DOI: https://doi.org/10.17323/j.jcfr.2073-0438.16.4.2022.46-60
JEL classification: G31, G32

CEO Age and Cash Holdings around the World: The Moderating Role of Legal Origin

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Abstract

The worldwide growth in the level of corporate cash holding has prompted scholarly interest. Grounded on the precautionary motive of cash, we aim to provide a behavioural explanation to this phenomenon by exploring the relation between CEO age and corporate cash holdings. We further examine the institutional factor that may exert an influence on this relationship through a country's legal systems, based on the notion that business corporations are part and parcel of the nexus of the institutions. Using an international sample of 24,989 firms from 90 countries, we find that CEO age is positively associated with the level of cash holdings. The positive impact is weakened when firms operate in countries with greater investor protection and better financial development. We demonstrate that older CEOs from common law, German law and post-socialist countries have a propensity to hold less cash. Additional robustness test supports our empirical findings.

Keywords: cash holdings, CEO age, legal origin

For citation: Siew-Boey, Y., Chee-Wooi, H. CEO Age and Cash Holdings around the World: The Moderating Role of Legal Origin. *Journal of Corporate Finance Research.* 2022;16(3): 46-60. https://doi.org/10.17323/j.jcfr.2073-0438.16.4.2022.46-60

Introduction

Firms worldwide have considerably increased their level of cash holdings in recent years [1; 2]. Deloitte has reported that at the end of year 2014, the top 1,000 non-financial companies globally are holding $2.8 trillion in cash. Precautionary motive has contributed greatly in explaining this high cash holdings across firms around the world [3]. The special interest lies in the fact that cash holdings provide an important means through which firms ensure liquidity to cushion against bankruptcy risk especially during periods of financial distress. However, from an investment point of view, cash are negative net present value (NPV) projects as interest earned on cash are generally much lower than investors' required rate of return [4].

Since Opler, Pinkowitz [5], corporate cash holdings has gained extensive attention in the literature of finance. Traditional economic theory mainly explains the motivation of cash holdings using trade-off, financial hierarchy and agency theory, which assume that CEOs are rational [5; 6]. However, these empirical studies do not incorporate human factors by which behavioural biases affect corporate policies. The upper echelon theory which considers bounded rationality and perception of decision makers explains this phenomenon in the behavioural finance study [7]. As holding cash is a corporate policy which entails risk perception, it is plausible that top executives' behavioural biases toward risk influences how much cash a firm holds.

Executives' risk perceptions are largely unobservable, but studies based on upper echelons theory have found that risk tolerance can be predicted from readily observable characteristics such as age [8–10]. Age is closely associated with adult development of an individual. The physiological, psychological and mental characteristics of an individual such as energy, wisdom, enthusiasm, ambition and decisiveness change with age [9]. Prior literatures exhibit that age affects individuals' risk tolerance through capacity such as information processing ability, cognitive ability, moral development and ethical behaviour and wisdom advancement [11–14].

Despite extensive research, there is no consensus regarding the relationship between CEO age and risk behaviour across countries. Prior studies on the age of CEOs have demonstrated that firms in different countries vary widely in the riskiness of corporate policies. For example, Davidson, Xie [15] find that older CEOs in the United States are associated with greater income-increasing earnings management. Belghitar and Clark [16] demonstrate that managerial risk appetite of CEOs from UK firms increases with age as older CEOs are more confident in taking risky decisions. Using sample data of A-share firms in China, Xie [17] also shows that younger CEOs in publicly listed Chinese companies behave more cautiously and conservatively. On the contrary, Attia, Yousfi [18] find that older directors in France tend to be risk-averse and invest less in risky R&D expenditure.

As compared to corporate risk taking, the role of CEO age has received considerably less attention in the literature on cash holdings. To the best of our knowledge, Orens and Reheul [19] is the only recent study focusing on cash holdings. Their studies reveal that older CEOs in Belgian firms are more concerned with precautionary motive of cash and retain higher cash levels than younger CEOs. We contend that one possible explanatory factor for lack of agreement on the role of CEOs age with regards to conservatism in corporate policies across countries may be the part played by the legal environment.

This can be determined by institutional theory, based on the notion that business corporations are part and parcel of a nexus of institutions [20], and that institutions operate according to the formal rule of the game of the society in the country [21]. The rule of game imposed by a country's institutional framework provides incentives for certain behaviours [22]. Legal origin, which is the major institutional framework of a country, has been shown to affect CEOs' strategic choices through the mechanism of investor protection [23, 24]. For example, Dittmar, Mahrt-Smith [25] and Gupta and Pathak [26] contend that managers from civil law origin are likely to maintain a lot of cash because civil law countries with weaker investor protection allow them to spend this fund on projects that increase their non-pecuniary benefits.

In this paper, we attempt to provide evidence on the relation between CEO age and firms' cash holding policies, viewing holding of cash as a conservative policy counting on precautionary motive. Using a sample of 24989 firms' observations from 90 countries, we further investigate the role of legal origins in explaining the variation of the relationship between CEO age and cash holding around the world. We find that there is a positive association between CEO age and cash holding. We further demonstrate that influence of CEO age is conditioned on certain legal origins. We consider alternative moneyness specifications and the findings are robust to alternative measures of cash holdings.

Our study has several contributions. In a broader context, our study contributes to the literature on upper-echelons theory. An emerging body of finance literature has considered how CEOs' demographics affect corporate policies. Gender, education level, career tenure and experience are some of the examples of CEOs' personal characteristics under study [27–29]. Specifically, we add to the research exploring the implication of CEO age on corporate policies.

We contribute to cash holding literature by showing that CEO age, an important managerial trait, affects the value of cash holding of a firm. To explain cross-sectional differences in cash holding, prior literature has extensively examined and discussed from the insights of traditional economic theories which disregard CEO characteristics and behavioural biases that may affect corporate policies and decisions. We incorporate behavioural components that reflect the idiosyncrasies of CEO and provide evidence that observable managerial characteristics influence cash accumulation of a firm.

Existing literature has primarily focused on how CEO age affects investment and financial policies [8], restructuring activities [10] and acquisition [9]. There is scant research

that investigates the impact of CEO age on cash holdings, except study by Orens and Reheul [19]. Nevertheless, Orens and Reheul [19] only examine the effect of CEO age as one of the demographics in explaining the cash holdings in private (unlisted) small and medium-sized enterprises. We advance this study by focusing on the age of CEOs and analysing the cash holding policy of public listed companies across countries.

We also provide evidence that institutional context, as a moderating factor modifies the impact of CEO age on cash holding. Differences in the environment are the result of history, legal systems, standards, traditions and country-specific circumstances. Legal origin, an essential institutional element, has been shown to play an important role in cash accumulation of a firm. We conjecture that legal origin affects firm behaviour, through their roles in shaping the investor protection environment and fostering financial development.

Prior studies mainly focused on the two broad families of laws, that is civil law and common law when discussing the effects of legal origins on cash holdings [25; 26]. We advance this prior research by classifying civil law regimes into French, German and Scandinavian code of law, and include more countries in the world to provide a more comprehensive analysis.

Literature Review

CEO age and cash holdings

Cash is the lifeline of a firm as cash is often used as insurance against various risk factors to which a firm is exposed. Precautionary motive has become the utmost important factor for a firm to hold cash. Bates, Kahle [30] draw attention to the importance of cash holdings for liquidity especially during periods of limited access to external financing. Boileau and Moyen [31] argue that precautionary motive inducing firms to be prudent to self-insure against future adverse shocks. However, there are also negative aspects of holding cash. Holding liquid assets such as cash implies an opportunity cost due to the lower rate of return relative to other investments of the same risk, especially if the firm forgo more profitable investment to hold that level of cash [32].

The extant literatures generally ground on rational economic theories to explain variation in corporate cash holding. Cash holdings can be explained by the trade-off, financial hierarchy and agency theory [5]. These traditional economic theories assume rational behaviour of CEO, and hence many empirical studies do not incorporate human factors in examining the determinants of firms' cash holdings policies. In contrast to assume rationality of human behaviour, the upper echelons theory argues that decision makers are characterised by bounded rationality and thus make strategic choices based on their cognitive, psychological and personal interpretation of the situation. The theory predicts that organisational strategic choice can to some extent be explained from the background characteristics of CEOs [7]. The cognitive characteristics and personal interpretations can be proxied by attributes such as gender, tenure, education background and age of CEOs [33].

Age variable has been used as a dimension to study systematic change of individual behaviour over time in conception and interpretation of psychological development research. Age determines the cognitive ability and ability of processing information of a person. Prior empirical work generates conflicting predictions on how CEO age affects risk behaviour. One stream of research focuses on the aging effect and associates elderly CEOs with conservative behaviour. Older adults are under greater recency effects due to declining memory functions [34]. Older managers prefer quiet life as they get older [10]. Older CEOs who are more susceptible to the dysfunctional effects of high information processing demand tend to be more risk averse [7; 11].

Another strand of studies predicts that older CEOs tend to take more risk. Research on development of wisdoms argue that older adults are wiser than younger adults as they have better accuracy and confidence in judgement tasks. They are better in using judgement, intuition and inference prior to making decisions [13]. CEO age is a proxy for level of experience in risk taking [35] and older individuals inevitably have more experience as compared to younger individuals. Probability domain familiarity by Sitkin and Pablo [36] propose that with greater experience in taking risk, an individual is less likely to perceive uncertainty of the risk outcome and the risk will seem to be more reasonable.

Older managers are found to have lesser ability to integrate and process information effectively in making decisions [11]. Declining cognitive ability due to aging reduces ability to evaluate and manage risk properly [12]. Hambrick and Mason [7] reveals that older executives have less physical and mental ability to grasp new ideas and learn new behaviours. Yim [9] posits that a CEO who is 20 years older is nearly 30% less motivated to undertake acquisition. Bertrand and Schoar [28] exhibit that older CEOs are more conservative as older generation executives prefer quiet life and are generally less aggressive. Thus, we predict the following hypothesis:

H1: There is a positive relationship between CEO age and cash holding.

Moderating role of legal origins

In the absence of generalisable results concerning CEO age and corporate outcomes across countries, this paper also aims to examine institutional factor that may address this absence of homogenous conclusions. Institutional theory recognises that firms operate within institutional context that affect their action, in which organisations operating in the same environment will seek greater legitimacy by adopting homogenous behaviours [37]. Actors in the institution weigh the strategies in a given social context based on their framing of the situation [38]. As such, it is reasonable to assume that general regulation of a country is expected to influence the orientation of people who participate in the setting of such law enforcement system. Taking into account prior research on risk behaviour, differences between countries tend to focus on legal aspects [39–41].

Research on legal origin is mostly derived from the work of La Porta, Lopez-de-Silanes [42]. The law and finance theory emphasise two channels through which legal origin exert impacts on financial development. The first channel is political channel which postulates that legal traditions differ in terms of rights of individual investors relative to the rights of the State [43]. The second channel is adaptability channel which stresses that legal traditions differ in the ability to respond to the changing socioeconomic conditions [44].

Prior literature generally categorises legal origin into two broad traditions, namely common law and civil law. Common law is prevalent in England and its former colonies as the United States, Canada and Australia, New Zealand and also many countries in Africa and South East Asia. Common law, also known as English law is a source of liberty. Legal rules in the common law systems are made by judges, based on precedents and guided by general principle [45]. The English common law achieved its modern form in the 16th and 17th centuries when Parliament and the English kings battled for the control of the country. Ultimately, the Parliament and the court stood on the side of private property owners and restricted the crown's discretion to change the property rights. Common law thus evolved to protect private property rights against the crown. Over time, courts extended such protection of property owners to investors.

Civil law is based on codification. The civil law countries are further classified into three family codes of law, namely French-origin, German-origin and Scandinavian-origin. French commercial code has much influence in France, Spain, Brazil, Mexico, Belgium and Netherlands, and the German one influences countries such as Austria, Japan, Korea and Switzerland. The Scandinavian code is more influenced by common law and sets out the laws of five countries, namely Denmark, Finland, Iceland, Norway and Sweden. French and German civil codes in the 19th century were constructed to solidify the power of the state and the state dominance has resulted in legal tradition that limited the rights of the individual investor [46].

A country's legal environment and the level of investor protection affects corporate policies and value of a firm [47]. Stronger investor protection environment leads firms to undertake riskier but value-enhancing investment policies by reducing managers' motivation to preserve their private benefits [48]. Managers, as an insider of a firm, may opt to be conservative in directing corporate investment to protect their private benefits. Protection of investors' rights mitigate the magnitude of such private benefits to insiders by reducing the tendency of managers in holding cash and forgoing risky projects with positive net present value. Dittmar, Mahrt-Smith [25] show that the higher the level of investors' protection, the lower the level of cash holding. Ferreira and Vilela [49] also find that cash holdings are negatively related to countries with stronger investor protection.

The political channel generally holds that countries whose legal rules originate in the common law traditions evolve to protect property owners significantly better than civil law countries [50; 51]. As better investor protection induces holding of less cash for undertaking risky but value-enhancing investment [48; 49], firms in common law system which promote private property protection have a tendency to undertake greater level of corporate risk taking and hold lower level of cash. Dittmar, Mahrt-Smith [25] has shown that firms in common law countries have lower median cash to net assets than countries whose laws originate in the civil law traditions. Similarly, Gupta and Pathak [26] also find firms operating in common law systems hold significantly lower cash as compared to firms from civil law systems. Based on these arguments, we contend that with stronger investor protection under common law systems, older CEOs in common law countries are expected to hold less cash.

H2a: The positive relationship between CEO age and cash holding is weakened in common law countries.

In civil law countries, legal rules are made by legislatures, and judges are not supposed to surpass the law. Courts in civil law are less likely to take the side of investors in resolving complicated disputes [52]. The political channel stresses that civil law advances state power with adverse implications on financial development [50]. Civil law is associated with government interference in economic activity and weaker protection of rights. As a result, corporate insiders who find a way to expropriate investors can proceed without fear of adverse judicial ruling as expropriation is not explicitly prohibited by the law [43].

Before the French Revolution, jurisprudence was an important part of French law. The revolution has deviated French law radically by eliminating jurisprudence [53]. Under Napoleonic legal doctrine, judges do not interpret the law but just simply apply the law [54]. Germany explicitly rejected the French deviation and maintained its historical roots in judicial discretion. According to this corollary, French civil law countries have more rigid systems and foster financial development less effectively than German law countries [50].

The French legal origin countries have the worst quality of law enforcement. As compared to French origin, German and Scandinavian legal origin countries receive better efficiency of the judiciary [45]. French civil law countries have the weakest protection, German origin countries are comparatively having stronger protection, and Scandinavian civil law countries are similar to German one [45]. Ferreira and Vilela [49] exhibit that firms with weaker investor protection accumulate up to twice as much cash. Thus, we postulate that firms in French origin which have the weakest protection are expected to hold higher levels of cash, while German and Scandinavian origin which have stronger investors are expected to hold less cash.

H2b: The positive relationship between CEO age and cash holding is strengthened in French law countries.

H2c: The positive relationship between CEO age and cash holding is weakened in German law countries.

H2d: The positive relationship between CEO age and cash holding is weakened in Scandinavian law countries.

The socialist countries had a legal origin based on Soviet law. La Porta, Lopez-de-Silanes [45] do not take into con-

sideration socialist countries in their research. This is because the law of these countries changes rapidly during the transition out of socialism. Finance literature also does not provide clear theoretical guidance regarding the protection of investors' rights in socialist countries. Prior research have shown that financial development of transition economies has a prominent influence on firms' cash holding [55, 56]. As such, rather than looking at the perspective of investor protection, we examine the effect of legal origin by exploring the impact of financial development of post-socialist countries.

Eastern and half of central Europe were dominated by socialist regimes for more than 50 years. The economy was run bureaucratically, and reinforced obedience and played it safe behaviour [57]. Socialist ideology was not conducive for economic and financial development as it was built on an ideology that hindered independent innovative culture. Research on entrepreneurship holds that socialist ideology is detrimental to the economic environment as entrepreneurship is considered as something extraneous [58].

While socialist ideology suppresses risk taking behaviour, post-socialist attempts to create market-oriented economies [59]. Following the disintegration of the Soviet Union in 1991, the former Soviet republics and many Eastern European nations have moved from socialism to capitalism. Certain East Asia countries have also moved from a central planning towards a market-oriented economic system [60; 61]. There is an increasing recognition among post-socialist countries that free-market orientation is essential to the financial and economic development of a country [62].

The transition process which requires social reforms and loosening of restrictions on the private sector has resulted in institutional transformation and rapid economic changes [61; 63]. Prior studies have documented that free-market orientation in post-socialist countries have fostered private-sector entrepreneurship. Estrin, Meyer [64] contend that transition economies have provided the basis for an entrepreneurial market economy through reform in the legal, institutional and policy structures. Manolova, Eunni [65] demonstrate that the gradual change in values and behaviours in post-socialist countries toward market competition have promoted risk taking and entrepreneurship. As risk taking is associated with less cash holding, we predict that post-socialist countries tend to accumulate less cash. Wu, Rui [56] have shown that firms in transition economies with higher financial development hold less cash for payables. As such, we older CEOs in post-socialist countries are expected to maintain lower levels of cash holdings.

H2e: The positive relationship between CEO age and cash holding is weakened in post-socialist law countries.

Research Methodology

Data

This study adopted a cross-sectional design. We obtained firm-level data from S&P Global database for the year of 2019. We require that our sample firms have corporate cash holdings data available. This has yielded a sample of 24,892 public listed firms from 90 countries. There are approximately 200 countries in the world but many do not maintain a stock market.

Variables

Our dependent variable is cash holdings. Following previous studies, we measure cash holdings (CashHoldings) as the ratio of cash and cash equivalents to net assets, where net assets are computed as book value of total assets less cash and cash equivalents [5]. Our independent variable is CEO age (CEOAge), measured as age of CEO in the given year. Our moderating variable is legal origin. We classify legal origins (Legal) into five categories, as denoted by the following dummy variables equal to one: common law (Common), French civil law (French), German civil law (German), Scandinavian civil law (Scand), and post-socialist law (PostSoc).

We control a series of variables that are potentially associated with cash holdings. Based on prior studies [66; 67], we include firm size (LogFirmSize, measured as the natural logarithm of the book value of total asset), leverage (Leverage, measured as long-term debt over the book value of total assets), firm age (FirmAge, measured as the number of years from the establishment of the firm to the year of observation), CEO duality (CEODuality, dummy variable equals to one if the CEO is also the chairman) and gender (Gender, dummy variable equals to one if the CEO is male).

Empirical model

We perform our analysis by running OLS regressions clustering at country and industry level. To examine whether CEO age is related to cash holdings, we specify the baseline model as follows:

$$CashHoldings_i = \alpha_i + \sum \beta_k Control_i + \beta_1 CEOAge_i + \varepsilon_i. \quad (1)$$

We test the moderating effects of legal origins on the relationship between age of CEO and cash holdings using the five legal origins:

$$CashHoldings_i = \alpha_i + \sum \beta_k Control_i + \beta_1 CEOAge_i + \\ + \beta_2 Legal + \beta_3 \left(CEOAge \times Legal\right) + \varepsilon_i. \quad (2)$$

Research Results

Descriptive statistics and correlations

Table 1 reports the summary statistics for the regression variables used in this study. We show the mean, standard deviation, minimum and maximum values of the variables. The mean cash and cash equivalents scaled by net assets is 39.71%. This exhibits that firms all over the world generally keep a large portion of their assets in cash. Table 2 presents the Pearson's correlation matrix of the variables used in our study.

Table 1. Summary statistics for variable characteristics

Variables	Mean	S.D.	Min	Max
CashHoldings	0.3971	1.2440	0.0001	10.0033
CEOAge	54.5541	9.9333	20	97
Common	0.5573	0.4967	0	1
French	0.0962	0.2948	0	1
German	0.1711	0.3766	0	1
Scand	0.0348	0.1833	0	1
PostSoc	0.1317	0.3381	0	1
LogFirmSize	7.0814	3.8581	−11.5129	21.1220
Leverage	0.3279	0.7787	0	6.8167
FirmAge	38.2570	36.6459	1	654
CEODuality	0.2452	0.4302	0	1
Gender	0.7362	0.4407	0	1

Table 2. Pearson correlation of explanatory variables

		1	2	3	4	5	6	7	8	9	10	11	12
1	CashHoldings	1											
2	CEOAge	−0.0063	1										
3	Common	0.0756*	−0.0073	1									
4	French	−0.0568*	−0.0062	−0.3659*	1								
5	German	−0.0158*	0.1921*	−0.5097*	−0.1482*	1							
6	Scand	0.0236*	−0.0732*	−0.2131*	−0.0619*	−0.0863*	1						
7	PostSoc	−0.0481*	−0.1616*	−0.4369*	−0.1270*	−0.1769*	−0.0739*	1					
8	LogFirmSize	−0.2680*	0.1072*	−0.4064*	0.0695*	0.3772*	−0.0522*	0.1229*	1				
9	Leverage	0.0175*	0.0179*	0.1121*	−0.0174*	−0.0714*	−0.0202*	−0.0540*	−0.2684*	1			
10	FirmAge	−0.1423*	0.1703*	−0.1287*	0.0739*	0.1797*	0.0226*	−0.1104*	0.3012*	-0.0572*	1		
11	CEODuality	−0.0208*	0.1407*	0.0289*	0.1071*	−0.0935*	−0.1067*	0.0335*	−0.0213*	0.0516*	-0.059*	1	
12	Gender	−0.008	0.0359*	0.3527*	−0.2952*	−0.1155*	−0.2233*	−0.0145*	−0.0374*	0.0353*	-0.0109*	-0.0103*	1

Note: This table reports the correlations of the variables in a multivariate analysis.

* Denotes significance at the 5% level (two-tailed).

Results

All financial variables are winsorized at the 1% and 99% levels to avoid problems with outliers. Hypothesis 1 predicts the relationship between age of CEOs and cash holdings. As shown in Table 3, for our baseline regression, we find that the coefficient on cash holdings is 0.0051 and statistically significant at the 1% level. Thus, this finding supports the hypothesis that CEO age are positively related to firms' level of cash accumulations.

Table 3. Effect of CEO age on cash holdings

Variables	CashHoldings
	Model 1
CEOAge	0.0051***
	(0.0008)
LogFirmSize	−0.0894***
	(0.0022)
Leverage	−0.0836***
	(0.0106)
FirmAge	−0.0023***
	(0.0002)
CEODuality	−0.0865***
	(0.0173)
Gender	−0.1621***
	(0.0186)
Constant	1.0599***
	(0.0466)
No. of observation	24853

Notes: Figures in ( ) are the robust standard error.

***, ** and * denote the significance at the 1%, 5% and 10% respectively.

Table 4 presents the results on the moderating effect of legal origin to the relationship between age of CEOs and cash holding. Model 2a test hypothesis H2a on the interaction effect of common law on the relationship between CEO age and cash holdings. Model 2b, 2c and 2d examine the moderating effect of French law, German law and Scandinavian legal origins respectively. Model 2e test H2e on how post-socialist law affect the relationship.

As reported in Model 2a, we find that the interaction coefficient of common law dummy variables to be significantly negative, with coefficient estimate -0.0045 significant at the 10% level. It signifies the role of legal tradition effects on cash holding and indicates that older CEOs in common law countries hold reasonably lower level of cash.

It is also found in Model 2c that for older CEOs who manage firms in a jurisdiction with a legal origin based on German law, the coefficient estimates on cash holdings is -0.0070 and is significant at the 5% level. This shows that cash holding level of older CEOs are weakened in German law countries. Similarly, as shown in Model 2e, cash holdings of older CEOs are weakened in post-socialist law countries, with coefficient estimate of -0.0041 significant at the 1% level. We do not find significant result for French law and Scandinavian law countries.

Table 4. Impact of legal origin on CEO age-cash holdings relation

Variables	CashHoldings				
	Model 2a	Model 2b	Model 2c	Model 2d	Model 2e
CEOAge	*0.0078***	0.0051***	0.0027*	0.0048***	0.0053***
	(0.0031)	(0.0019)	(0.0015)	(0.0017)	(0.0016)
LogFirmSize	*−0.1024****	−0.0886***	−0.1065***	−0.0899***	−0.0892***
	(0.0249)	(0.0258)	(0.0259)	(0.0258)	(0.0261)
Leverage	*−0.0859***	−0.0831**	−0.0904**	−0.0845**	−0.0839**
	(0.0367)	(0.0351)	(0.0374)	(0.0352)	(0.0353)
FirmAge	*−0.0023****	−0.0023***	−0.0024***	−0.0023**	−0.0024**
	(0.0009)	(0.0009)	(0.0008)	(0.0009)	(0.0009)

Variables	CashHoldings				
	Model 2a	Model 2b	Model 2c	Model 2d	Model 2e
CEODuality	*−0.0755*	−0.0767	−0.0257	−0.0893*	−0.0853
	(0.0465)	(0.0528)	(0.0531)	(0.0531)	(0.0529)
Gender	*−0.1124*	−0.1842	−0.1797	−0.1729	−0.1612
	(0.1664)	(0.1613)	(0.1470)	(0.1499)	(0.1554)
Common	0.045				
	(0.1953)				
CEOAge ×Common	*−0.0045**				
	(0.0024)				
French		−0.0379			
		(0.1450)			
CEOAge × French		−0.0011			
		(0.0027)			
German			0.8411***		
			(0.2258)		
CEOAge ×German			−0.0070**		
			(0.0031)		
Scand				−0.4399	
				(0.3798)	
CEOAge ×Scand				0.0071	
				(0.0064)	
Post-soc					0.1901
					(0.1189)
CEOAge ×Post-soc					−0.0041***
					(0.0005)
Constant	1.0833***	1.0786***	1.2472***	1.0899***	1.0516***
	(0.2344)	(0.3090)	(0.3178)	(0.3151)	(0.3173)
No. of observation	24812	24812	24812	24812	24812

Notes: Figures in ( ) are the robust standard error. ***, ** and * denote the significance at the 1%, 5% and 10% respectively.

Robustness Tests

We replicate our analysis by using alternative proxy of cash holding. In our main analysis, we follow Opler, Pinkowitz [5] to measure cash holdings using the ratio of cash to net assets. However, this measure may generate large outliers if firms hold most of their assets in cash [30]. To reduce this potential problem, we follow Bates, Kahle [30] to measure cash holdings using ratio of cash to the book value of total assets. We rerun all regressions using this alternative measure and the findings are consistent with our original result.

Table 5. Robustness Test using alternative proxies of cash holding

Variables	CashHoldings					
	Model 1	Model 2a	Model 2b	Model 2c	Model 2d	Model 2e
CEOAge	0.0007***	0.0013**	0.0006	−0.0003	0.0007	0.0010**
	(0.0001)	(0.0006)	(0.0006)	(0.0005)	(0.0005)	(0.0004)
LogFirmSize	−0.0161***	−0.0222***	−0.0159***	−0.0221***	−0.0162***	−0.0167***
	(0.0003)	(0.0034)	(0.0044)	(0.0038)	(0.0044)	(0.0030)
Leverage	−0.0117***	−0.0133**	−0.0114	−0.0147**	−0.0117	−0.0116***
	(0.0016)	(0.0064)	(0.0075)	(0.0068)	(0.0075)	(0.0033)
FirmAge	−0.0005***	−0.0005***	−0.0005***	−0.0006***	−0.0005***	−0.0005**
	0.0000	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
CEODuality	−0.0220***	−0.0175*	−0.019	−0.0004	−0.0224	−0.0237***
	(0.0027)	(0.0103)	(0.0155)	(0.0125)	(0.0152)	(0.0048)
Gender	−0.0252***	−0.0004	−0.0322	−0.0316	−0.0265	−0.0272
	(0.0029)	(0.0324)	(0.0274)	(0.0253)	(0.0285)	(0.0220)
Common		−0.0415				
		(0.0538)				
CEOAge ×Common		−0.0010*				
		(0.0006)				
French			−0.0248			
			(0.0377)			
CEOAge ×French			−0.0001			
			(0.0005)			
German				0.2695***		
				(0.0797)		
CEOAge ×German				−0.0019**		
				(0.0009)		
Scand					0.0521	
					(0.0560)	
CEOAge ×Scand					−0.0012	
					(0.0010)	
Post-soc						0.0976***
						(0.0234)
CEOAge ×Post-soc						−0.0013**
						(0.0004)
Constant		0.3377***	0.2985***	0.3628***	0.2933***	0.2768***
		(0.0474)	(0.0679)	(0.0603)	(0.0680)	(0.0516)
No. of observation	24958	24917	24917	24917	24917	24917

Notes: Figures in ( ) are the robust standard error. ***, ** and * denote the significance at the 1%, 5% and 10% respectively.

Discussions of Results

A considerable body of literature in finance documents have analysed corporate cash policies. In this study, employing upper echelons theory as a framework, we focus on the age of CEOs and investigate their attitude toward holding of cash. We contend that older CEOs tend to be more conservative by holding a lot of cash. Consistent with our hypothesis 1, we generally find that older CEOs are more likely to accumulate cash as compared to younger CEOs. We further theorise the role of institutional context, represented by legal origin, in moderating this relationship. Our corroboration of hypothesis 2a to 2e shows that if these CEOs perform their duties in firms located in countries with better investors' rights protection and with economies that foster financial development, older CEOs may have greater incentives to accumulate less cash. We have revealed that older CEOs in common law, German law and post-socialist countries hold less cash. These results hold to the robustness tests on alternative cash holdings measurement.

Our main results confirm the positive impact of CEO age on cash holdings of a firm. Older CEOs are commonly known as risk-averse due to reduced ability to evaluate and manage risk properly and less efficient in integrating and processing information when making decisions [11, 12]. They tend to be more conservative, thus perceiving cash holding as an unduly precautionary mechanism. As a result, they hold a lot of cash to maintain liquidity for protecting the firm against cash shortfalls.

We complement the study by Orens and Reheul [19] which examines the effect of CEO age as one of the CEOs' demographics in explaining the cash holdings in private (unlisted) small and medium-sized enterprises. They observe that older CEOs in Belgium tend to hold higher levels of cash. As such, our findings are in line with their results. In addition, we enrich their study by testing this perspective using public listed companies around the world and show that the cash holding varies widely across countries.

Differences in the legal environment transcend companies, making investor protection mechanisms and financial development levels in some countries more effective in influencing the firms' cash holding policies. In an institutional environment with weaker laws and justice, the managers' propensity to pursue personal benefits are higher [48]. They may present greater opposition to undertake risky but value-enhancing investment projects. Legal tradition with greater rights protection decreases managers' incentive to accumulate cash that can be consumed as private benefits [25].

It is thus expected that the cash holdings of CEOs vary with the legal regimes in which the firms are located. Three out of the five of our hypothesised relationships obtained empirical support. We find that older CEOs of firms based in common law countries demonstrate lower levels of cash holdings. This supports the view that better investor protection mechanisms in common law countries have reduced the tendency of CEOs to hold more cash on the grounds of increasing their private benefits. Our results is consistent with study by Dittmar, Mahrt-Smith [25] which have exhibited that firms in common law countries hold 35% less cash than those in civil law countries

Nevertheless, we find that not all civil law countries hold a lot of cash. Most of the prior literature mainly divide the legal traditions in the world into common law and civil law origins, and associate civil law origin with weaker protection of investors' rights. We further classify the civil law regimes into French, German and Scandinavian code of law. We observe that older CEOs managing firms operating in German law countries have a lower tendency to accumulate cash. This is because German civil law maintains its judicial ruling and enforces stronger investor protection. As such, older CEOs in German law regimes are less likely to hold more cash and spend funds on projects that increase their private benefits.

We fail to find clear evidence concerning the moderating effect of French law and Scandinavian law. We are not able to find evidence in French law jurisdictions which is associated with relatively low investor protection. This finding is a bit puzzling as there is an intuitive link between level of investor protection and level of cash holdings in prior studies. Previous literature has documented that older CEOs managing firms in the French regime with weakest protection are deemed to hold a lot of cash. Besides, we also find that there are no statistical differences in cash holdings of the older CEOs from firms located in countries with Scandinavian civil law. The lack of significance might be partly due to the relatively low number of CEOs based in countries with Scandinavian legal origin.

We find that older CEOs of firms domiciled in post-socialist countries present lower levels of cash holdings. Transition economies involve fundamental reforms in legal policy and radical restructuring of formerly planned economies. Post-socialist countries with transition economies attempt to provide a conducive environment for financial development which facilitate market competition. This has promoted radical behavioural changes toward innovative, entrepreneurial and risk taking in post-socialist countries. As such, older CEOs in post-socialist countries may hold less cash to undertake risky and value-enhancing investment projects.

Conclusion

Traditional theories provide rational economic views on levels of corporate cash holdings. Alternative to these economic arguments, we contend that the cash policy of a firm is also depends on the risk perception of CEOs, as cash holding is often used as the insurance against various firm risks. Drawing upon upper echelon theory, we demonstrate that age, as an observable characteristic of CEOs, can be used to predict firm risky policies. While the relation between age of CEO and risk tolerance has been the focus of previous literature, inconclusive findings have been reported across different countries in the world. We expect that countries' legal traditions explain the diverse risk behaviour across countries, using cash holdings as the proxy for conservative policy.

Using a world dataset of firms in 90 countries, we find some evidence of legal origins impacting the cash holdings of CEOs. We show that countries with stronger institutional environments and better financial development moderates the positive relationship between CEO age and cash holdings. Older CEOs of firms domiciled in such country-specific settings are more likely to maintain lower levels of cash holdings.

Our study offers important contributions to prior literature. Broadly, we add to the literature that employ upper echelons theory in predicting firm behaviours using CEO personal attributes. Specifically, we provide insights on observable attributes of CEOs, namely CEO age as one of the determinants of firms' cash holdings policies. Existing literature has primarily focused on the impact of CEO age on corporate policies. Less is known, however about the effect on cash holdings. Orens and Reheul [19] examine the effect of CEO age as one of the demographics in explaining the cash holdings in private small and medium-sized companies. We complement and extend this study by documenting that generally CEO age positively affects the cash holdings of public listed companies across countries.

Our evidence shows that firms in countries with better investor protection display greater tendency to hold less cash for investing in risky investment projects that may enhance the value of the firm. Based on these results, our study adds support to the literature that emphasises the importance of legal origins in protecting the rights of property owners [49-51]. Particularly, we complement studies by Dittmar, Mahrt-Smith [25] and Gupta and Pathak [26] that examine the role of a country's legal origins in predicting corporate cash holdings

Study by Dittmar, Mahrt-Smith [25] divide the sample data of 45 countries to common law tradition vs those with civil law tradition. Gupta and Pathak [26] which focus also on common vs civil law systems use a sample data from 18 countries for study years of 2001–2017. We conduct a more refined analysis by employing a sample of 90 countries in the world. Besides, we further classify civil law origin into French, German and Scandinavian law, and take into consideration post-socialist countries. In this respect, we enrich previous studies by expanding our sample of analysis to international firms with the aim to provide comprehensive evidence for examining the inconclusive findings of the relation between CEO age and cash holdings across countries.

Our findings also partially complement corporate risk taking literature such as study by Davidson, Xie [15] and Belghitar and Clark [16] which find that older CEOs in common law countries, namely the United Kingdom and United States are less risk averse. Our result is also in line with the study by Xie [17] which find that older CEOs in China, a post-socialist country which has carried out fundamental reforms of its economic system by transforming from centrally planned to market-oriented economies, behave more aggressively than younger CEOs.

Lastly, our study offers several practical implications to investors, regulators and policy makers. We suggest that investors should realise that not all old-aged CEOs have greater tendency to accumulate cash. Better investor protection rights and financial development reduce the propensity of CEOs to hold higher levels of cash for their private benefit. Older CEOs managing firms domiciled in such country-specific settings are more likely to undertake investor-friendly financial policies. We also suggest that regulators and policy makers should focus on strengthening the legal system and law enforcement of the country in protecting the rights of the investors.

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Contribution of the authors: the authors contributed equally to this article.

The authors declare no conflicts of interests.

The article was submitted 20.09.2022; approved after reviewing 25.10.2022; accepted for publication 11.11.2022.