The role of corruption in shaping the value of holding cash

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ABSTRACT

This paper analyses the relationship between cash holdings and performance, considering the moderating effect of corruption that exists in the institutional context in which firms operate. The results show the importance of corruption in shaping the sign and the intensity of the value of cash holdings. The sign of the effect of corporate liquidity on firm performance changes according to varying levels of corruption. Holding cash is shown to have a noteworthy and no marginal role in supporting business activities and points to an avenue of investigation for future research.

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1. Introduction

The main goal of the creation of cash stock is to generate financial flexibility in the firm (JP Morgan Research 2005). On the one hand, holding cash can reduce the transaction costs of interacting with the external capital market and at same time can be used as a financial buffer available to firms in times of difficulty accessing credit. On the other hand, cash reserves can cause opportunistic behaviour on the part of the management.

Although the majority of published research has shown a positive relationship between liquidity and performance, this relationship appears to depend on the particular characteristics of firms or the peculiarities of the institutional context in which they operate (Dittmar et al. 2003; Pinkowitz et al. 2006). In relation to this, our paper aims to highlight the moderating effect of corruption on the relationship between liquidity and performance. Corruption is a phenomenon that increases the uncertainty and the risk of a business because it questions the existence of a safe legal and judicial system. In particular, the use of cash stock, especially in some contexts, can be used in a distorted way for illicit activities, such as bribes, donations and wages given to specific economic agents, often public, to facilitate business operations or personal benefits.

This paper attempts to verify empirically how the effect of the cash holdings on performance may be contingent and dependent on the level of corruption in the institutional context. Interacting with the availability of cash, corruption could enhance the benefits rather than amplify the disadvantages of corporate liquidity, thus exacerbating problems of opportunism and inefficiencies in the system.

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2. Corruption, cash holdings and firm performance

One of the most recent areas of research concerning the relationship between cash holdings and firm performance focuses on the role of the institutional context in which firms operate. The institutional context moderates this relationship through several features, such as access to capital markets (Faulkender and Wang 2006; Frésard, 2010), the cost of debt capital and the growth of GDP (Garcia-Teruel and Martínez-Solano, 2008) and the development of the financial system (Dittmar and Mahrt-Smith 2007; Kalcheva and Lins 2007). Concerning the moderating role of corruption, as Chen (2011) stated recently, in contexts that financially underdeveloped, with low investor protection and high levels of corruption, the holding of cash reserves causes great inefficiency and decreases the performance of the firm. Chen (2011) believes that management will hold cash to achieve private benefits and pursue their own interests. Moreover, for those firms which play by the rules but operate in countries in which the chances of running into corrupt activities is high, business performance seems to be adversely affected by the corrupt system.[1]

The availability of cash can be particularly detrimental for corporate performance in contexts marked by weak investor protection and high corruption compared to those in which the quality of institutions is higher (Kalcheva and Lins, 2007; Pinkowitz et al., 2006). This would seem to arise because management could hold large cash reserves to be used in corrupt activities, having high discretionary power and opportunistic sovereignty, instead of maximizing shareholder wealth. In contrast, in contexts with greater control of corruption the holding of cash increases performance, thanks to the alignment of interests between management and investors, without the distorting effects arising from provisions in "black money".

3. Institutional background and sample

This empirical analysis relates to Italy and adopts an approach that investigates the effect of corruption in a within-country longitudinal analysis. Italy is a country in which red tape that hinders economic development and fosters corruption is particularly relevant. An absence of corruption in Italy would have doubled the economic growth experienced between 1970 and 2000.[2] The Italian context is characterized by a surfeit of rules and bureaucracy that hinders economic development, creating the conditions for a deficit in financial procedures and institutions, also due to a particularly complex legal system; given this situation, the holding of reserves of cash in firms can easily be diverted to illegal uses or used to maintain privileged situations in the market. When there is weak application of the law and corruption is very high, the holding of substantial cash reserves allows managers to avoid the "discipline" of the capital market and to pursue their personal interests at the expense of shareholders (Dittmar et al., 2003).

The sample consists of both listed and unlisted Italian firms extracted from the Mediobanca – Research & Studies database, analysed over the period 1996 to 2013. From the initial sample, firms in the financial and insurance sectors were excluded. Therefore, the final sample consists of 252 firms and 2488 observations.

4. Model

The following empirical model was applied to the data:

$$\text{Performance} = f(\text{Cash holdings, Moderator Variables,}$$
$$\text{Cash holdings} \times \text{Corruption Index, Control Variables})$$

The dependent variable in the study is return on assets (ROA), taken as a proxy for firm performance, while the key independent variable is cash holdings. The variables used are described in the Appendix. In particular, corruption is proxied by two indices: the Corruption Perceptions Index (CPI) and Control of Corruption (CC).

5. Results

Table 1 provides information on the main statistical characteristics and correlations among the variables.

The average level of cash held in Italian companies is 8%. The corruption indices show high values. In particular, the average CPI, which varies from 0 (maximum corruption) to 10 (absence of corruption), is 2.60. The CC indicator, which ranges from −2.5 (high corruption) to +2.5 (low corruption), shows a value of 0.23. In general, problems of correlations due to multicollinearity are negligible, as obtained from the correlation matrix and variation inflation factor (VIF) test (not shown for reasons of brevity).

Columns (1) and (2) of Table 2 show the results of the model without moderating variables. A robust fixed-effects panel model[3] was used to avoid problems of heterogeneity. Columns (3) and (4) show the coefficients that clarify the relationship between cash holdings and performance influenced by corruption variables.

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[1] Caprio et al. (2013) show that the management of firms located in countries with a higher likelihood of political extraction invest more in assets that are harder to extract or pay higher dividends to shareholders to minimize the possibility that the state may expropriate firm value, as also observed by Stulz (2005).

[2] Presentation by Prime Minister Mario Monti to the "Report on corruption in public administration", December 2011.

[3] In general, the Hausman test suggests a preference for the *fixed-effects* model over *random effects*.

Table 1
Descriptive statistics and correlations.

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
ROA	0.07	0.08	1.00											
Cash holdings	0.08	0.11	0.16*	1.00										
CPI	2.60	2.34	0.12*	0.05*	1.00									
CC	0.23	0.25	0.09*	−0.01	0.85*	1.00								
Unrelated diversification	0.19	0.35	−0.04*	0.01	0.00	0.01	1.00							
International diversification	0.23	0.17	0.03	0.10*	0.29*	0.19*	0.11*	1.00						
Listing	0.40	0.49	−0.02	0.06*	0.05*	−0.06*	0.06*	0.21*	1.00					
Ownership concentration	0.65	0.26	−0.03	−0.08*	−0.02	−0.02	0.02	−0.04*	−0.49*	1.00				
Size	20.41	1.46	0.01	−0.03	0.48*	0.32*	0.19*	0.41*	0.21*	−0.10*	1.00			
Growth opportunities	0.09	0.02	−0.01	−0.05*	0.06*	0.02	0.11*	0.10*	0.06*	−0.03	0.24*	1.00		
Tangibility	0.37	0.17	−0.08*	−0.18*	0.20*	0.09*	0.07*	0.11*	0.26*	−0.15*	0.33*	−0.01	1.00	
Leverage	0.44	0.23	−0.27*	−0.13*	−0.06*	−0.06*	0.09*	−0.05*	−0.01	0.01	0.12*	0.13*	0.02	1.00

* Statistical significance at the level of 1%.

Table 2
Results for the effect of cash holdings and corruption on firm performance.

VARIABLES	(1) CPI	(2) CC	(3) CPI	(4) CC
Cash holdings	0.032***	0.032***	0.056***	0.046***
	(0.012)	(0.007)	(0.000)	(0.001)
CPI	0.001**		0.002***	
	(0.001)		(0.002)	
CC		0.012**		0.018***
		(0.032)		(0.003)
Cash holdings*CPI			−0.016***	
			(0.001)	
Cash holdings*CC				−0.105**
				(0.027)
Unrelated diversification	0.015*	0.015*	0.016*	0.015*
	(0.009)	(0.088)	(0.069)	(0.082)
International diversification	0.010	0.011	0.012	0.013
	(0.012)	(0.340)	(0.310)	(0.287)
Listing	−0.007	−0.006	−0.006	−0.006
	(0.006)	(0.264)	(0.291)	(0.262)
Ownership concentration	−0.008	−0.008	−0.008	−0.008
	(0.006)	(0.192)	(0.197)	(0.187)
Size	−0.017***	−0.016***	−0.016***	−0.016***
	(0.003)	(0.000)	(0.000)	(0.000)
Growth opportunity	0.811***	0.807***	0.824***	0.812***
	(0.193)	(0.000)	(0.000)	(0.000)
Tangibility	−0.047***	−0.046***	−0.051***	−0.049***
	(0.012)	(0.000)	(0.000)	(0.000)
Leverage	−0.068***	−0.068***	−0.067***	−0.068***
	(0.007)	(0.000)	(0.000)	(0.000)
Crisis	−0.020***	−0.017***	−0.020***	−0.018***
	(0.004)	(0.000)	(0.000)	(0.000)
Constant	0.397***	0.392***	0.375***	0.383***
	(0.054)	(0.000)	(0.000)	(0.000)
Observations	2488	2488	2488	2488
R^2	0.122	0.123	0.127	0.124
Firm ID	252	252	252	252
Industry fixed effects	Yes	Yes	Yes	Yes

Notes: The table reports the results of FE, in which the dependent variable is a proxy of firm performance (ROA). The variables are described in the Appendix. Among the explanatory variables of interest are the values for cash holdings and the proxy for corruption as interaction variables. The industry dummies are included in the model, but the coefficients are not reported. Robust standard errors are given in parentheses.

* indicate statistical significance at the levels of 10%.
** indicate statistical significance at the levels of 5%.
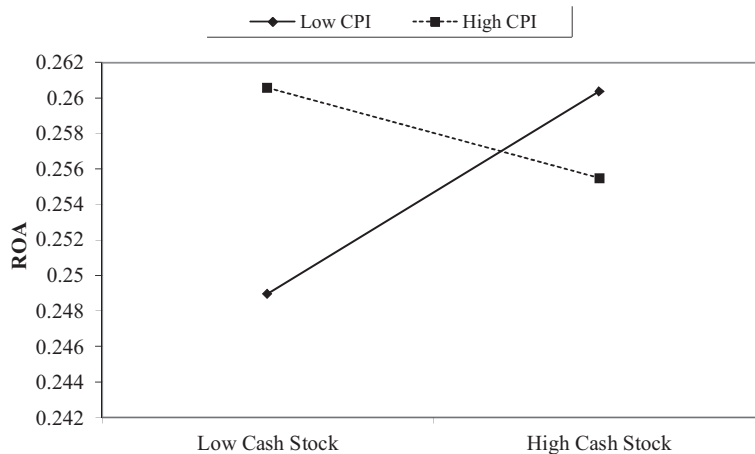*** indicate statistical significance at the levels of 1%.

Fig. 1. Effect of cash stock on ROA affected by level of CPI.
Notes: In Fig. 1, the broken line identifies a negative relationship between cash holdings and ROA at high levels of CPI.
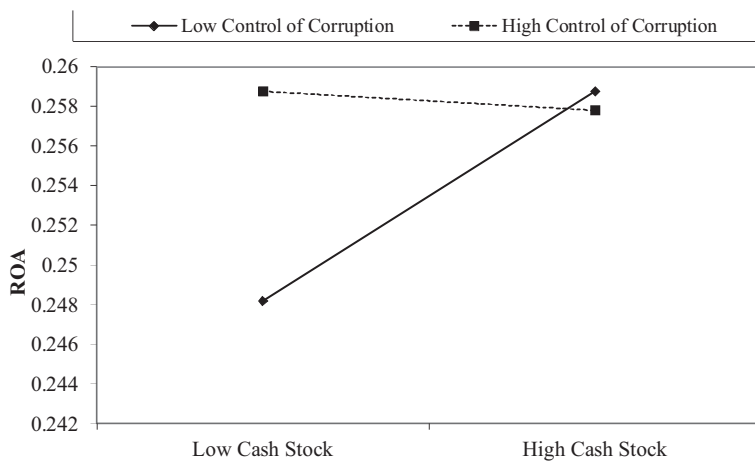

Fig. 2. Effect of cash stock on ROA affected by level of CC.
Notes: In Fig. 2, the broken line identifies a negative relationship between cash holdings and ROA for low levels of corruption (i.e. higher CC score).

As in the main literature and previous evidence found for Italy (La Rocca et al., 2012), there is a positive relationship between cash and performance.

Moreover, both corruption indices are positive and statistically significant. When the CPI index increases (i.e. when the level of perceived corruption is reduced) and CC index grows (i.e. in the presence of a greater control of corruption, which thus lowers the incidence of corruption), business performance increases. Therefore, companies that operate in an environment characterized by lower corruption or greater control of corruption perform better than those who in environments altered by more widespread fraudulent behaviour.

The introduction of interaction variables in the model between cash holdings and corruption through two proxies that evaluate the level of corruption in the system make it possible to measure the partial effect of the cash reserves on ROA. Columns (3) and (4) of Table 2 show the importance of corruption in influencing the effect of cash holdings on performance. In both cases, the coefficients of the two interaction variables are negative and statistically significant. Figs. 1 and 2 show that the positive effect of cash holdings on corporate performance is completely cancelled out and at low levels of corruption, it might even have a negative effect on firm performance.

In institutional contexts in which corruption is high (perhaps so high that it is out of control), it is likely that management might use cash as a "donation" to reduce administrative burdens and obtain favours that support corporate performance, but the net benefits (effective) of which for the company's performance are doubtful.

6. Conclusions

The empirical analysis shows that firm performance is lower when there is a high level of corruption. In companies that operate in contexts characterized by the strong presence of corruption, the positive effect of cash holdings on firm value

vanishes completely, causing a reduction in performance. In theory, companies would seem to benefit from the effects of these unlawful acts of corruption because they gain unfair competitive advantage, but in reality, these acts actually reduce the company's chances of survival.[4]

To deter fraudulent behaviour by management or by the owners of firms, the role of the law and careful monitoring of the processes in the public sector are crucial. In addition, to safeguard the value creation process, it is useful to adopt more corporate governance instruments that can control and effectively monitor managers.

Appendix. Description of variables

Variables	Descriptions
ROA	EBITDA/total assets
Cash holdings	Cash and cash equivalents/total assets
Corruption Perception Index (CPI)	Perception of corruption in the public sector and politics, with a score ranging from 0 (highest corruption) to 10 (low corruption). Source: http://www.transparency.org/
Control of Corruption (CC)	Perceptions of the extent to which public power is exercised for private gain, ranging from −2.5 to +2.5. Higher index values indicate lower perceptions of corruption or higher control of corruption, whereas lower index values indicate higher perceptions of corruption or lower control of corruption (Kaufmann et al., 2011). Source: World Bank
Unrelated diversification	Entropy index of unrelated diversification
International diversification	Foreign sales/total revenue
Listing	Dummy equal to 1 for listed firms, 0 otherwise
Ownership concentration	% of shares directly held by the majority shareholder
Leverage	Financial debt/financial debt and equity
Size	Natural logarithm of total assets
Tangibility	Tangible assets/total assets
Growth opportunity	% change in sales from year t to year t-1
Crisis	Dummy equal to 1 for the years equal to or later than 2008, 0 otherwise

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[4] For example, following a recent corruption scandal, the Brazilian firm Petrobras registered in May 2015 an annual decline in performance of 38%.