

Shares and Debt Securities Issues in the Euro Zone

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Abstract

Recently, studies have identified a number of interesting trends in the international practice of two important decisions for a company: the issue of shares and debt securities. The issue of shares followed by their frequent repurchase in order to increase the stock price and facilitate the execution of share option plans granted to employees, financing through bonds, instead of shares, in order to avoid future liabilities, such as providing dividends to shareholders, are some of the dishonest practices we mention.

Considering these ideas, we used the European Central Bank official data associated with the issuance of shares as well as bonds, made by nonfinancial companies resident in the euro area, in order to study the relations between these two controversial decisions. The database was created using monthly reports published by the ECB from 2005 to 2012. To what extent shares issues of non-financial companies in the euro area depend or are explained by share buybacks, bond issues or redemptions, are some of the questions we seek to answer. As research methods, we chose correlation and multiple regression analysis, being permanently aware that we worked with global numerical data.

The conclusions of the study proved to be of interest. We found a weak and positive correlation between share repurchases and quoted shares issues and no important relations between the issue of shares and debt securities, between debt securities issues and share repurchases.

Keywords: *issue of shares, issue of debt securities, repurchases, stock exchange*

JEL Classification: *G32, D21, G15*

Introduction

The company which decided at some point to list on a stock exchange, besides the necessary financial resources it gets, also acquires the possibility of an effective promotion to investors and, of course, the opportunity for future funding by issuing further shares or debt securities. In this new condition, however, the company assumes some obligations in its relation with investors, such as the distribution of a part from financial results. Among the many forms of dividend policy, practice founds another frequent operation of listed companies: share repurchases.

This study aims at identifying the main relations between these major decisions of listed companies (the issuance of shares, the issuance of corporate bonds or other debt securities, the repurchase of stocks and the redemption of debt securities), by using the correlation analysis and, implicitly, the multiple linear regression analysis, in order to shape all the connections in a mathematical model.

Attention has focused on non-financial corporations resident in the euro area for the 2005 – 2012 period of time, all the data being obtained and collated from the European Central Bank's monthly reports. Results proved to be of interest, despite the conduct of the study in a global way, for all companies considered in the analysis.

Recent Ideas and Results

According to the literature, in a company's life there is a certain cycle of funding: in a first step the firm calls the financial intermediaries such as banks or private investors but as it grows, it creates a certain reputation in the financial environment, in which it operates and the need for financial resources grows in a considerable amount. In this new stage, the company goes on the public financial market or addresses to the public investors by issuing new shares or debt securities. Over time, studies have brought into the attention of the economic and financial environment a certain feature of the financing process for listed companies, mainly the oscillating feature of corporate financing. According to the results, the main explanation lies in the managers attempt to synchronize with the market, specifically to take an advantage from the overvaluation of issued shares.

Among the relevant studies conducted on this subject, we can mention the one belonging to Rebello and Noe (1996), who concluded that when shareholders establish the funding policy, taking into consideration other solutions or the managerial opportunism, they always choose the indebtedness. In the presence of managerial opportunism, another form of financing is required. Specifically, shareholders prefer the issuance of new shares as the second signaling mechanism, after restricting dividends, facts that usually generate a lower stock price. When managers are choosing the financing policy, the order is often reversed, the issuance of shares being the first option, in order to take advantage of the overvalued shares¹.

According to the study undertaken by Lowry (2003), the financing of the company through the primary issuance of shares follows a cyclic evolution in time. At the basis of this phenomenon there were identified three factors: the demand for capital, the investors' feeling and the information asymmetry. In the context of an economic expansion and the emergence of new projects, the company searches for external financing to cover its capital needs taking into account the cost of capital and that of the loan. Continuing the analysis, Choe, Masulis and Nanda (1993) confirmed and supported the existence of certain waves in the subsequent issuances of shares.

The decision to repurchase shares is viewed as a form of dividend policy, as it is in fact a way the company offers its investors liquidity. The repurchase of shares is however a controversial subject of international practice and literature. As it means offering liquidity to investors, repurchase of shares requires the allocation of significant funds and thus it lowers the overall liquidity of the company. But the decision to repurchase becomes a safeguard against possible hostile takeovers, an attempt to increase the stock price, to reduce agency costs and an alternative to directly remunerate investors without increasing dividends.

Among the most important studies on the subject we can mention Bagwell and Shoven (1989), Stephens and Weisbach (1998), Grullon and Michaely (2004), Dittmar and Dittmar (2004). The research results confirmed the existence of waves or cycles in this phenomenon. One of the motivations was related to the time when market shares are undervalued and managers consider appropriate to repurchase or necessary to correct the market price². Another identified

¹ Loughran T., Ritter J., "The new issues puzzle", *Journal of Finance*, No. 50, 1995, pp. 23-51.

² Brav A., Graham J., Harvey C., Michaely R., "Payout policy in the 21st century", *Journal of Financial Economics*, No. 77, 2005, pp. 483-527.

motivation was the existence of a financial surplus that needed to be distributed, at which point there was delivered a significant flow of information to the market and investors³.

According to several studies, repurchases and new issues of shares are two opposite decisions. By virtue of this relation, in the case of shares issuance, managers choose the moment when shares are overvalued, while repurchases are developed when shares are undervalued. Dittmar and Dittmar (2008) however showed that issues of new shares and repurchases are two complementary processes at least from two perspectives: the need for capital and the market appreciation. More specifically, in terms of financial deficit or surplus, the firm chooses to issue new shares or to repurchase the old ones. In terms of overvaluation or undervaluation of shares, the firm chooses between issuing and repurchasing. Liang et al. (2011) concluded that firms in a growth phase repurchase to positively signal the market while those in a maturity phase choose to distribute the available cash flow by dividends.

Regarding the firm's decision to issue public corporate bonds or debt securities to raise the necessary funds, the moment when this decision is adopted is another interesting debate. Mizen, Tsoukalas and Tsoukas (2008) conclude that the decision to issue public debt securities is significantly influenced by the firm's net worth indicators, by its reputation established through previously issuance programs and by the insufficient liquidity gathered from financial intermediaries. By default, firms with higher net asset value, good reputation in issuing debt securities and with a propensity for liquidity are major factors in future public issues of bonds.

The 1028 Report of the European Central Bank from March 2009⁴, related to corporate financing through syndicated loans versus corporate bonds, brings into question an essential piece of information. The study was conducted over 1377 non-financial listed companies, from the euro area, between 1993 and 2006. A first important result was that large and profitable companies, with a high proportion of fixed assets and low growth opportunities choose, as a source of debt, financing through syndicated loans and not through public issuance of bonds. Firms with a high short-term debt and significant growth opportunities would then choose the public financing by issuing bonds.

Methodology

The needed data, to perform our analysis, were extracted from subsequent monthly reports of European Central Bank⁵, related to the funding of non-financial corporations, resident in the euro zone, from the capital market. The analysis covered the period between 2005 and 2012, exactly 96 months of study. Thus, the variables we used were monthly and numerical expressed, considered at a global level for all non-financial companies used in the analysis:

- quoted shares issues – gross issue (QSI);
- debt securities issues – gross issue (DSI);
- share repurchases (Sr);
- debt securities redemptions (DSR);
- net equity issue variation (the net issuance is calculated as the difference between the gross issuance and the repurchase of shares, in the studied month) - NEIV;

³ Skinner D.J., „The evolving relation between earnings, dividends, and stock repurchases”, *Journal of Financial Economics*, No. 87, 2008, pp. 582-609.

⁴ Altunbaş Y., Kara A., Marqués-Ibáñez D., *Large Debt Financing Syndicated Loans versus Corporate Bonds*, European Central Bank Working Paper Series, No. 1028, 2009, available at <http://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1028.pdf> [accessed on April 2013].

⁵ European Central Bank's monthly reports, from 2005 to 2012, about the euro area securities issues statistics, available at <http://www.ecb.europa.eu/press/pr/stats/sis/html/index.en.html>, [accessed on July 2013].

- net debt issue variation (the net issuance of bonds is calculated as the difference between the gross debt securities issuance and their redemptions, in the studied month) - NDIV.

As a method of statistical analysis we chose the linear multiple regression as a first significant and relevant image upon the studied subject. The main purpose of the analysis was to identify the link between the issuance of shares and that of bonds, for the non-financial resident companies in the euro zone, without eliminating the importance of studying the relations with other variables included in the analysis. The multiple regression tested model was:

$$QSI = \beta_0 + \beta_1 Sr + \beta_2 DSR + \beta_3 NDIV + \beta_4 NEIV + \beta_5 DSI \quad (1)$$

By virtue of specialized research results, we proposed to verify the following assumptions:

- between the issuance of shares and that of debt securities there is a positive relation (as a company issues more shares, it gains reputation and hence will be tempted to finance by debt securities issues);
- between the issuance of shares and repurchases there is a positive relation (considering the idea that the two decisions are complementary, according to recent studies);
- between debt securities issues and share repurchases there is a direct, positive relation (testing if euro zone corporations adopted the dishonest American practice we previously mentioned).

The multiple linear regression analysis we assumed, in a first phase, checks the normality of variables distributions. We used Kolmogorov – Smirnov test, in order to determine whether the observed distributions respect the normality condition. Table 1 systematizes the test results.

Table 1. One-Sample Kolmogorov-Smirnov Test

		Debt securities issue	Quoted shares issue	Share repurchases	Debt securities redemptions	Net debt issue variation	Net equity issue variation
	N	96	96	96	96	96	96
Normal Parameters ^{a,b}	Mean	10,1354	4,3302	1,7156	5,3802	2,3994	1,0184
	Std. Deviation	5,65795	4,29063	1,76893	2,46635	11,34364	3,61613
Most Extreme Differences	Absolute	,114	,196	,174	,068	,334	,181
	Positive	,114	,196	,174	,068	,334	,181
	Negative	-,068	-,169	-,170	-,039	-,322	-,178
Kolmogorov-Smirnov Z		1,120	1,922	1,709	,667	3,276	1,777
Asymp. Sig. (2-tailed)		,163	,001	,006	,765	,000	,004

Source: own results from the software SPSS vs. 17 (Statistical Package For Social Sciences)

We observe that three of the six tested distributions, have a Sig. probability less than the level of 0.05, which indicates the lack of normality. Despite this, we continued the initial analysis, considering it to be a useful step in processing the collected data, at least in terms of obtaining a first set of results on the analyzed subject.

The share issuance was considered to be the dependent variable and the other mentioned variables were considered to be independent variables. The multiple linear regression analysis results provided some important information presented in the next section.

Results

As a first step, the linear multiple regression analysis begins with the correlations between variables (Table 2). Specifically, for each relation between variables it is determined the Pearson correlation coefficient and its significance value, Sig. A high value of the coefficient,

above 0.5 or below -0.5, with a Sig value below 0.05 shows a statistically significant correlation between variables, positive or negative.

According to the obtained results, we observe statistically significant relations between the following categories of variables:

- a weak and positive correlation between share repurchases and quoted shares issues (which confirms the second assumed hypothesis);
- a positive correlation between net equity issue variation and quoted shares issues (a predictable outcome if we consider the previous identified relation);
- a weak and positive relation, less significant, between debt securities redemptions and net equity issue variation.

Table 2. Correlations between variables

		Quoted shares issue	Share repurchases	Debt securities redemptions	Net debt issue variation	Net equity issue variation	Debt securities issue
Pearson Correlation	Quoted shares issue	1,000	,292	,179	-,051	,547	,215
	Share repurchases	,292	1,000	,166	-,122	,108	-,155
	Debt securities redemptions	,179	,166	1,000	-,261	,252	,237
	Net debt issue variation	-,051	-,122	-,261	1,000	,002	,200
	Net equity issue variation	,547	,108	,252	,002	1,000	,219
	Debt securities issue	,215	-,155	,237	,200	,219	1,000
Sig. (1-tailed)	Quoted shares issue	.	,002	,040	,312	,000	,018
	Share repurchases	,002	.	,053	,118	,149	,065
	Debt securities redemptions	,040	,053	.	,005	,007	,010
	Net debt issue variation	,312	,118	,005	.	,493	,025
	Net equity issue variation	,000	,149	,007	,493	.	,016
	Debt securities issue	,018	,065	,010	,025	,016	.

Source: own results from the software SPSS vs. 17 (Statistical Package For Social Sciences)

Another interesting result consists in what we did not obtain as strong correlations, even if results proved to be significant. We did not obtain a strong relation between the issue of shares and debt securities (which forces us to reject the first hypothesis). We also did not observe a significant relation between debt securities issues and share repurchases (a result that rejects the third hypothesis).

Another important result of multiple regression analysis is the way some variables were eliminated. As we can see from table 3, it is specified what variables were excluded from the analysis steps, due to their small contribution in explaining the variation of the dependent variable - quoted shares issue.

Table 3. Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Debt securities issue, Share repurchases, Net debt issue variation, Net equity issue variation, Debt securities redemptions	.	Enter
2	.	Debt securities redemptions	Backward (criterion: Probability of F-to-remove \geq ,100).
3	.	Net debt issue variation	Backward (criterion: Probability of F-to-remove \geq ,100).

a. All requested variables entered.

Source: own results from the software SPSS vs. 17 (Statistical Package For Social Sciences)

We observe that the first model includes all the independent variables entered in the analysis, in the second model is eliminated the debt securities redemption variable and in the third is also removed the net debt issue variation variable.

The Model summary table (table 4), for each regression model, captures the correlation coefficient (R), the coefficient of determination (R Square) and the standard error. We can see that the value of both the correlation coefficient and the coefficient of determination are not very different from one model to another. Although this coefficient is relatively low, meaning that the model can be improved by adding other variables, we consider results to be relevant.

Another important piece of information, captured in Table 4, is the Durbin – Watson value, used to determine whether or not there is a correlation in the residual values of the model. Since the indicator is not close to 0 or 4, having a level around 2, we conclude that the errors of the model are not correlated and so an important rule of linear multiple regression analysis is respected.

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,616 ^a	,379	,345	3,47379	,379	10,986	5	90	,000	
2	,614 ^b	,377	,350	3,45958	-,002	,257	1	90	,613	
3	,612 ^c	,375	,354	3,44778	-,003	,373	1	91	,543	1,349

a. Predictors: (Constant), Debt securities issue , Share repurchases, Net debt issue variation, Net equity issue variation, Debt securities redemptions; b. Predictors: (Constant), Debt securities issue , Share repurchases, Net debt issue variation, Net equity issue variation
c. Predictors: (Constant), Debt securities issue , Share repurchases, Net equity issue variation

Source: own results from the software SPSS vs. 17 (Statistical Package For Social Sciences)

The Anova table (Table 5) confirms the previous results. The small values of F statistics, with a Sig probability level lower than 0.05, mean that the independent variables sufficiently explain the variation of the dependent variable.

Table 5. ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	662,854	5	132,571	10,986	,000 ^a
	Residual	1086,049	90	12,067		
	Total	1748,902	95			
2	Regression	659,751	4	164,938	13,781	,000 ^b
	Residual	1089,151	91	11,969		
	Total	1748,902	95			
3	Regression	655,284	3	218,428	18,375	,000 ^c
	Residual	1093,618	92	11,887		
	Total	1748,902	95			

a. Predictors: (Constant), Debt securities issue , Share repurchases, Net debt issue variation, Net equity issue variation, Debt securities redemptions; b. Predictors: (Constant), Debt securities issue , Share repurchases, Net debt issue variation, Net equity issue variation;
c. Predictors: (Constant), Debt securities issue , Share repurchases, Net equity issue variation

Source: own results from the software SPSS vs. 17 (Statistical Package For Social Sciences)

The regression coefficients, the standard error, the t-test statistics and the corresponding Sig values are summarized in Table 6. The Sig values of the coefficients below 0.05 evidence a strong and significant relation between the independent variables and the dependent one. We see positive relations and statistically significant between quoted equity issues, done by the euro area non-financial companies, and share repurchases, between quoted equity issues and net equity issue variation.

In Table 6, we also have the co-linearity statistics that can signal the existence of a significant relation between the independent variables, a situation that can seriously affect results. The first indicator of collinearity is tolerance, which can range between 0 and 1. A level of tolerance near 0 means that the corresponding independent variable is explained by a linear combination of other independent variables, hence explaining the dependent variable is less precise. In the considered models we observe that tolerance levels are approaching 1, not 0, so we conclude that among the independent variables, considered in the analysis, there is no statistically significant relation which could jeopardize the analysis results.

At this point, obtaining the coefficients, we can write the model, as it was defined in the methodology section. Choosing the first one, the multiple regression model is:

$$QSI = 1,810 + 0,643Sr - 0,083DSR - 0,025NDIV + 0,585NEIV + 0,131DSI \quad (2)$$

Table 6. Coefficients of the estimated models

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	1,810	1,064		1,702	,092					
Share repurchases	,643	,210	,265	3,063	,003	,292	,307	,254	,921	1,086
Debt securities redemptions	-,083	,163	-,048	-,507	,613	,179	-,053	-,042	,785	1,274
1 Net debt issue variation	-,025	,034	-,066	-,736	,463	-,051	-,077	-,061	,858	1,166
Net equity issue variation	,585	,104	,493	5,625	,000	,547	,510	,467	,898	1,113
Debt securities issue	,131	,070	,173	1,874	,064	,215	,194	,156	,814	1,228
(Constant)	1,496	,861		1,737	,086					
Share repurchases	,625	,206	,258	3,033	,003	,292	,303	,251	,947	1,056
Net debt issue variation	-,020	,032	-,052	-,611	,543	-,051	-,064	-,051	,951	1,052
2 Net equity issue variation	,575	,102	,485	5,652	,000	,547	,510	,468	,931	1,075
Debt securities issue	,121	,067	,159	1,812	,073	,215	,187	,150	,888	1,127
(Constant)	1,505	,858		1,753	,083					
Share repurchases	,636	,205	,262	3,110	,002	,292	,308	,256	,955	1,047
3 Net equity issue variation	,577	,101	,486	5,693	,000	,547	,510	,469	,931	1,074
Debt securities issue	,113	,065	,149	1,734	,086	,215	,178	,143	,920	1,087

Source: own results from the software SPSS vs. 17 (Statistical Package For Social Sciences)

The following table is another important result of multiple regression analysis, the collinearity diagnosis one (Table 7). The captured Eigen values indicate the number of correlations between the independent variables. Usually, levels near 0 indicate that the independent variables are strongly correlated. We observe that it is not the case of the current analysis.

In addition, the same conclusion is supported by the values of the condition index. Calculated as a square from the ratio between the maximum Eigenvalue obtained and the individual ones, a level superior to 15 indicates a possible existence of collinearity problems. The small values we

obtained confirm, once again, that between the independent variables there are no statistically significant correlations that may negatively influence results.

Table 7. Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	Share repurchases	Debt securities redemptions	Net debt issue variation	Net equity issue variation	Debt securities issue
1	1	3,495	1,000	,01	,02	,01	,00	,01	,01
	2	1,003	1,866	,00	,02	,00	,74	,02	,00
	3	,850	2,027	,00	,01	,00	,01	,89	,00
	4	,453	2,777	,01	,74	,01	,08	,00	,08
	5	,124	5,299	,05	,17	,37	,11	,01	,82
	6	,074	6,854	,93	,04	,60	,06	,07	,08
2	1	2,653	1,000	,02	,04		,01	,03	,02
	2	,982	1,643	,00	,03		,79	,07	,00
	3	,836	1,781	,01	,04		,05	,85	,00
	4	,430	2,483	,02	,66		,14	,01	,14
	5	,099	5,185	,94	,22		,01	,05	,84
3	1	2,589	1,000	,02	,05			,03	,03
	2	,843	1,752	,01	,02			,92	,00
	3	,468	2,351	,02	,69			,00	,13
	4	,099	5,103	,95	,24			,04	,84

Source: own results from the software SPSS vs. 17 (Statistical Package For Social Sciences)

The variance proportion is another important indicator of the conducted analysis which shows the contribution of each variable to the dependent variable variance. Variables with high values for this indicator (usually over 90%) usually struggle with serious collinearity problems. Following the values we obtained, we observe that there are no such risk levels.

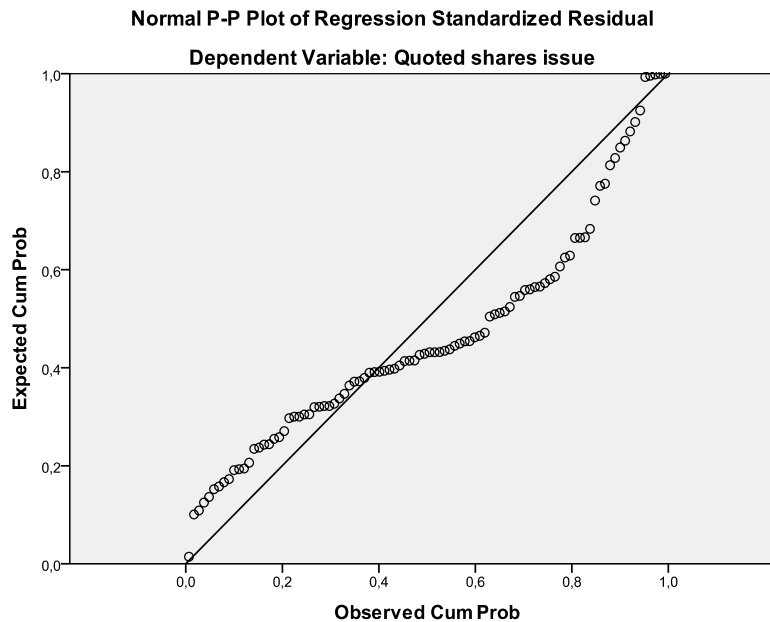


Fig. 1. Normal P-P plot of regression standardized residuals

Source: own results from the software SPSS vs. 17 (Statistical Package For Social Sciences)

The Normal P-P plot diagram of standardized residuals is another important result. If we study figure 1, we can admit that the assumptions required by the multiple linear regression analysis – normal distribution of errors and with a zero mean, a constant variance of errors and independent errors – are fulfilled.

Conclusions

Even if the model we used in the study might be completed with other independent variables, the obtained results are still of interest. The first assumed hypothesis asked for a significant positive relation between the quoted share issues and debt securities issues, according to the main ideas expressed in the literature: a condition for debt securities issue is to build a good reputation of the company by issuing shares. Results did not permit its acceptance, because of the identified weak relation.

We found a positive correlation between quoted share issues and share repurchases, the second hypothesis being accepted. According to the traditional ideas of literature, share repurchases have a high incidence when stocks are undervalued as Brav et al. (2005) sustained. The issue of shares, on the other hand, considering the managerial opportunism, prevails when the firm is overvalued as Loughran and Ritter (1995) concluded. By default, the relation should be negative. However, recent and relevant results in the field have shown that there are other factors behind these decisions: the development stage of the firm and the economic environment evolution. Thus, results are closer to those obtained by Dittmar and Dittmar (2008), according to which the two decisions are complementary and, studied in the same economic context, the motivations for their adoption are different from one company to another, depending on the development stage and the need for liquidity or to signal the market.

In a context of crisis, debt securities issues have increased. According to our results, we found a very weak relation between debt securities issues and share repurchases, which is why we rejected the third hypothesis. American practice noticed a tendency of large companies, such as corporations, to issue 30-year bonds, to redeem a portion of existing shares in circulation (Microsoft, Hewlett - Packard), trying to no longer create commitments to investors, as it would be required to do so by adopting a clear dividend policy. Since we found no statistically significant relation between these two operations, we conclude that the practice of circumventing the responsibilities to investors is not a feature of the euro area resident corporations.

The obtained results proved to be of interest, even if the model supports future improvements. We believe that an analysis on the same issue but on a panel database, not a global one as we used for all the companies considered in the present study, would provide more valuable information. Reality, in general, the economic one, in particular, have shown, over time, their complex and dynamic features. From this perspective, the economic phenomenon, with everything it implies, is not easy to be surprised in models, a fact that makes the subject of the present study to remain an interesting issue for different and future approaches.

Financing a company is a subject that, in our opinion, will never be exhausted due to its own importance and also due to the changing economic and financial environment that implicitly influences and shapes this decision. In particular, financing the company through the capital market by issuing new shares or selling long term debt securities becomes a center of interest for both international practice and literature.

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