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What firm's characteristics drive the dividend policy? A mixed-method study on the Euronext stock exchange

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ABSTRACT

What drives the dividend policy at the firm level? Literature has been mainly focused on taxes, type of shareholders and market effects. In this paper, we perform a novel approach to dividend policy literature. First, controlling for tax, market and shareholders effects, the paper intends to analyse which firm variables are more relevant on the decision to pay dividends, on the decision to pay regular dividends and on the decision of the amount of dividends. The paper uses non-financial firms listed on Euronext stock exchanges from 2000 to 2017, and we combined a quantitative econometric perspective with a qualitative, using fsQCA. We found that variables such as operating margins, analyst's coverage and shares in free float have substantial impacts on the dividend policy of firms. Moreover, firm's size is the major determinant of the dynamics of the dividend policy.

1. Introduction

Corporate Finance is based on three main decisions made by firms: the investment decision, the financing decision and the dividend policy decision. The latter regards the decision made by each firm concerning the amount of profits to be distributed to shareholders and the amount to be reinvested. There is substantial controversy on the dividend policy theory. Based on the seminal work of Lintner (1956) and Modigliani and Miller (1961), some argue for the dividend policy irrelevance on firm value. Others, based on the asymmetric information and the agency theory claim for the relevance of dividends in firm value. Also, there is an extensive discussion in the literature about dividend payout (Berk, DeMarzo, & Harford, 2013; Boţoc & Pirtea, 2014; Brav, Graham, Harvey, & Michaely, 2005; Desai & Jin, 2011; Grinstein & Michaely, 2005; Jacob & Lukose, 2018; La Porta, Lopez-de-Silanes, Shleifer & Vishny, 2000; Ross, Westerfield, & Jordan, 2010) and what determines the dividend policy of each firm (Ahmad, 2015; Allen, Bernardo, & Welch, 2000; Chang, Kang, & Li, 2016; Graham & Kumar, 2006; Henry, 2011; Jacob & Michaely, 2017; Kumar & Sujit, 2016; Smith, Puleo, & Casey, 2008).

Literature has been more focused on the financial aspects of the dividend policy of firms, with a quantitative approach. The literature on what determines the dividend policy is mainly focused on the role of taxation in the decision of paying dividends. There is also literature regarding the impact of the dividend policy in the stock prices. The literature of dividend policy regarding the specific determinants of firms is more limited and usually much focused on the type of shareholders.

In this paper, we take a new and different approach to the dividend puzzle issue. We used the taxation and markets determinants of dividend policy but centred our paper on what firms characteristics drive the dividend policy? We go further than previous research by focusing not so much on the ownership structure affecting dividend payout but on the financial characteristics of firms, such as size, growth, profits and capital structure. Also, we innovate regarding previous literature, by using a mixed-methods perspective, using both an econometric approach and a fsQCA. The objective of this research is to understand what determines are needed for a firm to pay a dividend or to change such policy.

Therefore, our paper crosses five research hypotheses with three main research questions:

I. What are the determinants of firms paying dividends?
II. What are the determinants of dividends being stable?
III. What are the determinants of the value of dividends?

In this paper, we collected data from 2000 to 2017 of firms listed on the Euronext stock exchanges. Data on firm variables, shareholders type, market effects and taxation were collected. We run several econometric models. The first model was used to determine what

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Table 1
Main literature on Dividend policy.

Panel A – Tax determinants	
There is a strong impact of taxes on dividend policy	Elton and Gruber (1970); Poterba and Summers (1984); Michaely and Murgia (1995); Pérez-González (2002); Poterba (2004);Brav et al. (2005); Chetty and Saez (2005)
The dividend yield increases when tax brackets decrease	Elton and Gruber (1970)
If taxes between capital gains and dividends are equal, firms prefer dividends	Elton and Gruber (1970); Dahlquist et al. (2014)
Higher payout tax brackets prefer capital gains	Elton and Gruber (1970)
Tax exempted prefer dividends	Lee et al. (2006)
Dividends respond to changes in the tax brackets	Poterba and Summers (1984)
Panel B – Stock market impacts and Ownership	
Dividend policy impacts on stock prices. Firms with dividends have higher abnormal returns	Dewenter and Warther (1998); Anderson and Reeb (2003)
Positive abnormal returns are surrounding the dividend announcement	Seida (2001)
Firms with individual shareholders pay more dividends	Pérez-González (2002)
Large owners influence the dividend policy	Pérez-González (2002)
Inside ownership have an impact on dividend policy	Farinha (2003); Henry (2011)
Managers try to avoid dividend cuts, preferring to raise more debt	Poterba (2004); Brav et al. (2005)
Investors see repurchases as more flexible than dividends	Brav et al. (2005)
Firms as shareholders prefer higher dividends	Lee et al. (2006); Gallagher et al. (2011)
Domestic shareholders prefer dividends	Henry (2011); Almeida et al. (2014)
Older investors with low income prefer dividends	Graham and Kumar (2006)
Panel C – Firm determinants	
Higher growth leads to a lower dividend yield	La Porta et al. (2000); Almeida et al. (2015)
A negative relationship between firm size and dividends	Farinha (2003); Ahmad et al. (2018)
Better corporate governance pay more dividends	Farinha (2003)

variables impact on the decision of firms to pay dividends. The second aims to understand what variables affect the firm's regular dividend. Third, what are the main determinants of the dividend value? We combine this quantitative approach with a qualitative analyse, using a fsQCA.

This paper is organised as follow. A literature review is presented in Section 2. The research methods and data are presented in Section 3, with the results and discussion in Section 4. Section 5 concludes.

2. Literature review

What drives the dividend policy of a firm? The dividend policy includes several issues that must be decided by the board and the shareholders. First, should the firm pay dividends? Second, should the firm pay dividends on a regular basis? Third, what should be the amount of dividends? Finally, fourth, should the payment be made by dividends or buybacks? In this literature review, we intend to look on these aspects, as dividend policy is mainly driven by three factors: The impact of taxation in the distribution of profits, the impact on the stock market (mainly the shareholder structure) and the firm's determinants. Table 1 in annexe summarise these 3 perspectives in literature.

2.1. Dividend policy and taxation

Most literature argues for the impact of taxes on the dividend policy of firms (see for instance Elton & Gruber, 1970; Poterba & Summers, 1984; Michaely & Murgia, 1995; Pérez-González, 2002; Poterba, 2004; Brav et al., 2005; Chetty & Saez, 2005). The main discussion on taxation and dividends is based on the decision about whether firms should return value to shareholders through dividends or buybacks. The decision, as we will see later, is also affected by the type of shareholders the firm has. Different shareholders will have different interests concerning liquidity. However, taxes play a fundament role in this decision. An important imperfection occurs on account of the differences between the taxation of dividends and share repurchases, which can be explained by the dividend puzzle (Black, 1976).

If taxes between capital gains (the taxation of buybacks) and taxes on dividends are equal, firms tend to prefer dividends (Dahlquist, Rydqvist, and Robertsson, 2014). However, if tax brackets are high, investors tend to prefer buybacks; this is, being taxed by capital gains (Elton & Gruber, 1970). In most cases, this is because some exemptions and benefits are related to capital gains. Similarly, a reduction in taxes, or if investors see their tax brackets reduced, they tend to support higher dividends. As mentioned by Poterba and Summers (1984), firms tend to adjust dividends to changes in taxation.

Taxation on dividends is based on a traditional view, where reducing taxes on dividends may lead to a decline in the cost of capital and, consequently, could lead to a higher level of investment (Pulido & Barros, 2017). However, other authors (Auerbach, 1979; Bradford, 1981) support the argument that retained earnings entirely finance marginal investments, and, as a result, taxation on dividends should not affect investment decisions, as they are not subject to personal income taxation.

2.2. Dividend policy and markets

Dividends appear to have an impact on firms' stock prices. According to Dewenter and Warther (1998) and Anderson and Reeb (2003), firms with dividends have higher abnormal returns than firms that do not pay dividends. Seida (2001) found that positive abnormal returns are surrounding the dividend announcement. The issue of markets in dividend policy is mainly driven by the clientele effect and the asymmetric information. On the first, there is a tax-induced clientele effect in the equities marketplace (Lewellen, Stanley, Lease, & Schlarbaum, 1978). Dhaliwal, Erickson, and Trezevant (1999) examine changes in ownership of firms that initiated the payment of dividends, with corporate investors and tax-exempt/tax-deferred investors preferring dividends. Firms as shareholders prefer higher dividends (Lee, Liu, Roll, & Subrahmanyam, 2006; Gallagher, Jun, & Partington, 2011). Also, Chetty and Saez (2005) and Kasozi and Ngwenya (2015), claim that in an initiating-firm, the clientele effect of dividends acts as a strong influence on investors' investment decisions. However, investors see repurchases as more flexible than dividends (Brav et al., 2005).

There is some evidence that managers tend to prefer to pay dividends regularly, as they want to avoid the risk of a reduction in the payout, creating an adverse scenario with shareholders (Graham &

Kumar, 2006). Managers try to avoid dividend cuts, preferring to raise more debt (Poterba, 2004; Brav et al., 2005). Firms with individual shareholders tend to pay more dividends (Pérez-González, 2002), but also that large owners also determine the dividend policy. Furthermore, Farinha (2003) and Henry (2011) also show that inside ownership has an impact on dividend policy. On the other hand, domestic shareholders (Henry, 2011; Almeida, Pereira, & Tavares, 2014) and older investors (Graham & Kumar, 2006) with low income prefer dividends.

2.3. Dividend policy and firm determinants

Firms' specific characteristics have an impact on dividends, but this topic has been less address in literature. There is some evidence that firms with higher growth tend to reduce dividends (La Porta et al., 2000; Almeida, Tavares, & Pereira, 2015). This is explained by the fact that fast growth in firms implies higher investments. Therefore, managers and stakeholders aligned with a strategy of higher growth in a firm will likely be less prone to dividends. Also, Farinha (2003) have found that there is a negative relationship between firm size and dividends. This could be the past effect of higher investments or the need for more cash to replace previous investments for large firms. The author also found a positive relationship between more dividends and better corporate governance.

2.4. Research hypotheses

As described in a previous section, the literature is consensual in considering that taxes impact the dividend policy of firms. Firms decision on whether to pay or not dividends and whether to do it directly through dividends or by buyback shares is mostly determined by the level of taxation imposed on each decision. Therefore, in this study, we defined:

Hypothesis I: Taxes impact on a firm's dividend policy

Furthermore, we have also argued that there is an impact of market behaviour on the dividend policy derived from the substantial impact of these policies on the firm's stock price. As we have seen in the previous section, there is some concern from managers in paying dividends (and in the stability of the dividend policy), in order to avoid unwanted market reactions. Due to this, we defined:

Hypothesis II: More analysts following the firm affects the dividend policy.

Still related to the previous hypothesis is the level of a firm exposure to markets. This is due to the dispersion of firms' capital structure. Firms with a low level of free float would be less likely to be concerned with the impacts on stock prices from dividend policies. Based on this, we add the following hypothesis:

Hypothesis III: The level of a firm shares on free float influences the dividend policy.

Also, dividend policy is related to firm size and profitability. Larger and more profitable firms are more likely to pay dividends and be able to assure the stability of the dividend policy. Therefore, we add two additional hypotheses to our study:

Hypothesis IV: The firm's size impact on the dividend policy.
Hypothesis V: The level of firm profits influences the dividend policy.

3. Data and research methods

3.1. Data

Our research on the determinants of the dividend policy uses a firm-level sample based on the firms that currently compose the Euronext 100 index. Data was collected from *Thomson Reuters Eikon* in the form of consolidated annual reports, and the period of study runs from 2000 to 2017. However, our final sample is only composed of 83 firms. This was due to two reasons: first, we exclude 4 firms from the financial sector (the sector is sensitive to specific drivers and is usually studied in finance literature autonomously), and we were not able to collect data on the independent variables for all firms. The final unbalanced sample covers 1134 firm-year observations from 83 unique firms during 18 years. The firms that compose our dataset are mainly headquartered in France, the Netherlands, and Belgium, and the predominant sectors are industrials and consumer business.

3.2. Dependent variables

Our study comprises three different perspectives on the dividend policy. First, we intend to study what are the determinants of firms paying or not paying dividends. For that, we used *Dividend* as a dependent variable, which is a dummy variable taking the value one if the firm *i* pays dividends in year *t*. Paying dividends is more likely for firms with individual shareholders (Pérez-González, 2002), which is mostly related to a higher level of shares outstanding in free float (Table 2).

Secondly, we want to analyse the determinants for the stability of the dividend policy. For that, our dependent variables are *dividend per share (DPS)*, *regular payout ratio*, and *regular dividend yield*. The stability is in the dividend policy is a critical feature in finance theory, especially regarding the signalling hypothesis of the dividend policy (Graham & Kumar, 2006). Managers avoid signalling the market with significant changes in the dividend policy, which may well be understood as indications of how future earnings should evolve, leading managers to favour a stable DPS (Allen et al., 2000). Surprisingly, only 13.6% observations in our sample account for the stability in the *DPS* (Table 3). The level and persistence of the payout encompass a deviation of the theory on dividend policy, and we look at it through two proxies – *Payout regular* and *Payout range* 2%. The Payout regular is set as one if the firm *i* has the same *Payout ratio* from *t-1* to *t*, while the *Payout range 2%* relax the assumption of strict stability. The variable accommodates variabilities in the payout ratio in *t* that are in the range −2% to +2% from the lagged value. The dividend yield contrasts the ratio of dividend per share over the firm's stock price, being dependent on market participants' expectations over firms' prospects. Stable and mature firms usually distribute regular dividends to achieve a regular dividend yield, and we look precisely at this effect. Therefore, the variable *Dividend Yield range 2%* takes the value one when the dividend yield for firm *i* in year *t* ranges no more than −2% to 2% from year *t-1*. The clientele effect claims stability in the dividend yield, especially for smaller and individual investors that compose most part of firm's free float (Pérez-González, 2002). The stability of the dividend policy is less likely for firms facing increasing profitability at an operational level (Almeida et al., 2015).

Finally, we want to analyse what are the determinants for the amount of dividends (this is, how much cash is paid to shareholders). We use three different variables: the *DPS*, the *payout* and the *yield*. The *DPS* (EUR) is the cash dividend paid to the holders of each share outstanding. The *Payout* (%) is the ratio between the DPS and the firm's earnings per share. The *Dividend Yield* (%) is the ratio of dividends paid over the firm's stock price. The proxy measures the contemporaneous return on investment if shareholders take a long-term perspective on their investments. Larger firms are more likely to pay higher dividends and increasing dividend yields, which requires lower payouts (Ahmad, Barros, & Sarmento, 2018).

Table 2
Variables definitions.

Variable	Description
Dependent variables	
First model: Firms paying dividends	
Dividend	Dividend is a dummy variable taking the value 1 if the firm pays a cash dividend, and 0 otherwise.
Second model: Dividend policy stability	
DPS regular	DPS regular is a dummy variable that takes the value 1 if the dividend per share in year *t* is the same as in the year *t-1*.
Payout regular	Payout regular is a dummy variable that takes the value 1 if the payout ratio in year *t* is the same as in the year *t-1*.
Payout range 2%	Payout range 2% adds more variability in the stability of the payout ratio. It is a dummy variable taking the value 1 if the payout ratio in year *t* is the range of −2% to 2% from the ratio in the year *t-1*.
Dividend Yield range 2%	Dividend Yield range 2% is a dummy variable taking the value 1 if the dividend yield in year *t* is the range of −2% to 2% from the yield in the year *t-1*.
Third model: Amount of dividends paid	
DPS (EUR)	DPS is the dividend per share, in euros.
Payout (%)	Payout ratio is the ratio of dividend per share over earnings per share.
Dividend Yield (%)	Dividend yield is the ratio between the dividend per share and the firm's stock price.
Payout < 0%	Payout <0% is a dummy variable taking the value 1 for firms with negative payout ratio, and 0 otherwise.
Payout > 100%	Payout higher than 100% is a dummy variable taking the value 1 for firms paying cash dividends exceeding contemporaneous earnings, and 0 otherwise.
Independent variables	
Hypothesis I – Taxes	
Book ETR	Book ETR is the effective tax rate computed as income tax divided by EBT.
Tax Rate Dividends	Tax Rate Dividends is the tax rate on distributed profit per country and year.
Hypothesis II – Analysts coverage	
N. Analysts	N. Analysts is the number of analysts covering the firm in each year.
Hypothesis III – Market free float	
Free Float	Free float accounts for the firm's free float, being static over time.
Hypothesis IV – Firm size	
Size	Size is measured by the log of firm's total assets.
Hypothesis V – Firm profitability	
EBT margin	EBT margin is the ratio of earnings before taxes (EBT) over revenues.
Control variables	
Leverage	Leverage is the ratio of debt-to-equity.
PP&E	Property, Plant & Equipment (PP&E) is scaled by the firm's total assets.
Liquidity	Liquidity is measured by the current ratio: current assets divided by current liabilities.
Inventory Turnover	Inventory turnover measures the ratio of efficiency between revenues and inventory levels.
Market/Book	Market to Book is the ration between equity at market values over the corresponding book value.
Revenue CAGR 3y	Revenue CAGR 3y account for the compounded annual growth rate of revenue from t-*2* to *t*.
ROE	ROE is the firm's return on equity measured as the ratio between net income and book value of equity.
EBT CAGR 3y	EBT CAGR 3y comprises the compounded annual growth rate of EBT from *t-2* to *t*.

3.3. Quantitative approach: model and control variables

To understand the firm's characteristics that drive the dividend policy, we use three main models. Regarding the determinants of firms paying or not dividends, we used the following model:

$$\begin{aligned} Dividen\ \ d_{it} &= \beta_0 + \beta_1\ \ Book\ \ ETR_{it} + \beta_2\ \ Tax\ \ Rate\ \ Dividends_{ct} + \beta_3 \\ &\quad N.\ Analysts_{it} + \beta_4\ \ Free\ \ Float_{it} + \beta_5\ \ Size_{it} + \beta_6\ \ EBT\ \ margin_{it} + \beta_7 \\ &\quad Leverage_{it} + \beta_8\ \ PP\&E_{it} + \beta_9\ \ Liquidity_{it} + \beta_{10} \\ &\quad Inventory\ \ Turnover_{it} + \beta_{11}\ \ Market/Book_{it} + \beta_{12} \\ &\quad \text{Revenue CAGR } 3y_{it} + \beta_{13}\ \ ROE_{it} + \beta_{14}\ \ EBTCAGR3y_{it} + \varepsilon_{ict} \end{aligned} \quad (1)$$

where

Four our first hypothesis, related to taxation, we used as explanatory variables the *Book ETR* that captures the firm's level of corporate tax avoidance. The variable is computed as the ratio of income taxes over earnings before taxes (Jacob & Jacob, 2013); and the *Tax Rate Dividends* is the tax rate on distributed profit per country *c* and year *t*, which includes the combined (central and sub-central) marginal statutory corporate income tax rate on distributed profits, inclusive of surtax (if any). This variable is sourced from the OECD.

Our second hypothesis is related to the coverage from analysts, and we used as proxy *N. Analysts* – is the number of analysts covering each firm *i* in each year *t*. Analysts coverage is defined as the number of sell-side analysts that follow firms and often issue equity research reports and investment recommendations. To the best of our knowledge, this study is the first following this approach.

The third hypothesis relates to the level of a firm free float with the dividend policy. The independent variable used is *Free Float* is the percentage of shares outstanding that do not belong to major shareholder blocks, such as institutional owners, family members, equity funds, among others.

The fourth hypothesis concerns the firm size and dividend policy. To test this hypothesis, we used *Size*, which aims to account for the dimension and maturity level of firms. The variable is measured as the log of the firm's total assets and has been widely used in the literature (e.g., Farinha, 2003; and Ahmad et al., 2018).

Our last hypothesis relates the dividend policy with the level of firm's profitability. To test this, we used as explanatory variable *EBT margin*, and it is measured as the earnings before taxes scaled by the firm's revenues.

We also used the following control variables, according to existent literature:

Leverage is the ratio of total debt over equity. Finance literature connects dividend policy and capital structure and this variable aims precisely to control for such a connection. Existent literature suggests that leverage reduces the likelihood of the firm paying dividends (Desai & Jin, 2011; Jacob & Jacob, 2013; Henry, 2011).

Table 3
Descriptive statistics.

Variable	Obs	Mean	Std	1st Q	Median	3rd Q	Min	Max
Dependent variables								
First model: Firms paying dividends								
Dividend	1,134	0.957	0.203	1.000	1.000	1.000	0.000	1.000
Second model: Dividend policy stability								
DPS regular	1,134	0.138	0.345	0.000	0.000	0.000	0.000	1.000
Payout regular	1,134	0.030	0.171	0.000	0.000	0.000	0.000	1.000
Payout range 2%	1,134	0.153	0.361	0.000	0.000	0.000	0.000	1.000
Dividend Yield range 2%	1,134	0.802	0.398	1.000	1.000	1.000	0.000	1.000
Third model: Amount of dividends paid								
DPS (EUR)	1,134	1.144	1.390	0.326	0.800	1.429	0.000	13.10
Payout (%)	1,134	1.394	7.801	0.264	0.489	1.091	−51.50	195.8
Dividend Yield (%)	1,134	0.028	0.028	0.014	0.022	0.033	0.000	0.368
Payout < 0%	1,134	0.035	0.185	0.000	0.000	0.000	0.000	1.000
Payout > 100%	1,134	0.263	0.440	0.000	0.000	0.000	0.000	1.000
Independent variables								
Hypothesis I - Taxes								
Book ETR	1,134	0.277	0.316	0.208	0.279	0.339	−3.153	2.377
Tax Rate Dividends	1,134	0.341	0.044	0.340	0.344	0.364	0.190	0.461
Hypothesis II – Analysts coverage								
N. Analysts	1,134	18.46	6.032	16.00	19.00	22.00	0.000	31.00
Hypothesis III – Market free float								
Free Float	1,134	68.07	22.44	46.82	68.54	91.12	15.13	100.0
Hypothesis IV – Firm size								
Size	1,134	23.33	1.368	22.45	23.36	24.28	18.42	26.74
Hypothesis V – Firm profitability								
EBT margin	1,134	0.093	0.133	0.045	0.085	0.136	−3.530	0.994
Control variables								
Leverage	1,134	1.196	5.776	0.404	0.748	1.354	−31.88	179.3
PP&E	1,134	0.231	0.172	0.096	0.197	0.333	−0.611	1.024
Liquidity	1,134	1.237	0.559	0.898	1.115	1.474	0.041	7.673
Inventory Turnover	1,134	64.45	314.9	6.538	11.29	24.87	0.913	3478
Market/Book	1,134	2.860	3.962	1.370	2.206	3.444	−13.20	106.9
Revenue CAGR 3y	1,134	0.080	0.164	0.005	0.055	0.120	−0.498	1.857
ROE	1,134	0.142	0.139	0.082	0.133	0.185	−1.018	0.923
EBT CAGR 3y	1,134	0.167	0.557	−0.052	0.077	0.257	−0.942	7.225

Notes: This table presents the descriptive statistics of all variables.

PP&E measures the firm's level of property, plant & equipment (PP&E) scaled by total assets, which assesses the need for using cash flows for investment purposes.

Liquidity measures the firm's current ratio, as in Henry (2011). Dividend policy is frequently affected by liquidity constraints of firms, although short-term financing capacity might overcome liquidity issues when it comes to defining the level and stability of dividends. Therefore, the expected association is unclear.

Inventory Turnover is the ratio of revenues over inventory. The efficiency ratio is relevant amongst non-service firms that are pressured to attain high-efficiency levels to accommodate strong dividend policies.

Market/Book is a variable that incorporates the expectations of market participants over the evolution of the firm's stock price and has been used in the dividend policy literature (Pérez-González, 2002; Farinha, 2003; Grinstein & Michaely, 2005; Lee et al., 2006; Gallagher et al., 2011; Desai & Jin, 2011). A higher ratio may indicate expected growth ahead, which requires investment. Not distributing dividends is a mechanism of self-financing.

Revenue CAGR 3y is the compounded annual growth rate (CAGR) for revenue in the period *t-2* to *t*, and proxies for growth in the business

Adding on the fifth hypothesis about profitability, two other controls are added (Poterba, 2004; Henry, 2011). *ROE* measures profitability for equity holders, being measured as net income divided by book value of equity. *EBT CAGR 3y* is the compounded annual growth rate for earnings before taxes in the period *t-2* to *t*.

Definitions of all variables in our study are in Table 2.

Determinants of dividend policy are shared by all models and were explored in the literature review section. An overview of the dependent, independent and control variables is presented in Table 2. Concerning diagnostic tests on the independent variables, we have run the matrix correlation and the VIF test, and there is no significant evidence of multicollinearity among our variables. For the heteroskedasticity, we have used robust standard errors.

Our econometric model from the previous model (1) uses several different regressions. We used an OLS with fixed-effect specifications to control for time-variant characteristics (year), specificities of the firm's economic sector, and also country-level characteristics. For robust purposes, we also run our OLS with the random-effects specification, which is considered after performing the Hausman test. As our dependent variable is a dummy, we used the standard logit model and a random-effects logit model and also, for robustness purposes, a standard probit model and a random-effects probit model. In estimations, robust standard errors are included.

To infer the determinants of the stability of the dividends (using as a proxy to Stability the dependent variables explained before), we use model (2):

Table 4
Determinants of dividend payment (First model).

	(1) OLS	(2) RE	(3) Logit	(4) Logit RE	(5) Probit	(6) Probit RE
Hypothesis I – Taxes						
Book ETR	0.026	0.023	0.670**	0.953*	0.297*	0.481
	(0.020)	(0.028)	(0.335)	(0.574)	(0.176)	(0.308)
Tax Rate Dividends	−0.393	−0.143	0.057	−7.436	−0.425	−3.797
	(0.333)	(0.335)	(4.273)	(5.334)	(1.912)	(3.118)
Hypothesis II – Analysts coverage						
N. Analysts	−0.005***	−0.006**	−0.198***	−0.378***	−0.105***	−0.202***
	(0.001)	(0.003)	(0.041)	(0.108)	(0.019)	(0.059)
Hypothesis III – Market free float						
Free Float	0.001***	0.000	0.025***	0.002	0.011***	0.000
	(0.000)	(0.001)	(0.008)	(0.022)	(0.004)	(0.012)
Hypothesis IV – Firm size						
Size	0.037***	0.048**	0.900***	1.823***	0.440***	0.953***
	(0.010)	(0.022)	(0.173)	(0.571)	(0.081)	(0.319)
Hypothesis V – Firm profitability						
EBT margin	0.379***	0.308***	14.134***	20.866***	7.260***	11.029***
	(0.047)	(0.045)	(3.770)	(6.585)	(1.721)	(3.258)
Control Variables						
Leverage	0.003	0.004	0.075	0.095	0.019	0.042
	(0.003)	(0.004)	(0.150)	(0.154)	(0.042)	(0.067)
PP&E	0.105**	0.025	2.513**	0.789	1.121**	0.440
	(0.053)	(0.074)	(1.112)	(3.005)	(0.518)	(1.583)
Liquidity	−0.029*	0.007	−0.373	0.827	−0.159	0.499
	(0.017)	(0.022)	(0.306)	(0.719)	(0.154)	(0.388)
Inventory Turnover	−0.000	−0.000	−0.000*	−0.001	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Market/Book	−0.001	−0.003	0.049	−0.029	0.029	−0.005
	(0.004)	(0.006)	(0.143)	(0.160)	(0.048)	(0.074)
Revenue CAGR 3y	−0.107*	−0.053	−1.204	−0.696	−0.683*	−0.423
	(0.060)	(0.050)	(0.809)	(1.582)	(0.402)	(0.794)
ROE	0.223**	0.139	1.506	−0.558	0.497	−0.329
	(0.107)	(0.140)	(2.269)	(2.405)	(0.729)	(1.154)
EBT CAGR 3y	−0.027	−0.011	−0.352*	−0.285	−0.195**	−0.151
	(0.019)	(0.016)	(0.182)	(0.233)	(0.097)	(0.126)
Random Effects	–	Yes	No	Yes	No	Yes
Year	Yes	Yes	No	No	No	No
Economic Sector	Yes	No	No	No	No	No
Country	Yes	No	No	No	No	No
Observations	1,134	1,134	1,134	1,134	1,134	1,134
Wald test	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.149	0.113	0.289	0.498	0.286	0.490

Notes: Robust standard errors are in brackets, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

$$Stability_{it} = \beta_0 + \beta_1\ Book\ \ ETR_{it} + \beta_2\ \ Tax\ \ Rate\ \ Dividends_{ct} + \beta_3\ N.\ Analysts_{it} + \beta_4\ \ Free\ \ Float_{it} + \beta_5\ \ Size_{it} + \beta_6\ EBT\ \ margin_{it} + \beta_7\ \ Leverage_{it} + \beta_8\ \ PP\&E_{it} + \beta_9\ \ Liquidity_{it} + \beta_{10}\ Inventory\ \ Turnover_{it} + \beta_{11}\ \ Market/Book_{it} + \beta_{12}\ \text{Revenue CAGR } 3y_{it} + \beta_{13}\ \ ROE_{it} + \beta_{14}\ \ EBT\ \ CAGR\ \ 3y_{it} + \varepsilon_{ict} \quad (2)$$

To analyse the determinants of the amount (using as a proxy to the amount the variables described before) of dividends paid related to the third research question, we used the following model (3):

$$Amount_{it} = \beta_0 + \beta_1\ Book\ \ ETR_{it} + \beta_2\ \ Tax\ \ Rate\ \ Dividends_{ct} + \beta_3\ N.\ Analysts_{it} + \beta_4\ \ Free\ \ Float_{it} + \beta_5\ \ Size_{it} + \beta_6\ EBT\ \ margin_{it} + \beta_7\ \ Leverage_{it} + \beta_8\ \ PP\&E_{it} + \beta_9\ Liquidity_{it} + \beta_{10}\ \ Inventory\ \ Turnover_{it} + \beta_{11}\ Market/Book_{it} + \beta_{12}\ \text{Revenue CAGR } 3y_{it} + \beta_{13}\ ROE_{it} + \beta_{14}\ \ EBT\ \ CAGR\ \ 3y_{it} + \varepsilon_{ict} \quad (3)$$

3.4. Qualitative approach

With this fsQCA analysis, our purpose is to contribute with a new methodological approach, data, and results, to the research gap associated with the dividend policy in listed firms, analysing the dividend policy of the non-financial Euronext 100 index's firms.

A qualitative comparative analysis of fuzzy sets was performed (Ragin, 2008; Rihoux & Ragin, 2009; Schneider & Wagemann, 2012; Legewie, 2013). This methodology (commonly expressed by the acronym fsQCA) was initially developed by Ragin (1987) and is based on set theory, Boolean algebra, and the concepts of necessary and sufficient condition. The fsQCA provides a systematic way of analysing data (Emmenegger, Schraff, & Walter, 2014), revealing patterns of associations across them, and thus, providing support for the eventual existence of causal relationships. This analysis gives the researcher empirical data to reflect on whether the various patterns identified can describe a causal relationship that makes sense both theoretically and empirically (Schneider & Wagemann, 2012; Legewie, 2013). The fsQCA methodology allows both equifinality (permits multiple successful solutions to emerge for a given outcome) and asymmetric causality (configurations that lead to a "failure" can differ from the configurations that lead to "success") (Fiss, 2007; 2011). The calibration (Ragin,

2008; Legewie, 2013) was done, by analysing the distribution of the data, in order to identify the full membership for a specific characteristic of the firm, full no membership and a crossover point. Subsequent truth tables were analysed, considering all combinations if its consistency score exceeded the threshold of 0.8 (Ragin, 2000).

In order to evaluate the relationship between some characteristics of the dividend policy of top listed European firms and characteristics of these firms (opportunities of growth, measured by compound annual growth rate of revenue; performance/profitability dimension, measured by EBT margin – ratio of earning before taxes over revenues; ownership structured, measured by market fee-float of the firm; visibility/investors interest measured by the number of analysts publishing about the firms) and the taxation of the country, measured by tax rate dividends, a comparative qualitative analysis of fuzzy sets was carried out (Ragin, 2008, Rihoux & Ragin, 2009; Schneider & Wagemann, 2012; Legewie, 2013). The analysis was done for the beginning of the period (2000) and the last year of the sample data (2017), in order to analyse if there are significant differences due, for example, to the financial crises that began in 2007 (De Santis, 2014).

The data on the adoption of 4 types of dividend policy behaviour was analysed following Ragin (2008), establishing three different anchors that are necessary to calibrate the data: an anchor to define the full membership, another to define the full non-membership and a crossover point (0.5). These firm behaviours are:

a. Dividend payout level (high and low)
b. Dividend payout stability (stable: ratio included in + −2 pp)
c. Dividend yield level (high and low)
d. Dividend yield stability (stable: around + −2 pp)

4. Results and discussion

4.1. Results of the quantitative approach

4.1.1. Determinants of firms paying dividends

The first research question aims to understand the determinants of firms paying dividends. For each question, we address five research hypotheses that look at different determinants of the dividend policy. The results of the first model are presented in Table 4. In columns (1) we run an OLS model, including a fixed effect specification for time, the location of headquarters and economic sector. Next, we narrow these controls to account for fixed vs random effects at firm and year levels. The Hausman test validates the random-effects model. As the dependent variable is dichotomic (dividend payment = 1), in columns (3) and (4) a logit model is performed to accommodate limitations of the linear probability model in previous columns. First, a standard logit model and secondly a random-effects logit model. Similarly, to yield robustness in our findings, in column (5) we run a standard probit model, while column (6) presents results for a probit random-effects model.

Regarding taxes as determinants of the dividend policy, results are not robust to sustain an impact on firm's dividend policy of both effective corporate tax rates and tax rates on dividends. However, the positive coefficients point that firms paying more taxes are more likely to pay dividends. One rationale for this finding is connected with the fifth research hypothesis. Paying more taxes may drive the payment of dividends because of higher profitability. Profitability is here captured by EBIT margin. Long-term and sustainable dividends are only viable for profitable firms. While higher levels of operating and financing performance enable firms to increase the likelihood of paying dividends, tax inefficiencies may also incentivise firms to distribute value to shareholders. This intuition considers that higher taxation at firm level reduces the after-tax return on shareholders investments. In cases of low levels of corporate tax avoidance (high Book ETR), the pressure on the dividends increases. Shareholders may either be taxed at lower rates or have mechanisms that allow for better tax liability optimisation. The literature has also pointed that profitability has a positive impact on the likelihood of firms paying dividends (Henry, 2011), although our results shed light on the potential alignment between taxes and firm's profitability on the influence on dividend payment.

The works of Farinha (2003) and Ahmad et al. (2018) pointed out for a negative relationship between dividends and firm's size. Our results are somehow contrary to these findings. Larger firms are more likely to pay dividends (Hypothesis IV). The growth in size brings stability to firms and investment opportunities scarcen, which is mostly when the dividend policy comes to play. However, as the size increases the focus of managers drifts to how the market reacts (Chetty & Saez, 2005; Kasozi & Ngwenya, 2015), as we will analyse later in the second model.

Other determinants that drive up the probability of paying dividends are a lower coverage from sell-side analysts (Hypothesis II) and a greater percentage of shares outstanding in free float (Hypothesis III). Firms controlled by a large number of shareholders have fewer incentives to distribute value to minority interests. Frequently, firms implement mechanisms to enlarge the base of shareholders and increase the free float. The strategy is a way of collecting funding through capital markets. However, an incentive has to be shown to potential shareholders. Therefore, the positive signal for the free float is consistent with the increase in the probability of distributing dividends when there is a higher portion of shares being available to shareholders other than equity funds, institutional investors, family members, amongst others.

While the effect from free float is aligned with existent empirical evidence – more disperse shareholders have no controlling forces and demand a stream of cash flow from their investments – the impact from analyst's coverage is surprising (Hypothesis II). Paying dividends is more likely when analysts are not following firms, which indicates that it may exist a substitute effect from pressure for earnings to short-run value distributed to shareholders. Ham, Kaplan, and Leary (2019) suggested that in the presence of dividends, investors' focus move from earnings to dividends, which may be the reason for analysts to affect the likelihood of paying dividends. Our results for the second hypothesis provide a different view to existent literature, as they suggest that analysts not only affect the design of the dividend policy but also exert a relevant impact on the decision to pay dividends.

4.1.2. Determinants of stability in the dividend policy

In the second research question, the focus is on the stability of the dividend policy. The second model is performed using either a logit random-effects model or a probit random-effects model. In columns (1) and (2) of Table 5, the stability is captured by the DPS. The signalling theory on the dividend policy calls for stability in the level of the DPS, regardless of its amount (Graham & Kumar, 2006).

Regarding the first research hypothesis, the literature has timidly addressed the effect of taxes on the stability of dividends. For instance, the work of Al-Yahyaee, Pham, Toan, & Walter (2010) focused on the stability of dividends, although in a setting absence of taxes. Chazi, Boubakri, and Zanella (2011) also studied the dividend policy in a tax-free environment. Inconclusive effects may well be driven by the fact that managers take corporate payout decisions based on shareholders' value maximization and taxes at shareholders' level (Hanlon & Hoopes, 2014). While the existent literature is not conclusive as to whether taxes influence the stability of the dividend policy, our results on the first research hypothesis for the second model does not add clarification to the current debate.

Moving to the second research hypothesis, we assess whether the coverage from analysts is again relevant, but focussing on the stability. Regarding the regular DPS, analysts' coverage is positively associated with stability. We view analysts as playing a monitoring role, rather than exerting a pressure role for earnings. The positive signal is justified by the signalling theory on the dividend policy (DeAngelo, DeAngelo, & Skinner, 2000). Analysts are vital parts to monitor firms' operations.

Table 5
Determinants of stability in the dividend policy (Second model).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	DPS regular		Payout regular		Payout range 2%		Dividend Yield range 2%	
	Logit RE	Probit RE	Logit RE	Probit RE	Logit RE	Probit RE	Logit RE	Probit RE
Hypothesis I – Taxes								
Book ETR	−0.111	−0.060	−0.006	−0.008	−0.064	−0.041	−0.538	−0.323*
	(0.209)	(0.123)	(0.184)	(0.092)	(0.210)	(0.119)	(0.348)	(0.192)
Tax Rate Dividends	1.010	0.348	1.720	0.710	4.403	2.692*	3.312	1.694
	(2.907)	(1.600)	(3.911)	(1.644)	(2.684)	(1.467)	(4.155)	(2.198)
Hypothesis II – Analysts coverage								
N. Analysts	0.068*	0.038**	0.015	0.006	−0.012	−0.005	−0.099**	−0.056**
	(0.035)	(0.019)	(0.023)	(0.011)	(0.032)	(0.017)	(0.049)	(0.027)
Hypothesis III – Market free float								
Free Float	−0.009	−0.005	−0.005	−0.002	0.003	0.001	0.019**	0.011**
	(0.007)	(0.004)	(0.008)	(0.003)	(0.008)	(0.004)	(0.009)	(0.005)
Hypothesis IV – Firm size								
Size	−0.405**	−0.219**	−0.070	−0.024	0.208*	0.110*	0.468**	0.264**
	(0.165)	(0.089)	(0.157)	(0.067)	(0.111)	(0.060)	(0.217)	(0.124)
Hypothesis V – Firm profitability								
EBT margin	−6.555***	−3.663***	2.244	1.077	5.598***	3.162***	9.930***	5.653***
	(2.425)	(1.299)	(1.988)	(0.975)	(2.148)	(1.168)	(2.903)	(1.538)
Control variables								
Leverage	−0.063	−0.033	−0.185*	−0.083*	0.056**	0.032**	−0.219***	−0.117***
	(0.079)	(0.037)	(0.107)	(0.046)	(0.025)	(0.014)	(0.080)	(0.039)
PP&E	−0.011	−0.050	0.203	0.075	−0.167	−0.132	−0.498	−0.320
	(1.027)	(0.547)	(0.977)	(0.398)	(0.827)	(0.444)	(1.025)	(0.597)
Liquidity	0.126	0.075	−0.045	−0.017	−0.270	−0.136	0.402	0.252
	(0.264)	(0.145)	(0.266)	(0.124)	(0.278)	(0.147)	(0.331)	(0.183)
Inventory Turnover	0.000	0.000	−0.001	−0.000	−0.002	−0.001	0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.002)	(0.001)	(0.000)	(0.000)
Market/Book	−0.044	−0.028	0.128*	0.056	−0.039	−0.023	0.381***	0.205***
	(0.071)	(0.036)	(0.076)	(0.034)	(0.041)	(0.023)	(0.120)	(0.059)
Revenue CAGR 3y	−1.048	−0.614	−0.092	−0.012	0.726	0.399	−0.410	−0.192
	(0.744)	(0.394)	(0.902)	(0.405)	(0.678)	(0.363)	(0.590)	(0.321)
ROE	−0.683	−0.352	−0.855	−0.376	0.371	0.221	−2.026	−1.109
	(1.396)	(0.714)	(0.974)	(0.454)	(0.700)	(0.396)	(1.693)	(0.818)
EBT CAGR 3y	0.027	0.013	−0.998***	−0.466***	−0.345*	−0.187*	0.203	0.110
	(0.209)	(0.104)	(0.301)	(0.141)	(0.188)	(0.103)	(0.210)	(0.104)
Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134
Wald test	0.007	0.007	0.016	0.027	0.013	0.015	0.000	0.000
Adjusted R^2	0.239	0.241	0.241	0.178	0.215	0.217	0.380	0.386

Notes: Robust standard errors are in brackets, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

The increase in coverage brings more scrutiny to managers' actions and not signalling the market with changes in the level of dividends may be a consequence of analysts' coverage. However, results in columns (7) and (8) suggest that higher coverage decreases the stability of the dividend yield. How the market reacts to the stability is key to our results. The positive coefficient for the Market/Book suggests that the dividend yield is more stable for firms with growth potential, driving the market capitalization upwards and affecting the stability of the dividend yield. Our results add to Dhillon et al. (2003) that focused on the information content of dividends due to expected and unexpected changes in the policy, although more research on the role of sell-side analysts on the stability of the dividend policy is still a gap that future literature could fill.

The level of free float (Hypothesis III) is positive regarding the stability of the payout rate, which is line with the clientele effect theory (Graham & Kumar, 2006), already addressed when discussing the first research question.

Results also suggest that the size of firms go against the stability of dividends (Hypothesis IV). Farinha (2003) already pointed out for such a relationship, although our analysis extends his work by adding other proxies to capture the dividend policy. We understand the negative association between size and regular DPS as a growing in dimension phenomenon. Smaller firms need investment to grow and to attract investors, thus to raise equity in the capital markets, it is required a contemporaneous incentive. On that regard, dividends play a role. On the other hand, larger firms do not have the same incentives for stability. Results in columns (5) and (6) focusing on the payout range 2% add clarification to this issue. Our results suggest that larger firms are less likely to have a stable DPS but maintain stability in the payout ratio. This mainly pertains to firms in leading positions and at a mature level. An example is the number one player worldwide in the cement industry, the Franco-Swiss firm LafargeHolcim Ltd. The firm has targeted stable payout ratios and distributes extraordinary dividends whenever earnings go above a predefined threshold – what they call excess cash.

Moving to the fifth research hypothesis, we expect profitability to influence the dividend policy, but at different dimensions. Better margins allow firms to increase the level of dividends from one year to another, which is in line with Almeida et al. (2015) findings. In addition to their study, our results also suggest that the increase in margins makes the payout and the dividend yield more stable. As margins enlarge, the outlook for firms became positive, and the market reacts accordingly, leaving the dividend yield barely unchanged.

4.1.3. Determinants of the value of dividends

Firms may distribute stable dividends, but if the value is not

Table 6
Determinants of the amount paid in dividends (Third model).

	(1)	(2)	(3)	(4)	(5)	(6)
	DPS (EUR)		Payout (%)		Dividend Yield (%)	
	OLS	RE	OLS	RE	OLS	RE
Hypothesis I – Taxes						
Book ETR	0.109	0.196*	−0.789	−0.749	0.007	0.009
	(0.156)	(0.105)	(1.033)	(0.717)	(0.005)	(0.006)
Tax Rate Dividends	0.589	2.077	−2.348	−13.447**	0.048*	0.004
	(1.421)	(1.314)	(8.722)	(6.041)	(0.026)	(0.024)
Hypothesis II – Analysts coverage						
N. Analysts	0.001	−0.051*	−0.020	−0.057	−0.000**	−0.000
	(0.006)	(0.029)	(0.072)	(0.062)	(0.000)	(0.000)
Hypothesis III – Market free float						
Free Float	−0.017***	−0.011	−0.018	−0.015	0.000	−0.000
	(0.003)	(0.007)	(0.015)	(0.011)	(0.000)	(0.000)
Hypothesis IV – Firm size						
Size	0.325***	0.411***	−0.621	−0.473*	0.005***	0.005***
	(0.028)	(0.095)	(0.501)	(0.270)	(0.001)	(0.001)
Hypothesis V – Firm profitability						
EBT margin	0.705	0.237	−1.035	−1.393	0.004	0.009**
	(0.500)	(0.173)	(1.656)	(1.158)	(0.006)	(0.004)
Control variables						
Leverage	0.017*	0.008	0.012	−0.004	0.001*	0.001*
	(0.009)	(0.009)	(0.077)	(0.093)	(0.001)	(0.001)
PP&E	−1.150***	−0.252	0.734	−0.208	−0.001	0.015*
	(0.190)	(0.240)	(2.157)	(1.785)	(0.005)	(0.009)
Liquidity	0.056	0.074	−0.365	−0.426	−0.001	0.000
	(0.069)	(0.070)	(0.423)	(0.541)	(0.001)	(0.002)
Inventory Turnover	−0.000**	−0.000	−0.000	−0.000	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market/Book	−0.045***	−0.013	−0.052	−0.025	−0.001*	−0.001**
	(0.015)	(0.016)	(0.108)	(0.138)	(0.001)	(0.001)
Revenue CAGR 3y	−0.335	0.326	1.745	1.519	−0.011	−0.005
	(0.215)	(0.244)	(2.468)	(1.330)	(0.008)	(0.009)
ROE	0.235	0.600***	−3.478	−3.794	0.026**	0.025**
	(0.283)	(0.214)	(2.633)	(2.639)	(0.012)	(0.012)
EBT CAGR 3y	−0.082	−0.067*	−0.748	−0.671	−0.005***	−0.004***
	(0.084)	(0.034)	(0.572)	(0.549)	(0.001)	(0.001)
Random Effects	–	Yes	–	Yes	–	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Economic Sector	Yes	No	Yes	No	Yes	No
Country	Yes	No	Yes	No	Yes	No
Observations	1,134	1,134	1,134	1,134	1,134	1,134
Wald test	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.273	0.149	0.059	0.048	0.261	0.209

Notes: Robust standard errors are in brackets, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

relevant for investors, the determinants of dividend policy add a limited contribution. However, in the third research question, we explore in detail the amount of dividends paid to equity holders. The research design for this question includes both and OLS model and a random-effects model (Table 6). The first accounts for a fixed effect specification for the year, country and economic sector, while the latter keeps the fixed effect specification for the year in a random-effects model. Column (1) and (2) present the analysis for the level of DPS in euros, while in the remaining columns the dependent variable is the payout ratio and the dividend yield, being both measured as a percentage.

The literature points to a relevant role of taxes on the dividend policy (Elton & Gruber, 1970; Poterba & Summers, 1984; Michaely & Murgia, 1995; Pérez-González, 2002; Poterba, 2004; Brav et al., 2005; Chetty & Saez, 2005). We found such effect to be inconclusive regarding the stability of the dividend policy, although relevant for the decision to pay or not dividends see Section 4.1.1). Unfortunately, results in Table 6 do not add clarification to the current debate.

The result for the analyst's coverage (Hypothesis II) and market free float (Hypothesis III) are also inconclusive. The amount of dividends depends heavily on the number of shares outstanding, yet larger firms are more likely to pay higher dividends and increasing dividend yields, which can eventually allow for lower payouts. This result is consistent with Ahmad et al. (2018) findings when we triangulate the DPS, the payout ratio and the dividend yield (Hypothesis IV).

In contrast with our findings for the influence of profitability on the decision to pay dividends and on its stability, our results are inconclusive for the amount paid in dividends (Hypothesis V), which complements Henry (2011) study.

Next, we move the analysis to control variables. The Market/Book presents a negative coefficient, meaning that lower expectations about the firm's growth in comparison with historical accumulated performance drive dividends down. The variability of the ratio Market/Book is justified by differences in firms' level of profitability measured by the ROE. This relationship is well established in the finance literature.

The ROE justifies higher values for the dividend, which is coherent with the hypothesis of profitability as a driver of dividends, although contrary to La Porta et al. (2000) and Almeida et al. (2015) findings. However, the Market/Book coefficient add a mutual understanding. We

Table 7
Determinants of the amount paid in dividends: special cases.

	(1)	(2)	(3)	(4)
	Payout < 0%		Payout > 100%	
	Logit RE	Probit RE	Logit RE	Probit RE
Hypothesis I – Taxes				
Book ETR	0.912***	0.533***	0.161	0.060
	(0.236)	(0.163)	(0.350)	(0.191)
Tax Rate Dividends	−5.592	−3.607	−0.133	−0.524
	(6.701)	(3.843)	(5.037)	(2.720)
Hypothesis II – Analysts coverage				
N. Analysts	0.019	0.011	0.056	0.025
	(0.058)	(0.073)	(0.078)	(0.041)
Hypothesis III – Market free float				
Free Float	−0.010	−0.008	−0.001	−0.000
	(0.010)	(0.010)	(0.015)	(0.008)
Hypothesis IV – Firm size				
Size	0.017	−0.066	−1.493***	−0.790***
	(0.281)	(0.196)	(0.278)	(0.137)
Hypothesis V – Firm profitability				
EBT margin	−81.382***	−36.350**	0.290	0.124
	(19.214)	(14.444)	(1.113)	(0.570)
Control variables				
Leverage	0.056	0.028	0.069	0.031
	(0.037)	(0.025)	(0.062)	(0.038)
PP&E	−0.831	−0.548	1.900	1.060
	(1.264)	(0.649)	(1.240)	(0.675)
Liquidity	0.043	−0.013	−0.099	−0.073
	(0.524)	(0.218)	(0.304)	(0.168)
Inventory Turnover	0.000	0.000	−0.002***	−0.001***
	(0.001)	(0.000)	(0.001)	(0.000)
Market/Book	−0.037	−0.020	−0.085	−0.040
	(0.098)	(0.040)	(0.089)	(0.046)
Revenue CAGR 3y	1.684	0.203	−1.375	−0.693
	(1.775)	(0.770)	(1.034)	(0.551)
EBT CAGR 3y	−0.875*	−0.400*	−1.502***	−0.838***
	(0.479)	(0.204)	(0.370)	(0.189)
Random Effects	Yes	Yes	Yes	Yes
Observations	1,134	1,134	1,134	1,134
Wald test	0.000	0.000	0.000	0.000
Adjusted R^2	0.973	0.959	0.292	0.289

Notes: Robust standard errors are in brackets, and the symbols *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.
ROE is excluded due to multicollinearity with EBT margin for firms with negative payout ratio.

view this as the consequence of firms' low prospects. ROE drives dividends up, as expected, but the results signal that cost of equity may well be close to current levels of profitability to shareholders, limiting the Market/Book and consequently the ability to pay higher dividends. ROE average (mean) is timidly at 14.2% (13.3%), which is not significantly distanced from conventional levels for equity cost of capital.

Capital structure decisions are interweaved with payout policy. Results for leverage suggest that higher levels of leverage enable firms to leverage the value of dividends. The more access to funds outside the capital market allows firms to pay more dividends and even extraordinary dividends if the level of profitability is kept at normal levels.

4.1.4. Determinants of the value of dividends: special cases

Special cases highlight situations in which firms opt to maintain a stable DPS even in periods of unstable earnings. Table 7 presents results for situations in which the payout rate is set outside the range 0 − 100%. Both logit random-effects and probit random-effects model are performed.

The payment of dividends when earnings are negative is influenced negatively by leverage, ROE and EBT margin. High levels of leverage may pressure earnings in case of low operational and financial performance (Hypothesis V), driving earnings down to negative levels. In these cases, the probability of paying dividends is lower. On the contrary, an increase in revenues growth and lower levels of tax avoidance (Hypothesis I) drive up the probability of paying dividends when the payout is set as negative.

Next, we focus on payout ratios exceeding contemporaneous earnings levels. The smaller size (Hypothesis IV) and lower growth in EBT justify this particular case of dividend distribution. Smaller firms and with growing EBT during 3 years usually show signs of potential growth ahead, but more capital may be required. PP&E exhibits a positive coefficient towards a payout higher than 100%. This is particularly relevant for firms that invested significantly in fixed assets but are still smaller. Distributing dividends in these situations may jeopardise the expected growth.

4.2. Results of the qualitative approach

In Table 8 we present, for the years 2000 and 2017, the configurations of conditions associated with dividend payout level, dividend yield level and the stability of these indicators. Our analysis:

a. Reveals different pathways for several outcomes, except for the low-dividend payout level (2017), dividend payout stability (2017) and non-dividend yield stability (the year 2000), with no available results due to the low level of consistency (below the cut-off);
b. Shows for the same outcome, different pathways in the year 2000 and 2017; besides, the number of configurations for all outcomes, except dividend payout level (2017 is higher in 2017, showing a larger diversity of firm's behaviour after the financial crisis.

Therefore, these findings contribute to the debate about dividend policy and, also, about the strategic consequences of the 2007s financial crisis, in different ways:

a. Among the top listed firms of Euronext stock exchanges, there is not only one mechanism that links firm's characteristics and its dividend policy, and the number of relevant pathways increases from 2000 (23 pathways) to 2017 (31);
b. There are simultaneous pathways that lead to some outcome and, unlike the traditional econometric approach, this article identifies the non-occurrence of some conditions to the outcome. For example, in 2000, the 1st pathway for high dividend yield firms connects high growth firms (fs_revgrow) with low coverage by analysts (~fs_analyst) but the 2nd pathway links non-high growth firms (~fs_revgrow) with the same firms that are not very attractive for analysts (~fs_analyst). Similarly, in 2017, the 3rd pathway for high dividend yield firms connects low growth firms (~fs_revgrow) with good performance firms (fs_ebt), but the 6th pathway links the same low growth firms (~fs_revgrow) with low-performance firms (~fs_ebt);
c. The consistency of results is high, especially in solutions for dividend yield stability (minimum: 0,87, ~cs_dy, the year 2000). For coverage the dispersion of results is very high (max: 0,929, ~cs_dy, 2000; min: 0,425, fs_pay, 2000).

5. Conclusions, limitations and future research

In this paper, we analysed what are the main characteristics of firms that drive the dividend policy. We used data on firms listed on the Euronext stock exchanges and three different approaches. First, firms paying dividends versus those who do not pay dividends. Second, for those firms that pay dividends, we narrowed the analysis for the ones that pay a regular dividend versus those that do not. Also, the level of the dividend for firms that pay dividends (measured by the dividend payout, the dividend yield and the value of the dividend in Euros). For these analyses, we performed a quantitative approach using

Table 8
fsQCA results.

Intermediate Solutions				
Variable	2000		2017	
Dividend Payout (level)				
fs_pay	fs_sgrow*fs_pit*~fs_asset		fs_sgrow*~fs_pit*~fs_analyst*~fs_asset	
consistency cutoff: 0.7534 (2000)	fs_sgrow*fs_pit*~fs_analyst		~fs_sgrow*~fs_pit*fs_mcap*~fs_asset	
consistency cutoff: 0.8082 (2017)	fs_sgrow*fs_pit*~fs_mcap	coverage: 0.7157	~fs_sgrow*fs_pit*~fs_mcap*fs_analyst*fs_asset	coverage: 0.2023
	~fs_pit*~fs_mcap*~fs_analyst*~fs_asset	consistency: 0.8105		consistency: 0.8191
~fs_pay	~fs_sgrow*~fs_pit*fs_mcap*~fs_analyst*~fs_asset		~fs_sgrow*~fs_pit*~fs_analyst*~fs_asset	
consistency cutoff: 0.9222 (2000)		coverage: 0.0363	~fs_sgrow*~fs_pit*~fs_mcap*~fs_analyst	coverage: 0.3256
consistency cutoff: 0.7575 (2017)		consistency: 0.9222	~fs_sgrow*fs_pit*fs_mcap*fs_analyst*fs_asset	consistency: 0.7703
Dividend Payout (stability; +- 2 pp)				
cs_pay			~fs_sgrow*~fs_pit*~fs_mcap*~fs_analyst*~fs_asset	coverage: 0.0444
consistency cutoff < 0,75 (2000)				consistency: 0.9726
consistency cutoff: 0.9726 (2017)				
~cs_pay	fs_sgrow*fs_pit		~fs_pit*fs_mcap*fs_asset	
consistency cutoff: 0.7568 (2000)	fs_sgrow*fs_analyst*~fs_asset		fs_mcap*fs_analyst*fs_asset	
consistency cutoff: 0.8072 (2017)	~fs_sgrow*~fs_pit*~fs_analyst*~fs_asset		fs_pit*~fs_mcap*~fs_analyst*~fs_asset	
	fs_pit*fs_mcap*fs_analyst*fs_asset		~fs_sgrow*~fs_pit*~fs_analyst*fs_asset	
	fs_sgrow*~fs_mcap*~fs_asset	coverage: 0.9427	fs_sgrow*~fs_pit*fs_mcap*fs_analyst	coverage: 0.6915
		consistency: 0.9284	~fs_sgrow*fs_pit*fs_analyst*fs_asset	consistency: 0.8951
Dividend Yield (level)				
fs_dy	~fs_sgrow*~fs_mcap*~fs_analyst*~fs_asset		~fs_sgrow*fs_mcap	
consistency cutoff: 0.9453 (2000)	fs_sgrow*~fs_pit*~fs_mcap*fs_analyst*~fs_asset		fs_mcap*fs_asset	
consistency cutoff: 0.7565 (2017)			~fs_sgrow*~fs_pit*~fs_analyst	
		coverage: 0.2104	~fs_pit*fs_mcap*fs_analyst	coverage: 0.8471
		consistency: 0.9621	~fs_sgrow*fs_pit*fs_asset	consistency: 0.6924
~fs_dy	fs_sgrow*fs_pit*fs_mcap		fs_sgrow*fs_pit*~fs_analyst*~fs_asset	
consistency cutoff: 0.7740 (2000)	fs_sgrow*fs_pit*~fs_analyst*fs_asset		fs_sgrow*fs_pit*fs_mcap*~fs_asset	
consistency cutoff: 0.7821 (2017)	fs_pit*fs_mcap*fs_analyst*fs_asset	coverage: 0.6211		coverage: 0.3804
	~fs_sgrow*~fs_pit*fs_mcap*~fs_analyst*~fs_asset	consistency: 0.8094		consistency: 0.8197
Dividend Yield (stability)				
cs_dy	~fs_sgrow*~fs_pit*~fs_analyst*~fs_asset		fs_mcap	
consistency cutoff: 0.8137 (2000)	fs_sgrow*fs_pit*fs_mcap*~fs_analyst		~fs_sgrow*~fs_analyst	
consistency cutoff: 0.7678 (2017)	fs_pit*fs_mcap*fs_analyst*fs_asset	coverage: 0.4183	fs_pit*~fs_analyst*~fs_asset	coverage: 0.9099
		consistency: 0.8543	~fs_sgrow*fs_pit*fs_asset	consistency: 0.8999
~cs_dy	fs_sgrow*~fs_pit*~fs_mcap*~fs_analyst*fs_asset			
consistency cutoff: 0.8943 (2000)		coverage: 0.0552		
consistency cutoff < 0,75 (2017)		consistency: 0.8943		

econometric models. Besides firm variables, we control for tax, stock markets and shareholders structure. Five research hypotheses cross the three approaches. Moreover, we have combined this with a qualitative analysis by using a fsQCA.

Our findings show that some firms characteristics impact on the dividend policy.

Taxes only influence the decision to pay or not dividends, while their effect on the stability of the policy and on the amount paid is inconclusive. Analysts also pay a role in the decision to pay dividends and also influence the stability but are not relevant to set the amount of dividends. Ownership drives the dividend policy (Pérez-González, 2002). Another novelty of our study is the focus on the percentage of shares outstanding in free float, mainly owned by small and individual investors. We find that higher free float increases the likelihood of firms paying dividends, which is coherent with the clientele hypothesis on dividends (Chetty & Saez, 2005; Kasozi & Ngwenya, 2015). The free float also appears to drive managers to target stable dividend yields.

The literature has already addressed the relevance of size (Farinha, 2003; Chetty & Saez, 2005; Kasozi & Ngwenya, 2015; Ahmad et al., 2018), although in our study it shed lights as the more prominent determinant of the dividend policy across the three models. However, it does not affect the policy linearly, and somehow it diverges from predictions of existent empirical evidence. These larger firms prefer a policy of stable payout, which ensures a stable dividend yield. Moreover, larger firms with larger margins seem to be less prone to pay regular dividends. That is to say, they tend to pay dividends more often, but the value of the dividends is more uncertain.

Concerning the qualitative analysis, we found that among top listed firms of Euronext stock exchanges, there is not only one mechanism that links the firm's characteristics and its dividend policy. There are simultaneous pathways that lead to some outcome and, unlike the traditional econometric approach, this article identifies the non-occurrence of some conditions to the outcome.

Our study is not free of limitations. We opted to cover firms that belong to stock exchanges operated by the same entity (Euronext group) to allow a more reliable analysis on the level of free float. The sample size may be viewed as a limitation. We were only able to track about 83 unique firms in a time range of 18 years. Enlarging the sample to other markets may be an avenue of future research, although it will possibly jeopardize combining both a quantitative and qualitative approach.

While the existent literature is not conclusive as to whether taxes influence the stability of the dividend policy, our results on the first research hypothesis for the second model (stability) does not add clarification to the current debate. Future research should address the role of taxes on the dividend policy, looking at the tax profile of main shareholders. More research on the role of sell–side analysts on the stability of the dividend policy is still a gap that future literature could fill.

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