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RESEARCH ARTICLE

CASH HOLDING AND DIVIDEND POLICY CASE OF ANONYMOUS TUNISIAN COMPANIES: EVIDENCE OF SIMULTANEOUS ANALYSIS

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ABSTRACT

This study examines the simultaneous relationship between cash holdings and dividend policy, using a sample of 80 non-financial, anonymous firms for the period 2010-2014. The results show that cash holdings are determined by dividend, debt, firm size, profitability, cash flow and risk. The dividend policy is determined by debt, firm size and profitability. Taking simultaneity into account shows a positive causality between cash holding and dividend policy. This causality shows that simultaneity is crucial in the analysis of corporate liquidity and dividend policy.

INTRODUCTION

Cash holdings and dividend policy are topics of great import in modern corporate finance Al-Najjar and Belghitar (2011). Indeed, in recent years, the issue of liquidity detention has been a major concern. It has been the focal interest of several theorists who have endeavored to provide explanations for it. However, they quite failed in grappling with this problem, which has led them to just abandon it. Since the 2000s, this topic has engaged the ineptest of scientific researchers facing the same questions. Similarly, the lack of a solution regarding the appropriate choice of dividend policy explains the surprise of some actors to have companies that pay dividends, even if they face financial difficulties and to see some managers who are often reluctant to distribute dividends even if they have sufficient resources to pay them. A manager gives major concerns to cash holding and to dividend policy. Indeed, concerning cash, the company should monitor the holding of the correct amount of cash at all times. It should avoid excessive liquidity holding that results in a loss due to low cash, marketable yields and low liquidity levels, which makes it difficult to meet their obligations in due time. Damodaran (2005) points out that liquidity is determined in three measures. These measures are cash as a percentage of the market value of the business, cash as a percentage of the book value of all assets and cash as a percentage of the company's income. Thus, cash policy relates to the target cash ratio given by one of the three measures. Regarding the dividend policy, the company should arbitrate between paying dividends and maintaining earnings to support future growth. Uwuigbe, Jafaru and Ajayi, (2012) point out that company should maintain strategies and policies to reward their investors in cash or to meet their investment return expectations. Inselbag (2007) shows that the dividend payment increases the share price of the company and, consequently, that of the firm value. This payment is in two forms, either in cash or out of cash Firer, Ross, Westerfield and Jordan, (2012). The lack of consensus on the determinants and the consequences of cash holding create a field of investigation full of debatable arguments. Brealey and Myers (2006) rank the value of liquidity among the ten unresolved issues in corporate finance. Morris (1983) characterizes the issue of cash holdings by the "beautiful, undesired girl" of financial theory in view of the scarcity of publication of articles and books. Similarly, the lack of unanimity on the determinants and consequences of the dividend policy makes this field of research worthwhile. This is a controversial policy that Black (1976) describes as a "puzzle." The existence of the common determinants between these two policies and their repercussions on each other (Gao, Harford and Li, (2013), Tsuji, (2014) makes it necessary to overcome the study of each isolated policy towards a simultaneous study. Confirming this simultaneous relationship, the studies by Al-Najjar and Belghitar (2011) and Munyari and Kwenda (2016) constitute the backbone of this study. For the empirical analysis, the study uses a sample of 80 firms anonymous non-financial Tunisian for the period 2010 to 2014. It shows the following results. Cash holdings are determined by dividend, debt, firm size, profitability, cash flow and risk. Dividend policy is determined by debt, firm size and profitability. The simultaneous equation shows the importance of taking into account, and simultaneously, both cash holdings and dividend policy. The rest of this article is structured as follows. As a result of this introduction, section 2 presents a review of relevant literature, covering the fundamental theoretical discussions that support cash holdings, dividend payment, their determinants and the specification of key

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assumptions to be tested. Section 3 describes the sample of firms, variable definitions, data sources and methodology. Section 4 presents the results of the empirical tests, and section 5 is the conclusion.

Literature Review and Hypothesis Development

To examine the relationship between cash holdings and dividend policy, we use a theoretical framework. This theoretical framework is presented by the main theories that are Agency Theory, Signaling Theory, Hierarchical Financing Theory, Cognitive Theory and Behavioral Theory. Next to this theoretical framework, we discuss the determinants of cash holdings and the dividend policy.

Theoretical Foundation

Agency Theory: Taking into account the agency cost linked to managerial discretion makes it possible to report an explanation of cash holdings and the dividend policy. In fact, concerning cash holding, Fama and Jensen (1983) underline that, through cash holding, leaders seek to protect their human capital to avoid their dismissal, to conserve and to increase their power as well as avoid control of the market. Jensen (1986) stresses the fact that managers prefer liquidity to increase their freedom of maneuver and to reduce the overall risk of the company, while shareholders prefer the investor in profitable projects or redistribution. With regard to the distribution of dividends, Rozeff (1982) and Easterbrook (1984) point out that, despite these costs, the payment of dividends offset by new funds raised on the financial markets is so desirable that the use of these markets constitutes an effective means of control of the leaders' activities.

Hierarchical Financing Theory: Mayers and Majlouf (1984) postulate that companies can finance their investments initially by the cash flow from previous years, then by the non-risky debts, then the risky debts and finally by the share issue. They establish a hierarchy of the means of financing using the availability of liquidity as a criterion. In other words, if the cash flow generated is sufficient to finance new investments, the company will be able to honor its commitments and accumulate more cash. Cash is used to finance profitable investments, and debt is solely used in times of shortfall. The issuance of new shares is expensive and may result in lower dividends.

Signaling Theory: Signaling Theory focuses on information asymmetry between managers, shareholders and banks. Ross (1977) assumes that managers are more aware of the company's investment opportunities than other partners. Opler, Pinkowitz, Stulz and Williamson (1999) show that a high level of cash flow is a good signal for the market when it comes to the financial situation of the firm, and vice versa. High cash holdings mean that the company not only has good investment opportunities, but is also able to finance its investment opportunities without resorting to external financing. In addition, these authors contend that, with the importance of the level of cash flow, the company can increase the rate of distribution of dividends, which would lead to a decrease in the level of cash. The distribution of dividends would not only distinguish successful companies, but also lead to a rise in the price level for successful companies.

Free Cash Flow Theory: According to this theory, the management team tries to maximize its personal wealth to the determinants of shareholder wealth that results in a destruction of value. In such a situation, it would be preferable that a surplus in cash be paid out as dividends to the shareholders so that the company could, if need be resort to capital increases to finance its new investments. Dividend payouts are seen as a way to reduce the costs of free cash flow (Easterbrook (1984)).

Cognitive Theory: Theories of cognitive governance reinforce the role of cash, primarily through the development and enhancement of the human capital of the leader, then through the consolidation and expansion of the knowledge base through the acquisition of new skills by financing external growth operations. A cognitive perspective states that managerial ownership facilitates mutual understanding between the company and its associates. Thanks to their skills and knowledge, managers can transmit not only information but also their managerial experiences to markets. In this context, the distributed dividend helps not only to inform the markets about the company's prospects by increasing the company's ability to make strategic and risky decisions in line with the interests of the majority of stakeholders (Hill and Jones, (1992)), but also to promote ideas about the experiences and leadership skills to the markets.

Behavioral Finance Theory: Beyond the standard corporate finance literature, managers are not entirely rational and may have optimistic or overconfidence bias or loss aversion (Heaton (2002) Malmendier and Tate 2005 a 2005b). These behavioral biases may explain the reasons behind cash holding and investor and managerial preferences for dividends versus capital gains.

Determinants of Cash Holdings and Dividend Policy: Hypothesis Development

Interrelationship between Cash Holdings and Dividend Policy: The relationship between dividend payment and cash is ambiguous. Drobetz and Gruninger (2007) show a positive relationship between the amount of cash held and the dividend distributed. Afza and Adnan (2007) and Marchica and Mura (2007) show a negative relationship between cash holdings and dividend distribution. Dividend distribution gives the market a good signal on the profitability of the company. Munyari and Kwenda (2016) show that companies with a high cash ratio have a high payout ratio. However, Al-Najjar and Belghitar (2011) show that companies with a high cash ratio have a low distribution rate.

Based on these theoretical and empirical works, this study hypothesizes that:

Hypothesis H1a: Cash holdings have a positive influence on dividend policy.

Hypothesis H1b: Dividend policy has a positive influence on cash holdings

Determinants of Cash Holdings and Dividend Policy

- **Firm Size:** Previous studies show that large firms hold low levels of cash in view of their easy access to capital markets and to their provision of credit lines opened with banks. Marchica and Mura (2007) and Pinkowitz, *et al.* (2013) show the existence of a negative relation between firm size and cash holding. However, other studies show that larger companies are generally more

mature as they have high cash flow activity that makes them more capable than smaller businesses of maintaining high levels of cash flow to ensure high levels of cash flow, the quality of their operations and their investment activities. Afza and Adnan (2007) find a positive relationship between firm size and cash holding. Firm size determines the extent of agency problem. Indeed, large firms have major agency problems. These problems make the use of the dividend distribution legitimate. In addition, large firms have greater ability to obtain external funds including appealing to financial market. Mehta (2012), Uwuigbe *et al.* (2012) show a positive relationship between dividend policy and firm size. However, Ben Naceur *et al.* (2006), Kouki and Guizani (2009) show a negative relationship between firm size and dividend policy.

- **Debt:** The study of the relationship between debt, cash holding and dividend policy shows controversial results. The use of debt actually puts pressure on managers to invest in profitable projects. It makes it possible to reduce the cash held by the managers. Anjum and Malik (2013) show that the least indebted companies hold large amounts of cash than the most indebted companies. Islam (2012) and Kariuki *et al.* (2015) find that firms with higher debt ratios maintain lower cash ratios. High debt may result in a decrease in the payout ratio due to covenants in loan agreements imposed by lenders. Gupta and Banga (2010) find a negative relationship between dividend policy and debt. However, the relationship between debt and dividend policy can be positive when they are both used to send a positive signal to foreigners in order to improve the value of the business and facilitate access to the capital market (Myers and Frank (2004)).
- **Cash Flow:** Cash flow is the difference between receipts and disbursements generated by the activity of the organization. They represent an easy source of liquidity for the companies, allowing them to finance their investments without recourse to any other means of financing. Companies can use their cash flow as a source of cash to finance their investments. Thus, cash flow can be considered as a substitute for cash. Accordingly, cash flow has a negative relationship with the level of cash. However, Deloof (2001) and Ferreira and Vilela (2004) prove that cash holdings have a positive relationship with cash flow. Kale and Noe (1990) point out that the dividend essentially indicates the stability of the company's future cash flows. Amidu and Abor (2006) and Guizani and Kouki (2012) show that distribution ratios are positively associated with cash flows. This is consistent with Jensen's (1986) cash flow assumption, which indicates that, when a firm has more cash than is required to fund VAN-positive investment projects, it is better for managers to return Cash surplus to shareholders in the form of dividends to maximize shareholder wealth.
- **Growth Opportunities:** Holding cash allows the company to adopt some profitable investment opportunities when external financing is expensive. The availability of large investment opportunities can generate high costs that can, in turn, generate financial distress of the company and make external financing more expensive. Ferreira and Vilela (2004) and Boyle and Guthrie (2003) find that companies with significant growth opportunities prefer to hold cash in order to exploit these current opportunities and ensure an enabling environment for potential opportunities. However, Afza and Adnan (2007) show a negative relationship between cash holdings and investment opportunities. Regarding the dividend policy, Murekefu and Ouma (2012) stress that investment opportunities are an important factor influencing dividend policy. Manos (2003) and Amidu and Abor (2006) find a negative relationship between dividend policy and investment opportunities. Liu (2002) proves that companies with high growth potential use a high level of dividend in order to inform current or potential investors of the future prospects of the company.
- **Risk:** The risk of the company is determined by the volatility of cash flow. Cash flow volatility is an important determinant of cash holdings and dividend policy. As a matter of fact, the situation of companies whose cash flow is very volatile becomes more risky. In this context, Minton and Schrand (1999) advise companies with cash flow volatility to give up investment projects instead of accessing external sources of finance. They recommend that these companies hold a sufficient level of cash. Pinkowitz, *et al.* (2013) point out that cash holdings increase with the volatility of cash flows. Aivazian, Booth and Cleary (2003) prove that the least risky firms distribute fewer dividends. Ramli (2010) shows the existence of a strong negative association between the level of corporate risk and dividend distribution, according to the findings documented by Farinha (2003) and Holder *et al.* (1998).
- **Profitability:** Financial literature shows that corporate profitability is a determining factor in cash holdings and dividend policy (Jensen, Solberg and Zorn, 1992, Fama and French, (2001)). Hemmati *et al.* (2013) show that profitability has a positive and significant influence on cash holdings. Ramli (2010) and Guizani and Kouki (2012) show that profitability is positively and significantly related to the dividend ratio. In other words, the most profitable firms pay higher dividends.
- **Trade Credit:** Trade credit is the funds transferred between companies. It is considered an important source of short-term external financing. It is measured as the difference between the debt collection period and the accounts' payment period. Cash holdings and dividend policy are influenced by common factors. In addition, Gao, Harford and Li, (2013), Tsuji, (2014) show that the cash holding policy and the dividend policy have an impact on each other. Therefore, this study explores the relationship between liquidity and dividend policy in a simultaneous framework: the decision to pay dividends depends on the cash held by the company; and similarly, the decision to hold cash depends on the dividend policy. This relationship confirms the existence of a simultaneous relationship between the cash holding policy and the dividend policy. Greene (2008) argues that ignoring this simultaneity could lead to inconsistent biases and estimates.

METHODOLOGY AND SAMPLE

Sample: This study aims to examine the cash holdings and dividend policy adopted by Tunisian companies and to prove whether the simultaneity between these two policies is

respected. The empirical study is based on a sample of non-financial companies listed on the Tunis Stock Exchange and a sample of non-financial non-listed companies. Our sample is made up of 80 anonymous companies, of which 32 companies are listed on the Tunis Stock Exchange and 48 are unlisted companies. The data was collected from the financial statements for the 2010-2014 accounting period from the Stock Exchange website, from the financial market advisory website and from accounting offices. According to some previous studies, companies in the banking real estate and financial services sectors were excluded from the sample because the nature of their cash balances is different from the context of this study.

Methodology: The following models show the relationship between cash holdings, dividend policy and the different variables. The first model presents the relationship between cash holdings and other variables. The second model presents the relationship between dividend policy and other variables. The third model presents the simultaneous relationship between cash holdings and dividend policy.

Model 1

$$CASH_{i,t} = \alpha_0 + \alpha_1 DIV_{i,t} + \alpha_2 \text{ SIZE FI }_{i,t} + \alpha_3 DET_{i,t} + \alpha_4 ROA_{i,t} + \alpha_5 CASHFLOW_{i,t} + \alpha_6 RISK_{i,t} + \alpha_7 OPCROI_{i,t} + \varepsilon_{i,t} \quad (1)$$

Model 2

$$DIV_{i,t} = \beta_0 + \beta_1 CASH_{i,t} + \beta_2 \text{ SIZE FI }_{i,t} + \beta_3 DET_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CASHFLOW_{i,t} + \beta_6 RISK_{i,t} + \beta_7 OPCROI_{i,t} + \varepsilon_{i,t} \quad (2)$$

Model 3 : simultaneous equations

$$CASH_{i,t} = \alpha_0 + \alpha_1 DIV_{i,t} + \alpha_2 \text{ SIZE FI }_{i,t} + \alpha_3 DET_{i,t} + \alpha_4 ROE_{i,t} + \alpha_5 CASHFLOW_{i,t} + \alpha_6 RISK_{i,t} + \alpha_7 OPCROI_{i,t} + \alpha_8 TRADCRED_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$DIVi,t = \beta_0 + \beta_1 CASH_{i,t} + \beta_2 \text{ SIZE FI }_{i,t} + \beta_3 DET_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CASHFLOW_{i,t} + \beta_6 RISK_{i,t} + \beta_7 OPCROI_{i,t} + \varepsilon_{i,t} \quad (4)$$

RESULTS

Descriptive Statistics of Variables: From the analysis of the descriptive statistics of our sample of 80 Tunisian companies anonymous (Table 2). CASH is measured by current liquidity ratio. This measurement has an average value of 2,525. It ranges from a minimum of 0.123 to a maximum of 37.301. This ratio shows the importance of current assets and their components in relation to current liabilities and their components. The dividend is the second independent variable. This variable has an average value of 78%. Its standard deviation is 0.407. The average debt ratio is 0.326. The minimum debt value is 0.0045. This value shows that this company has another source of finance. The maximum value is 2.487. This value shows that this company has an extreme recourse to debt. The average size of Tunisian companies is 16,303. The size of the company varies from a minimum of 10,912 and a maximum of 21.29. The profitability of the company is measured by the return on assets (ROA) and the return on equity (ROE). The return on assets is on average 0.066. Its standard deviation is 0.945. This profitability ranges from a minimum of (-0.280) and a maximum of 0.729. The return on equity has an average value of 0.098. This profitability varies from a minimum of (-5,063) and a maximum of 7,659. Trade credit has an average value of (-1.061). Its minimum value is (-5.063). This value shows that the vendor payment period is larger than the receivable period. Its maximum value is 7.659. This value shows that the debt collection period is more important than the payment period of suppliers. The average risk of Tunisian companies is 0.222. Its standard deviation is 1.698. It ranges from a minimum of (-6,174) to a maximum of 15,008. Munyari and Kwenda (2016) have documented an average risk of 0.37, a minimum risk value of 0.001 and a maximum risk value of 3.62. The growth potential is measured by the change in turnover. On average, the growth potential is 0.382, which is low if compared to the results found by Munyari and Kwenda (2016). These authors document an average growth potential of 0.46 for firms in Zimbabwe. The minimum value is (4.382), which shows that this company faces difficulties in terms of revenue growth. The maximum value is 6.4. The average cash flow is 01.92. Its minimum value is (-0.094). Its maximum value is 1.972. Its standard deviation is 0.195. In the Tunisian context, Zammel (2011) proves that the average cash flow value is 0.834, its minimum value is -0.159, and its maximum value is 1.158.

Correlation Matrix: We begin this step by checking the correlations between the different explained and explanatory variables, in order to make sure not to include, in our regressions, highly correlated variables between them. The table above represents the matrix of correlations between the different variables. We find that most correlations are relatively weak. The greatest correlation is recorded between asset profitability and dividend distribution (0.4102). We find that the variables are not strongly correlated, which reduces any problem of multi collinearity. As a result, all variables in the model will be retained for parameter estimation (Table 3).

Regression Result: The second column of Table 4 shows that dividend policy has a positive and a significant influence on cash holdings. This relationship shows that cash positively depends on the dividend policy. This relationship shows that Tunisian companies adopt a regular dividend policy and avoid situations where they do not have the funds to distribute the dividend. This result is similar to the results proven by Ozkan and Ozakan (2004) and Drobetz and Gruninger (2007). The Hypothesis that the dividend policy has a positive influence on cash holding is therefore verified. The third column of Table 4 shows that cash holdings have no influence on the dividend policy. This result shows that the dividend decision does not depend on the generated cash and shows that Tunisian leaders use other sources to distribute the dividend. This result contradicts those put forth by Munyari and Kwenda (2016) and Al-Najjar and Belghitar (2011). The Hypothesis that cash holding has a positive influence on the dividend policy is therefore unsupported. Column 4 and 5 of Table 4 illustrate the result of the simultaneous equation between dividend policy and cash holdings. This equation shows that a positive and significant relationship between these two decisions is proven. In addition, taking two decisions simultaneously proves to be equally important. In the context of simultaneous equations, our hypothesis H1 and H2 are verified. Debt has a negative and a significant influence on cash holding and dividend policy in all three models. Indeed, the result of the regression of the first model shows that debt has a negative and a significant influence at the level of 1%. This relationship shows that increased cash holding reduces the need for debt. Al-Najjar and Belghitar's study (2011) proves this relationship. The regression result of model 2 shows that debt has a negative and a significant relationship with dividend policy at the 1% level. This relationship supports the prediction of Agency Theory that debt presents an alternative to dividend distribution to help reduce agency costs related to free cash flow (Jensen (1986).

Table 1. Presents the different variables used in this study

Variables	Définition
CASH	Log of (Total Liquidity and Liquidity Equivalent / Net Assets) Ratios, Net assets are calculated as assets less liquidity and liquidity equivalent Saddour(2006), Kusnadi (2005)).
DIV	*Is a variable that takes the value of 1 when the company distributes a dividend and 0 if no* (Ferreira et Vilela(2004)).
DET	*is the ratio between the book value of long-term and short-term debt to the book value of total assets.* (Agrawal et Knoeber(1996), Bhabra(2007).
SIZE FI	is *the natural logarithm of total assets*.
ROA	*is the return on assets. It is the ratio of net income and total assets* (Kowalewski et al., (2007)).
ROE	is the return on equity. *It is the ratio of* net income / equity
CASHFLOW	*Is defined as net operating income plus depreciation.* (Dittmar et al (2003)).
RISK	is the risk of the business. It is measured by the variability of return on equity (Munyari and Kwenda (2016)).
OPCROI	is the growth opportunity. It is measured by growth in turnover (Pinkowitz and Williamson (2004) and Dittmar et al. (2003)).
TRADCRED	is a *trade credit. It is measured as the difference between the period for collection of receivables and the payment period for accounts payable.* Saaddour (2006).

Table 2. Descriptive Statistics of Variables

Variables	Observations	Mean	Std. Dev	Min	Max
CASH	400	2.525	3.215	0.123	37.301
DIV	400	0.787	0.407	0	1
DET	400	0.326	0.326	0.0045	2.487
SIZE FI	400	16.303	2.219	10.912	21.29
ROA	400	0.066	0.945	-0.280	0.729
ROE	400	0.098	0.580	-5.483	7.659
TRADCRED	400	-1.061	1.541	-5.063	3.315
RISK	400	0.222	1.698	-6.174	15.008
OPCROI	400	0.382	1.225	-4.382	6.4
CASHFLOW	400	0.192	0.195	-0.084	1.972
SEC	400	0.475	0.5	0	1

Table 3. Matrix of correlation between explained and explanatory variables

	CASH	DIV	DET	SIZE FI	ROA	ROE	TRAD CRED	Risk	OPCROI	CASH FLOW
CASH	1									
DIV	0.1775	1								
DET	-0.2767	-0.3841	1							
SIZE FI	-0.1874	-0.3503	0.3196	1						
ROA	0.0914	0.4102	-0.3696	-0.2887	1					
ROE	0.0739	0.2069	-0.146	-0.062	0.3231	1				
TRAD CRED	-0.0324	-0.1282	0.215	0.3006	-0.0679	-0.0613	1			
Risk	-0.0307	0.0110	-0.0550	-0.0778	0.0373	-0.1332	-0.045	1		
OPCROI	0.015	0.1446	-0.0834	-0.2152	0.0815	0.0433	-0.2154	0.0142	1	
CASH FLOW	-0.0359	0.1304	0.0217	-0.2153	0.062	0.0249	0.0035	-0.0426	0.089	1

Table 4. Result of Estimation of Three Models

	Model 1	Model 2	Model 3	
			CASH	DIV
CASH	-	-0.0003 (0.562)	-	0.014 (0.010)***
DIV	0.260 (0.008)***	-	0.937 (0.028)**	-
DET	-0.013(0.000)***	-0.0193 (0.000)***	-0.026 (0.000)***	-0.25 (0.000)***
SIZE FI	-0.142(0.000)***	-0.214(0.000)***	-0.176 (0.028)***	-0.028 (0.001)***
ROE	-	-	0.0867 (0.752)	-
ROA	-0.800(0.014)**	0.145 (0.000) ***	-	0.152(0.000)***
CASHFLOW	-0.34 (0.025)**	0.0141 (0.428)	-0.20718 (0.135)	0.1706 (0.062)**
RISK	-0.0271(0.065)*	-0.006 (0.622)	-0.096 (0.291)	-0.003 (0.705)
OPCROI	-0.0402(0.214)	0.0008 (0.463)	-0.07 (0.588)	0.021 (0.145)
TRADRED	-	-	0.117 (0.267)	
CONST	0.204 (0.000)	0.288 (0.000)	0.71 (0.000)***	0.188 (0.000)***
R^2	0.0989	0.2531	0.0985	0.2776

Moreover, this relationship can be explained by the existence of the clauses that limit the dividend distribution in the loan agreements established between the directors and the receivables (Renneboog and Trojanowski (2007)). This relation is proved by Al-Najjar and Belghitar (2011). The regression result of model 3 shows that debt has, simultaneously, a negative and a significant influence on cash holdings and dividend policy, at the 1% level. Firm size has a negative and a significant influence on cash holding and on dividend policy in all three models. Indeed, the result of the first model regression shows that firm size has a negative and a significant influence at the level of 1%. This relationship conforms to the prediction of Compromise Theory that larger firms hold less cash. Large companies can easily have credit and can easily access capital markets. This relationship is proven by Opler *et al.* (1999), Faulkender (2004) and Teruel and Solane (2008). The result of the regression of the second model shows that firm size has a negative and a significant influence on the dividend distribution policy. This influence shows that large companies tend to distribute fewer dividends.

Proven by Al-Najjar and Belghitar (2011), this relationship is explained by the fact that large Tunisian firms prefer to retain the benefits that distribute it in order to avoid the costs of external financing and to increase its investments. The regression result of model 3 shows that the size of the firm has, at the same time, a negative and a significant influence on cash holdings and dividend policy, at the 1% level. In the first and second models, profitability is measured by the return on assets. Profitability has a negative and a significant coefficient on cash holdings at the 5% level. This relationship shows that the most profitable companies hold a lower amount of cash. This result contradicts the findings of Hemmati *et al.* (2013). However, profitability has a positive and a significant coefficient on the dividend distribution policy as demonstrated by the Signaling Theory. Myers (1984), Myers and Majluf (1984) and Aivazian *et al.* (2003) point out that the most profitable firms have a greater capacity to pay the dividend. In the context of a simultaneous equation, the return on capital has a positive and a non-significant coefficient on the holding of cash. This coefficient shows that profitability has no influence on cash holding. Cash holdings, therefore, do not depend on the profitability of the company. However, the return on assets has a positive and a significant influence on dividend policy.

In the first model, the cash flow has a negative and a significant coefficient at the level of 5% on the holding of cash. This relationship shows that the companies that generate a significant amount of cash flow reduce cash holdings. This relationship contradicts the result proved by Afza and Adnan (2007). In model 2, cash flow has a positive and a non-significant coefficient on dividend policy. This relationship shows that dividend policy does not depend on the cash flow generated. This relationship is proved by Agrawal and Jayaraman (1994). In the context of a simultaneous equation, the cash flow has a negative and a non-significant coefficient with the holding of cash. This coefficient shows that the cash flow has no influence on cash holdings. However, the cash flow has a positive and a significant coefficient on the dividend policy. This result contradicts the results of the first and second models. In the first model, the risk has a negative and a significant coefficient on the holding of cash. This relationship shows that the level of cash decreases with increasing risk. This relationship is in agreement with those of by Al-Najjar and Belghitar (2011) and runs counter to those proven by Kim *et al.* (1998) and Afsa and Adnan (2007). These authors have shown that the increase in cash helps the company to protect itself against the risk of activity and the rejection of profitable projects. In the second model, the risk has a negative and a non-significant coefficient on the dividend policy. This relationship shows that the risk has no impact on the dividend distribution. In the third model, risk has a negative and a non-significant coefficient on cash holdings and dividend policy. In all three models, the growth potential has no influence on cash holdings and on the dividend policy. In Model 3, Trade credit has a positive and a non-significant coefficient on cash holdings. This coefficient shows that cash holdings among Tunisian companies do not depend on commercial credit.

Conclusion

This article studies the simultaneous relationship between cash holdings and the dividend policy of around 80 anonymous, non-financial Tunisian companies for the period 2010-2014. To study the possible causality between these two decisions, we use three models: the first two models consist of single equation that do not take into account the simultaneity between cash holding and dividends policy in order to draw comparisons with previous studies; the third model consists of simultaneous equation that rather highlights the relationship between these two policies. The results show that cash holdings are determined by dividend, debt, firm size, profitability, cash flow and risk. The dividend policy is determined by debt, firm size and profitability. The simultaneous equation highlights the importance of considering the simultaneity between cash holding and dividend payments. The present study is among the first attempts that probed into the relationship between cash holdings and dividend policy within the Tunisian context. Although the current study is based on a small sample of companies, the findings suggest an important conclusion for Tunisian companies in the field of corporate finance. However, with a small sample size, one must be cautious, as the results may not be transmittable to all Tunisian firms. This research has generated many questions that require further investigation. It would be interesting to evaluate, among other things, the effects of cash holding, debt and dividend policy in a simultaneous equation framework. In addition, it would be important to integrate governance mechanisms into the analysis of the relationship between these policies factors such as the board of directors, the ownership structure, and the behavioral as well as cognitive aspects of leaders.

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