-0.6118*** (0.0749)	-0.4297*** (0.0883)	-0.5848*** (0.0745)	-0.5833*** (0.0750)
Company Size	-0.0622*** (0.0118)	-0.0611*** (0.0108)	-0.0600*** (0.0122)	-0.0541*** (0.0125)	-0.0649*** (0.0129)	-0.0262*** (0.0043)	-0.0325*** (0.0056)	-0.0709*** (0.0127)	-0.0757*** (0.0126)	-0.0661*** (0.0126)	-0.0624*** (0.0136)	-0.0757*** (0.0126)	-0.0416*** (0.0065)	-0.0491*** (0.0080)
CF	-0.0765 (0.1124)	0.0727 (0.1204)	-0.0798 (0.1175)	-0.0815 (0.0996)	-0.0860 (0.1212)	-0.1945** (0.0891)	-0.1972** (0.0914)	-0.6064*** (0.1694)	-0.2379 (0.1873)	-0.5872*** (0.1723)	-0.4832*** (0.1562)	-0.2379 (0.1873)	-0.5824*** (0.1537)	-0.5685*** (0.1549)
ROA	0.1520*** (0.0583)	0.0840 (0.0569)	0.1562** (0.0612)	0.0990** (0.0501)	0.1633** (0.0635)	0.1074** (0.0463)	0.0982** (0.0475)	0.2693 (0.1743)	-0.1100 (0.1739)	0.2861 (0.1798)	0.1038 (0.1513)	-0.1100 (0.1739)	0.0598 (0.1524)	-0.0149 (0.1552)
REA	-0.2159*** (0.0236)	-0.1907*** (0.0255)	-0.2152*** (0.0249)	-0.2074*** (0.0236)	-0.2140*** (0.0256)	-0.2596*** (0.0176)	-0.2361*** (0.0186)	-0.2139*** (0.0240)	-0.1817*** (0.0262)	-0.2135*** (0.0245)	-0.1988*** (0.0238)	-0.1817*** (0.0262)	-0.2492*** (0.0219)	-0.2082*** (0.0224)
GDP	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
WGI	0.1908*** (0.0686)	-0.2453*** (0.0491)	0.2902*** (0.0592)	0.1096* (0.0608)	0.1847** (0.0711)	0.1329** (0.0538)	0.0315 (0.0376)	0.1331* (0.0692)	-0.3766*** (0.0777)	0.2424** (0.0989)	0.0523 (0.0596)	-0.3766*** (0.0777)	0.2176** (0.0883)	0.0439 (0.0520)
No. foreign listed	0.0826*** (0.0187)	0.0305*** (0.0079)	0.0960*** (0.0234)	0.0366*** (0.0106)	0.0961*** (0.0226)	0.0255*** (0.0067)	0.0189*** (0.0059)	0.0906*** (0.0228)	0.0329*** (0.0098)	0.0985*** (0.0268)	0.0368*** (0.0128)	0.0329*** (0.0098)	0.0337*** (0.0104)	0.0239*** (0.0086)
Close_CenXCG_Bundles		-0.0128*** (0.0027)												
Betw_CenXCG_Bundles			-0.0168*** (0.0041)											
Eigen_CenXCG_Bundles				-0.0108*** (0.0031)										
Compo_ScoreXCG_Bundles					-0.0181*** (0.0043)									
Prof_NetXCG_Bundles						-0.0078*** (0.0018)								
Prsnl_NetXCG_Bundles							-0.0084*** (0.0020)							
Deg_CenXCG_Bundles								-0.0176*** (0.0043)						
Close_CenXCG_Bundles									-0.0147*** (0.0032)					
Betw_CenXCG_Bundles										-0.0182***				

Eigen_CenXCG_Bundles										(0.0049)					
ompo_ScoreXCG_Bundles											-0.0116*** (0.0038)				
Prof_NetXCG_Bundles												-0.0147*** (0.0032)			
Prsnl_NetXCG_Bundles													-0.0118*** (0.0031)		
_cons	0.9406*** (0.1174)	1.1056*** (0.1393)	0.7845*** (0.0993)	0.9969*** (0.1466)	1.0342*** (0.1418)	0.6411*** (0.0655)	0.7427*** (0.0788)	1.0080*** (0.1182)	1.3817*** (0.1801)	0.8053*** (0.0908)	1.0427*** (0.1458)	1.3817*** (0.1801)	0.7164*** (0.0740)	-0.0119*** (0.0031)	0.8573*** (0.0899)
Obs.	4622	4622	4622	4622	4622	4622	4622	4619	4619	4619	4619	4619	4619	4619	4619
R-squared	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Industry Du	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
YEAR Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 7, reports the results of individual director's network interacted with CG\_Bundles on companies' cash holdings using lagged (t-1) and lead (t+1) values. The dependent variable is CH measured as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. I also control for year, and industry fixed effects in all the regressions. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

It is possible that companies holding less cash have directors with high networks and the amount of cash to hold is the companies' decision, suggesting that there might be a concern of endogeneity and there can be a chance of reverse causality. To further mitigate the concern of reverse causality, I use lagged and lead values of measures of directors' networks. For example, the lagged value of composite score is the composite score in year t-1 and t+1. Table 7 presents the results based on lagged values (Models 1 -7) of each director's network measures interacted with CG\_bundles. In the table 7, the coefficient on lagged Deg\_Cen X CG\_bundles and lagged Close\_Cen X CG\_bundles are ( $\beta_1 = -0.157, P < 0.01$ ) and ( $\beta_1 = -0.128, P < 0.01$ ), respectively. The coefficient on lagged Betw\_Cen X CG\_bundles is ( $\beta_1 = -0.168, P < 0.01$ ). The primary measure lagged Compo\_Score X CG\_bundles is ( $\beta_1 = -0.0181, P < 0.01$ ). It can be noted that, overall, all the coefficients for lagged and lead values are significant and negatively related to CH, consistent with the primary results in this study.

## 5.7 Excess Centrality and Omitted Variables

Table 8: Excess Centrality and Omitted Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent- CH	Dependent- CH	Dependent- CH	Dependent- CH	Dependent- CH	Dependent- CH	Dependent- CH
Leverage	-0.7061*** (0.0467)	-0.5826*** (0.0484)	-0.5839*** (0.0482)	-0.5868*** (0.0482)	-0.5864*** (0.0481)	-0.5959*** (0.0482)	-0.5970*** (0.0482)
NWC	-0.5770*** (0.0587)	-0.6252*** (0.0620)	-0.6374*** (0.0619)	-0.6318*** (0.0619)	-0.6315*** (0.0618)	-0.6349*** (0.0620)	-0.6333*** (0.0620)
Company Size	-0.0316*** (0.0037)	-0.0355*** (0.0040)	-0.0342*** (0.0038)	-0.0374*** (0.0040)	-0.0357*** (0.0039)	-0.0321*** (0.0038)	-0.0318*** (0.0038)
CF	-1.0357*** (0.1044)	-1.0597*** (0.1068)	-1.0769*** (0.1066)	-1.0748*** (0.1066)	-1.0733*** (0.1065)	-1.0879*** (0.1068)	-1.0747*** (0.1068)
ROA	0.0712 (0.0608)	0.0164 (0.0602)	0.0204 (0.0601)	0.0195 (0.0601)	0.0220 (0.0601)	0.0169 (0.0602)	0.0179 (0.0602)
REA	-0.2453*** (0.0177)	-0.2037*** (0.0178)	-0.2053*** (0.0178)	-0.2031*** (0.0178)	-0.2052*** (0.0178)	-0.2071*** (0.0178)	-0.2068*** (0.0178)
GDP per capita	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
WGI	-0.1177*** (0.0336)	-0.0871** (0.0352)	-0.0569* (0.0343)	-0.0520 (0.0344)	-0.0648* (0.0343)	-0.0597* (0.0343)	-0.0612* (0.0345)
Total no. of foreign listed	0.0202*** (0.0059)	0.0058 (0.0058)	0.0110* (0.0060)	0.0086 (0.0059)	0.0129** (0.0060)	0.0054 (0.0058)	0.0037 (0.0058)
Excess_Deg_Cen	-0.0002*** (0.0000)						
Excess_Close_Cen		-0.0001*** (0.0000)					
Excess_Betw_Cen			-0.0001*** (0.0000)				
Excess_Eigen_Cen				-0.0001*** (0.0000)			
Excess_Compo_Score					-0.0002*** (0.0000)		
Excess_Prof_Net						-0.0001*** (0.0000)	
Excess_Prsl_Net							0.0001 (0.0002)
Obs.	6551	6551	6551	6551	6551	6551	6551
R-squared	0.1132	0.1471	0.1488	0.1487	0.1503	0.1469	0.1458
Industry Dummy	YES	YES	YES	YES	YES	YES	YES
YEAR Dummy	YES	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES	YES

Table 8, reports the results of “excess” centrality (not explained by directors’ personal characteristics) on companies’ cash holdings. The dependent variable is CH measured as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. Independent variables are directors’ human capital measured as excess centrality. Companies size is calculated as total assets of the companies in a particular year. Please refer to appendix 2, for definitions of companies and country level control variables. In all regressions I control industry and time fixed effects. Errors robust to company’s heteroscedasticity are reported in parentheses. Statistical significance of the coefficients is designated as \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

To analyse the effects of omitted variables, I utilise the concept of excess centrality proposed by El-Khatib, Fogel and Jandik, (2015). Throughout this study, I document that foreign cross-listed companies tend to hold less CH when their directors have high networks. At the same time, though, directors who are more skilled than other directors, possess greater human

capital and may have an easier time networking, as more individuals likely want to be connected with these directors. Similarly, more profitable companies are more likely to attract directors with greater skills, as more skilled directors have an advantage with regard to cross-listing their companies in foreign markets and hold less cash, which are the result of directors' greater human capital and not solely due to directors' networks. To account for the possibility that the link between CH and directors' networks may be due to the directors' superior human capital, in this section, I filter the human capital out of directors' networks measures and use the excess human capital in the robustness tests as an alternative measure of director's network. To estimate human capital, I estimate the residuals from regressions of director's networks on directors' human capital index. I re-run all the main regression models with centrality variables replaced by excess centrality, defined as the difference between the actual directors' centrality values based on directors' personal skill attributes. A director with a high director's network should be considered influential, and powerful as well, but the excess centrality measures are now unrelated to the variables used for centrality predictions by contracting. To measure the human capital, I follow Fedaseyeu, Linck and Wagner, (2018) where an indicator variable takes the value of 1 if the director received an academic degree from an "elite" institute, zero otherwise; an indicator variable is equal to 1 if the director has a PhD., zero otherwise; an indicator variable is equal to 1 if the director has legal experience, zero otherwise; an indicator variable is equal to 1 if the director has financial experience, zero otherwise; an indicator variable is equal to 1 if the director has political experience, zero otherwise; and an indicator variable is equal to 1 if the director received a recognition award, otherwise zero.

Table 8, Models 1-7, examines the link between directors' networks and the directors' personal characteristics on a company's cash holdings. Compared to the main findings of equation 2, excess centrality has identical same sign and is statistically significant in all regression models for a company's cash holdings. These findings suggest the main equation,

directors with high centrality hold less cash, is indeed due to directors' network-related network effects, for instance, improved information flows, and not just due to human capital related personal attributes and other possible omitted variables related to centrality.



## 5.8 Robustness

Table 9: Countries Excluded with most observations

	(1) Excluded_US- UK	(2) Excluded_US- UK	(3) Excluded_US- UK
Leverage	-1.2148*** (0.0862)	-1.2279*** (0.0862)	-1.2130*** (0.0862)
NWC	-0.6915*** (0.1108)	-0.6886*** (0.1109)	-0.6935*** (0.1108)
Company Size	-0.0260*** (0.0055)	-0.0235*** (0.0054)	-0.0253*** (0.0054)
CF	-1.5296*** (0.1619)	-1.5408*** (0.1619)	-1.5208*** (0.1620)
ROA	0.2663*** (0.0878)	0.2717*** (0.0878)	0.2687*** (0.0878)
REA	-0.4285*** (0.0385)	-0.4317*** (0.0385)	-0.4292*** (0.0385)
GDP	0.0000 (0.0000)	0.0000 (0.0000)	0.0000* (0.0000)
WGI	-0.0545 (0.0457)	0.0100 (0.0474)	0.0007 (0.0468)
No. foreign listed	0.0062 (0.0104)	0.0020 (0.0101)	0.0047 (0.0102)
FG_Score X Compo_Score	-0.0042*** (0.0008)		
CG_Score X Compo_Score		-0.1821*** (0.0364)	
CG_Bundles X Compo_Score			-0.0031*** (0.0006)
_cons	1.0143*** (0.0991)	0.9387*** (0.0981)	0.9294*** (0.0981)
Obs.	3650	3650	3650
R-squared	0.1506	0.1502	0.1509
Industry Dummy	YES	YES	YES
YEAR Dummy	YES	YES	YES
Country Dummy	YES	YES	YES

Table 9, reports the results excluding countries with most observations which is US and UK in this study. The dependent variable is CH measured as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. Independent variables are companies level governance interacted with composite score of centralities (FG\_Score X Compo Score), country level governance interacted with composite score of centrality (CG\_Score X Compo\_Score), and governance bundles interacted with composite score of centrality (CG\_Bundles X Compo\_Score). Companies size is calculated as total assets of the companies in a particular year. Please refer to appendix 2, for definitions of companies and country level control variables. In all regressions I control industry and time fixed effects. Errors robust to company's heteroscedasticity are reported in parentheses. Statistical significance of the coefficients is designated as \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 9, Models 1-3, represents the sample without the UK and the US. As the UK (1,299) and the US (1,617) dominate the sample, having the majority of the observations, I exclude these two countries to see the effect of CG\_bundles and directors' networks on companies' cash holdings. The results in Table 9, are identical to the main regressions, showing that these results are not driven by the UK and the US.

**Table 10 : Before and after financial crisis**

	(1) 2004-2007	(2) 2004-2007	(3) 2004-2007	(4) 2010-2015	(5) 2010-2015	(6) 2010-2015
				-0.0027*** (0.0007)		
Leverage	-1.0124*** (0.0764)	-1.0148*** (0.0764)	-1.0114*** (0.0764)	-0.7521*** (0.0755)	-0.7576*** (0.0754)	-0.7498*** (0.0755)
NWC	-0.5593*** (0.0870)	-0.5637*** (0.0870)	-0.5612*** (0.0869)	-0.5235*** (0.0961)	-0.5273*** (0.0961)	-0.5227*** (0.0961)
Company Size	-0.0296*** (0.0053)	-0.0291*** (0.0052)	-0.0292*** (0.0052)	-0.0315*** (0.0063)	-0.0308*** (0.0062)	-0.0318*** (0.0063)
CF	-0.3532* (0.1949)	-0.3828** (0.1952)	-0.3565* (0.1948)	-1.3149*** (0.1676)	-1.3093*** (0.1675)	-1.3057*** (0.1676)
ROA	-0.9093*** (0.2141)	-0.8850*** (0.2143)	-0.9019*** (0.2141)	0.1787** (0.0820)	0.1843** (0.0819)	0.1794** (0.0819)
REA	-0.1338*** (0.0203)	-0.1336*** (0.0203)	-0.1337*** (0.0203)	-0.3285*** (0.0340)	-0.3335*** (0.0339)	-0.3280*** (0.0340)
GDP	0.0000*** (0.0000)	0.0000** (0.0000)	0.0000*** (0.0000)	0.0000** (0.0000)	0.0000** (0.0000)	0.0000** (0.0000)
WGI	-0.0971* (0.0520)	-0.0313 (0.0522)	-0.0582 (0.0515)	-0.1258** (0.0548)	-0.0645 (0.0566)	-0.0794 (0.0558)
No. foreign listed	0.0201** (0.0078)	0.0183** (0.0077)	0.0198** (0.0078)	0.0324*** (0.0105)	0.0318*** (0.0104)	0.0326*** (0.0105)
FG_Score X Compo_Score	-0.0026*** (0.0006)					
CG_Score X Compo_Score		-0.1348*** (0.0311)			-0.1601*** (0.0364)	
CG_Bundles X Compo_Score			-0.0020*** (0.0004)			-0.0022*** (0.0005)
_cons	0.7728*** (0.1015)	0.7319*** (0.1008)	0.7202*** (0.1008)	0.8952*** (0.0877)	0.8354*** (0.0850)	0.8402*** (0.0851)
Obs.	2032	2032	2032	3239	3239	3239
R-squared	0.1304	0.1310	0.1314	0.1270	0.1276	0.1276
Industry Dummy	YES	YES	YES	YES	YES	YES
YEAR Dummy	YES	YES	YES	YES	YES	YES
Country Dummy	YES	YES	YES	YES	YES	YES

Table 10, reports the results excluding crisis period (2008 and 2009). The dependent variable is CH measured as ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities. Independent variables are companies level governance interacted with composite score of centralities (FG\_Score X Compo\_Score), country level governance interacted with composite score of centralities (CG\_Score X Compo\_Score), and governance bundles interacted with composite score of centrality (CG\_Bundles X Compo\_Score). Companies size is calculated as total assets of the companies in a year. Please refer to appendix 2, for definitions of companies and country level control variables. In all regressions I control industry and time fixed effects. Errors robust to company's heteroscedasticity are reported in parentheses. Statistical significance of the coefficients is designated as \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 10 represents the results, excluding the period when financial crisis occurred, as great variation in companies' cash savings could be presented during those periods. In Models 1-3 and Models 4-6, I excluded 2008 and 2009 (Van Essen, Engelen and Carney, 2013), but I find similar results to the main regression. In general, the main finding is not influenced by the two large countries in the sample or by specific events. In unreported tests, I use

bootstrapped standard based on 50; I find similar results as the primary analysis in Tables 3 and 4.

Figure 3 : Summary on Findings

Determinants	Findings	Literature	Hypothesis
Deg_Cen	Negative	Cheng, Felix, and Zhao (2019); Bebhuk, Cohen, and Spamann, (2010)	Accept H2
Close_Cen	Negative	Cheng, Felix, and Zhao (2019)	Accept H2
Betw_Cen	Negative	Fogel, Jandik, and McCumber, (2018)	Accept H2
Eigen_Cen	Negative	Cheng, Felix, and Zhao (2019); Bebhuk, Cohen, and Spamann, (2010)	Accept H2
Compo_Score	Negative	El-Khatib, Fogel, and Jandik, (2015)	Accept H2
Leverage	Negative	Kusnadi et al. (2015), Guizani (2017) and Al Najjar and Clark (2017)	Accept H1 ,H2
ROA	Positive	Nunes & Serrasqueiro, 2015; Yazdanfar, (2013)	Accept H1 ,H2
Board Structure	Negative	Ernstberger and Gruning (2013)	Accept H1
Board Functions	Positive	(Aguilera, Desdender, and Castro, 2011; Schepker and Oh, 2013;	Reject H1
Vision and Strategy	Negative	Ernstberger and Gruning (2013)	Accept H1
Compensation Policy	Negative	Ernstberger and Gruning (2013)	Accept H1
Shareholders Rights	Negative	Aguilera, Desdender, and Castro, 2011; Schepker and Oh, (2013); Yoshikawa, Zhu, and Wang, (2014)	Accept H1
Control of Corruption	Negative	Ernstberger and Gruning (2013)	Accept H1
Government Effectiveness	Positive	Yoshikawa, Zhu, and Wang, (2014)	Reject H1
Regulatory Quality	Negative	Ernstberger and Gruning (2013)	Accept H1
Political Stability	Positive	Ernstberger and Gruning (2013)	Reject H1

Rule of Law	Negative	Yoshikawa, Zhu, and Wang, (2014)	Accept H1
Voice and Accountability	Negative	Ernstberger and Gruning (2013)	Accept H1
CG_Bundles X Compo_Score	Negative	Ernstberger and Gruning (2013)	Accept H3

## 5.9 Conclusion

This chapter has described the analytical procedures and the results obtained from them. To the best of my knowledge, this thesis is the first study that thoroughly examines the relationship between governance bundles, directors' networks and foreign cross-listed companies' cash holdings. To test this relationship, I used 1,477 foreign cross-listed companies across 32 countries between the periods of 2004 to 2015. I also performed a battery of robustness tests to see the effect of directors' networks on companies' level of cash holdings. The results still hold after the robustness test, including specifications for endogeneity and omitted variables.

Following the literature, I applied ordinary least square as the baseline regression. However, in order for ordinary least squares regression to be the Best Linear Unbiased Estimator (BLUE), the independent variables must be uncorrelated with the error terms. This is known as the assumption of strict exogeneity. If this assumption is not valid, then there is a problem of endogeneity. In this case, endogeneity is addressed using the two-stage least squares (2SLS) estimator, which is an extension to OLS. According to Ozkan and Ozkan (2004), the determinants of cash holdings should be treated as endogenous, because shocks affecting cash holdings will affect its determinants as well. 2SLS is an instrumental variable approach (Wooldridge, 2009). In 2SLS, endogeneity is solved by using instruments that are uncorrelated with the error term, but highly correlated with the independent variables.

This analysis extends the discussion on whether having directors with high network is beneficial for the companies. This result suggests that directors with high networks can result

in an information advantage through their connections. The results contribute to a growing stream of literature that examines the influence of directors' networks on corporate behaviour. To date, very few studies have examined the effect of directors' networks on companies' cash holdings (Habib and Hasan, 2018; Miranda-Lopez, Orlova and Sun, 2018). I bring together the two disparate streams of literature on governance bundles, directors networks and cash holdings for foreign listed companies and, therefore, contribute to this emerging literature. Given the increasing trend of cash holdings and the opportunity cost of holding such cash, it is crucial to examine the determinants and consequences of cash holdings. This study demonstrate that governance bundles and directors' networks are an important avenue that allows foreign listed companies to reduce the holding of valuable cash.

## Chapter 6: Discussion

## 6.1 Discussion

Cross-listing theory emphasises the impact of international investment barriers on the price of securities and how such impact creates incentives for companies to cross-list. The theory assumes that some international investment barriers divide the capital market and impede the flow of international capital between foreign and domestic markets. These barriers are believed to be due to ownership restrictions, such as investors in one country being restricted to investing in another, simultaneous market regulation and taxation, risk of foreign exchange rate fluctuations, and transaction and information costs (Stapleton and Subrahmanyam, 1977; Alexander et al., 1988; Foerster and Karolyi, 1993; Karolyi, 1996). Eiteman et al. (1993) defined segmentation as a situation in which the required rate of returns on securities traded on one market is different from the required rate of returns on securities of similar expected returns and risks that are traded on other markets.

Holding cash has many benefits, including reducing the risk of financial distress, reducing reliance on expensive external funding sources, and fire sales of assets (Opler et al., 1999). However, holding cash has an opportunity cost of forfeited returns that could be generated from more profitable investments (Ferreira and Vilela, 2004). Therefore, it is important to analyse cash holdings because there are opportunity costs associated with not investing in positive present value projects (Al-Najjar, 2013). The three theories that attempt to explain corporate cash holdings are the trade-off, pecking order and agency cost of free cash flow theories.

According to the agency cost of free cash flow theory, managers keep cash for their own private benefits, such as increasing their discretionary powers and providing higher job security (Jensen, 1986). The research findings show that the improvement of corporate governance practices has a significant impact on corporate cash holding decisions of directors in foreign cross-listed companies. If companies improve corporate governance practices,

there will be higher monitoring and less managerial discretion. Consequently, managers will be forced to invest the excess cash to generate higher profits or distribute the excess cash as dividends to shareholders. In both cases, shareholder wealth will increase, attracting more investors to the market and, hence, improving the economy as a whole. Increased awareness of corporate governance by managers, boards of directors, investors and policy makers is necessary in order to improve corporate governance practices in cross-listed companies.

In this study, the critical research questions addressed concern how directors' networks and governance bundles affect the cash holdings for foreign cross-listed companies. Using network theory and stakeholders theory, this thesis discusses the directors' connections and governance bundles in detail. Both the theories describe directors and their networks' importance in company performance. Based on a path analysis using a structural equation model, the results in Chapter 5 show the hypothetical role of the directors' networks and governance bundles with cash holdings. To further deepen the analysis, I consider factors that are likely to affect the relation between cash holding and foreign cross-listing: first I investigate the role of (i) governance bundles, including companies' level and country level, and second (ii) directors' networks' connections. I find that companies with good governance bundles and directors' high network can help with better decision-making in terms of the level of cash companies should hold in foreign listed companies. For example, when companies cross-list on the foreign market, directors can utilise their network connections to get important information at less cost. Further, this study has shown that, despite having a good governance bundles in a company, directors' networks may act as a complement to the decision-making process of cash holdings.

Previous research argues that directors' high network connections can gain an information advantage and other benefits, which reduce the cost of information asymmetry (Javakhadze, Ferris and French, 2016; Omer, Shelley and Tice, 2018). For example, these directors with high network connections will have better access to valuable information on the other



markets and better investment opportunities in the foreign market, resulting in lower level of cash. Thus, by interacting governance bundles and network connections, the results still stay the same between the governance bundles and directors' networks when foreign listed companies take their cash holding decision. This result supports the information advantage view of centrality, which argues that valuable information gained by these high network connections can help them make better decisions and bring positive outcomes to their companies. The findings are corroborated by several robustness tests. First, to mitigate the concern about endogeneity, I use lagged values of directors' networks 'connections and a two-staged ordinary least squares regression analysis . Second, I also use directors' excess centrality to confirm the results are not driven from directors' personal attributes, such as their experiences. Additionally, to confirm this result is not driven from a financial crisis period, I see the impact of directors' networks' connections on foreign cross-listed companies' cash holdings decisions before and after crisis, I find results stays the same. Following Lim, Makhija and Shenkar (2016), the country level governance bundle is a measure of broad six dimensions: (1) voice and accountability, (ii) political stability and absence of violence, (iii) government effectiveness, (iv) regulatory quality, (v) rule of law, and (vi) control of corruption. I define the score of a particular country for a specific year as the average score of these six dimensions. This measure of country governance contains many attributes that should foster an environment conducive to good country governance. In addition, I also empirically investigate the complement or substitute effects of governance bundles and directors' networks. There exist some key studies of firm governance practices which set the field for further configurational and complementarity research (Garcia-Castro, Aguilera and Arino, 2013). First, Rediker and Seth (1995) introduce one of the initial empirical articles in corporate governance arguing for the need to examine the linkages between different governance mechanisms in bundles (configurations) in order to capture how the alignment between managers and owners' interests can be achieved. They uncover a

substitutive relationship between governance monitoring mechanisms. Second, in two related articles, Beatty and Zajac (1994) and Zajac and Westphal (1994) adopt a contingency approach to identify the existing trade-offs between board monitoring and managerial compensation under different risk levels and corporate strategies. A main finding in these two studies is that board monitoring and managerial compensation may work as substitutes of each other under certain risk and corporate strategy conditions, but not always. Third, Rutherford, Buchholtz and Brown (2007) find a complementarity relationship between board independence and CEO incentive systems. They reveal that independent boards can be functional in prohibiting managers from re-pricing stock options and that strong CEO alignment incentives may reinforce the effectiveness of board monitoring by enabling independent boards to focus on strategies beyond moral hazard issues. More recently, Ward, Brown and Rodriguez (2009) present a conceptual model of CG complementarities and substitutability and argue that the trade-offs between the different governance practices are contingent on firm performance. Thus, in high performing firms, board monitoring and incentives work mostly as substitutes, while, in poorly performing firms, outside monitoring by institutional investors may complement internal monitoring by boards. Most of the studies employ single corporate governance mechanisms and, therefore, fail to provide a comprehensive picture of the effectiveness of corporate governance arrangements. None of the studies show how governance bundles when interacted with directors; networks affect cash holdings, This study fills the gap by finding the impact of governance bundles and directors' networks together on cash holdings for cross-listed companies. I find that governance bundles and directors' networks work as a complement to each other.

## Chapter 7: Conclusion

## 7.1 Conclusion

Differences in corporate governance structures across countries are attributed to the differences in the legal rules that protect investors. These legal rules appear to be correlated with the legal origin of the country: common versus civil law. Common law countries have implemented legal rules that protect external investors and encourage dispersed voting power. Hence, dispersed control arises as a result of better investor protection. On the contrary, countries with civil law system have inadequate investor protection and adopt legal rules that support the concentration of voting power. Therefore, concentrated control emerges as a result of weak investor protection.

To analyse, I examine the relationship between governance bundles, directors' networks and cash holding for foreign listed companies around the world. The sample consists of 1,477 foreign cross-listed companies from 32 countries. By developing a comprehensive empirical model, using seven directors' networks measures, I document a significant negative relationship between directors' networks and level of cash holding for foreign cross-listed companies. The results of this study suggest that foreign cross-listed companies with high directors' networks hold less cash, using their connections as source of information. Directors of foreign cross-listed companies take risks, when they take their companies in another market to generate higher values; this creates goodwill for the company. Theoretically and empirically, I find that companies with good governance bundles and directors' high networks hold less cash. In summary, I conclude that governance bundles and directors' networks act a complement with respect to their effects on cash holdings decision for foreign cross-listed companies.

The study fills the gap in the academic literature related to directors' networks, governance bundle and cash holding. The unique sample of foreign cross-listed companies allowed me to

examine the complementary effect of governance bundles and directors' networks on cash holding.

## 7.2 Theoretical Contribution

Firstly, this study contributes to the literature of directors' networks by showing how directors facilitate information diffusion. Although empirical findings are still mixed, the results are in line with the information advantage view, which suggest that directors with high networks can gain valuable information in the foreign markets.

Secondly, I document evidence supporting the notion that having high networks is beneficial for the companies. Following, Faleye, Kovacs and Venkateswaran, (2014) and El-Khatib, Fogel and Jandik, (2015), I use five measures of centrality and directors' personal and professional networks, to better capture the concept of directors' networks.

Thirdly, this study extends the existing literature in two ways. Firstly, it investigates if companies listed in a foreign country hold less cash. In this respect, the study analyses companies around the world. Secondly, this study contributes to the existing literature by analysing the effect of corporate governance bundles and directors' networks on cash holdings for foreign cross-listed companies.

## 7.3 Practical Contribution

Corporate cash holdings and cross-listing have been receiving increased attention in recent years from academics and practitioners internationally. The New York Times has recently reported that companies in the US hold \$1.9 trillion in cash collectively (Davidson, 2016). One example is Google, having \$80 billion cash in bank accounts and short-term investments (Davidson, 2016). These significant amounts of cash are idle funds that could be invested to generate future profits. Therefore, academics and practitioners, such as boards of directors, managers, investors and policy makers, need to know why companies hoard such significant

cash balances. This study enhances the understanding of the role of companies' directors. Although directors' networks are highly important, the literature provides limited and mixed results. This study shows that governance bundles and directors' networks may be an ally for gathering private and important information regarding foreign markets, resulting in companies' necessity to hold less cash.

Secondly, the findings provide a comprehensive picture to the policy makers of countries following various governance frameworks which makes it difficult to control the operation of foreign cross-listed companies. The findings will be a valuable input for the company directors making cash holding decisions for their foreign cross-listed companies.

Lastly, this study will be interesting to policy makers and regulators who are considering the implementation of additional mandatory requirements to improve corporate governance. This study should also interest various managers, investors and academics who are interested in the impact of directors' networks' connections on international company level outcome. This finding should encourage directors to become more socially connected, investors to invest in companies with highly connected directors, and shareholders to hire and retain directors with more networks.

#### 7.4 Study Limitations and Opportunities for Future Research

Despite several relevant contributions, I am aware that this study has some limitations. I find that there is lack of extensive details about the governance data from developing countries which might affect directors' cash holding decisions. Finally, further research should consider more dimensions of governance factors, changes in certain specific rules and regulations for developing countries.

This research provides an opportunity for future research, since other interrelationships between the key constructs, beyond those discussed in this thesis, are likely to exist. As the conceptualisation of the governance paradigm as well as the constructs involved continue to

evolve and expand (Tihanyi, Graffin and George, 2014), scholars will have many opportunities to shape the dialogue regarding what constitutes good governance and how it may work well as a complementarity together with other factors.

However, there is still much work which needs to be done regarding gaining a better understanding of directors' connections by expanding the sphere of the research and developing more complex models which can embrace financial and economic indicators.

Since the study data are panel data, future studies should focus on cross-sectional data to capture the longitudinal dimension of a fundamentally dynamic phenomena.

The study used convenience sampling to determine the research sample and plan the data collection. Such an approach was restrictive because its outcome validation was applied to only a small group rather than a large population.

The study focused solely on non-financial companies around the world. It will be interesting to investigate the conceptual framework in financial sectors. Also, future studies can focus on the comparison between developed and developing countries. For instance, developed countries, over a considerable period, have built up stable, informal organisations that affect almost every organisation in the country, which is important to understanding the governance. On the other hand, developing countries may have various informal institutions that vary internally.

## Summary

This chapter reflected the outcomes of the research hypotheses presented in Chapter 2 using a linear regression model. First, it discussed the research hypotheses and the results that supported each hypothesis in prior studies. The discussion of the outcomes emphasised the significant input into the foreign cross-listed companies. Overall, these tests indicate that all

the relationships in the model are statistically significant. Furthermore, the result supports the hypothesis of a moderating role for trust in the model.



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<u>Firm Specific Variables</u>	<u>Definition</u>	<u>Source</u>
<b>Independent Variables</b>		
Deg_Cen	Number of all direct links that each director has with other directors in the network.	Bloomberg
Close_Cen	The inverse of the sum of shortest distance between the focal director and all other directors in a network.	Bloomberg
Betw_Cen	The probability that a director lies on the shortest path between any other two directors of the network.	Bloomberg
Eigen_Cen	Measures the influence of a director in a network.	Bloomberg
Compo_Score	The quartile ranking of the principal component factor of the four component centrality measures in a given year.	Bloomberg
Prof_Net	Total number of directors with whom the focal director shares a common board.	Bloomberg
Prsnl_Net	Total number of directors with whom the focal director attended the same institutions, graduated within two years and awarded similar type of degrees.	Bloomberg
FG_Score	Company-level corporate governance scores from ASSET4 with following components:	Asset4
	(1) Board Functions	Asset4
	(2) Board Structure	Asset4
	(3) Compensation Policy	Asset4
	(4) Vision and Strategy	Asset4
	(5) Shareholder Rights	Asset4
CG_Score	Average of six World Bank Governance Indicators (WGI):	World Bank
	(1) Voice and Accountability	World Bank
	(2) Political Stability and Absence of Violence/Terrorism	World Bank
	(3) Government Effectiveness, Regulatory Quality	World Bank
	(4) Rule of Law	World Bank
	(5) Control of Corruption	World Bank
CG_Bundles	Average of FG_Score and CG_Score	
<b>Dependent Variable</b>		
CH	Cash is the ratio of cash and marketable securities (CHE) to total assets (AT) minus cash and marketable securities.	Datastream
<b>Control Variables</b>		
CF	Cash flow from operating activities (OANCF), scaled by the book value of total assets (AT).	Datastream
Leverage	Leverage is the long-term debt (DLTT), scaled by total assets (AT).	Datastream

NWC	Net working capital is the working capital (WCAP) minus cash (CHE), scaled by total assets (AT).	Datastream
Company Size	Size is measured as the logarithm of the Companies' book value of assets (AT).	Datastream
CAPEX	Capital expenditure (CAPX) scaled by total assets (AT).	Datastream
ROA	Income before extraordinary items (IB) scaled by total assets (AT)	Datastream
REA	Retained earnings (RE) scaled by total assets (AT)	Datastream
No. foreign listed exchange	Total number of foreign stock exchanges, where company listed their stocks in a year	Datastream
This table presents variable definitions.		

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Appendix 3. Centrality Measures

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Degree centrality Degree centrality is defined as the number of direct links a director has with other directors in the network. Better connected directors should have more direct links to other directors. In other words, the more direct links or connections a director has, the more central this director is in the network. If  $x_{ij}$  denotes an indicator that director<sub>i</sub> and other director<sub>j</sub> is linked through interlock employment, for a given

$$DEGREE_i = \sum_{j \neq i} x_{ij}$$

Closeness centrality Closeness centrality measures how easily a director can reach other directors in the network. This measure is defined as the inverse of the average distance between a director and any other director. Let  $d_{ij}$  denotes the number of steps in the shortest path between director<sub>i</sub> and director<sub>j</sub>.  $n$  is the total number of directors in the connected group. The formula to compute CLOSENESS is listed below

$$CLOSENESS = \frac{n - 1}{\sum_{i \neq j} d_{ij}}$$

Betweenness Centrality Betweenness centrality measures how often a director lies on the shortest paths between other nonadjacent directors in the network. This measure reflects how much control a director can have on the information flow in the network. A director's betweenness centrality is calculated as the average proportion of shortest paths between every pair of directors in the network that a director lies on. Let  $\theta_{yz}$  denotes the total number of shortest paths between director  $y$  and director  $z$ .  $\theta_{yzi}$  denotes the number of shortest paths between director  $y$  and director  $z$  that pass through director<sub>i</sub>. The formula to compute BETWEENNESS is listed below:

$$BETWEENNESS_i = \frac{2}{(n - 1)(n - 2)} \sum \frac{\theta_{yzi}}{\theta_{yz}}$$

Eigenvector Centrality Eigenvector centrality is defined as the extent to which a director is linked with other highly connected directors. A high (low) eigenvector value suggests that the director is related to better-connected (less-connected) directors. Assume  $G$  is an adjacency matrix.  $g_{ij}=1$  if director  $i$  and director  $j$  are directly linked.  $\lambda$  is the proportionality factor, representing the largest eigenvalue of the adjacency matrix  $G$ .

$$CENTRALITY_i = \frac{1}{\lambda} \sum g_{ij} CENTRALITY_j$$

EIGENVECTOR is solved by satisfying the following equation. The elements of EIGENVECTOR are individual director's Eigenvector centrality

$$\lambda \cdot EIGENVECTOR = G \cdot EIGENVECTOR$$


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Figure 4. Ann Illustration of director's networks

