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Determinant Factors of Cash Holdings: Evidence from Portuguese SMEs

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Abstract

Adequate cash levels are fundamental towards smooth operations of firms. Managers have a tendency to hold a significant share of firms' assets as liquid assets in order to reinvest on other physical assets, payments to stockholders and to keep cash inside the firm. Cash levels are influenced by firms´ capital structure, cash flow, investments and asset management policies as well as by theirs working capital requirements, and dividend payments. This paper focuses on analyzing the drivers of cash holdings of non-financial Portuguese manufacturing small and medium sized companies (SMEs), for the period 2001 to 2007. Results show that firm size, growth opportunity, relationship with banks, cash flow uncertainty, debt structure, liquidity and leverage have a significant influence on the level of cash holdings of non-financial SMEs in Portugal.

Keywords: cash holdings, SMEs, determinant factors

1. Introduction

Why do small and medium sized companies (SMEs) hold large amounts of cash and cash equivalents? Various explanations have been offered for the incentives of firms to hold cash and various empirical studies tested the determinant factors of firms' cash levels.

According to the trade-off theory, firms define an optimal level of cash holdings in such a way that a balance between the marginal benefits and marginal costs of holding cash is achieved.

One of the benefits of holding cash is the reduction in the likelihood of financial distress implied by higher levels of cash on hand. Also, the availability cash holdings allow pursuing optimal investment policies, and contribute to minimize the costs of using external financing resources (see for example, Ferreira & Vilela, 2004).

The typical marginal cost of holding cash corresponds to the opportunity loss incurred given the usual low return on short term investments. In addition, the agency costs of equity may be exacerbated when cash levels are high. Moreover, for some categories of shareholders, tax motives may induce cash distribution rather than cash investment in liquid assets (see Kim, Mauer, & Sherman, 1998).

According to the pecking order theory (see Myers & Majluf, 1984), the financing decision follows a hierarchy of preferences. Firstly, the internally generated funds, then issuing new debt, and finally issuing new equity. This way, firms aim at minimizing asymmetric information costs and other financing costs. Cash holdings are accumulated when operational cash flows allow investment payments and debt repayments. Debt is issue when retained cash flows are insufficient for the investment needs.

The free cash flow theory (see Jensen, 1986) shows that managers prefer a higher level of cash holdings in order to exercise greater control over the firm's investment decision. Higher levels of cash preclude the need for external financing and allow for suboptimal investment choices.

Existing empirical literature has mainly focused on evaluating the cash balances across different firm sizes and industries of developed countries.

Various published papers have studied the influence of external financing on cash holdings. For example, Kim et al. (1998) show that the cost of external finance and earnings volatility are positively related to cash holdings,

while return on asset is negatively related to cash holdings, in the US.

Furthermore, Pinkowitz and Williamson (2001) shows that Japanese firms tend to hold more cash than their American or German counterparts do and that while cash holding pattern was similar across German and US firms, the Japanese cash balances are significantly influenced by the monopoly power of the banks. This is consistent with the fact that high cash holdings mean higher rents extracted by the banks during the periods when they enjoy certain power in the corporate lending system.

On the other hand, by studying the influence of the cost of external finance, Guney, Ozkan, & Ozkan (2003) show a non-liner relation between financial leverage and cash holdings. At higher levels of leverage, a precautionary effect due to the imminence of a costly bankruptcy drives the accumulation of cash; while at lower levels of debt a substitution effect suggest the use of debt instead of cash accumulation, see also Drobetz and Grüninger (2006).

Other authors offer a different approach, by analysing the relationship between the stakeholders and the level of cash holdings. Harford (1999) for example shows that excessive cash leads managers to make value decreasing investment decisions, while Dittmar, Mahrt-Smih, & Servaes (2003) show that shareholders' rights protection and the level of cash holdings are inversely related to cash holdings.

Finally, a number of studies analyse a collection of variables and their effects on cash holdings. For example, Opler, Pinkowitz, Stulz, & Williamson (1999) document US publicly traded firms' cash holdings negative relation with firm size, net working capital, leverage, dividend payment, and government regulation while a positive relation between the level of cash holdings and the cash flow-to-assets ratio, the capital expenditures-to-assets ratio, industry volatility, and the R&D-to-sales ratio is also documented. Similar results are reported by Ozkan and Ozkan (2004) in the UK, and for small firms by Faulkender (2002) in the US, and Teruel and Solano (2008) in Spain.

Ferreira and Vilela (2004) show that cash holdings are positively influenced by investment opportunity set and firms cash flows, while assets' liquidity, leverage, firm size and bank debt negatively affect the cash holdings. Moreover, ownership concentration is inversely related to the level of cash holdings.

The empirical research reveals that that the firm specific factors affecting the corporate cash holdings have differing relationship across different countries and firm sizes. Also, the behaviour of these variables has been changing over time. In summary, we noticed that empirical results are diverging supporting all of the three theories.

In the context of small and medium sized companies (SMEs), where the owners-managers conflicts of interest are minimized or non existent, given the typical coincidence between both entities emerge as particularly important the debt related agency problems, which become more serious given SMEs' greater informational opacity, and operational flexibility, as compared to the large capital dispersed companies which are the subject of most of the previous studies on cash holdings.

Our goal is to contribute to the literature of corporate finance by providing empirical evidence cash holdings drivers in Portuguese SME firms. We give two empirical contributions. First we study the determinants of cash holdings of SMEs, a sector little investigated by previous researches, but one of great importance in today's global economy. For example, in Portugal according to INE (the Portuguese National Statistics Institute), in 2007, the SMEs represented 99,6% of the total organizations, providing more than 75% of total national employment and generating more than 56% of national turnover. Therefore, the SMEs are the backbone of the economic life in Portugal and a major factor to the country's economic development. Second, we study a sample of Portuguese SMEs, a country where an empirical study in the field of cash holdings determinants for small and medium-sized firms was not yet realized.

Our results show that Portuguese SMEs hold 4.77% of their total net assets in cash, on average, and that their decisions concerning the level of cash holdings are influenced by the information asymmetry and agency conflicts characteristic of this type of firms. SMEs more dependent on the banking credit and shorter debt structure tend to prefer using less cash and cash equivalents. Moreover, SMEs with greater probability of financial distress and those with high level of cash flows relative to total net assets tend to hold higher cash levels.

The reminder of this paper is structured as follows. Section 2 presents the research design. Section 3 presents the results. Finally, Section 4 concludes the paper.

2. Method

We use company level data provided by SABI (Bureau Van Dijk) on a sample of Portuguese SMEs, defined as those that during the period of study, from 2001 to 2007, comply with European Commission condition of SME, specifically: i) less than 250 employees; ii) turned over less than €50 million; iii) total assets less than €43 million.

Further we eliminate cases with misstated accounting data or lost values. Specifically, total assets, fixed assets, working capital and total debt were required to be positive. Also, on a yearly basis, the companies that didn't present information for all the required elements were eliminated from the sample. Our sample is exempt of survivorship bias as we include all companies that appeared on SABI at any time during the sample period. After applying the necessary filters, our sample includes 1 553 Portuguese SMEs, corresponding to 10 870 firm-year observations.

We follow Ozkan and Ozkan (2004) to define the dependent variable. Specifically, we measure cash holdings (CASH) as the ratio of cash and marketable securities to net total assets.

As for the independent variables, we follow Teruel and Solano (2008), and specify eight explanatory drivers of cash holdings see Table 1.

Table 1. Variable definition

Name	Definition
CASH	Cash Holdings. Ratio of Cash and Marketable securities to Total assets.
GROWOP	Growth Opportunities. Ratio of $Sales_t$ to $Sales_{t-1}$.
SIZE	Size. Ln(Sales).
BANKR	Relationships with Financial Institutions. Ratio of Bank debt to Total debt.
FDIST	Financial Distress. $ZSCORE = 104X_1+0.010X_2+0.106X_3+0.003X_4+0.169X_5$ X_1 = Working capital/Total assets; X_2 = Retained earnings/Total assets; X_3 = Net operating profits/Total assets; X_4 = Book value of capital/Book value of debt; X_5 = Sales/Total assets. In the original model, the ratio X_4 is calculated as market value of capital divided by the book value of debt, but because in the case of SMEs the market value is not available, here it was used the alternative proposed by Scherr and Hulburt (2001), which is the book value of the assets.
LEV	Leverage. Ratio of Total debt to Shareholders equity.
DEBTSTR	Debt Maturity Structure. Ratio of Long-term debt to Total debt.
CFLOW	Cash-Flows. Ratio of Pre-tax profits plus Depreciation to Total assets.
LIQ	Liquidity. Ratio of Working capital less Cash to Total assets.

- Growth Opportunities (GROWOP)–the proxy used is the ratio $sales_t/sales_{t-1}$ used by Scherr and Hulburt (2001). A positive relation is expected (free cash flow theory).
- Size (SIZE) – is measured by the natural logarithm of sales, see Teruel and Solano (2008). A negative (trade-off theory) relation between this variable and CASH or a positive one (pecking order theory) is to be expected.
- Relationships with Financial Institutions (BANKR)–to measure this variable we use the ratio of bank debt to total debt (Ozkan and Ozkan, 2004). A negative relation is expected (trade-off theoy).
- Financial Distress (FDIST)–we use Begley, Mings and Watts (1996) estimation of the Altman's Z-Score to measure financial distress. The sign of the relation between FDIST and CASH is still subject of empirical debate.

- Leverage (LEV) – is measured by the ratio of total debt to shareholders' equity (Teruel and Solano, 2008), as the SMEs are not publicly traded and market values are not available.
- Debt Maturity Structure (DEBTSTR) – the ratio of long-term debt to total debt ratio is used to proxy this variable (Opler et al. 1999). A negative relation between DEBTSTR and CASH is expected.
- Cash-Flows (CFLOW) – following Ozkan and Ozkan (2004) this variable is measured by the ratio of pre-tax profits and depreciation to total net assets.
- Liquidity (LIQ) – following Opler et al. (1999), Ferreira and Vilela (2004) and Ozkan and Ozkan (2004), the investment in cash substitutes will be measured by the ratio of working capital less cash to total assets; a negative relationship is expected.

Table 2 shows that that in our sample highly leverage SMEs are prevalent, with an average debt of 2.5 times their shareholders' equity. Bank debt represents, on average, 32.9% of these firms' total debt. Moreover, firms use mainly short term debt as their long-term debt represents only 28.70% of their external financing. Cash-holdings of Portuguese SMEs represent 4.77% of total assets, on average.

Table 2. Descriptive statistics

Variable	*N*	*Median*	*Range*	*Mean*	*Std. Deviation*
CASH	10 870	0.022	0.798	0.048	0.071
GROWOP	10 870	1.030	1209.220	1.194	11.656
SIZE	10 870	8.000	10.801	7.854	1.395
BANKR	10 870	0.313	1.000	0.330	0.200
FDIST	10 870	0.199	1.887	0.215	0.102
LEV	10 870	1.981	2517.000	2.530	73.811
DEBTSTR	10 870	0.249	1.000	0.287	0.216
CFLOW	10 870	0.550	14.500	0.628	0.510
LIQ	10 870	0.192	0.961	0.224	0.163

CASH is the ratio of cash plus marketable securities to total assets, GROWOP measures growth opportunities, SIZE expresses the size of the firm, BANKR measures the level of short-term bank debt, FDIST the probability of financial distress, LEV is the total debt to equity ratio, DEBTSTR expresses the debt maturity structure, CFLOW the capacity to generate cash flow and LIQ the investment in other liquid assets

To investigate the statistical significance of cash holdings drivers, we pool the data for all companies and estimate by OLS the following equation, see Teruel and Solano (2008), Ferreira and Vilela (2004) and Ozkan and Ozkan (2004):

$$\begin{aligned} CASH_i &= \alpha + \beta_1 GROWOP_i + \beta_2 BANKR_i + \beta_3 SIZE_i + \beta_4 FDISTRESS_i + \beta_5 LEV_i \\ &\quad + \beta_6 DEBTSTR_i + \beta_7 CFLOW_i + \beta_8 LIQ_i + \varepsilon \end{aligned} \tag{1}$$

where i represents the firm, α is a constant, β_i (i = 1,..,8) are the regression coefficients, ε represents the error, *CASH* is the ratio of cash and marketable securities to total net assets, *GROWOP* measures growth opportunities, SIZE measures firm size, *BANKR* measures the level of banking relationship, *FDIST* the probability of financial distress, *LEV* is the total debt to equity ratio, *DEBTSTR* expresses the debt maturity structure, *CFLOW* the capacity to generate cash flow, and *LIQ* the investment in other liquid assets.

3. Results

We discuss the results in several ways. First we conduct a univariate analysis based on the cross sectional distribution of CASH. Next we run a pooled regression. Finally we perform several robustness checks.

3.1 Univariate Tests

Table 3 shows the mean values of the variables dependent and independent variables, for each group defined by

the quartile of the variable CASH. The quartiles have been constructed annually, following the methodology used by Opler et al. (1999), which explains why the ranges of the variable CASH overlap across quartiles. A t-test for the difference in means between the fourth and first quartiles of cash groups is shown in the last column of Table 3.

Table 3. Firms' characteristics by cash quartiles

Variable	First Quartile	Second Quartile	Third Quartile	Fourth Quartile	t-statistic (*p-value*)
CASH	0.003	0.014	0.036	0.138	-80.07
	(0.003)	(0.013)	(0.035)	(0.105)	(0.00)
GROWOP	1.513	1.059	1.112	1.090	0.95
	(1.024)	(1.029)	(1.033)	(1.034)	(0.34)
SIZE	8.068	8.020	7.832	7.497	14.71
	(8.219)	(8.164)	(7.948)	(7.647)	(0.00)
BANKR	0.361	0.358	0.320	0.280	14.99
	(0.350)	(0.349)	(0.301)	(0.251)	(0.00)
FDIST	0.193	0.204	0.222	0.241	-16.44
	(0.176)	(0.192)	(0.209)	(0.221)	(0.00)
LEV	3.667	0.330	3.154	2.968	0.63
	(2.050)	(2.028)	(2.004)	(1.780)	(0.53)
DEBTSTR	0.306	0.302	0.275	0.265	6.83
	(0.278)	(0.272)	(0.232)	(0.211)	(0.00)
CFLOW	0.617	0.618	0.625	0.652	-2.43
	(0.530)	(0.545)	(0.557)	(0.567)	(0.01)
LIQ	0.243	0.237	0.225	0.190	11.59
	(0.209)	(0.204)	(0.193)	(0.157)	(0.00)

SMEs' characteristics mean values for the the period 2001 to 2007. Sample is of 1553 firms. Quartiles for variable CASH created annually. First quartile cash range between 0 to 0.007, second quartile cash range between 0.006 to 0.022, third quartile cash range between 0.018 to 0.061 and fourth quartile cash range between 0.052 to 0.0798. There are 2,712 observations in the first quartile, 2,717 in the second quartile, 2,719 in the third quartile and 2,722 in the fourth quartile. Median values in brackets. CASH is the ratio of cash plus marketable securities to total assets, GROWOP measures growth opportunities, SIZE expresses the size of the firm, BANKR measures the level of short-term bank debt, FDIST the probability of financial distress, LEV is the total debt to equity ratio, DEBTSTR expresses the debt maturity structure, CFLOW the capacity to generate cash flow and LIQ the investment in other liquid assets, t statistic tests differences of means between first and fourth quartile. P-value in brackets.

In general, the characteristics of the firms holding more cash (fourth quartile) are significantly different from those with lower levels of cash holdings (first quartile), with the exception of growth opportunities and leverage. Therefore, we can observe that smaller firms with less liquidity and higher cash flows and more likelihood of insolvency tend to hold more cash, while bigger firms with more long-term debt and more exposed to bank credit present lower levels of cash holdings, as predicted by the trade-off and pecking order theories. On the other hand, the relationship between firms' growth opportunities and their cash holdings is at odds with the free cash flow theory.

3.2 Regression Tests

A pooled time series regression has been estimated to evaluate the determinants of SMEs cash holdings. Table 4 presents the results. As shown by the VIF scores, the multicollinearity of the regression is low, meaning, on

average, the standard error for the coefficient of each independent variable is 1,04 times as large as it would be if that independent variable were uncorrelated with the other independent variables from the regression.

Table 4. Determinants of SMEs cash holdings

	Unstandardized Coefficients		Standardized Coefficients	t	Collinearity Statistics
	Coefficient	Std. Error	Beta		VIF
(Constant)	0.128	0.004		30.95	
GROWOP x 10^2	-0.003	0.001	-0.004	-0.45	1.00
SIZE	-0.011	0.000	-0.210	-21.73	1.13
BANKR	-0.013	0.003	-0.036	-3.70	1.12
FDIST	0.131	0.007	0.186	18.66	1.20
LEV x 10^3	-0.002	0.001	-0.002	-0.21	1.00
DEBTSTR	-0.008	0.003	-0.023	-2.37	1.12
CFLOW	0.002	0.001	0.016	1.71	1.03
LIQ	-0.084	0.004	-0.190	-20.40	1.05
Adjusted R^2			0.097		
N			10.870		

CASH is the ratio of cash plus marketable securities to total assets, GROWOP measures growth opportunities, SIZE expresses the size of the firm, BANKR measures the level of short-term bank debt, FDIST the probability of financial distress, LEV is the total debt to equity ratio, DEBTSTR expresses the debt maturity structure, CFLOW the capacity to generate cash flow and LIQ the investment in other liquid assets. All t-statistics (t) are heteroskedasticity robust using the White correction.

Contrary to our expectation, the results of our regression suggest and inverse relation between cash holdings and growth opportunities (see Kim et al., 1998, Opler et al., 1999, and Ozkan & Ozkan, 2004). However, the statistical insignificance suggests that in the case of Portuguese SMEs the level of cash holdings may not be influenced by their investment opportunities.

The negative coefficient of SIZE supports the trade-off theory. Also, this result contradicts the pecking order and the free cash flow theories, as reported by the earlier studies of Pinkowitz and Williamson (2001) and Ferreira and Vilela (2004).

The coefficient of the variable BANKR is negative suggesting the information asymmetry reduction from a close banking relationship. This supports the trade-off theory and suggests that firms that are more highly indebted to credit institutions can reduce their investments in liquid financial assets, see Pinkowitz and Williamson (2001) and Dittmar et al (2003).

The sign of LEV coefficient (though statistically insignificant) is negative which means that the most highly leverage SMEs have a lower level of cash holdings, which is consistent with pecking order and free cash flow theories.

The relationship between the debt maturity structure of the SMEs and their level of cash holdings is consistent with Ferreira and Vilela (2004) and the hypothesis of the trade-off theory. Firms whose debt is mainly of long term nature tend to hold smaller levels of cash holdings.

The positive sign of the CFLOW coefficient contradicts the trade-off theory but supports the pecking order theory. Also, this result is consistent Opler et al. (1999), Ferreira and Vilela (2004) and Teruel and Solano (2008) and supports the idea that in the presence of information asymmetries firms prefer internally generated resources. This is even more relevant for our study of smaller firms.

Finally, the negative coefficient of liquidity (LIQ) are in line with those of Drobetz and Grüninger (2006) and suggest a substitution effect between cash holding and the liquidity sources other than cash or cash equivalents.

3.3 Robustness and Additional Tests

In order to evaluate the robustness of the regression results, we re-estimate equation (1) using alternative proxies for the independent variables, SIZE, FDIST, and CFLOW, and including a yearly dummy for controlling unobserved macroeconomic effects.

Our alternative proxy to measure firms' size, $SIZE_2$, is calculated as the natural logarithm of total net assets. The likelihood of financial distress is also inferred from an alternative proxy, $FDIST_2$, expressed by the research and development expenditures (R&D) standardized by year-end sales (Opler et al, 1999) following the rational in Opler and Titman (1994) relating R & D expenses with bankruptcy and distress costs. Finally, for the cash flow measure we use the alternative proxy $CFLOW_2$, the pre-tax profits plus depreciation divided by total assets.

Table 5 presents the results. In specification 1 we add to the base regression (1) the yearly dummies. In specification 2 we use the alternative proxy for size ($SIZE_2$). In specification 3, we use the alternative proxy for financial distress ($FDIST_2$) and in specification 4 we use the alternative proxy for cash flow ($CFLOW_2$).

Table 5. Robustness of the exogenous variables on corporate cash holdings

	1		2		3		4	
	Beta	t	Beta	t	Beta	t	Beta	t
(Constant)	0.125	28.16	0.141	30.61	0.141	33.93	0.129	31.30
GROWOP x 10^2	-0.003	-0.44	-0.002	-0.45	-0.003	-0.56	-0.003	-0.47
$SIZE_1$	-0.011	-21.26	-	-	-0.008	-16.54	-0.011	-21.48
$SIZE_2$	-	-	-0.011	-21.86	-	-	-	-
BANKR	-0.013	-3.86	-0.012	-3.45	-0.027	-7.92	-0.014	-3.94
$FDIST_1$	0.132	18.78	0.080	11.87	-	-	0.131	18.79
$FDIST_2$	-	-	-	-	-0.121	-2.61	-	-
LEV x 10^3	-0.002	-0.19	-0.003	-0.38	0.001	0.15	-0.002	-0.22
DEBTSTR	-0.007	-2.31	-0.006	-1.92	-0.022	-6.83	-0.007	-2.08
$CFLOW_1$	0.001	1.07	0.002	1.49	0.005	3.46	-	-
$CFLOW_2$	-	-	-	-	-	-	0.000	-1.41
LIQ	-0.085	-0.74	-0.079	-19.27	-0.077	-18.50	-0.085	-20.70
Year Dummy	Yes		No		No		No	
Adjusted R^2	0.097		0.098		0.068		0.097	

CASH is the ratio of cash plus marketable securities to total assets, GROWOP measures growth opportunities, $SIZE_1$ and $SIZE_2$ express the size of the firm, BANKR measures the level of short-term bank debt, $FDIST_1$ and $FDIST_2$ the probability of financial distress, LEV is the total debt to equity ratio, DEBTSTR expresses the debt maturity structure, $CFLOW_1$ and $CFLOW_2$ the capacity to generate cash flow and LIQ the investment in other liquid assets. Year dummy is a variable that changes in time but is equal for all firms in each time period considered. All t-statistics (t) are heteroskedasticity robust using the White correction.

The model constructed with the alternative SIZE proxy is almost identical with the original regression found. On the other hand, when we chose a different measure for the likelihood of the financial distress, the regression obtained turn out to be less significant, and the coefficient of the FDIST proxy changes its sign, becoming negative and confirming Ozkan and Ozkan's (2004) previous study. We note that this variable should be interpreted with caution, as the information regarding R&D investment was not available for all the firms from our sample (from the original 10.870 observations only 3.039 were valid for this proxy). Finally, the $CFLOW_2$ proxy shows less statistical significance in the regression than the $CFLOW_1$ proxy used initially.

The results of the regression with the dummy variable are no different from the dummy-free regression, which means that the unobserved influences controlled for by the time effect dummies do not drive previous results, thus given them independent robustness.

To further investigate the macroeconomic influences, we consider an additional explanatory variable: the Portuguese GDP growth (data from Banco de Portugal). Table 6 specification 1 presents the results. The insignificant coefficient on the GDP variable confirms previous expectations. Results suggest that business cycle conditions, when evaluated by GDP growth, are not a major driver of Portuguese SMEs cash holdings.

Table 6. Determinants of corporate cash holdings for alternative samples

	1		2		3	
	Beta	t	Beta	t	Beta	t
(Constant)	0.127	30.29	0.145	26.74	0.114	20.87
GROWOP x (10^2)	-0.003	-0.45	-0.400	-1.94	-0.002	-0.41
SIZE	-0.011	-21.67	-0.012	-19.80	-0.010	-15.32
BANKR	-0.013	-3.70	-0.015	-3.74	-0.009	-2.26
FDIST	0.130	18.64	0.123	14.84	0.094	10.34
LEV x (10^3)	-0.002	-0.22	0.000	-2.10	0.003	0.42
DEBTSTR	-0.008	-2.39	-0.008	-2.11	-0.007	-1.91
CFLOW	0.002	1.65	0.004	2.52	0.004	2.57
LIQ	-0.084	-20.43	-0.090	-18.71	-0.058	-11.77
GDP	0.001	1.14	-	-	-	-
Adjusted R^2	0.097		0.097		0.073	
N	10,870		8,771		5,600	

CASH is the ratio of cash plus marketable securities to total assets, GROWOP measures growth opportunities, SIZE expresses the size of the firm, BANKR measures the level of short-term bank debt, FDIST the probability of financial distress, LEV is the total debt to equity ratio, DEBTSTR expresses the debt maturity structure, CFLOW the capacity to generate cash flow and LIQ the investment in other liquid assets. GDP is the Gross Domestic Product growth, calculated as the growth rate of GDP at market prices (2006) and expresses as percentage change on previous year. All t-statistics (t) are heteroskedasticity robust using the White correction.

Further we test the original hypothesis on two different samples. First, we limited our sample to profitable Portuguese SMEs. By introducing the limitation of positive EBIT (Earnings Before Interest and Taxes) we end up with 8.771 observations for the period 2001-2007, which correspond to 1.253 firms. Our second sample was made by selecting only the survival firms, that is, the firms that presented activity during all the studied period. This second sample is made up of 5.600 observations, corresponding to 800 SMEs.

The results of the linear regression for these two samples are presented in specification 2 and 3, respectively, of Table 6. Once again, this confirms our initial conclusions, that the small and medium-sized firms with better growth opportunities, better relation with banks, with higher level of leverage and liquid assets hold less cash, while the SMEs that are more likely to enter in financial distress and have a shorter debt maturity structure tend to have a higher level of cash holdings.

4. Conclusions

Our objective is to provide a novel empirical answer to the question: what drives Portuguese SME's cash holdings? Our period of study ranges from 2001 to 2007 yielding a total of 10.870 panel observations corresponding to 1.553 Portuguese SMEs.

Pooled regression analysis shows that the level of cash holdings held by Portuguese SMEs is positively influenced by their capacity to generate cash flow and the likelihood of a financial distress and negatively influenced by the firms' investment opportunities, the relationship with the banks, the leverage level, the amount of liquid assets substitutes, the debt maturity structure and the size of the firms. Moreover, the results obtained for profitable SMEs and for those that remained in our sample during the whole period give additional support to the trade-off theory.

Overall, we can conclude that the that the managers of Portuguese SMEs weight the marginal costs and marginal

benefits when taking decisions on cash holdings and, on the other side, it proves that in the case of small and medium-sized firms the information asymmetry plays an important part in the level of their cash holdings.

The paper brings new evidence on SMEs' cash holding determinants in general and on Portuguese SMEs in particular, helping us to understand the behaviour of these type of firms in one specific European economy.

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