

Mota et al, 2020

Volume 6 Issue 1, pp. 795-812

Date of Publication: 1st July 2020

DOI- <https://doi.org/10.20319/pijss.2020.61.795812>

This paper can be cited as: Mota, C., Andrade, C., Pereira, A., & Vaz A., (2020). Determinants of Dividend Policy in Portuguese Banking System. PEOPLE: International Journal of Social Sciences, 6(1), 795-812.

This work is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

DETERMINANTS OF DIVIDEND POLICY IN PORTUGUESE BANKING SYSTEM

Carlos Mota

School of Accounting and Administration of Porto (ISCAP), Polytechnic Institute of Porto (IPP), Department of Management, Porto, Portugal
carlosfmota@gmail.com

Cláudia Andrade

School of Accounting and Administration of Porto (ISCAP), Polytechnic Institute of Porto (IPP), Master student, Porto, Portugal
claudia.pinto.1109@gmail.com

Adalmiro Pereira

School of Accounting and Administration of Porto (ISCAP), Polytechnic Institute of Porto (IPP), Department of Management, Porto, Portugal
adalmiropereira@mail.telepac.pt

Angela Vaz

School of Accounting and Administration of Porto (ISCAP), Polytechnic Institute of Porto (IPP), Phd Student, Porto, Portugal
Andrade & Brandao, Lda Expertise. Porto, Portugal
angelavaz@andradebrandao.pt

Abstract

The purpose of this article is to identify the factors that influence the payment of dividends in banks operating in the Portuguese market. The study uses advanced financial data, in the period between 2005 and 2018. The model analyzed is tested using multiple regressions with data in the unbalanced panel. The results show that the payment of dividends is mainly driven by the historical distribution and the positive influence of performance. In addition, the size of the bank is significant, although with a sign opposite to that expected. Another valuable result is associated with the changes that occurred before, during and after the financial

crisis. The study supports the hypothesis of the influence of the crisis on dividend policy. Evidence is presented that in the post-crisis period, dividends were conditioned by the policy of retention of results imposed by the authorities. The study presents limitations that must be taken into account as can represent restrictions on the results obtained. The size of the sample and the explicit policy of retention of results, imposed by authorities on some entities, stand out during part of the period under investigation.

Keywords

Dividends, Banking, Crisis, Portugal, ROA, Leverage, Correlation Matrix

1. Introduction

The complexity of the dividend policy and its respective payment has been revisited in recent years in the area of finance, staying on top of the investigations. The apparent discrepancy of opinions due to the dividend policy led to the formulation of various theories over the years. Numerous empirical studies have been conducted to validate these proposals. However, the results are conflicting, which further increased the complexity of the issue. No hypothesis is generating consensus with regard to the factors that determine and influence the payment of dividends. On the one hand some argue in favor of the distribution of dividends, others just are drawbacks to this policy, wherein the main shortcoming relates to the fact that the dividend distribution is associated with higher taxation than that imposed on the gain. This disparity of opinions shows that the issue is far from being defined objectively.

This article investigates the dividend policy by focusing on a specific market: the Portuguese banking sector. The results may contain something unique given that the financial market has particular features associated with economic influences, political and regulatory. The goal is thus to analyze the dividend payment policy of banks and identify the factors that determine the distribution of results.

The study is one of the first works, if not the first, as far as we know, that focuses on the determinants of dividend policy of the banking sector in Portugal. Its practical importance derives from the contribution made to understand the issue in the Portuguese context, a recent timeline and with particular conditions. One explanation for researchers studying avoid the banking sector, is to believe that dividend policies are conditioned by regulators, hence the difficulty in distinguishing between decisions taken by managers and those who are influenced by regulators.

The rest of the paper is organized as follows. Section 2 reviews the literature on the dividend policy and the factors that affect the payment decisions, analyzing the theoretical and empirical arguments on the subject. Section 3 describes the methodological, research data

and procedures used. Section 4 presents the results, analyzes them and discusses them in the light of theoretical and hypotheses, while Section 5 concludes the article.

2. Literature Revision

The literature on the dividend policy is divided into several perspectives. The first argues that dividend decisions are irrelevant and therefore the management should not worry about them. Modigliani & Miller (1961) reported that, under perfect market conditions, dividend decisions have no effect on the value of the company. The stock price and shareholder returns are determined by the real assets of the company, the ability to generate profits and the investment policy. Based on this rationale, managers cannot improve the company's value when choosing a specific dividend policy.

Many empirical studies have focused on the irrelevance of the theory of dividends. One of the first attempts to test the theory was carried out by Black & Scholes (1974) and the results show that a change in the dividend policy has no impact on the stock price. Several other studies have found similar evidence (Bernstein, 1996; Conroy, Eades, & Harris, 2000). But how markets really are not perfect, other perspectives believe that decisions about the dividend policy is relevant. They argue that under conditions of imperfect market situation linked to most of the financial markets, the irrelevance of dividends hypothesis does not hold. In this context, divergent theories of the irrelevance hypothesis of dividends adopted alternative approaches to the study of dividend policy, in particular the theory of residual dividend, the agency theory, the theory of asymmetric information and signaling theory, the bird-in-the-hand, the theory of clientele effect and the theory of tax effects.

Acharya (2016:1) “Dividend payouts shift the relative value of claims between a firm’s stakeholders, but in the banking sector, interlocking balance sheets across banks introduce another dimension to the distributional implications of dividend policy. Dividend payouts can shift the relative value of stakeholders’ claims across firms as well as within each firm.”

The theory of residual dividends states that the free cash flow should be distributed to shareholders; otherwise, the money becomes a burden for the company in the form of opportunity and agency costs. Many empirical studies have been made on the subject (for example, Elston, 1996; Bray, Campbell R., & Roni, 2005; Baker & Smith, 2006) and some have evidence of the existence of a residual dividend policy.

The agency theory (Jensen & Meckling, 1976) attempts to explain the conflict of interest between managers and shareholders, as well as between creditors and shareholders, which entail costs for the company, and propose a way to eliminate them or reduce them. In

order to control this type of relationship and the costs associated with it, several authors propose the payment of dividends by reducing excess cash available for managers (Jensen, 1986). The results of the studies conducted to understand the relationship between the agency theory and the distribution of dividends are shown generally consistent, in the sense that corroborate the existence (Jensen, Solberg & Zorn, 1992; Harford, Mansi & Maxwell, 2008).

The signaling theory emerged with the contribution of different authors as Ross (1977) and Bhattacharya (1979). This is based on information asymmetry and sought to explain how the dividends may have the ability to transmit information not known to the shareholders. The proposed models allow formulate dividend policies that minimize costs and provide relevant signaling levels. These flags must be credible and reliable. One of empirical investigations on this reference perspective been developed by Baker et al. (1985) and the results show that managers believe that the dividend policy affects the stock price, and support the effects of signaling and clientele.

The theory known for bird-in-the-hand argues that shareholders tend to dividends prefer at the expense of capital gains, since the former are received instantly being synonymous with "cash on hand", while the latter will only be received in the future, constitute only a potential source of profit. In addition, capital gains are uncertain, since their gains depend on the share price when selling. The discrepancy between the certainty associated with dividends versus the uncertainty associated with capital gains, is the basis of the theory known for bird-in-the-hand. Lintner (1956) and Gordon (1959), considered that the value of dividends can be justified by certain profitability received immediately that they enable. Like this, they argue that the decrease in uncertainty is a preferred factor for shareholders. On the other hand, authors such as Elton & Gruber (1970) and Archbold & Vieira (2010) report that the income tax rate should be considered in decision-making, so if this is higher than the capital gains, the payment dividends is a little rational and viable option.

In the design of the effect of theory clientele capital markets have imperfections such as taxes, transaction costs, different interest rates, asymmetric information, among others. According to Elton & Gruber (1970), the effect clientele focuses on the relationship between the taxation of dividends and capital gains. In light of the studies, investors form an effect "clients" and act according to what is most convenient for each fiscal situation. Baker et al. (1985) found evidence of signaling and clientele effect on companies listed on the NYSE.

The hypothesis of tax effect suggests that managers should take into account the costs associated with taxation when deciding on the payment of dividends. One of the first proponents of this hypothesis is Brennan (1970). It concluded that, whenever there is a

discrepancy between the rate of dividends and capital gains, it is preferable not to pay dividends.

2.1 Dividend Policy in the Banking Sector

Although empirical studies in the business sector have contributed to increasing knowledge concerning the behavior of managers due to the distribution of dividends, it was noticeable that their results differ from the reality of the banking sector. However, one notes the lack of studies carried out in this context, which may be due, according to Patra (2019), the fact that, in the banks, the agency's conflict structure is far more complex. In 2002, Dickens, Casey, & Newman created a modified version of the model developed in 1995 by Barclay, Smith, & Watts, to identify the factors that determine the dividend policy of the banks. From this model, the authors found that the decision on dividends in US banks included in the study, considering investment opportunities, capital adequacy, the size of the institution, internal characteristics, previous dividends and risk. Subsequently, the study by Lee (2009) for the banking sector Korean, showed that the payment of dividends is positively related to profitability and the size of the bank, in addition to being associated with the bank risk. A more recent study of Al-Kayed (2017) identified profitability, historical dividends and leverage as determining factors for the dividend policy.

Several empirical studies have focused on the analysis of the effects of the financial crisis in the distribution of dividends. Some authors consider that the impact of the crisis on the payment of dividends, is null, while others opposed presenting evidence of this impact (Bozos, Nikolopoulos, & Ramgandhi, 2011; Fuller & Goldstein, 2011; Hauser, 2013). The study Basse et al. (2014) on the European banking sector, it concluded that the cuts in dividends are a good way to retain profits and improve the financial soundness of banks. Abreu & Gulamhussen (2013) studied the dividend payments of US bank holding companies before and during the financial crisis of 2007-09. The authors saw that the factors size, profitability and growth opportunities. They explained the dividend policy set before and during the crisis. The study concluded that the payment of dividends depends on the economic environment (before and during the financial crisis).

3. Methodology

This study uses a linear model expressed by equation 1, where explanatory variables identify a dividend used as a basis for the analysis:

$$DIV_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 DIV_{i,t-1} + \beta_3 ALAV_{i,t} + \beta_4 MAT_{i,t} + \beta_5 DIM_{i,t} + \beta_6 CE_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where:

$DIV_{i,t}$ - Represents Dividends and is measured by a ratio calculated by the ratio between the dividends paid by entity i and the respective equity at time t .

ROA – Return on Assets

$DIV_{i,t-1}$ – Historical dividend

ALAV – Leverage

MAT – Maturity

DIM – Size

CE – Economic Cash Payments

The dependent variable, $DIV_{i,t}$ represents the dividend and is measured by a ratio calculated by dividing the dividend paid by the entity i and the respective equity at time t .

The independent variables of interest are: (1) return on assets (ROA) as an indicator that seeks to evaluate the capacity and efficiency of the management of assets held by an entity, reflecting the results (Lintner, 1956; Kaźmierska-Jóźwiak, 2015). It is defined as the ratio between net income and total assets periodically measured (Jensen et al, 1992. Fama and French, 2001). It is expected a positive relationship between the yield and dividend payout ratio (Dickens et al, 2002); (2) historical dividend (DIV) which, as studies Dickens et al (2002) or Brav et al. (2005) demonstrated, are essential in explaining the current dividends. Investors prefer companies with stable dividends and evaluate their quality by comparing with the previous year. In this study, last year's dividends are used as a proxy for the historical dividends, and expected a positive relationship with current dividends; (3) leverage (LEV), which associated with the capacity and cost of financing has a direct impact on the distribution of dividends. In the model, we use the ratio between the total liabilities and the bank's own funds. In general, the leverage (or ratio lower capital adequacy) has a negative correlation with the dividend, which are sometimes restricted by regulatory pressures (Dickens et al., 2002); (4) Maturity (MAT) supported by studies that point to higher levels of free cash flow companies in more mature and can be distributed as a dividend (Brav et al., 2005). As a proxy for maturity is used a variable that is defined as the difference between the year of observation and the founding year of the financial institution; (5) size (DIM), a relevant factor according to several authors (Dickens et al., 2002; Petria, et al, 2015;. Labhane & Mahakud, 2016), which found that larger companies are associated with a higher payment dividend, justified by lower growth and investment opportunities, as well as higher profitability ratios. Moreover, the larger entities usually have a higher proportion of institutional holdings, which leads them to pay a higher amount of dividends. It is expected a positive relationship between company size (measured by the natural logarithm of the active) and the distribution of dividends.

In order to analyze the impact of the Portuguese financial crisis, which occurred in the sample period, a dummy variable (CF) is defined, allowing you to observe changes in the dividend payment policy attributable to the economic cycle (and financial). Operationally proceeded as follows: the years of crisis assigns the value 1 (one) and the other is set to 0 (zero). In crisis period we expect a negative relationship between the variable and the distribution of dividends.

Table 1: Variables and their Measurement

Dependent variable			
Variable	Initials	Descriptive	Expected sign
Dividend	$Div_{i,t}$	$Div_{i,t} = \frac{Dividend_{i,t}}{Equity\ Capital_{i,t}}$	
Independent variable			
Asset profitability	$ROA_{i,t}$	$ROA_{i,t} = \frac{Net\ Result_{i,t}}{Total\ Asset_{i,t}}$	+
Previous year dividend	$DIV_{i,t-1}$	$DIV_{i,t-1} = \frac{Dividend_{i,t-1}}{Equity\ Capital_{i,t-1}}$	+
leverage	$ALAV_{i,t}$	$ALAV_{i,t} = \frac{Debt_{i,t}}{Equity\ Capital_{i,t}}$	-
Maturity	$MAT_{i,t}$	$MAT_{i,t} = -$ $Observation\ year_{i,t} - Creation\ Year_i$	+
Dimension Bank	$DIM_{i,t}$	$DIM_{i,t} = \ln(asset)_{i,t}$	+

Source: Authors Elaboration

3.1 Hypotheses Research

To achieve the objective of the investigation, six hypotheses were proposed, assuming a positive and statistically significant relationship between the dividend payment decision of the Portuguese banks and the profitability (H1), the dividend distributed in the previous year (H2), the maturity of bank (H4) and its size (H5). On the other hand, a negative relationship with leverage is admitted (H3) and the financial crisis (H6).

3.2 Sample and Collect Data

For an adequate level of generalization and validity of the results and meet the requirements of regression testing, we selected a sample financial data relating to banks operating in Portugal. The study has a time horizon of fourteen years (2005-2018) and during the selected period, there were significant events, both nationally and in the international context, which affected in different ways the economy and the financial market. Thus, the study allows to analyze the cross effects of two important events, the international financial

crisis and the application of economic and financial assistance from Portugal to the Troika, that happen in 2011.

Among the banks that are part of the banking sector, it was necessary to restrict the sample to the entities that fulfilled the following criteria: i) the right of Portuguese institutions and that paid dividends; ii) entities with published reports and available to the public; iii) All listed banks and all major institutions; iv) entities on the market for a long enough period (10 years).

According to these criteria, we selected 10 banks representing on average 71.7 percent of total assets of the Portuguese banking sector. The achievement of data for each entity, we considered the balance sheets and accounts of the institutions and official statements about the payment of dividends, published in their respective institutional pages online as well as on the website of the Securities Market Commission (CMVM) and on the website of the Bank of Portugal (BdP). The industry data were obtained from the Portuguese Banking Association (APB). The sample panel is an unbalanced data set composed of 122 annual observations.

3.3 Statistical Approach

In the statistical approach, and as Favero and Belfiore (2017), there are different models for panel data, so F Chow tests, Lagrangian Multiplier Breusch- Pagan and Hausman were performed to define the most appropriate model for this study, PLS, Fixed or Random Effects. The Jarque-Bera tests Breusch- Pagan and Wooldridge were made to verify the normality and homoscedasticity auto-correlation of the residuals. Furthermore, we calculated the Pearson correlation matrix for analyzing whether the variables have high correlations or perfect and to identify whether or not multicollinearity problems in the explanatory variables.

4. Description and Analysis of Results

4.1 Descriptive Statistics

Table 2 shows the descriptive statistics of the variables used are highlighted, except for the dummy variable.

Table 2: *Descriptive Variables- Statistics*

Descriptive Statistics						
	DIV	ROA	DIVT-1	LEV	MAT	DIM
Average	0.0320	-0.0018	0.0332	22,854	55,631	16,154
median	0.0162	0.0042	0.0227	13,932	26,000	17,414

Maximum	0.1783	0.0588	0.1783	1035.0	185.00	18,542
Minimum	0.0000	-0.7699	0.0000	-1.0672	6.0000	10,846
Standard deviation	0.0385	0.0742	0.0386	92,951	54,932	2.2241
Observations	122	122	122	122	122	122

Source: Eviews

The dependent variable (DIV), showed an average of 0.032, which means that during the analysis period, the banks distributed on average by its shareholders equivalent to 3.2 percent of capital. It may be noted that the variable fluctuated over the years, with a minimum of zero dividend and maximum 17.83 percent. The results presented in the table show that the banks included in the sample have different behaviors because in general the intervals between the minimum and maximum are discrepant. For example, the variable profitability of the asset (ROA) on average, and a negative value tends to close to zero, however the standard deviation has a relatively high value, indicating a large variability in the observed values. Leverage (LEV) shows that the average total liabilities represent approximately 23 times the value of capital, typical of the banking sector situation. Maturity (MAT) mean of sample banks is approximately 56 years, indicating whether it is an industry consisting mainly of entities operating in the market for many years.

The statistical average for each interval that guided the division of the sample - the period before the financial crisis (2005-2007), the years of greatest impact thereof (2008-2012) and the period immediately (2013-2018) - presents interesting data.

Table 3: Mean Evolution Dividend Periods Between

	Pre-Crisis		Crisis		Post-Crisis	
Variable	Observations	Average	Observations	Average	Observations	Averagem
DIV	25	0.06459	46	0.02121	51	0.02592

Source: Eviews

On average, the dependent variable (DIV) saw the value decreasing from the first stage to the crisis period itself, and the transition to the next phase, observed a recovery of about a half percent compared to that in times of crisis, although in this period some banks continued to not distribute dividends under the state aid granted. These figures show that banks analyzed contained the shareholder remuneration during the financial year of economic crisis.

The Pearson correlation matrix, shown in Table 4, which shows the explanatory variables do not exhibit perfect or high correlations with each other, which indicates that the multicollinearity is not a potential problem.

Table 4: Pearson Correlation Matrix

	ROA	DIVT-1	LEV	MAT	DIM	CF
ROA	1.000000					
DIV _{T-1}	0.135112	1.000000				
LEV	0.002751	-0.063585	1.000000			
MAT	0.002727	-0.226461	-0.051310	1.000000		
DIM	0.133112	0.030119	0.126038	-0.081335	1.000000	
CF	0.027522	-0.054112	0.135109	0.028941	0.003612	1.000000

Source: Eviews

4.2 Regression Analysis

The model was estimated for four different time horizons: the period of the whole sample (2005-2018) and each of its stages (pre-crisis (2005-2007), crisis (2008-2012) and post-crisis (2013-2018)). Table 5 shows the summary of the estimates.

Table 5: Estimated Regression Coefficients (2005-2018)

Variable	β	Standard deviation	t-Statistic	P-value
C	0.195050	0.063306	3.081083	0.0026 ***
ROA _t	0.090356	0.038252	2.362131	0.0200 **
DIV _{T-1}	0.595037	0.085703	6.943034	0.0000 ***
LEV _t	-4.30e-06	9,96E-06	-0.0431261	0.6672
MAT _t	-0.001014	0.000678	-1.494339	0.1381
DIM _t	-0.007428	0.004037	-1.840030	0.0686 *
CF _t	-0.016140	0.005006	-3.224282	0.0017 ***
Estimator	PLS fixed effects			
R²	0.687232		F-statistic	15.52729
R² adjusted	0.642972		Prob (F-statistic)	0.000000
DW Stat	1.9456			

*** indicates that the variable is statistically significant at 1%, ** indicates that the variable is statistically significant at 5% and * indicates that the variable is statistically significant at 10%.

Source: Eviews

The table contains multiple linear regression of the model variables for the sample of 10 banks using data from 2005 to 2018 with 122 observations. The variables in the table are: Dividend (DIVT) Yield (roa), the previous period Dividends (DIVT-1) Leverage (t LEV) Maturity (matt) and size (DIMt). White diagonal standard errors & covariance (df corrected).

The result Panel Least Squares Regression (PLS), with fixed effects, show approximately a 68.72 percent higher than those obtained in the study reference Dickens et al. (2002). As expected, the distribution of dividends is significantly affected by its past distribution. The stability of dividend policy seems to be seen as a characterize element. Furthermore, the yield obtained (ROA) observed a positive association with the dividend statistically significant at 5%. The results exclude the leverage and maturity as important determinants, meaning., the level of leverage institutions and maturity clearly have less influence on the distribution of profits in the form of dividend. The introduction of dummy variable (CF) to reflect the changes observed in dividends, the effect of the financial crisis, proved to be highly significant. One can thus conclude that the dividends paid by the banks operating in Portugal are positively affected by the performance (results) of the institutions and the historical dividend, and negatively by the size. R^2

In this way, testing the econometric model proposed validate the hypothesis H1, ie, there is evidence of a positive relationship and statistically significant between the profitability of banks and the dividend payment decisions. This result is consistent with the signaling theory of dividend policy, arguing that the profitable institutions are more likely to pay dividends to signal its good financial performance (Lintner, 1956; Bhattacharya, 1979; Lee, 2009; Abreu & Gulamhussen, 2013). Therefore, profitability is a relevant factor for the dividend payment decision.

The results also show that the decision to pay dividends of Portuguese banks is positively related to the dividends paid in the previous year, according to the formula H2 hypothesis. Several studies indicate that banks strive to stabilize dividend payments, signaling the strength and efficiency of its operations. Validation of the hypothesized converges with the Lintner model dividend stability (Lintner, 1962). Investors tend to evaluate dividend payments by historical comparison. This result corroborates the studies of Dickens et al. (2002) and Maldajian & Khoury (2014).

Although the coefficient of the explanatory variable, financial leverage, introduce negative, ie, the decision to pay the Portuguese banks dividends is negatively related to the level of leverage, the results are not statistically significant at a confidence level of 90 percent . The probability of a bank to pay dividends is not statistically affected by the variable LEV. Therefore, the H3 hypothesis is not validated. The signal presented meets the study of Al-

Kayed (2017) which found that banks with higher leverage ratio (or lower ratio of capital adequacy) are under increased regulatory pressures. This evidence is consistent with the notion that the debt and dividends are alternative mechanisms to control agency costs associated with problems of free cash flows,

With no validation of the hypothesis H4 is to confirm the positive influence of the age of the financial institution on the dividend payment decisions of Portuguese banks. The probability of a bank to pay dividends is not significantly and positively affected by the variable age of the company. In this sense, this result is inconsistent with the maturity hypothesis proposed by Brav et al. (2005), which argues that, as a company grows old in age, their investment opportunities diminish, leading to slower growth and therefore reduces capital financing needs, allowing them to pay dividends higher. An argument certainly more prevalent in non-financial companies. However, the signal obtained is consistent with the study of Marfo-Yiadom & Agyeidez (2011).

As for the H5 hypothesis turns out not to be seen a positive relationship between the size of the financial institution and the dividend payment decisions of Portuguese banks, rejecting the hypothesis. The probability of a bank to pay dividends is statistically and negatively affected by variable DIM. The coefficient of the variable is negative and significant at the level of 10 percent in the model. One possible explanation for signal discrepancy may lie in the influence of competitive pressure on the dividend payment decisions, causing banks, regardless of size, strive to pay dividends. This result is supported by the study of Al-Hunnayan (2011), unlike the research Dickens et al. (2002), Lee (2009), Abreu & Gulamhussen (2013) who do not support this hypothesis.

Finally, H6 is validated by the results of the study, which means that there is a negative relationship between the financial crisis and the dividend payment decision of banks in Portugal. Analysis was then this issue in more detail.

4.3 The Dividend Policy Before, During and After the Financial Crisis

There has been considerable academic interest in studying the dividend payment patterns made by banks with reference to the international financial crisis. This study aims to follow this trend, although in the Portuguese case the effects of the international financial crisis were extended in time through the sovereign debt crisis Portuguese who succeeded him. The results of the regressions using the PLS estimators are presented in Table 5.

The table contains multiple linear regression of the model variables for the sample of 10 banks using data for the three phases with a total of 122 observations. The variables in the table are: Dividend (DIVT) Yield (roat), the previous period Dividends (DIVT-1) Leverage (t

LEV) Maturity (matt) and size (DIMt). Cross-section weights (SBB) standard errors & covariance (df corrected).

Table 6: Regression Coefficients Estimated for Periods

Variable	Pre-crisis (2005-2007)	Crisis (2008-2012)	Post-crisis (2013-2018)
ROA _t	0.501339 **	0.321026 ***	0.015840
	(0.236708)	(0.109064)	(0.013176)
DIV _{T-1}	0.619137 ***	0.536630 ***	0.828603 ***
	(0.165385)	(0.139779)	(0.118846)
LEV _t	0.001332 *	-4.67e-06	-0.000272
	(0.000736)	(1.78e-05)	0.000361
MAT _t	1.94e-05	4.25e-05	-0.000108 ***
	(9.60e-05)	(7.39e-05)	(3.84e-05)
DIM _t	0.000104	-0.000118	0.001080 ***
	(0.000854)	(0.000405)	(0.000400)
R ²	0.741167	0.407261	0.785452
Estimator	PLS	PLS	PLS
N Observations	25	46	51

*** indicates that the variable is statistically significant at 1%, ** indicates that the variable is statistically significant at 5% and * indicates that the variable is statistically significant at 10%.

Source: Eviews

The results show that the model is shown for explanatory longer periods before the crisis and post-crisis. The interval for the crisis reflects a minor adjustment of the model, presenting a value of 40.7 percent. The results provide evidence that the payment of dividends by banks is linked to profits (ROA) and especially the positive relationship with the dividend payment history (DIV_{T-1}). Refer to order the payment of dividends in the last period analyzed was particularly conditioned by the retention results imposed by the regulatory institutions that benefited from state support for compliance with regulatory ratios. Moreover, the age and size become significantly explanatory factors of dividend payments in the post-crisis phase, R²

Hsiao & Tseng (2016) and Acharya & Skeie (2011) show that there is a significant negative impact of higher capital requirements for the payment of bank dividend policies in more developed markets. The results of this study show a reading that is not fully consistent

with the previous hypothesis. The leverage ratio is statistically significant at the 10 percent in the pre-crisis period, being insignificant for the remaining periods. In addition, the signal LEV coefficient is positive before the crisis, reflecting the increase in the leverage level was accompanied by an increase in dividends. In subsequent periods there is a change in the signal. The crisis phase features by the reduction in the payment of dividends simultaneously with the process of deterioration of the leverage ratio, trend only reversed from 2013. The negative sign shown in the last phase results from the combined effect of the resumption of dividend payments and the deleveraging process observed in most banks. An additional note it helps to understand the lowest statistical significance observed in the impact of the level of capital adequacy on dividends: the slow process of deleveraging (via the strengthening of the capital). Indeed, during the crisis period banks were forced to constitute impairment and abnormally high provisions to cover credit risk, which negatively influenced the profitability and indirectly own funds (especially in years of losses).

5. Conclusion

This paper analyzes the determinants of dividend payment policy in the Portuguese banking sector. Using an unbalanced panel data consisting of 122 observations for the period between 2005-2018, we found a positive and statistically significant correlation level between 5% and dividend yield obtained by banks, which validates Hypothesis 1 raised. Similarly, the dividend payment decision is positively related to the dividends paid in the previous year, supporting the hypothesis 2. How many studies confirm, banks are working to stabilize the dividend payments. Other specific factors included in the model or not show significant influence on determining the dividend paid - leverage and age of the bank - or, if the determinant associated to the size, with statistical significance expressed an opposite sign than expected. The probability of a bank to pay dividends is negatively affected by the variable size of the entity. Thus, the H3 hypothesis, H4 and H5 were rejected. Finally, Hypothesis 6 is supported by the results. The study shows that changes in the dividend payment decisions before, during and after the crisis period. The variable associated with the financial crisis proved to be statistically significant. The negative impact of the financial crisis strengthens the explanation of the payment of dividends by profitability and capital ratio or, as in this study, a measure of financial leverage. It also gave statistical significance to age and size of the institutions in the post-crisis phase.

Theories signaling dividend policy and agency and Lintner model of stable dividends, help to understand and theoretically substantiate the results.

The study has limitations that should be taken into account as they may pose restrictions on the obtained results. Noteworthy are the sample size and the explicit policy outcomes retention imposed by the authorities to some entities during part of the period investigated. They are certainly further studies to fill the gaps and evaluate the consistency and reliability of results. In future work highlights the importance of improving the sampling and temporal dimension, strengthening its inferential power. It would also be appropriate to test proxies to assess the impact of smoothing practices on dividend payment policies. These strategies or other will allow to draw a broader picture of the dividend payment policy of Portuguese banks.

REFERENCES

- Abreu, J. F., & Gulamhussen, M. A. (2013). Dividend payouts: Evidence from U.S. bank holding companies in the context of the financial crisis. *Journal of Corporate Finance*, 22, 54–65. <https://doi.org/10.1016/j.jcorpfin.2013.04.001>
- Acharya, V.V.; Le H; Shin, H. S. (2016) Bank Capital and Dividend Externalities *BIS Working Papers* n.º 850
- Acharya, V. V., & Skeie, D. (2011). A model of liquidity hoarding and term premia in inter-bank markets. *Journal of Monetary Economics*, 58(5), 436–447. <https://doi.org/10.1016/j.jmoneco.2011.05.006>
- Al-Hunnayan, S. (2011). The payout policy in the GCC: the case of Islamic banks (Doctoral, Durham University).
- Al-Kayed, L. T. (2017). Dividend payout policy of Islamic vs conventional banks: case of Saudi Arabia. *International Journal of Islamic and Middle Eastern Finance and Management*, 10(1), 117–128. <https://doi.org/10.1108/IMEFM-09-2015-0102>
- Archbold, S., & Vieira, E. F. S. (2010). Corporate dividend policies in bank-based and market-based systems: survey evidence from UK and Portugal. *Portuguese Journal of Management Studies*, 15(1), 35-64.
- Baker, H. K., Farrelly, G. E., & Edelman, R. B. (1985). A Survey of Management Views on Dividend Policy. *Financial Management*, 14(3), 78–84. <https://doi.org/10.2307/3665062>
- Baker, H. K., & Smith, D. M. (2006). In search of a residual dividend policy. *Review of Financial Economics*, 15(1), 1–18. <https://doi.org/10.1016/j.rfe.2004.10.002>
- Barclay, M. J., Smith, C. W., & Watts, R. L. (1995). The Determinants of Corporate Leverage and Dividend Policies. *Journal of Applied Corporate Finance*, 7(4), 4–19. <https://doi.org/10.1111/j.1745-6622.1995.tb00259.x>

<https://doi.org/10.1111/j.1745-6622.1995.tb00679.x>

<https://doi.org/10.1111/j.1745-6622.1996.tb00679.x>

- Basse, T., Reddemann, S., Riegler, J.-J., & von der Schulenburg, J.-M. G. (2014). Bank dividend policy and the global financial crisis: Empirical evidence from Europe. *European Journal of Political Economy*, 34, S25–S31. <https://doi.org/10.1016/j.ejpoleco.2013.09.001>
- Bernstein, P. L. (1996). Dividends: The Puzzle. *Journal of Applied Corporate Finance*, 9(1), 16–22. <https://doi.org/10.1111/j.1745-6622.1996.tb00097.x>
- Bhattacharya, S. (1979). Imperfect Information, Dividend Policy, and «The Bird in the Hand» Fallacy. *The Bell Journal of Economics*, 10(1), 259–270. <https://doi.org/10.2307/3003330>
- Black, F., & Scholes, M. (1974). The effects of dividend yield and dividend policy on common stock prices and returns. *Journal of Financial Economics*, 1(1), 1–22. [https://doi.org/10.1016/0304-405X\(74\)90006-3](https://doi.org/10.1016/0304-405X(74)90006-3)
- Bozos, K., Nikolopoulos, K., & Ramgandhi, G. (2011). Dividend signaling under economic adversity: Evidence from the London Stock Exchange. *International Review of Financial Analysis*, 20(5), 364–374. <https://doi.org/10.1016/j.irfa.2011.07.003>
- Brav, A., Campbell R., H., & Roni, M. (2005). Payout policy in the 21st century. *Journal of Financial Economics*, (77), 483–527. <https://doi.org/10.1016/j.jfineco.2004.07.004>
- Brennan, M. J. (1970). Taxes, Market Valuation and Corporate Financial Policy, *National Tax Journal*, 12.
- Conroy, R. M., Eades, K. M., & Harris, R. S. (2000). A Test of the Relative Pricing Effects of Dividends and Earnings: Evidence from Simultaneous Announcements in Japan. *The Journal of Finance*, 55(3), 1199–1227. <https://doi.org/10.1111/0022-1082.00245>
- Dickens, R. N., Casey, K. M., & Newman, J. A. (2002). Bank Dividend Policy: Explanatory Factors. *Quarterly Journal of Business & Economics*, (41), 3–12.
- Elton, E. J., & Gruber, M. J. (1970). Marginal Stockholder Tax Rates and the Clientele Effect. *The Review of Economics and Statistics*, 52(1), 68–74. <https://doi.org/10.2307/1927599>
- Fama, E. F., & French, K. R. (2001). Disappearing dividends: changing firm characteristics or lower propensity to pay? *Journal of Financial Economics*, 60(1), 3–43. [https://doi.org/10.1016/S0304-405X\(01\)00038-1](https://doi.org/10.1016/S0304-405X(01)00038-1)
- Favero, L. P., & Belfiore, P. (2017). *Manual de análise de dados: estatística e modelagem multivariada com Excel®, SPSS® e Stata®*. Elsevier Brasil.

- Fuller, K. P., & Goldstein, M. A. (2011). Do dividends matter more in declining markets? *Journal of Corporate Finance*, 17(3), 457–473. <https://doi.org/10.1016/j.jcorpfin.2011.01.001>
- Gordon, M.J. (1959). Dividends, Earnings, and Stock Prices. *The Review of Economics and Statistics*, 41(2), 99–105. <https://doi.org/10.2307/1927792>
- Harford, J., Mansi, S. A., & Maxwell, W. F. (2008). Corporate governance and firm cash holdings in the US. *Journal of Financial Economics*, 87(3), 535–555. <https://doi.org/10.1016/j.jfineco.2007.04.002>
- Hauser, R. (2013). Did dividend policy change during the financial crisis? *Managerial Finance*, 39(6), 584–606. <https://doi.org/10.1108/03074351311322861>
- Hsiao, Y.-J., & Tseng, Y.-W. (2016). Bank Capital Regulation and Dividend Policy. *Journal of Financial Studies*, 24(3).
- Jensen, G. R., Solberg, D. P., & Zorn, T. S. (1992). Simultaneous Determination of Insider Ownership, Debt, and Dividend Policies. *Journal of Financial and Quantitative Analysis*, 27(2), 247–263. <https://doi.org/10.2307/2331370>
- Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, 76(2), 323–329.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Kaźmierska-Jóźwiak, B. (2015). Determinants of Dividend Policy: Evidence from Polish Listed Companies. *Procedia Economics and Finance*, 23, 473–477. [https://doi.org/10.1016/S2212-5671\(15\)00490-6](https://doi.org/10.1016/S2212-5671(15)00490-6)
- Labhane, N. B., & Mahakud, J. (2016). Determinants of Dividend Policy of Indian Companies: A Panel Data Analysis. *Paradigm*, 20(1), 36–55. <https://doi.org/10.1177/0971890716637698>
- Lee, S. W. (2009). Determinants of dividend policy in Korean banking industry. *Banks and Bank Systems*, 4, 67–71.
- Lintner, J. (1956). Distribution of Incomes of Corporations Among Dividends, Retained Earnings, and Taxes. *The American Economic Review*, 46(2), 97–113.
- Lintner, J. (1962). Dividends, Earnings, Leverage, Stock Prices and the Supply of Capital to Corporations. *The Review of Economics and Statistics*, 44(3), 243. <https://doi.org/10.2307/1926397>

- Maldajian, C., & Khoury, R. E. (2014). Determinants of the Dividend Policy: An Empirical Study on the Lebanese Listed Banks. *International Journal of Economics and Finance*, 6(4), 240–256. <https://doi.org/10.5539/ijef.v6n4p240>
- Marfo-Yiadom, E., & Agyei, S. K. (2011). Determinants of Dividend Policy of Banks in Ghana. *International Research Journal of Finance and Economics*, 99–108.
- Miller, M. H., & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. *The Journal of Business*, 34(4), 411–433. <https://doi.org/10.1086/294442>
- Patra, S. (2019). Essays in bank dividend signaling, smoothing and risk shifting under information asymmetry and agency conflict (PhD, University of Glasgow).
- Petria, N., Capraru, B., & Ilnatov, I. (2015). Determinants of Banks' Profitability: Evidence from EU 27 Banking Systems. *Procedia Economics and Finance*, 20, 518–524. [https://doi.org/10.1016/S2212-5671\(15\)00104-5](https://doi.org/10.1016/S2212-5671(15)00104-5)
- Ross, S. A. (1977). The Determination of Financial Structure: The Incentive-Signalling Approach. *The Bell Journal of Economics*, 8(1), 23–40. <https://doi.org/10.2307/3003485>