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DETERMINANTS OF PRECAUTIONARY CASH HOLDINGS: THE IMPORTANCE OF RISK MANAGEMENT AND CORPORATE GOVERNANCE

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Abstract

Purpose. The main purpose of this study is to determine the drivers of a firm's precautionary cash holdings, related to risk management and corporate governance factors. We add to the evident gap in the existing literature on cash holdings with a novel approach acknowledging the importance of the precautionary motive of holding cash in excess.
Method. We apply the original research approach, merging historical survey-based data on the motives behind holding idle cash in Polish listed firms, and the accounting based and hand collected data on risk management and corporate governance. Using a regression model, we investigate the interplay between precautionary cash holdings and a range of literature-guided variables on risk management and corporate governance.
Results. We have found that greater precautionary cash is held by firms exposed to a greater operating risk, with more sophisticated risk management, stronger supervisory board and dispersed ownership. Our results also demonstrate that a consideration of motives behind holding idle cash highlights the interlinks with risk management related drivers, which was not visible in prior works based on measurement of volume of cash holdings in a firm.

Keywords: precautionary cash holdings, idle cash resources, financial slack, risk management, corporate governance

JEL classification: G32, D81

Introduction

Precautionary cash holdings are regarded as a relevant shield against the negative outcomes of turbulence that could hinder a firm's resilience, and thus impact its competitiveness. Following the foundational study by Opler et al. (1999), we define precautionary cash holdings as a financial reserve that hedges a firm against possible shortfall of future financial resources. In other words, cash in excess of transactional day-to-day needs is held as an idle resource and a buffer against adversities. This view is in line with financial slack theory (Bourgeois, 1981; Daniel et al., 2004) that acknowledges the buffering function of cash holdings that are critical in safeguarding a firm's

financial position in risky environment, by this supporting a firm's resilience and strengthening its competitiveness (Acharya et al., 2007).

The main purpose of our work is to investigate the determinants of precautionary cash holdings in a firm. Thus, we add to the extant literature on the determinants of holding idle cash resources in a firm (for overview see Daniel et al. 2004; Khatib et al., 2022; Salas-Molina et al., 2023). However, in this endeavour we adopt an original research approach, that considers not the size of idle cash resources (which is a predominant approach in existing research), but the real motives behind holding cash in excess. At the analytical level, the existing studies apply accounting measures of idle cash resources, proposed by the early works on cash holdings and financial slack resources (Almeida et al., 2004; Han and Qiu, 2007). These measures are based on acknowledging the volume of liquid assets stored as cash or cash equivalents, short-term investments, and cash flows. However, in line with Keynes (1936) liquidity preference theory, idle cash resources held by a firm in excess of transaction needs, could be driven either by precautionary motive (idle cash held for adversities), or by the speculative motive (idle cah held to meet the opportunities of fruitful investments). Our attention is driven in particular by the relevance of the precautionary motive of holding idle cash resources, which is critical for risk resilience strategies and responding to adversities in turbulent times. Prior works tend to neglect the relevance of motives behind holding cash, and the empirics that rely on accounting-based cash measures fail to disentangle the intention of holding cash for precautionary reasons. Our study is designed to address this gap, by proposing a methodical approach that helps to distinguish between the importance of holding excess cash for transaction or precautionary needs.

In the methodical context, our analysis is grounded on an original empirical approach that uses historical survey-based data, at a single firm level. The survey was run in the first quarter of 2021, following the first year of experience with COVID-19 turbulence. The intention of the survey was to gather the declarations of the top managers of Polish listed firms on the importance of reasons behind holding idle cash resources. The design of the survey was framed in liquidity preference theory, and was asking on whether the idle cash resources are held to help the needs of day-to-day operations (transaction motive), or by purposeful decision on holding excess of cash as a cushion against adversities (precautionary motive). We found these historical data very interesting, given the time of the survey running. We further merged the survey-based data with a range of accounting-based figures and hand collected data, to apply a regression model in the analysis. Guided by the prior literature, our intention was to include variables that could help to investigate the importance of risk exposure, risk management or corporate governance mechanisms, as the drivers of precautionary cash holdings in a firm.

The results of our analysis indicate that firms hold cash in excess as a buffer if more exposed to operating risk. Also, the greater precautionary cash holdings exist in the firms with more sophisticated risk management practices. In the context of corporate governance mechanisms, we have found sound evidence that ownership dispersion and strength of supervisory board has an impact on holding idle cash resources as cash reserves. Our findings are also relevant in the context of motive-driven and more precise measurement of cash holdings we propose. We have demonstrated that a use of accounting-based measures of cash holdings, that neglects the real motives standing behind idle cash resources, demonstrates the importance of different types of drivers of cash holdings. In particular, these are factors that have a strong connection to decision-making under risk.

The remainder of this work is organized as follows. In the first section, we review the existing literature and formulate three hypotheses to explain the motives behind precautionary cash holdings in the interlinks to a firm's risk, risk management sophistication, and strength of corporate governance mechanisms. The second section explains empirical research design, i.e., the research procedure and data collection, and the variables we apply in the regression model. In the

third section, we present and briefly discuss the results. Finally, in the last section we provide concluding remarks.

1. Literature review and hypothesis development

The precautionary motive of cash holdings derives from the liquidity preference theory, developed by Keynes (1936). Companies hold precautionary cash to respond to unpredicted cash flow volatility. From this perspective, cash held for precautionary reasons could support a firm's risk management by offering a cash buffer to face adversities. This view is consistent with the financial slack theory (Cyert and March, 1963; Bourgeois, 1981) that focused on the relevance of idle cash resources in risk hedging, with the potential to absorb the outcomes of external shocks, and thus a power to safeguard resilience in recovering from a crisis (Bourgeois and Singh, 1983). Idle cash resources are uncommitted to any specific use (Ozkan and Ozkan, 2004; Bates et al., 2009) and thus could serve as the buffer of liquid assets (Daniel et al., 2004; Vanacker et al., 2016). In order to develop our research hypotheses, we revise this stream of the literature, to identify which risk-related factors were found as important determinants of holding idle cash resources in companies. Extant literature investigates mainly the volume of cash held by firms (proxied by e.g cash to assets ratio, or dynamics of cash resources), and only assumes that cash held in excess serves the precautionary (and risk buffering) function. Nevertheless, we believe these findings are instructive for uncovering factors relevant for our study, as far as risk, risk management and corporate governance is considered.

Risk. Financial slack theory provides strong evidence that idle cash resources are held by financially constrained firms (Almeida et al., 2004; Han and Qiu, 2007; Marwick et al. 2020), that face some difficulties in raising external funds. Thus, accumulation of cash helps to counterbalance the financial risk, in this - the threat of bankruptcy. A pioneering study by Opler et al. (1999) delivered a strong evidence in this regard, for a sample of US firms, which was further replicated in numerous works in different empirical settings (e.g. Han and Qiu, 2007; Wu et al., 2023). There is also some evidence that operating risk could impact greater cash holdings. For instance, Bradley et al. (2011) demonstrated the need for higher cash holdings among Swedish firms that operate in a dynamic environment that creates instability and uncertainty. There is also evidence that firms exposed to greater operating risk, with higher levels of operating leverage, tend to hold more idle cash ~~in excess~~ or liquidity buffers (Chen et al. 2022; Allinger and Huljak 2022. Additionally, Lee (2023) found that firms exposed to higher industry risk tend to increase cash holdings. In sector-specific context, there is also some evidence for COVID-19 impacts on sales revenues, demonstrating the relevance of idle cash resources for sustaining the negative impact of lockdown (e.g. Allinger and Huljak 2022; Wan et al. 2023; Veerhoek 2023; Magerakis 2025). Facing the literature evidence that links idle cash resources with various facets of financial and operating risk (including financial constraints, cash flow volatility, sales revenues volatility, also driven by external uncertainties), we posit a hypothesis that precautionary cash holdings are linked to financial and operating risk. Thus, our first hypothesis is as follows:

H1: ***The greater the firm's risk, the greater the managerial focus on precautionary cash holdings.***

Risk management. One of the relevant risk management techniques is risk retention. A planned risk retention occurs if a firm purposefully earmarks cash reserves to create a buffer of cash to cover the adverse financial outcomes of risk (a loss). This mechanism is often referred to as a "self-insurance" approach (Wieczorek-Kosmala and Błach, 2019). However, financial slack theory provides strong evidence that the decisions on earmarking cash reserves and holding idle cash are subject to rigorous cost-benefit analysis (Opler et al., 1999). The reason behind is that idle cash resources are regarded as unproductive, thus lowers the profitability. Moreover, "self-insurance" approach in retaining the risk finds some criticisms, given the evidence on the "cookie

jar" effect (a temptation to use idle cash for other purposes than the retention of risk). In this regard, employment of earmarked cash reserves as a risk management strategy is possible only in firms that distinguish with some maturity in managing risks. In line with this reasoning, our study recalls findings of prior works addressing risk management sophistication, that stems from the practical implementation of internal risk management systems, particularly those reflecting the enterprise-wide risk management approach (Farrell and Gallagher, 2014; Florio and Leoni, 2017). A more sophisticated risk management system guarantees more effective decision-making within, thus ensuring a better and more justified selection of risk management tools and risk-financing mechanisms. There is still a paucity of empirical studies that revise cash holdings and risk management strategies. Some evidence was provided by Pagach and Warr (2010), with a positive relationship between cash holdings and enterprise risk management practices, or Haj-Salem and Hussainey (2021) with the use of risk disclosures as a hallmark of implementation of risk management strategies. Nevertheless, based on the financial slack theory justification for relevance of cash holdings in managing risk, as well as some evidence on the links between cash holdings and the level of sophistication of risk management, we pose the second hypothesis as follows:

H2: The stronger the firm's risk management, the greater the managerial focus on precautionary cash holdings.

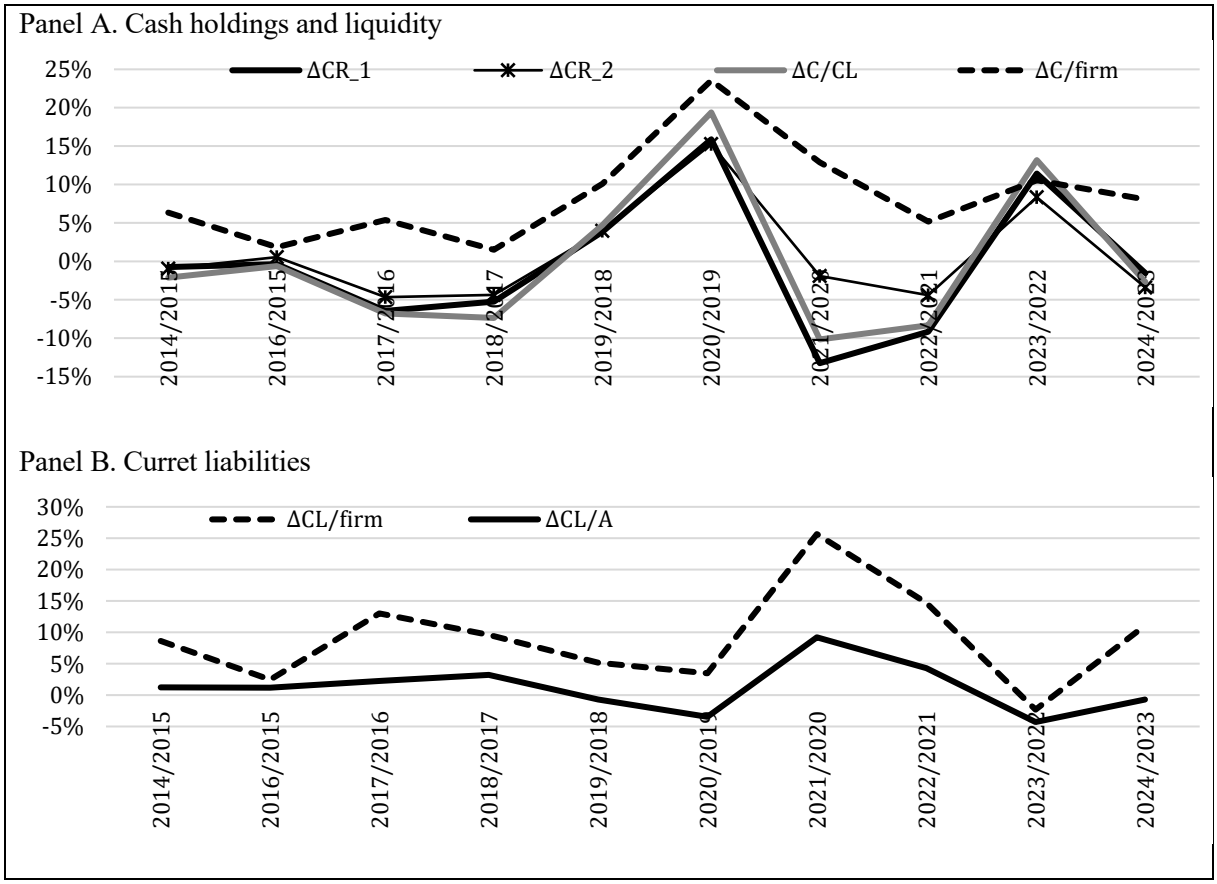
Corporate governance. The problem of holding idle cash resources, for precautionary reasons, is also linked to the corporate governance theories. By retaining a risk, the potentially negative outcomes of risk will be ultimately shifted to the owners. In this regard, a managerial decision to retain the risk is one of the facets of owners-managers conflict, which is subject of agency theory considerations (Jensen and Meckling, 1976). For this reason, the agency theory has been employed in prior works to explain the determinants of cash holdings in light of some specific corporate governance features (Harford et al., 2008; Chen et al., 2022). Strong corporate governance structures and mechanisms aim to align managers' interests with the owners' interests and ensure that managerial decisions are motivated by the firm's and its owners' best interests. In this regard, the specifics of the ownership structure have been pointed out as impactful on risk-related decision-making in firms (including cash management, e.g., Belghitar and Khan, 2013; Loncan, 2020; Sun, 2023). Furthermore, the firm's board(s) may play a vital role in overseeing managerial decisions regarding holding excess cash as part of the board's monitoring and controlling functions. There is some evidence that specific board features, such as board gender diversity, influence risk-related decision-making. However, results are mixed: in the US, Adhikari (2017) found that firms led by female top executives hold more cash, partly due to precautionary motives; conversely, Atif et al. (2019) reported a significant negative association between board diversity and cash holdings, again in the US. Wan Ismail et al. (2022) observed a similar negative relationship for a sample covering firms from 33 countries and Bona-Sánchez et al. (2023) for Spanish non-financial companies. Moreover, some of the board's features have been overlooked, as Khatib et al. (2022) have underlined in their extensive literature review. Given the complexity of corporate governance mechanisms, with the evidence on the impact of corporate governance mechanisms on cash holdings decisions, we pose the third hypothesis as follows:

H3: The stronger the firm's corporate governance, the greater the managerial focus on precautionary cash holdings.

3. Research design and method

Our study looks backward and considers a very interesting period of the anxietieties following the lockdown and turbulences due to the Covid-19 outbreak. In the first quarter of 2021 we ran a survey on Polish listed firms, with the purpose of screening the motives behind cash holdings and to learn more about firms' risk preparedness and readiness to respond to a shock. Looking at

historical data about the dynamics idices of firm's cash holdings, liquidity, and current liablities of Polish firms, presented in Figure 1, it is evident that the pandemic outbreak had an impact on this aspect of firms' performance. First, firms faced the accumulation of cash as the outcome of lockdown and inability to operate, which was then followed by the period of using cash holdings (2021 compared to 2020, which continued in the period 2022 relative to 2021 – Fig. 1, Panel A), and then increased short-term capital needs (Fig. 1 Panel B) in 2022 compared to 2021. Based on this observation, we found the survey data interesting to look backward at firms' motives behind cash holdings, in the interlinks with risk management sophistication and the strenght of corporate governance mechanisms. We found Poland as a good empirical setting for this analysis for two major reasons. First, a focus on a single country (Poland) offers homogenous environment for empirical observatins, as the mulitnational sample is always hindered by the potential noise of country-specific factors. Second, Poland was considered as one of the best-performing emerging European countries (Kapeller et al., 2019) and having the largest stock exchange in the Visegrád Group (WSE, 2023). This aspect was key for obtaining reliable data on the risk and corporate governance aspects considered in this paper.



Notes: Ratios presented in Figure 1 were computed as follows: Panel A: ΔCR_1 – dynamics of cash ratio, computed as cash and cash equivalents relative to current assets in total; ΔCR_2 – dynamics of cash ratio, computed as cash and cash equivalents relative to assets in total, ΔC/CL – dynamics of liquidity ratio – acid test, computed as cash and cash equivalents to current liabilities; ΔC/firm – dynamics of average volume of cash held per one company; Panel B: CL/firm – average volume of current liabilties per one company; ΔCL/A – dynamics of current liablities to assets in total.

Figure 1. Dynamics of firms' cash holdings, liquidity and current liabilities of Polish firms in 2015-2024 time span.

Source: Own computations based on Statistics Ponald.

The survey data we use in our study was conducted on a sample of purposefuly selected firms that were listed on Warsaw Stock Exchange (WSE) in Poland – our attention was driven by the firms that we were able to feature out as either the persistent cash holders (H), or persistent cash non holders (NH). This identification (and rules of sample selection) was based on the historical balance sheet data of 317 WSE listed firms, obtained from EMIS[1] database, for the period 2015-2018. The algorithm we used to demarcate between cash holders and non-holdres is presented in Table 1. We referred to the ratio of cash holdings relative to current lialbities (C/CL), and the clustering scheme we adopted helped to identify 167 firms eligible for our survey (76 cash holders (H) and 91 cash non-holders (NH)). The remaining 150 out of 317 WSE listed firms were excluded from survey sample, as their cash holding behaviour was varying over the period of our interest (2015-2018).

Table 1. Survey sample clustering scheme

Cluster	Clutering conditions	No of identified firms
H (cash holders)	2017: $C/CL \geq 0.5$, and 2018: $C/CL \geq 0.5$ and mean 2015-2018: $C/CL \geq 0.5$	76
NH (cash non-holders)	Mean 2015-2018: $C/CL \leq 0.2$	91
	Survey sample in total	**167**

Notes: C/CL is the acid test ratio, computed as cash and cash equivalents, relative to current liabilities (short-term debt; mean values of C/CL were considered at firm-level for the 2015–2018 time span).

Source: Own elaboration.

The survey was distributed among sampled WSE firms by a professional data collection agency in the first quarter of 2021, using the Computer Assisted Web Interviewing (CAWI) method. The saturation approach was applied to obtain 100 complete surveys with relatively balanced groups of cash holders (H) vs. cash non-holders (NH), which was in our case 51 in the cluster H, and 49 in the cluster NH. The survey was directed to top managers, with a set of questions designed in line with the assumptions of liquidity preference theory in the considerations of two motives of cash holdings: precautionary (P) and transaction (T). For each motive we fomulated three statements, and asked the top managers to assess their cash management policy using 7-point Likert scale, raning from 1 (I totally disagree agree) to 7 (I totally agree). The wording of the statements we used is presetend in table 2, and the respondends were informed that by cash we understand cash and cash equivalents, which are assets that could be liquidated immediately to meet financial needs (to avoid an interpretation bias). We kept the survey short and informative, guided by the consultation and advice of the data collection agency, to increase the top managers interest in sharing their perspective. Cronbach's alpha coefficient of 0.868 confirms the internal consistency and reliability of the scale we applied. Based on respondents' ranks, we further computed two composite indices that were informative in the context of relevance of precautionary and transaction cash holding motive, at a firm (single respondent) level. Figure 2 provides the mean values of these composite indices we obtained for the group of cash holders and non-holders.

[1] EMIS is an information platform providing analysis, data and news on companies, industries and countries belonging to emerging economies. At a firm-level it provides financial data, in this basic figures of the balance sheet and income statement (EMIS, 2023).

Table 2. Survey design: statements denoting the motives of holding cash

Statement:	Motive of holding cash	Variable
1. We store cash as a buffer against adverse events/circumstances that are difficult to anticipate. 2. We accumulate cash to safeguard our solid financial position (to be perceived as a financially unconstrained firm). 3. We accumulate cash to meet future obligations arising from good relationships with stakeholders (e.g., payments of future dividends or bonuses for employees).	precautionary motive	P – composite index computed as the sum of ranks assighed by survey respondents to the three statements for precautionary motive (min. 3, max. 21)
4. We store cash as a buffer against the high volatility of short-term operating cash outflows due to expenditures. 5. We store cash as a buffer against the high volatility of our short-term operating cash inflows from sales. 6. Higher holdings of cash are necessary for our company to conduct transactions smoothly	transaction motive	T – composite index computed as the sum of ranks assighed by survey respondents to the three statements for transaction motive (min. 3, max. 21)

Source: Own elaboration.

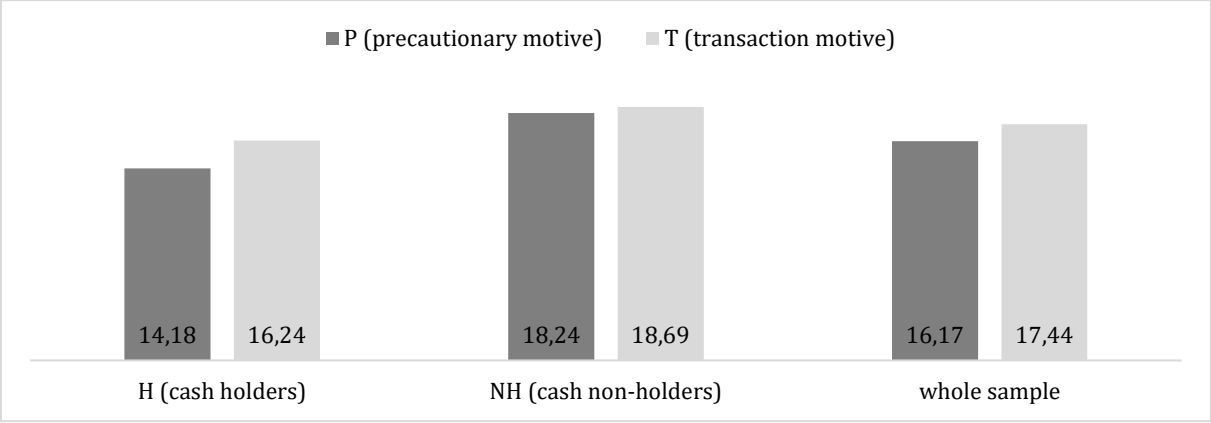


Figure 2. Composite indices for precautionary and transaction motive of cash holding – mean values, for surveyed WSE listed firms

Source: Own elaboration.

For the purpose of this study, we merged the historical survey-based data (the P and T composite indices) whith a range of data that are informative in the context of firm's risk sopihistication and strength of corporate governance (test variables) and firm's financial performance (as control variables). Guided by the prior literature, in Table 3 we provide the definitions of these variables, together with the source of data. We used Orbis (formerly provided by Bureau van Dijk, currently by Moodys'), to collect historical data of our interest. The corporate-governance related variables (OWN, INST, SBS, EBS, SBD, EBD) were requested as on end of 2020, which is a year preceding the year of running a survey. The data that reflect the risk (FR and OPR), as well as controls (SIZE and ROA) were computed as average values for the period 2015-2018, which was the period we considered to identify cash holders and non-holders for our survey. As a proxy of risk management sophistication (RM) we adopted the extent of the information about risk and risk management practices, as presented in firm's statements as on 2018, as a last year not impacted by the risk-related discussion of pandemic impact. This approach is widely used in

risk reporting literature (e.g. Florio and Leoni 2017, or the prioneering works by Beretta and Bozzolan 2004) and requires a hand collection of data, in line with the content analysis approach (defined coding scheme, which we present in table 3 alongside with variable definition).

Table 3. Survey design: statements denoting the motives of holding cash

Variable	Definition	Source
Dependent variable		
P	Composite index computed at a single-firm level, as the sum of ranks assigned by the survey respondent to the three statements reflecting the cash holding policy in the precautionary motive (min. 3, max. 21)	survey
Test variables		
FR	Financial risk, proxied by financial leverage ratio: debt to total assets (Rajan and Zingales, 1995; Bates et al. 2009)	Orbis
OPR	Operating risk, proxied by operating leverage ratio: tangible assets to total assets ratio (Grau and Reig 2020)	Orbis
RM	Risk management sophistication (strength), proxied by the score reflecting the extent of information on risk management available in firm's financial statements: 3 if extensive information is provided as a part of firm's non-financial report; 2 if some information is provided as a part of Management Discussion & Analysis statement; 1 if the risk management related information is limited only the mandatory disclosures in main financial statements, 0 otherwise (if a firm does not disclose any information about risk or risk management).	Hand collected from firms' reports
OWN	Ownership structure, proxied by the number of major shareholders (Cambrea et al. 2022)	Orbis
INST	Institutional ownership, defined as a dummy variable that takes 1 for institutional ownership and 0 otherwise (Belghitar and Khan, 2013; Nguyen and Rahman, 2020)	Orbis
SBS	Size of the supervisory board, proxied by the number of supervisory board members to the natural logarithm of total assets (Boubaker et al. 2015; Cambrea et al. 2022)	Orbis
EBS	Size of the executive board, proxied by the number of executive board members to the natural logarithm of total assets (Boubaker et al. 2015; Cambrea et al. 2022)	Orbis
SBD	Diversity of the supervisory board, proxied by the number of women on the supervisory board to the total number of supervisory board members (Chen et al. 2015)	Orbis
EBD	Diversity of the executive board, proxied by the number of women on the executive board to the total number of executive board members (Chen et al. 2015)	Orbis
Control variables		
SIZE	Firm size, proxied by the natural logarithm of total assets (e.g. Daniel et al., 2004; Opler et al. 1999)	Orbis
ROA	Firm profitability, proxied by the return on assets ratio: net profit to total assets (e.g. Daniel et al., 2004; Opler et al. 1999)	Orbis
T	Composite index computed at single firm level, as the sum of the ranks assigned by the respondend to three statements reflecting the cash holding policy in the transaction motive (min. 3, max. 21)	survey

Source: Own elaboration.

To test our research hypotheses, in the empirical analysis we employed the OLS regression model, which is a common technique for describing the relationship between a range of independent variables (tested and controls), and the dependent variable. Our regression model is as follows:

$$P = \beta_0 + \beta_1 FR + \beta_2 OPR + \beta_3 RM + \beta_4 OWN + \beta_5 INST +$$

$$\beta_6 SBS + \beta_7 EBS + \beta_8 SBD + \beta_9 EBD + \beta_{10} SIZE + \beta_{11} ROA + \beta_{12} T + \varepsilon$$

The model is designed to explain the relationship between precautionary cash holding motive (P) as a dependent variable, and risk (H1 – financial (FR) and operating (OPR) risk), risk management strength (H2 – RM), and strength of corporate governance mechanisms (H3 – OWN, INST, SBS, EBS, SBD, EBD). The set of control variables is driven by the prior literature on cash holding determinants and the inconclusive evidence on firm's size (SIZE) and profitability (ROA). Finally, we consider among the controls managerial focus on transaction cash holdings (T), as in terms of convervative cash management policy, the motives of cash holdings coexsist.

4. Results and discussion

The results of regression model are presented in Table 4. The descriptive statistics and the correlation between the variables is presented in the Appendix. The correlation matrix shows that there is a weak positive correlation between P and financial (FR) and operating (OPR) risk, and moderate positive correlation between P and T. We observe also some weak correlations between explanatory variables. The exeption is strong positive correlation between financial risk (FR) proxied by financial leverage and profitability (ROA). However, this correlation is a logic consequence of the positive financial leverage effect, which occurs when the use od debt financing leads to increase in profitability. However, given the strength of this correlation, while running our OLS regression model we controlled for multicollinearity with VIF (variance inflaction factors). The values of VIF are close to 1, which indicates that the results of regression analysis are reliable and the goodness-of-fit is not inflated.

Table 4. OLS regression model results for dependent variable P

Variable	***β* Coefficients**	**Sig.**	**t**	**VIF**
Intercept	7,934 *	0,018	2,416	
FR	0,958	0,463	0,737	1,353
OPR	2,038 ^	0,089	1,723	1,112
RM	1,416 **	0,005	2,898	1,403
OWN	0,351 *	0,029	2,221	1,132
INST	-0,410	0,582	-0,553	1,237
SBS	-8,832 **	0,009	-2,686	1,404
EBS	1,227	0,594	0,536	1,221
SBD	-3,540 *	0,028	-2,238	1,149
EBD	0,755	0,560	0,586	1,086
SIZE	-0,198	0,339	-0,962	1,578
ROA	-0,380	0,809	-0,243	1,153
T	0,615 ***	0,000	6,787	1,110
F	7,434 ***	0,000	R-squared	0,534

Notes: *** denotes statistical significance at 0.1%, ** at 1%, * at 5%, and ^ at 10%

Source: own calculations.

Our analysis has shown firms that are more exposed to operating risk tend to hold more cash for precautionary reasons (sig. at 10%). However, we found no evidence that financial risk is related to higher precautionary cash holdings. Thus, our first hypothesis (H1) that thre greater firm's risk, the treater managerial focus on precautionary cash holdings was only partially confirmed. Prior empirical evidence was revising the cash holdigns (not a declared motives behind, which is our approach), thus there is a limited justification for comparisons. However, our findings reflecting the operating risk are consistent with findings of Chen et al. (2022) who found evidence that cash holdings are higher in firms exposed to greater operating risk. There is a wide range of works with the evidence that firms in financial constraints (with high financial leverage and thus with high level of financial risk) tend to hold more cash. Our evidence, however, suggests that even if the cash holdigns are higher in financially constrained firms, these holdings are not driven by precautionary motive.

We found strong evidence that firms with greater risk management sophistication (RM) tend to hold more cash for precautionary reasons (sig. at 1%). This evidence provides a strong support of our second hypothesis (H2), and is consistent with prior findings of Pagach and Warr (2010) in the US context. A more sophisticated risk management reflects higher managerial concern given to risk preparedness, with acknowledging the relevance of idle cash resources in building risk resilience strategies.

Finally, we found evidence that some corporate governance mechanisms are linked to the precautionary cash holdings. We find a positive and statistically significant relationship between the number of major shareholders (OWN) and holding cash for precautionary reasons (sig. at 5%). We found no evidence that the type of ownership (institutional) is relevant in this context. Further, we found evidence that supervisory board features are relevant drivers of holding cash for precautionary reasons. We observe negative regression slope for supervisory board size (SB), sig. at 1%, and supervisory body diversity (SBD), sig. at 5%. However, for executive board size and diversity (EBS and EBD) there is positive regression slope, statistically insignificant. This observation suggests that more sophisticated governance mechanisms manifested by greater and more diversified supervisory board are a substitute of other measures of risk prevention (such as holdings of cash for precautionary reasons). In light of this evidence, our third hypothesis (H3) found only partial support, indicating the relevance of dispersion of ownership and role of supervisory board in the decisions of holding idle cash resources for precautionary reasons. This is an interesting observation that sheds some light on the potential importance of the functions of boards, as far as cash management is concerned.

Our regression model provides no evidence that firm's size (*SIZE*) and profitability (*ROA*) are linked to the importance of the precautionary motive of cash holdings. Prior works that were revising the size of cash holdings found evidence for such relationships (Opler et al., 1999; Sun, 2023, Haj-Salem and Hussainey, 2021). However, as noted by Khatib et al. (2022), the evidence of the relationship between cash holdings and size or profitability varies between countries and industries. Our model provides also strong empirical evidence for the coexistence of motives of holding cash (precautionary and transaction), sig. at 0,1%.

Concluding remarks

In this study we used historical survey-based data on the motives behind holding cash in firms, supplemented by accounting and hand collected data on the risk management and corporate governance drivers of holding cash for precautionary reasons. By running regression analysis, we have confirmed that in the sample of Polish listed firms, greater precautionary cash was held in firms exposed to greater operating risk, and those of more sophisticated risk management practices. The precautionary motive for holding cash was also more relevant for firms with more

dispersed ownership. However, an interesting finding was that the existence of strong and diversified supervisory board is negatively associated with holding cash for precautionary reasons.

These findings contribute to the extant literature in a few dimensions. A first important contribution is to the stream of the literature on the determinants of cash holdings in a firm, within financial slack theory (Bourgeois, 1981; Daniel et al., 2004). We have shown that examination of the real motives behind holding cash in excess (here: precautionary cash holdings) indicates the presence of different relationships than when the accounting-based cash holdings measures are considered. For instance, prior works have confirmed that idle cash is held by firms financially constrained, with high financial risk (e.g. Almeida et al., 2004; Han and Qiu, 2007; Marwick et al. 2020). Our study has demonstrated that operating risk, or risk management sophistication is more important driver of holding cash for precautionary reasons, as a buffer against volatility. In this aspect, our work adds by offering a more insightful measurement of cash holdings, with the survey of motives behind cash holdigs. Further research might adapt the motives-based approach we propose, which could be particularly useful in examining cash hodlings determinants in turbulent times, in specific country or industry settings, as well as in the longitudal perspective.

In the context of risk management literature, our work adds by drawing attention to the relevance of cash management for risk management strategy, which is also rooted in financial slack theory. Holding idle cash resources, for precautionary reasons, remains a relevant strategy of risk retention and is of high importance for ensuring firms resilience in turbulent times. Our evidence confirms that firms more oriented toward managing risk tend to hold more cash for precautionary reasons. Our work is limited in this context by applying only one measure of risk management sophistication, although this measure is well-established in accounting and risk disclosures literature. However, as we provide sound evidence that risk management sophistication is relevant, further inquires could be designed to explore this aspect more-in-depth, with the implementation of other measures of risk management sophistication or measures of risk management maturity, as proposed by Beasley et al. (2021), or Florio and Leoni (2017).

Our work contributes also to the stream of the literature on corporate governance mechanisms, by demonstrating the importance of ownership dispersion and supervisory board features in the decisions behind holding cash in excess for precautionary reasons. This evidence sheds some light on the conflict of interests between managers and owners, which is a key concern in agency theory (Jensen and Meckling, 1976). In particular, we demonstrate some interplay between holding cash for precautionary reasons, which is a hallmark of managing risk with buffering strategies, and corporate governance mechanisms that increase shareholders pressure (dispersed ownership), or importance of strong supervisory board. A limitation of our study is that it covers only Poland, with a limited sample of the largest firms listed on Warsaw Stock Exchange. However, as pointed by Khatib et al. (2022) or Chen et al. (2015), corporate governance mechanisms are highly impacted country-specific features, thus further inquiries would add to this discussion with observations preformed in different country settings. For instance, addressing different corporate governance systems (one-tier vs. two-tier) and ownership structures (concentrated vs. dispersed; or family vs. institutional) could bring some interesting findings on corporate governance relaetd determinants of cash holdings for precautionary reason, as called by Boubaker (2015) and Loncan (2020). Further studies could also develop on how other governance-driven mechanisms such as ESG implementation are driven by the sufficient cash holdings (Yang et al. 2025), as well as on how far such mechanisms impact the cash holdings decisions (Lai et al. 2024). Another interesting perspective to address in further studies could be the behavioural context, in the interliks with broader range of the financial management parameters reflecting precaution and resilience strategies.

Our results bring also some practical implications. We drive managerial attention to the reasoning behind holding cash in excess, as a part of risk management strategy. This topic is very timely, facing the discussion on increased volatility and preparedness for a range of emerging

risks, in this climate change risk. We used here a historical data from a survey on motives behind cash holdings, which was run after the first year of experience with the impacts of Covid-19 pandemics and the lockdown at the beginning of 2021. The respondents of the survey shared their own opinions, which is always a limitation of survey-based approach. However, the survey was run at the moment of peak of idle cash resources in companies (Figure 1), which was afterwards drilled out by further lockdowns, the War in Ukraine (in February 2022), and further economic repercussions with high inflation rates or increased costs of energy supply. Covid-19 has, in fact, initiated a debate on the turbulence and the need of building firm's resilience strategies. From practical perspective, the evidence we provide in our paper demonstrates on how important it is to hold idle cash as a buffer, to increase firm's resilience and sustain turbulences. Based on our findings, there are a few practical implications within. Firms with less dispersed ownership and weak supervisory boards, should hold be more oriented towards increasing cash holdings to sustain turbulences. Similar applies for firms lacking well-organised risk management process. In other words, a buffer of cash could serve as a cushion for turbulences in firms with managerial deficits, by this strenghtening resilience capabilities.

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DETERMINANTY PRZEZORNOŚCIOWYCH ZASOBÓW GOTÓWKI: ZNACZENIE ZARZĄDZANIA RYZYKIEM I ŁADU KOPORACYJNEGO

Abstrakt

Cel – Głównym celem niniejszego artykułu jest zbadanie determinant utrzymywania przezornościowych zasobów gotówki w firmach, związanych ze strategią zarządzania ryzykiem i ładu korporacyjnego. Dzięki zastosowaniu nowatorskiego podejćia badawczego związanego z uwzględnieniem motywów utrzymywania nadwyżkowych zasobów gotówki, badanie wypełnia lukę w obszarze wnioskowania opartego o pomiar wyłącznie wolumenu zasobów gotówkowych.
Metoda – W badaniach zastosowano autorskie podejście badawcze, łączące historyczne dane ankietowe dotyczące motywów utrzymywania nadwyżek gotówki w polskich firmach giełdowych, uzupełnione ręcznie zebranymi danymi dotyczącymi zarządzania ryzykiem i zmiennymi opisującymi ład korporacyjny. Zastosowano model regresji do zbadania związków pomiędzy przezornościowym motywem gromadzenia gotówki, a zmiennymi opisującymi zarządzanie ryzykiem i mechanizmy ładu korporacyjnego.
Wnioski – Wyniki badan wskazują, że motywem ostrożnościowym w gromadzeniu zasobów gotóki kierują się firmy o zwiększonej ekspozycji na ryzyko operacyjne, z bardziej zaawansowanym procesem zarządzania ryzykiem, niskiej koncentracji własności oraz silną i zróżnicowaną radą nadzorczą. Wykazaono, że wcześniejsze prace oparte o pomiar wolumentu gotówki nie pozwoliły wychwycić związków widocznych przy uwzględnieniu motywów utrzymywania tej gotówki w firmie.

Słowa kluczowe: przezornościowe zasoby gotówki, nadwyżkowe zasoby gotówki, luz finansowy, zarządzanie ryzykiem, ład korporacyjny

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Appendix

Table A1. Descriptive statistics

Variables	min.	max.	mean	std. dev.	skewness	kurtosis
P	8	21	16.17	3.343	-0.454	-0.608
FR	0.02	4.28	0.5001	0.44161	6.436	54.693
OPR	0.00	0.86	0.2736	0.22201	0.612	-0.714
RM	1.00	3.00	1.8431	0.61879	0.048	-0.342
OWN	1.00	7.00	3.1458	1.72278	0.476	-0.750
INST	0.00	1.00	0.8229	0.38374	-1.719	0.974
SBS	0.28	0.79	0.5016	0.09558	0.362	0.333
EBS	0.08	0.63	0.2483	0.12194	0.946	0.970
SBD	0.00	1.00	0.17	0.177	1.088	1.061
EBD	0.00	1.00	0.1201	0.20932	1.724	2.608
SIZE	6.65	15.64	11.1012	1.60811	0.192	0.138
ROA	-3.79	0.90	0.0062	0.42267	-7.487	67.538
T	8	21	17.44	2.921	-1.313	1.249

Table A2. Pearson correlation matrix

	P	FR	OPR	RM	OWN	INST	SBS	EBS	SBD	EBD	SIZE	ROA	T
P	1												
FR	0.172	1											
OPR	0.260***	0.012	1										
RM	0.234**	0.272***	0.127	1									
OWN	0.096	-0.146	0.013	-0.035	1								
INST	-0.131	-0.115	-0.093	0.130	-0.088	1							
SBS	-0.164	-0.010	-0.029	0.237**	0.242**	0.052	1						
EBS	0.046	0.007	-0.035	0.2.37**	0.042	0.078	0.001	1					
SBD	-0.130	-0.059	0.079	-0.029	-0.080	-0.213**	-0.056	-0.261***	1				
EBD	0.036	-0.076	-0.134	0.063	-0.096	-0.021	0.007	0.138	-0.113	1			
SIZE	0.141	-0.112	0.170	0.138***	-0.089	0.163	-0.221**	0.226**	-0.02	-0.033	1		
ROA	-0.103	-0.838***	0.021	-0.028	-0.035	0.038	-0.202**	0.174	-0.030	0.134	0.284***	1	
T	0.551***	0.093	0.150	0.024	-0.098	-0.129	-0.154	-0.066	0.029	-0.004	0.132	-0.042	1

Note: **and *** denote statistical significance at the 5% and 1%, respectively.