CASH-HOLDING POLICY IN BUSINESSES: AN APPLICATION ON INSURANCE COMPANIES[1] [2]

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ABSTRACT| The purpose of this study is to examine the factors affecting the cash-holding level of the companies. In this context, the factors affecting the cash-holding level of the companies were examined with quarterly financial data between 2012/1- 2020/6 periods of 6 companies traded in the insurance sector in Borsa Istanbul by panel data analysis. In order to determine the method to be used in the study, first of all, the stationarity of the series was examined with the help of the panel unit root test LLC. Then, least squares regression was used. As a result of the study, the variables that have a positive and statistically significant effect on the level of cash-holding have been found to be return on assets, total debt and net sales, while the negative effects of firm size have been found to be negative and statistically significant, and finally, the negative effects of return on equity and net profit have been found to be statistically insignificant.

Keywords: *Cash management, cash-holding, panel data analysis*
JEL Codes: *M10, M16, F23*

Scope: *Business administration*
Type: *Research*

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[2] This article study has been prepared with the inspiration from the master thesis of Muhammet KARALI, under the supervision of Prof. Dr. Turan ÖNDEŞ.

İŞLETMELERDE NAKİT TUTMA POLİTİKASI: SİGORTA ŞİRKETLERİ ÜZERİNE BİR UYGULAMA

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ÖZ | Bu çalışmanın amacı firmaların nakit bulundurma düzeyini etkileyen faktörlerin incelenmesidir. Bu bağlamda Borsa İstanbul'da sigortacılık sektöründe işlem gören 6 firmaya ilişkin 2012/1- 2020/6 dönemleri arasında üçer aylık finansal verilerle firmaların nakit bulundurma düzeyine etki eden faktörler panel veri analizi ile incelenmiştir. Çalışmada kullanılacak yöntemin belirlenmesi için öncelikle panel birim kök testi LLC yardımıyla serilerin durağanlığı incelenmiştir. Daha sonra en küçük kareler regresyonundan faydalanılmıştır. Çalışma sonucunda, nakit bulundurma düzeyi üzerinde pozitif ve istatistiksel olarak anlamlı etkiye sahip değişkenler aktif kârlılık, toplam borç ve net satış olarak bulunurken, firma büyüklüğü negatif ve istatistiksel olarak anlamlı ve son olarak özsermaye kârlılığı ile net kârın negatif etkisi istatistiksel olarak anlamsız bulunmuştur.

Anahtar Kelimeler: *Nakit yönetimi, nakit bulundurma, panel veri analizi*
JEL Kodları*: M10, M16, F23*

Alan: *İşletme*
Türü: *Araştırma*

1. INTRODUCTION

In order to maintain the activities of businesses in the best way, it is necessary to take the necessary financial measures to minimally affect businesses in adverse situations such as economic contraction and crisis that may occur. In addition, it needs liquid assets to carry out, maintain and expand its production or service activities. Among these assets, cash and cash-like assets with the highest liquidity come to the fore.

The purpose of the study is to examine the factors affecting the level of cash-holding. In this context, the effect of quarterly financial data and financial ratios on cash-holding level between 2012/1- 2020/6 periods of 6 companies traded in the insurance sector in Borsa Istanbul (AVISA, AKGRT, ANHYT, ANSGR, RAYSG, TURSG) were examined.

The data of the companies in question were obtained from the balance sheets and income statements on the Public Disclosure Platform website.

2. THEORETICAL FRAMEWORK

The vast majority of the costs born by the business in carrying out its activities are met with cash. Completing the work of the company is also closely related to the use of cash. Cash is always needed to pay employees their wages, cover various expenses, purchase raw materials and materials for manufacture businesses, and cover expenses such as executive salaries. In short, the business needs cash in the execution of its daily activities and in almost every step (Aksoy & Yalçıner, 2008, p. 249).

In the meantime, on the one hand, business managers aim to have enough cash to meet their financial commitments and to take advantage of investment opportunities for the growth and development of the business, on the other hand, they try to avoid excess cash, considering that there is a certain cost and drawbacks of cash-holding. Cash-holding frees the business from the interest burden arising from the use of liabilities. However, as stated before, the main point here is to determine the optimum cash level. In other words, the benefit provided by this level of cash should be largely satisfactory from the burden it imposes (Güzel, 2012, p. 272).

If it is necessary to touch on the concept of cash management, as well as the concept of cash, it should determine the optimal level of cash, taking into account cash inflows and outflows. Cash is the lifebuoy of the business. If there is a problem in cash, that is, in liquidity, there is a high probability that a problem will arise in investment financing and payments in the business. Again, before making investment decisions, it is necessary to determine the cash flow by

analyzing the cash inflows and outflows of the enterprise (Aydın, Şen & Berk, 2012).

Therefore, it is possible to say that the amount of cash, which is very important for businesses, changes depending on various factors, and the need for cash varies according to the sector in which it operates, its capital structure and activities.

3. LITERATURE REVIEW

Ferreira and Vilela (2004), in the study, the determinants of cash assets of companies operating in EU countries in the period 1987-2000 were tried to be determined. It has been found that investment opportunities and cash flows are effective for companies to hold cash, and they are also negatively affected by the level of debt, firm size, level of liquid assets and bank debt.

Akel et al., (2010), in the study, the relationship between financial performance and internal factors of 36 companies operating in the non-life insurance sector in Turkey was examined with the data of the 2010-2015 period. In the study conducted with panel data analysis, return on assets has been determined as the dependent variable and market share, liquidity, loss/premium ratio, asset size and leverage ratio were determined as independent variables. The variables that have a positive effect on the return on assets are liquidity, market share and asset size. In addition, the variables that have a negative effect on return on assets have been found to be leverage ratio and loss/premium ratio.

Gill and Shah (2012), In this study, the factors affecting the cash holdings of companies operating in Canada were examined. Data between 2008 and 2010 were used in the study. As a result of the study, a positive relationship between cash holding policies and financial leverage, cash flow, board size and representation theory; A negative relationship was found with the Market Value/Book Value ratio, net working capital and firm size.

Doğan (2013), in the study on the insurance companies, capital structure of insurance companies and its effect on profitability were examined. In the analysis made with the data of 2005-2011, return on assets has been determined as the dependent variable, while age, asset size, liquidity, leverage ratio and loss premium ratio have been determined as independent variables. As a result of the analysis, there has been a positive relationship between return on assets and asset size; a negative relationship with loss/premium ratio, leverage ratio, liquidity and age.

Yücel (2016), in the study on cash-holding dynamics in manufacturing industry companies, the factors affecting cash-holding and the existence of optimal cash level were examined using 2005-2012 data. As a result of the study,

a positive relationship has been determined between the level of cash-holding and cash flow and firm size, and a negative relationship has been determined between the level of cash-holding and liquidity, leverage ratio, bank debt and short-term debt.

Topaloğlu (2018), in the study conducted on the companies included in the Borsa Istanbul Leather Index between 1998 and 2016, the factors affecting the level of cash holding were examined. While cash holding level was determined as the dependent variable, profitability, liquidity, growth opportunities, fixed asset investment, maturity structure of debt, financial leverage and firm size were determined as independent variables. As a result of the study, a significant and negative relationship was determined between the level of cash holding and liquidity, financial leverage and fixed asset investment; A positive relationship was determined with return on equity. On the other hand, no relationship was found between firm size, maturity structure of debt, growth opportunity and cash holding level.

Yıldız (2020), In the study, the factors affecting the cash holdings of the companies traded in the BIST SME Industry Index were examined. As a result of the analysis made with the panel data method, the most important factor affecting the cash holding levels of the companies was found to be the operating profitability ratio. In addition, the variables of net working capital and asset profitability ratios are other factors affecting the cash holding levels of the firms.

Yiğit (2020), in the study, the data of publicly traded non-financial companies for the period of 2010-2019 and the determinants of cash-holding ratio were examined. Cash-holding ratio has been determined as dependent variable, and growth opportunities, leverage, firm size, net working capital, cash flow, capital expenditures and corporate governance as independent variables. As a result of the study, it has been seen that the independent variables other than corporate governance have a significant effect on the cash-holding ratio. It has been determined that growth opportunity has positive, capital expenditures have negative, firm size and net flows have positive, and the leverage effect has negative effect on cash-holding ratio. The effect of the corporate governance variable on the cash-holding ratio has been found to be insignificant.

4. CASH-HOLDING POLICY IN BUSINESSES: AN APPLICATION ON INSURANCE COMPANIES

4.1. Purpose and Scope of the Research

The purpose of the study is to examine the factors affecting the level of cash-holding. In this context, the effect of quarterly financial data and financial ratios on cash-holding level between 2012/1- 2020/6 periods of 6 companies

traded in the insurance sector in Borsa Istanbul (AVISA, AKGRT, ANHYT, ANSGR, RAYSG, TURSG) were examined.

Within the scope of the study, a total of 7 variables were determined, one of which was included in the analysis as a dependent variable and 6 as an independent variable. Table 1 describes these variables. The data of the said companies were obtained from the Public Disclosure Platform website.

Table 1: Variables Used in the Study

VARIABLE	NAME OF THE VARIABLE	EXPLANATION	FORMULA
Dependent	NKTBLNDRM	Cash-Holding Ratio	Cash and Cash Equivalent/ Total Assets
Independent	LOG(NETKÂR)	Net Profit (Used by taking its logarithm.)	Sales - Total Sales Expenses
Independent	LOG(NETSATIS)	Net Sales (Used by taking its logarithm.)	Gross Sales - (Item Returns + Damaged or Missing Goods + Discounts)
Independent	LOG(TOPBORC)	Total Debt (Used by taking its logarithm.)	Short-Term Liabilities+ Long-Term Liabilities
Independent	LOGFRMBYK	Firm Size (Used by taking its logarithm.)	Total Active
Independent	AKTKÂRLILIK	Return on Assets Ratio	Net Profit / Total Assets
Independent	ÖZSKÂRLILIĞI	Return on Equity Ratio	Net Profit/ Equity

4.2. Dataset and Method

In the study, the financial data, financial ratios and cash-holding levels of 6 companies traded in Borsa Istanbul with the quarterly data of 2012/1 and 2020/2 were used. In order to determine the method to be used in the study, first of all, the stationarity of the series was examined with the help of the panel unit root test LLC. Then, least squares regression was used. In this context, two different models were created:

Model 1:

$$NKTBLNDRM_{it} = \alpha 0 + \beta 1_{it} LOG(NETKÂR)_{it} + \beta 2_{it} LOG(NETSATIS) + \beta 3_{it} LOG(TOPBORC) + \beta 4_{it} LOG(FRMBYK)$$

Model 2:

$$NKTBLNDRM_{it} = \alpha 0 + \beta 1_{it} OZSKÂRLILIGI + \beta 2_{it} AKTKÂRLILIK$$

In the application of panel data least squares regression, some assumptions must be checked first. In this context, first of all, it is necessary to check the existence of cross-section dependence and internality problems between the series. In analyzes where the cross-section dependency is not taken

into account, the unbiasedness of the analysis results cannot be ensured. This leads to inconsistencies in the results. Cross-section dependence is examined by the Breusch-Pagan LM test. Due to the diversity of the companies in the analyzed portfolio, it was thought that the individual and time effects would be coincidental, and the validity of this assumption was examined with the help of the Breusch Pagan LM test. If the probability value obtained as a result of the Breusch Pagan LM test is less than the extreme value of 0.05, the fixed effects model is preferred.

4.2.1. Panel data analysis

The most important step in research in the field of econometrics is the collection of variables. In addition to obtaining data from reliable and correct sources, it is also important to collect data according to the correct analysis method. At this point, there are three types of data (Tatoğlu, 2019, p. 4).

- Time Series Data
- Croos-Section Data
- Panel Data

In time series analysis, the change of a single variable in a certain time interval is analyzed. In the cross-section analysis, on the other hand, the relationships of different variables in a single time are examined. Panel data analysis, on the other hand, can be defined as the combination of these two analysis methods. In other words, panel data analysis is an analysis method that examines the relationship between different variables in a certain time period. Therefore, the panel data provides the opportunity to perform empirical analysis in a richness that will not be possible by using only time series data or cross-section data (Tarı, Koç & Abasız, 2019).

4.2.2. Unit root test

Unit root tests test the stationarity in a time series. For example, in a time series, it is stationary if the shift in time does not cause a change in the shape of the distribution, and the series is non-stationary if it causes a change in the shape of the distribution. If the time series has a unit root, it means that it is non-stationary.

4.2.3. Fixed effects and random effects model

Socioeconomic variables that do not change over time, such as ethnicity, religious structure, gender, consumption preferences, but only change across the cross-section in a given time period, can be given as an example of the fixed effects model. Period individual-fixed variables are variables that do not change across the cross-section at a given time point, but can change in the time dimension. The price level of the goods and services that cause the expenditure flow or the good or bad expectations for the purchase of that good or service and

tax rates can be given as examples. In the random effects model, the differences between units are random. These unit differences are called random differences. When regression analysis is performed, it is assumed that there are many factors other than the independent variables that affect the dependent variable and that these factors are chosen by a random residual (Tarı et al., 2019).

4.2.4. Hausman test

Hausman Internality Test is used in the decision of which model should be preferred among the fixed and random effects. The Hausman test basically argues that random effects, not fixed effects, are valid (Başar & Akyar, 2018). In fact, the Hausman Test, which examines whether the difference between the parameter estimators of the fixed-effect model and the parameter estimators of the random-effects model is statistically significant, decides which model should be preferred (Sarısoy & Yıldız, 2013, p. 12). If the p value of the Hausman test is less than 0.05, it means that there is an internality problem and the fixed-effects model should be preferred. In the opposite case, the random effects model is preferred. The Hausman statistic being equal to 0 indicates that there is no difference between the parameter estimators of the fixed-effect and random-effects model.

4.3. Empirical Findings

4.3.1. Panel unit root tests

Table 2 shows the findings regarding the unit root tests of the variables used in the study. The null hypothesis of panel unit root tests examined with the help of Levin, Lin, Chu t statistics (LLC) is "H0: Panels contain unit root".

Table 2: LLC Unit Root Tests

	Statistics	p		Statistics	p
NKTBLNDRM	-1,13895	0,1274	**D(NKTBLNDRM)**	**-12,9257**	**0,0000**
LOG(NETKÂR)	1,55370	0,9399	**D(LOG(NETKÂR))**	**-14,7394**	**0,0000**
LOG(NETSATIS)	1,57054	0,9419	**D(LOG(NETSATIS))**	**-14,0787**	**0,0000**
LOG(TOPBORC)	12,7199	1,0000	**D(LOG(TOPBORC))**	**-3,13809**	**0,0009**
LOGFRMBYK	12,9904	1,0000	**D(LOG(FRMBYK))**	**-3,0067**	**0,0013**
AKTKÂRLILIK	**-3,34469**	**0,0004**	D(AKTKÂRLILIK)	-14,1768	0,0000
OZSKÂRLILIGI	**-2,72238**	**0,0032**	D(OZSKÂRLILIGI)	-13,8967	0,0000

As seen in Table 2, cash-holding level, net profit, net sales, total debt, firm size are not stationary at the level ($p>0.05$). When the first differences are taken, it is seen that the series become stationary ($p<0.05$).

4.3.2. Findings concerning model 1

In Table 3, the test with the least squares regression approach of Model 1, whose dependent variable is the level of cash-holding, and the independent variables are total debt, net sales, net profit and firm size, and the control of the assumptions related to the test can be seen. When the findings are examined, it is seen that Model 1 revealed that the Breusch Pagan LM test has cross-sectional dependence ($p<0.05$). Although the presence of cross-sectional dependence requires the fixed-effect model to be preferred, with the help of the Hausman Internality test, it is examined whether the difference between fixed-effect and random-effect models is significant. The findings of the Hausman test, on the other hand, show that there is a difference between the parameter estimators of the fixed-effect and random-effects model ($p>0.05$), and that the random-effects model should be preferred.

Table 3: Checking Assumptions Concernig Model 1

Control of Assumptions	Statistics	p
Breusch-Pagan LM	37,35525	0,0011
Pesaran scaled LM	4,081492	0,0000
Pesaran CD	-0,165981	0,8682
	Chisquare	p
Hausman	2,31199	0,6771

The results of the least squares regression using the random effect model are shown in Table 4.

Table 4: Findings Concerning Model 1

Model (Random Effects)

D(NKTBLNDRM)	Coefficient	Standard Error	t	p
D(LOG(TOPBORC))	0,689377	0,275098	2,505931	0,0130
D(LOG(NETSATIS))	0,142270	0,068232	2,085102	0,0384
D(LOG(NETKÂR))	-0,038055	0,072458	-0,525194	0,6001
D(LOG(FRMBYK))	-1,207083	0,333177	-3,622951	0,0004
C	0,010104	0,005224	1,934100	0,0546
R2	0,104815	Number of Observations		198
Adjusted R2	0,086262	Mean of the Dependent Variable		0,000875
Standard Error of Estimation	0,049276	Standard Deviation of the Dependent Variable		0,051550
Error Sum of Squares	0,468635	Durbin-Watson		2,841995
F	5,649491	P	0,000254	

When the findings in Table 4 are evaluated, it is seen that the model is significant as a whole (F=5.649491; p=0.000254<0.05), therefore the independent variables have an effect on the level of cash-holding. When the coefficients and their significances are analyzed, it is seen that total debt and net sales have a positive effect on the level of cash-holding, while firm size has a negative effect. This effect created by net profit, which has a small but negative effect on the level of cash-holding, is not statistically significant.

Table 5: Findings Concerning Model 1

Dependent Variable	Independent Variable	Impact Direction	Relationship Between
LEVEL OF CASH-HOLDING	Total Debt	Positive	Significant
	Net Sales	Positive	Significant
	Firm Size	Negative	Significant
	Net Profit	Negative	Insignificant

4.3.3. Findings concerning model 2

In Table 6, the test with the least squares regression approach of Model 2, whose dependent variable is the level of cash-holding, and the independent variables are return on assets and return on equity, and the control of the assumptions related to the test can be seen. When the findings are examined, it is seen that Model 2 reveals that the Breusch Pagan LM test has cross-sectional dependence (p<0.05). Although the presence of cross-sectional dependence requires the fixed-effect model to be preferred, with the help of the Hausman Internality test, it is examined whether the difference between fixed-effect and random-effect models is significant. The findings of the Hausman test, on the other hand, show that there is a difference between the parameter estimators of the fixed-effect and random-effects model (p>0.05), and that the random-effects model should be preferred.

Table 6: Checking Assumptions Concernig Model 2

Control of Assumptions	Statistics	p
Breusch-Pagan LM	30,17705	0,0113
Pesaran scaled LM	2,770938	0,0056
Pesaran CD	0,931560	0,3516
	Chisquare	p
Hausman	0,256437	0,9680

The results of the least squares regression using the random effect model are shown in Table 7.

Table 7: Findings Concerning Model 1

Model (Random Effects)

D(NKTBLNDRM)	Coefficient	Standard Error	t	p
AKTKÂRLILIK	0,005271	0,001730	3,046522	0,0026
OZSKÂRLILIGI	0,000246	0,000238	-1,030400	0,3041
C	0,002555	0,004256	0,600267	0,5490
R2	0,047699	Number of Observations	198	
Adjusted R2	0,032973	Mean of the Dependent Variable	0,000875	
Standard Error of Estimation	0,050693	Standard Deviation of the Dependent Variable	0,051550	
Error Sum of Squares	0,498535	Durbin-Watson	2,956051	
F	3,239062	P	0,023268	

Tablo 8: Findings Concerning Model 2

Dependent Variable	**Independent Variable**	**Impact Direction**	**Relationship Between**
Level of Cash-Holding	Return on Asset	Positive	Significant
	Return on Equity	Negative	Insignificant

As a result of the analysis, the **R^2** value of Model 2 was found to be 0.047699. In other words, the variables in the model can explain the change in cash-holding level at a very low level, approximately 4 percent.

When the findings in Table 7 are evaluated, it is seen that the model is significant as a whole (F=3.239062; p=0.023268<0.05), therefore, independent variables have an effect on the level of cash-holding. When the coefficients and their significances are examined, it is seen that only the return on assets has a positive and statistically significant effect, albeit small, on the level of cash-holding. The negative effect, albeit small, created by the return on equity is not statistically significant.

5. CONCLUSION

In this study, the factors affecting the cash-holding levels of the companies were examined. In this context, using the data of the year 2012/1-2020/2, which is the period range in which the data of 6 companies operating in the insurance sector in Borsa Istanbul are reached in full, the relationship between the variables was examined by panel data analysis and the least squares method.

When the findings are examined, the size of the firm, which has the most effect, negatively affects the cash-holding. In other words, companies hold less cash for reasons such as gaining reputation with their growth, ease of finding loans, having liquid assets that can be shown as collateral against loans, and ignoring the benefits of cash-holding cash.

The positive relationship between total debt ratio and cash-holding level, which has another important effect, can be attributed to different reasons. For example, since credit institutions look at the level of liquidity of companies that request loans and lend to companies with high liquidity level, generally known as solvency, it can be concluded that companies increase their cash amount in order to increase their creditworthiness, and that the cash levels of companies increase during periods of increased indebtedness. Another reason can be expressed as the increase in the amount of cash by the companies with the thought of prudence.

The level of positive relationship between net sales and cash-holding level is quite low. In other words, the increase in sales in companies has a low effect on the cash level. The reason for this can be explained as the fact that most of the sales are made on a term basis and all of the receivables are not collected, as a result of which the cash inflow to the company is not at the desired level.

In periods when the profitability level is high, companies can have the opportunity to increase their cash-holding level by using less liabilities by taking advantage of auto-financing. Therefore, the positive relationship between the return on assets and the level of cash-holding supports this forecasting. However, although it is seen that the company has made a profit in the income statement in the relevant periods, the fact that all of the receivables are not collected in the same period causes the cash inflow to not be at the desired level. Therefore, it can be attributed to this reason that the return on assets affects the cash level at a low level. In addition, it has been concluded that the capital structure of the companies in the examined sector is debt-weighted and the equity ratio is low, so the return on equity has a lower effect than the return on assets, but this effect on the level of cash- holding is random, that is, it acts independently of each other.

The insurance sector, which is an important sector that provides funds to the country's economy, has been examined in the study. As a result of the study, it has been determined that the factors affecting the cash-holding levels of the companies are firm size, return on assets, debt level and net sales. In this context, while the increase in return on assets, total debt and net sales increases the cash level, the cash level decreases with the growth of the companies.

It is anticipated that these findings will provide useful information for companies traded in the index, financial managers and investors who are

considering investing in this sector. Finally, the study can be extended by making cross-industry comparisons or with different factors that may affect cash level in different industries.

6. CONFLICT OF INTEREST STATEMENT

There is no conflict of interest between the authors.

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8. AUTHOR CONTRIBUTIONS

TÖ: The idea;
TÖ, MK: Design;
TÖ: Supervision;
MK: Collection and/or processing of resources;
MK: Empirical Analysis and/or interpretation;
MK: Literature review;
TÖ, MK: Writing of Article;
TÖ: Critical review;

9. ETHICS COMMITTEE STATEMENT AND INTELLECTUAL PROPERTY COPYRIGHTS

Ethics committee principles were followed in the study. There has been no situation requiring permission within the framework of intellectual property and copyrights.

10. REFERENCES

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