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The relationship between dividend policy and earnings management: a causality analysis

Olfa Ben Salah
Faculty of Economics and Management of Sfax, University of Sfax, Sfax, Tunisia, and
Anis Jarboui
ISAAS, Sfax, Tunisia

Abstract

Purpose – The objective of this paper is to investigate the direction of the causal relationship between dividend policy (DP) and earnings management (EM).

Design/methodology/approach – This research utilizes the panel data analysis to investigate the causal relationship between EM and DP. It provides empirical insights based on a sample of 280 French nonfinancial companies listed on the CAC All-Tradable index during the period of 2008–2015. The study initiates with a Granger causality examination on the unbalanced panel data and employs a dynamic panel approach with the generalized method of moments (GMM). It further estimates the empirical models simultaneously using the three-stage least squares (3SLS) method and the iterative triple least squares (iterative 3SLS) method.

Findings – The estimation of our various empirical models confirms the presence of a bidirectional causal relationship between DP and EM.

Practical implications – Our study highlights the prevalence of EM in the French context, particularly within DP. It underscores the need for regulatory bodies, the Ministry of Finance, external auditors and stock exchange organizers to prioritize governance mechanisms for improving the quality of financial information disclosed by companies.

Originality/value – This research is, to the best of our knowledge, the first is to extensively investigate the reciprocal causal relationship between DP and EM in France. Previous studies have not placed a significant emphasis on exploring this bidirectional link between these two variables.

Keywords DP, EM, Bidirectional causality, Granger causality, Simultaneous equation models

Paper type Research paper

1. Introduction

Earnings management (EM) and dividend policy (DP) have become prominent topics of discussion in management sciences. DP can serve as a tool to mitigate agency costs since shareholders demand dividends as a means to hold managers accountable (Easterbrook, 1984). Consequently, the managers have an incentive to further reduce agency conflicts by engaging in EM, thereby ensuring the possibility of avoiding or delaying the need for dividend distribution (Ding *et al.*, 2021).

Moreover, according to the signaling theory (Bhattacharya, 1979), dividends are used to signal a company's high quality to the market. This signaling helps bridge the information gap between managers and external investors (Lin *et al.*, 2017). Ben Amar *et al.* (2018) have shown that the managers may use EM to signal their capacity to pay dividends, indicating

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that paying dividends does not necessarily deter the companies from engaging in EM. This finding implies that companies distributing dividends may not always act in the best interests of their shareholders.

Prior research has delved into the association between DP and accounting earnings. Given that dividend levels often hinge on accounting earnings (Baker *et al.*, 2018), it is imperative to scrutinize the interplay between these two aspects. Some scholars underscore the significant role of DP in shaping accounting earnings, while others propose that earnings are interconnected with DP. Thus, "DP" and "accounting earnings" are intricately linked (Baker *et al.*, 2018). It is important to note that accounting earnings can be subject to manipulation to align with managerial objectives, a phenomenon referred to as EM.

Indeed, numerous studies have examined the relationship between DP and EM. Shah *et al.* (2010) and Chansarn and Chansarn (2016) reported no significant impact of EM on DP. In contrast, Daniel *et al.* (2008), and Ben Amar *et al.* (2018) found evidence that managers can use accounting discretion to influence the DP of firms. On the other hand, He *et al.* (2017) and Smith *et al.* (2017) revealed a notable negative effect of DP on EM. Conversely, Im *et al.* (2016) suggested that DP positively affects EM.

The ongoing debate concerning the relationship between DP and EM remains inconclusive. Notably, an examination of these studies demonstrates that empirical findings are inconsistent, and there is a lack of consensus on the reciprocal causal link between these two variables. Therefore, within the scope of this study, it is imperative to investigate the issue of causality between the two mentioned variables, particularly within the distinctive institutional context of France. The France's corporate governance model is remarkable for its stakeholder-centered approach, which considers the specific interests of various stakeholders within the company. Notable features of this governance model include substantial ownership concentration, family-controlled businesses, where family members hold executive management positions, limited safeguards for minority investors and the enduring "Bank-Business" relationship. This unique governance structure can create conditions conducive to both EM and a high level of dividend distribution (La Porta *et al.*, 2000).

Drawing from an unbalanced panel dataset encompassing 280 French firms over the 2008–2015 period, our study reveals bidirectional causality and a positive relationship between DP and EM. Our findings indicate that companies strive to enhance their earnings to signal to the market their capacity to distribute dividends. Contrary to the prevalent view emphasizing opportunistic motives in EM and DP, our results suggest that signaling incentives play a crucial role in the French context.

Our study makes several contributions to the finance and accounting literature. Firstly, this research addresses the relationship between DP and EM, a field where previous studies have primarily focused on one-way causality, such as Daniel *et al.* (2008), Chansarn and Chansarn (2016), Lin *et al.* (2017) and Ben Amar *et al.* (2018). Our goal is to fill this gap by examining the sign and direction of causality between DP and EM. In fact, to the best of our knowledge, our research is the first to directly address the question of bidirectional causality between DP and EM.

Secondly, our research enhances the literature on EM and DP. It reveals that the managers can utilize accounting discretion to affect a firm's DP and, conversely, that DP can impact EM. Grounded in the signaling theory within the unique French market context, our approach highlights that managers can use EM as a signaling tool to showcase their capacity to distribute dividends.

Thirdly, our research contributes to a better understanding of the determinants of DP. DP has been a long-standing subject of debate in the field of finance (Lintner, 1956; Bhattacharyya, 2007; Baker *et al.*, 2018). While numerous studies have sought to clarify the relationship between DP and various economic and financial parameters, the

fundamental determinants of DP continue to be a topic of contention. Our study provides comprehensive evidence that EM positively influences DP in the French context.

Lastly, our empirical tests, conducted on a sample of French listed firms with a framework akin to many continental countries, reveal a significant bidirectional causal relationship between DP and EM. Managers can utilize EM to signal their ability to pay dividends, especially in the contexts with high ownership concentration, where reducing information asymmetry enhances their reputation. This strategic capacity holds particular value in countries with weaker legal protection for external investors (La Porta *et al.*, 2000).

The paper is organized as follows: Section 2 reviews relevant literature and outlines our hypothesis. Section 3 details sample selection and research design. Section 4 presents empirical results, with Section 5 covering robustness tests. Section 6 discusses findings and Section 7 concludes the paper.

2. Literature review

2.1 Theory

Developments from the agency theory (Jensen and Meckling, 1976) indicate that the presence of information asymmetry between the principal and the agent can encourage managers to engage in earnings manipulation to maximize their well-being at the expense of shareholders. Regarding the dividend distribution hypothesis, Smith *et al.* (2017) propose the idea that the managers commit to downward EM in order to limit or defer the payment of dividends to shareholders.

For several years, the signaling theory (Akerlof, 1970) has explained the role of published accounting figures in the market. More specifically, in the presence of informational asymmetry between managers and investors, accounting figures can serve as a means of signaling to various stakeholders in the capital markets (Lin *et al.*, 2017). Subramanyam (1996) demonstrated that managers engage in upward EM to predict or signal future profitability and dividend variations. Specifically, the amount of dividends to be paid is correlated with upward EM through increases in the manipulable portion.

The signaling theory is crucial in our study, especially in the unique French context, where the dividends are not solely from a shareholder's perspective, and information asymmetry is low because shareholders are the main managers (Breton and Schatt, 2003). Managers in this context likely focus on mitigating agency costs between majority and minority shareholders. The interconnection between "dividend" and "net earnings" is noteworthy, as dividend payments are based on earnings for the year, with prior research demonstrating a positive correlation between dividends and earnings, as seen in Lintner (1956). To increase dividend distributions, companies need to consistently enhance their earnings. If unmanipulated earnings fail to meet shareholders' high return expectations, the managers may resort to EM to signal the company's ability to distribute dividends.

2.2 From EM to DP

Shah *et al.* (2010) studied the relationship between EM and DP using 120 Pakistani companies listed on the Karachi Stock Exchange from 2003 to 2007 and 55 Chinese companies listed on the Shanghai and Shenzhen Stock Exchanges from 2001 to 2007. Their findings indicated that EM had no significant impact on the DP of companies in both countries.

Kasanen *et al.* (1996) conducted a study in a Finnish context, examining the link between EM and DP. Their sample included 37 commercial and industrial companies listed on the Helsinki Stock Exchange, and their findings emphasized the role of earnings as a determinant of DP.

Kinnunen *et al.* (2000) delved into the connection between EM and the amount of dividends to be distributed among Finnish companies listed on the Helsinki Stock Exchange from 1984 to 1992. Their results indicated that companies employed upward EM to convey a positive financial image to the market.

Daniel *et al.* (2008) investigated whether companies manage earnings to reach specific dividend thresholds, utilizing a sample of 1,500 US firms from 1992 to 2005. They observed that companies distributing dividends are increasingly encouraged to engage in upward EM if unaltered earnings fall short of expected dividend levels.

Similarly, in a UK context, Atieh and Hussain (2012) found that the managers are incentivized to manipulate earnings upward to cater to dividend preferences.

Finally, Ben Amar *et al.* (2018) used a sample of 2,108 French firm-year observations and discovered a positive impact of EM on the dividend policies of firms.

2.3 From DP to EM

He *et al.* (2017) conducted a study on the influence of DP on EM across countries. Their extensive sample encompassed 23,429 companies from 29 different countries. They found that dividend-paying companies tend to practice less EM compared with those that do not pay dividends.

Smith *et al.* (2017) examined the connection between DP and EM. They conducted their research on a sample comprising all firms listed in the Center for Research on Security Prices (CRSP) that consistently paid dividends from 1990 to 2009. Their results indicated that dividend-paying companies are inclined to engage in downward EM, aligning with Jensen's (1986) free cash flow hypothesis.

Liu and Espahbodi (2014) studied the earnings smoothing behavior of companies that pay dividends during the period from 1992 to 2009. Their findings revealed that dividend-paying companies demonstrate a higher commitment to EM than the companies that do not pay dividends.

Ben Salah and Jarboui (2022), based on 2,121 firm-year observations from 2008 to 2015, discovered a significant positive effect of DP on EM.

2.4 Summary and hypothesis: DP and EM may be bicausally related

The debate on the connection between DP and EM is inconclusive, with varying results in previous studies. They often fail to explore the bidirectional relationship between these variables and produce inconsistent findings. This raises the question: Is there a bidirectional link between EM and DP?

In the United States of America, Canada, the UK, Germany, France and Japan, dividend payment tendencies are notably higher for companies in which retained earnings constitute a substantial portion of their total capital, as reported by Denis and Osobov (2008). In a similar vein, the findings from Michaely and Roberts (2012) indicate that private firms exhibit a higher likelihood of disbursing dividends in response to earnings fluctuations, suggesting that the dividend policies of private enterprises tend to be more unpredictable. When company profits are satisfactory and substantial, dividends are typically distributed, while in cases where profits fall short, companies may opt to withhold dividend payments. Consequently, it is worth noting that accounting earnings are intricately connected to DP (Baker *et al.*, 2018). Furthermore, it's important to recognize that accounting earnings can be subject to manipulation to align with managerial objectives, a phenomenon known as EM. In this context, studies conducted by Daniel *et al.* (2008) and Atieh and Hussain (2012) have suggested that managers may engage in upward EM to align with their preferences for dividend distributions. Based on these arguments, it is plausible that managers may employ upward EM as a strategy to influence firms' dividend policies.

Moreover, DP, especially in the French context, can strongly influence EM. Debt contracts in France often contain restrictions related to accounting metrics, like limitations on dividend payouts. Violating these clauses can result in significant renegotiation costs, compelling firms to resort to EM. This involves accounting decisions aimed at inflating reported earnings.

Even without explicit restrictive clauses, the implicit agreement between a company and its shareholders regarding dividend distributions can lead to upward EM. The absence of dividend payments can signal poor prospects and impact this unwritten agreement. Thus, executives may resort to upward EM to show their commitment to honoring these implied contracts related to dividend payments.

Hence, DP and EM can mutually reinforce each other, particularly in countries that emphasize dividend distributions and engage significantly in EM. Building on these insights, we can posit a bidirectional relationship between DP and EM, as highlighted by Chansarn and Chansarn (2016). In light of these developments, we are inclined to propose the following hypothesis:

H1. There exists a causal relationship between DP and EM.

3. Method

3.1 Data and variables

3.1.1 Data. Our initial sample comprised 311 French companies listed on the CAC All-Tradable index during the period 2008–2015. The choice of this study period is justified by the fact that, starting from 2008, French companies listed in France are required to prepare a communication guide. This guide, updated annually, is known for its simplicity, conciseness, and educational value, aiding in decision-making. It is worth noting that in October 2016, the AMF (French Financial Market Authority) published a framework (AMF position-recommendation no. 2016–08, guide to permanent information and the management of privileged information) and a table outlining the various information obligations imposed on listed companies (AMF position-recommendation no. 2016–05, guide to periodic information for listed companies). Therefore, we limited our analysis period up to the year 2015, as it was expected that the quality and presentation of information would improve from 2016 onwards due to these new regulations.

It is important to note that this time horizon for our empirical study encompasses the global economic crisis from 2007 to 2012. However, this crisis does not appear to significantly affect our results, given that the CAC All-Tradable index is characterized by certain stability in its composition. Additionally, listed companies have a relatively lower mortality rate than unlisted companies (Hamdi *et al.*, 2018). Pathak and Gupta (2022) have demonstrated that this crisis period primarily influenced the dividend payment policy of companies in developing countries. The authors noted that firms in developed countries paid higher dividends on average than those in developing countries during both crisis and non-crisis periods. In line with the argument regarding financial constraints on dividends, they found that firms in developing countries reduced their dividends during the crisis, unlike those in developed countries such as France.

Consistent with prior studies (Jabbouri, 2016), we excluded financial companies (29 firms) due to their adherence to distinct accounting rules and financial statement formats. Additionally, we removed firms with missing data (two firms). After eliminating observations with missing values (119 firm-year observations), our total sample consists of 2,121 firm-year observations for the period 2008–2015. We obtained the necessary data using Datastream.

Table 1 shows the sample selection procedure. Table 2 shows the distribution of the sample by the industry sector in accordance with the Industry Classification Benchmark (ICB).

3.1.2 Variables. DP. The dividend payout ratio is used to measure the DP. It is defined as the ratio of total dividend per share to earnings per share (He *et al.*, 2017). The ratio of total cash dividends divided by total sales for the period will be used in the robustness test.

EM. Recent studies have primarily identified two types of EM (Roychowdhury, 2006): accruals and real EM. Earnings, in accounting terms, represent the combination of cash flows and accruals. Therefore, EM can take place by either manipulating cash flows (real EM) or by influencing changes in working capital requirements, depreciation and other calculated charges and income (accruals).

We use discretionary accruals to measure EM for several reasons. Real EM involves actions by the managers that deviate from standard business practices, such as manipulating sales or reducing discretionary expenses, making it more costly than accrual-based EM (Kim and Sohn, 2013). Moreover, detecting real EM is more challenging as it directly affects cash flows and often escapes audit scrutiny (Roychowdhury, 2006). Accrual-based methods are also less persistent than cash flows, mainly due to errors, subjectivity and opportunism in the accrual accounting process (Dechow and Dichev, 2002).

We utilize the Dechow *et al.* (1995) model, widely acknowledged for accurately estimating manipulable components in measuring EM, as asserted by Collins *et al.* (2017). The model itself is expressed as follows:

$$TA_{it} \Big/ A_{it-1} = \alpha_0 (1/A_{it-1}) + \alpha_1 \left(\frac{\Delta SALES_{it} - \Delta REC_{it}}{A_{it-1}} \right) + \alpha_2 \left(\frac{PPE_{it}}{A_{it-1}} \right) + \varepsilon_{it} \qquad (1)$$

where TA is total accruals. A is total assets at the beginning of year. $\Delta SALES$ is changes in sales. ΔREC is the change in net receivables. PPE represents the amount of property, plant and equipment. The residual ε_{it} from the regression is the measure of discretionary accruals.

The Kothari *et al.* (2005) model was employed in the robustness test.

Control variables. In line with the free cash flow theory, large corporations with higher levels of free cash flow tend to distribute more of it through dividends (Jensen, 1986). Notably, companies

	No. of firms
French firms listed on the CAC All-Tradable index	311
Financial firms	−29
Firms with missing data	−2
Total	*280*

Source(s): Own elaboration

Table 1. Sample selection

ICB code	Industry	No. of firms	%
1000	Basic materials	17	6.07
3000	Consumer goods	38	13.57
5000	Consumer services	38	13.57
4000	Healthcare	45	16.07
2000	Industrials	68	24.29
0001	Oil and gas	8	2.86
9000	Technology	58	20.71
6000	Telecommunications	1	0.36
7000	Utilities	7	2.50
	Total	*280*	*100*

Source(s): Own elaboration

Table 2. Distribution of the sample by business sector

with substantial political visibility might resort to downward EM as a strategy to reduce the political costs associated with their operations. Crutchley and Hansen (1989) found that higher debt levels are associated with a negative impact on DP. Managers in heavily indebted firms may engage in upward EM to secure better terms in bank financing and maintain positive creditor relations. Jensen *et al.* (1992) have identified a positive relationship between profitability and dividend payouts since high profitability typically results in high free cash flow. Deshmukh (2003) suggests a positive relationship between the dividend payout ratio and firm liquidity. Rozeff (1982) found that company growth has a negative impact on dividends. Furthermore, managers of high-growth companies are more likely to engage in opportunistic behavior. Lin *et al.* (2017) have pointed out that company risk negatively influences DP. However, an increase in the company's risk level could be associated with a significant degree of EM, aimed at shaping the financial market's perception of the firm's risk. Fama and French (2001) propose that companies with strong cash flows are more inclined to pay substantial dividends. Gul *et al.* (2009) emphasize that firms with an excess of operating cash flow are less likely to engage in EM. In line with the work of Zang (2012), the variable book-to-market (BM) is introduced in the model explaining EM to control for the firm's growth opportunities. Kothari *et al.* (2005) emphasized the importance of incorporating the return on assets (ROA) variable as a control for profitability in the models explaining EM. Ownership concentration can lead dominant shareholders to exploit minority investors. Majority shareholders often choose a high dividend distribution policy, which helps reduce agency costs and enhance the firm's reputation in the market. Elmagrhi *et al.* (2017) found that outside directors have a negative impact on dividend distribution policy. They have demonstrated that the combination of the roles of general management and chairman of the board positively and significantly influences the DP. Expert members on audit committees are a crucial corporate governance mechanism that can reduce the need for larger dividend payments. Mehdi *et al.* (2017) found that a higher frequency of board meetings has a negative impact on the DP, while Elmagrhi *et al.* (2017) suggested a positive relationship between board size and dividend distribution policy. Additionally, Francis and Yu (2009) demonstrated that a high-quality audit can restrict the extent of EM.

Table 3 provides descriptions of the variable measurements.

3.2 Models

To test our hypothesis, we first construct the two empirical models (Models 2 and 3). We perform a Granger causality analysis on panel data utilizing the generalised method of moments (GMM) method. Subsequently, we estimate the two additional empirical models (Models 4 and 5) using both the Iterative 3SLS and 3SLS methods to test the causality hypothesis. To determine the appropriate number of lags, we utilized formula $T > 5 + 2X$, as suggested by Dumitrescu and Hurlin (2012). Here, T represents the number of time periods and X signifies the number of lags. In our case, where $T = 8$, the maximum value for X is 1. Therefore, we restrict the number of lags to one in the context of our study.

In what follows, we estimate the following regression models. Like Makni *et al.* (2009), we incorporate the same control variables in our empirical models.

$$DPO_{it} = \beta_0 + \beta_1 DPO_{it-1} + \beta_2 DA_{it-1} + \beta_3 SIZE_{it} + \beta_4 DEBT_{it} + \beta_5 GROW_{it} + \beta_6 CFO_{it} + \beta_7 RSQ_{it} + \beta_8 ACEXP_{it} + \beta_9 ACIND_{it} + \beta_{10} NUMB_{it} + \varepsilon_{it} \quad (2)$$

$$DA_{it} = \beta_0 + \beta_1 DA_{it-1} + \beta_2 DPO_{it-1} + \beta_3 SIZE_{it} + \beta_4 DEBT_{it} + \beta_5 GROW_{it} + \beta_6 CFO_{it} + \beta_7 RSQ_{it} + \beta_8 ACEXP_{it} + \beta_9 ACIND_{it} + \beta_{10} NUMB_{it} + \varepsilon_{it} \quad (3)$$

Variable	Variable representation	Measure
DA	EM	The error term in the Dechow *et al.* (1995) model
DPO	DP of firm	Dividend per share/earnings per share
SIZE	Firm size	Natural logarithm of the total assets
DEBT	Debt ratio	Long-term debt divided by total assets
GROW	Sale growth of firm	The annual growth rate of sale revenue
CFO	Cash flows from operations	Cash flows from operations divided by total assets
RSQ	Risk of a firm	Price of a share divided by earnings per share
ROE	Return on equity	Net income over owners' equity
LIQ	Liquidity of firm	Current assets divided by current liabilities
ROA	Return on assets	Income before extraordinary items divided by total assets
BM	Market-to-book ratio	The ratio of market value to book value
ACEXP	The expertise of audit committee members	Proportion of audit committee members with accounting financial expertise
ACIND	The independence of audit committee members	Proportion of independent directors on the audit committee
NUMB	The frequency of board meetings	The number of meetings held by the audit committee
AUD	Audit quality	Dummy variable coded 1 if the firm's auditor is a Big 4 accounting firm, 0 otherwise
CUMUL	CEO duality	Dummy variable coded 1 if the CEO is also the board chair, 0 otherwise
TACA	Board size	The number of directors on the board
CONC	Ownership concentration	The percentage of shares owned by the first shareholder

Source(s): Datastream

Table 3. Variables measurement

All variables are defined in Table 3. $\varepsilon_{i,t}$ represents the error term, with the subscripts i and t indicating individual firms and time periods, respectively.

In addition, we explore the potential bidirectional causality between DP and EM by simultaneously estimating our empirical models. To address endogeneity when working with multiple models, we adopt a simultaneous equation approach, as recommended by Prevost *et al.* (2002). Using a two-equation model with DP and EM as dependent variables, we investigate the causal relationship between them.

Several independent variables are shared by both equations, including SIZE, DEBT, GROW, CFO, RSQ, ACEXP, ACIND and NUMB. In the DP equation, additional variables like LIQ and ROE are included, while in the EM equation, variables such as ROA, BM, AUD, CUMUL, TACA and CONC are considered. The estimated system is presented below:

$$\begin{cases} DPO_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 SIZE_{it} + \beta_3 DEBT_{it} + \beta_4 ROE_{it} + \beta_5 LIQ_{it} + \beta_6 GROW_{it} + \\ \beta_7 RSQ_{it} + \beta_8 CFO_{it} + \beta_9 ACEXP_{it} + \beta_{10} ACIND_{it} + \beta_{11} NUMB_{it} + \varepsilon_{it} \quad (4) \\ \\ DA_{it} = \beta_0 + \beta_1 DPO_{it} + \beta_2 SIZE_{it} + \beta_3 DEBT_{it} + \beta_4 ROA_{it} + \beta_5 BM_{it} + \beta_6 GROW_{it} + \\ \beta_7 RSQ_{it} + \beta_8 CFO_{it} + \beta_9 ACEXP_{it} + \beta_{10} ACIND_{it} + \beta_{11} NUMB_{it} + \beta_{12} AUD_{it} + \\ \beta_{13} CUMUL_{it} + \beta_{14} TACA_{it} + \beta_{15} CONC_{it} + \varepsilon_{it} \quad (5) \end{cases}$$

All variables are defined in Table 3. $\varepsilon_{i,t}$ represents the error term, with the subscripts i and t indicating individual firms and time periods, respectively.

3.3 Analytical procedure

The main objective of this paper is to investigate the relationship between EM and DP. To achieve this, we perform the Granger causality analysis using panel data and applying a dynamic panel approach with the GMM method. The use of panel data is advantageous for establishing more robust insights into causal relationships, especially with relatively short timeframes (Dumitrescu and Hurlin, 2012). Additionally, we simultaneously estimate our empirical models using both the 3SLS method and the iterative 3SLS method.

When estimating Models (2) and (3), it's crucial to address potential econometric challenges such as correlated explanatory variables and complexities introduced by lagged variables, which can introduce bias when using standard techniques like ordinary least squares (OLS) estimation (Sevestre, 2002). To enhance the reliability of our findings, we use the GMM introduced by Arellano and Bond (1991). The GMM is well-suited for dynamic panel data models and offers several advantages, including addressing issues like reverse causation and omitted variables common in empirical research. It handles lagged dependent variables essential for capturing temporal dynamics.

In estimating multiple empirical models, we need to address the potential issue of endogeneity. Simultaneous equation models are valuable, and two commonly used techniques for testing such systems are 2SLS and 3SLS. Generally, the 3SLS estimator, as described by Kennedy (1998), is more efficient and consistent, as it takes into account potential residual dependence between the equations within the system using the variance-covariance matrix of the residuals (Zellner and Theil, 1962). Hence, we utilize the 3SLS method to estimate our empirical model, incorporating Iterative 3SLS to mitigate potential endogeneity issues.

4. Results

Table 4 provides descriptive statistics for all the variables used in our models. The means (medians) of DPO and DA are 0.209 (0.133) and −0.051 (−0.054), respectively. This indicates that, on average, France-listed firms had a dividend payout ratio of 20.9% during the period 2008–2015. Moreover, the table shows that, on average, firms tended to manage earnings downward. Table 5 presents the Pearson's correlations between the variables. The highest

Variable	Mean	Median	SD
DPO	0.209	0.133	0.944
DA	−0.051	−0.054	0.01
SIZE	13.361	13.221	2.48
DEBT	0.224	0.207	0.171
ROE	−0.017	0.076	0.541
RSQ	10.789	9.951	21.018
GROW	0.147	0.039	1.23
LIQ	1.74	1.364	1.594
CFO	0.295	0.059	0.17
ROA	−0.394	3.59	18.860
BM	2.676	1.320	33.730
CONC	0.431	0.473	24.82
ACIND	0.729	0.666	0.218
CUMUL	0.629	1	0.483
ACEXP	0.587	0.724	0.276
NUMB	7.6	7	2.95
TACA	13.057	13	3.928
AUD	0.253	0	0.435

Table 4.
Descriptive statistics

Source(s): Own elaboration

Table 5.
Pearson's correlations

Variable	DA	DPO	SIZE	DEBT	ROE	RSQ	GROW	LIQ	CFO	CONC	ACIND	CUMUL	ACEXP	NUMB	TACA	AUD	ROA	BM
DA	1		0.253**	0.263**	0.129**	0.04	0.099**	−0.113	0.186**	0.082**	0.05	0.176**	−0.027	0.120**	0.026	0.041*	0.151***	−0.014
DPO		1	0.088***	−0.035*	0.052**	0.225***	−0.017	−0.032	0.065***	0.042*	0.022	−0.028	0.016	−0.002	−0.037	0.011	0.067***	0.001
SIZE			1	0.234**	0.223**	0.115**	−0.071	−0.288	0.382**	−0.178	−0.069	0.075	0.162**	0.215**	0.343**	−0.002	0.341*	−0.023
DEBT				1	−0.058**	−0.025	−0.006	−0.307	0.008	−0.048	−0.047	0.156**	0.003	0.164**	−0.04	−0.048**	0.03	0.037
ROE					1	0.136**	−0.03	−0.137	0.449**	0.162**	−0.13	0.029	−0.002	−0.036	0.078*	−0.001	0.589***	−0.238***
RSQ						1	−0.036	−0.132	0.139**	0.12**	0.021	−0.073	0.018	0.038	−0.03	−0.013	0.152*	−0.013
GROW							1	0.153**	−0.028	−0.032	0.034	0.055	−0.037	−0.004	−0.073	−0.009	−0.083*	0.004
LIQ								1	−0.284	−0.131	0.105**	0.013	0.034	−0.035	−0.177	0.018	−0.273***	0.022
CFO									1	0.188**	−0.054	0.033	−0.098	0.028	0.042	−0.004	0.746*	−0.040*
CONC										1	−0.274	0.037	−0.094	−1.159	−0.015	−0.053**	0.211*	0.029
ACIND											1	−0.187	0.066	−0.108	−0.185	0.069*	−0.147*	−0.005
CUMUL												1	−0.213	−0.163	0.135*	0.103***	−0.016	−0.035
ACEXP													1	0.049	0.154**	−0.021	−0.024	0.029
NUMB														1	0.076	−0.002	0.043	−0.014
TACA															1	−0.101***	−0.064*	0.150***
AUD																1	−0.001	−0.014
ROA																	1	−0.042*
BM																		1

Note(s): *Significance at 10% level; **significance at 5% level and ***significance at 1% level
Source(s): Own elaboration

absolute correlation coefficient is lower than 0.80, indicating that multicollinearity is not likely to be a significant issue in our econometric models (Kennedy, 1998).

Table 7 presents the results of the Granger causal analysis on panel data and the application of a dynamic panel using the GMM method. It is important to note that we took all necessary precautions before estimating the models. Therefore, we provide the results of the stationarity test and the tests associated with the system GMM estimator.

In our study using panel data, we address stationarity by employing stationarity tests based on the Phillips–Perron procedure. As shown in Table 6, the calculated p-value is less than 1%. Consequently, we reject the null hypothesis (H0), indicating that all variables are stationary.

The Sargan and Hansen over-identifying restrictions test has been employed to assess the validity of lagged variables as instruments. Our findings indicate that the test does not reject the null hypothesis (H0), with p-values of 0.979 for the first model (2) and 0.688 for the second model (3). Therefore, the instruments used are deemed valid.

The Arellano and Bond (1991) autocorrelation test has been utilized to test for the presence of second-order autocorrelation between the variables and the error term. The results indicate that the test does not reject the null hypothesis (H0), with p-values of 0.319 for the first model (2) and 0.346 for the second model (3). This suggests that there is no second-order autocorrelation of the errors in the difference equation (AR2).

Moving on to the results regarding the estimation of the empirical Models (2) and (3), our primary objective is to examine the direction of causality between DP and EM. As an initial conclusion, it is worth noting that DP is influenced by its previous values. The coefficient associated with the variable DPO (−1) is negative and statistically significant at the 1% level.

Table 7 presents the results of estimating Models 2 and 3 using the GMM method of for our sample. As per hypothesis H1, we observe bidirectional causality between DP and EM. Specifically, the coefficients for the DA (−1) and DPO (−1) variables are positive and statistically significant, indicating that DP Granger-causes EM positively, and vice versa.

Additionally, in Regression 2, the coefficients for GROW and RSQ are positive and significant with dividends, which aligns with the findings of previous studies, such as Gul *et al.* (2009). The signs of the coefficients for control variables (GROW and CFO) in Regression 3 are as anticipated. Importantly, when considering the control variables, they do not appear to have a significant impact on DP and EM.

The results of the model estimation using simultaneous equations with the 3SLS and iterative 3SLS methods are presented in Table 8.

Our analysis, employing both the 3SLS and iterative 3SLS methods, reveals that DP and EM are positively and significantly related, as seen in Table 8. This means that DP influences EM, and vice versa. The coefficients associated with the variables DA and DPO in the respective Regressions (4) and (5) are both positive and statistically significant at the 5% level. These findings affirm the existence of a mutual relationship between DP and EM, in line with the results of our Granger causality study using panel data and the GMM method.

Concerning the control variables, the results of Regression (4) indicate that the level of debt negatively influences a company's DP, aligning with the agency theory. The coefficient associated with the GROW variable supports the hypothesis that a firm's growth negatively affects DP, consistent with prior research such as Rozeff (1982). The coefficient for the risk variable (RSQ) is negative and statistically significant at the 10% level. This finding corroborates the results of Lin *et al.* (2017), suggesting that as a company matures, its risk decreases, enabling company leaders to signal confidence in the market through dividend distribution. Regarding the other control variables, none were found to be statistically significant.

Concerning the control variables, the results of Regression (5) yield notable conclusions. The SIZE variable demonstrates a positive and statistically significant coefficient at the 5%

Table 6. Phillips–Perron unit root tests

Variables	DPO Statistic	DA Statistic	SIZE Statistic	DEBT Statistic	GROW Statistic	CFO Statistic	RSQ Statistic	ACEXP Statistic	ACIND Statistic	NUMB Statistic
PP – Fisher Chi-square	610.638***	1367.59***	1253.93***	836.284***	1427.72***	1218.65***	119.29***	276.892***	139.450***	318.36***

Note(s): ***Significance at 1% level; H0: the series contains a unit root
Source(s): Own elaboration

Variable	DPO Coefficient	DPO *t*-statistic	DA Coefficient	DA *t*-statistic
DA (−1)	29.166*	1.811	0.130	0.773
DPO (−1)	−0.392**	−2.493	0.010**	1.999
DEBT	0.910	0.233	0.015	0.658
SIZE	−2.040	−1.018	0.000	0.982
GROW	0.485*	1.670	0.006***	2.733
CFO	−5.678	−1.087	0.179***	2.710
RSQ	0.015*	1.679	−0.000	−1.288
ACEXP	0.000	0.131	0.000	0.563
ACIND	−0.013	−0.499	0.000	1.027
NUMB	−0.029	−0.361	−0.000	−0.646
Hansen j-test (*p*-value)[a]	3.632 (0.979)		8.279 (0.688)	
AR(2) test (*p*-value)[b]	−0.995 (0.319)		−0.941 (0.346)	

Note(s): *Significance at 10% level; **significance at 5% level and ***significance at 1% level
[a]H0: The instruments are valid
[b]H0: Absence of order 2 autocorrelation between the variables and the error term
Source(s): Own elaboration

Table 7.
Results of the causal study in the sense of Granger

level, supporting the hypothesis that larger companies employ EM to convey a favorable image to all stakeholders. The DEBT variable exhibits a positive and statistically significant coefficient at the 1% level, indicating that companies seeking external financing, such as bank loans, are more inclined to utilize EM for presenting a positive image and securing favorable credit terms. Additionally, the GROW variable shows a positive and significant effect at the 1% level, aligning with findings from Gul *et al.* (2009), suggesting that companies with robust expected profit growth tend to report higher results compared to those with less expected profit growth. However, all coefficients associated with the other control variables in Regression (5) were found to be not statistically significant.

5. Robustness checks

We checked the robustness of our results by performing several sensitivity tests. Consistent with prior research, we used alternative measures for DP and EM. Like Hwang *et al.* (2013) and Jabbouri (2016), we measure DP using the ratio of total cash dividends divided by total sales for the period.

$$\text{DPO} = \frac{\text{Total Cash Dividend}}{\text{Total Sales Revenues}}$$

Previous research, such as Collins *et al.* (2017), has argued that discretionary accruals are frequently subject to measurement noise. Furthermore, Daniel *et al.* (2008) noted that the Jones model's sensitivity to firm performance can be a concern. As a result, to ensure result robustness, we've selected the Kothari *et al.* (2005) model for estimating discretionary accruals. The model is expressed as follows:

$$TA_{it} \Big/ A_{it-1} = \alpha_0 (1/A_{it-1}) + \alpha_1 \left(\frac{\Delta SALES_{it} - \Delta REC_{it}}{A_{it-1}} \right) + \alpha_2 \left(\frac{PPE_{it}}{A_{it-1}} \right) + \alpha_3 (ROA_{it}) + \varepsilon_{it}$$

where A represents total assets, $\Delta SALES$ *is* the change in revenues, ΔREC is the change in net receivables, PPE represents the amount of property, plant and equipment, ROA is defined as the net income before extraordinary items scaled by lagged total assets.

Variables	3 SLS		3 SLS iterative method	
	DPO	DA	DPO	DA
Intercept	1.013	−0.074***	0.882	−0.074***
	1.36	−6.81	1.11	−6.97
DA	18.626**		18.540**	
	2.54		2.36	
DPO		0.016**		0.016**
		2.05		2.08
SIZE	0.015	−0.000	0.024	−0.000
	0.50	−0.55	0.443	−0.61
DEBT	−0.255	0.015***	−0.278	0.015***
	−0.98	2.68	−0.99	2.74
ROE	0.616***		0.551***	
	4.03		3.71	
RSQ	0.012***	−0.000*	0.012***	−0.000*
	9.41	−1.71	9.41	−1.72
GROW	−0.800***	0.027***	−0.800***	0.027***
	−3.43	4.60	−3.43	4.71
LIQ	0.122**		0.130**	
	2.23		2.34	
CFO	−1.789**	0.097***	−1.908**	0.096***
	−2.06	5.17	−2.06	5.28
BM		0.000		0.000
		1.57		1.31
ROA		−0.000		−0.000
		−1.55		−1.47
ACEXP	−0.001*	0.000*	−0.002**	0.000*
	−1.88	1.61	−1.96	1.64
ACIND	−0.001	0.000**	−0.001	0.000**
	−1.30	2.20	−1.47	2.32
NUMB	−0.001	0.000	−0.000	0.000
	−0.09	0.99	−0.03	1.10
AUD		0.000		0.001
		0.66		0.87
CUMUL		0.001**		0.001**
		2.05		2.30
TACA		0.000*		0.000**
		1.76		2.18
CONC		0.000		0.000
		0.68		0.75
R^2	0.236	0.063	0.193	0.068
χ^2	170.93***	132.19***	221.57***	161.57***

Note(s): *Significance at 10% level; **significance at 5% level and ***significance at 1% level
Source(s): Own elaboration

Table 8. Results of the simultaneous equation model

The results, which are reported in Tables 9 and 10 confirm our initial results.

6. Discussion

6.1 Theoretical implications

Since the amount of dividends a company pays is closely tied to its net earnings, the practice of EM becomes a target for firms. Chaudhry *et al.* (2015) demonstrated that there exists a mutual relationship between earnings per share and dividends per share. It's important to

Table 9.
Results of the causal study in the sense of Granger alternative measures dividends to sales ratio and Kothari *et al.* (2005) model

Variable	DPO		DA	
	Coefficient	t-Statistic	Coefficient	t-Statistic
DA (−1)	0.944**	1.992	0.079	0.581
DPO (−1)	−0.544**	−2.216	0.283*	1.864
DEBT	−0.174	−0.389	−0.132	−1.036
SIZE	−0.196	−1.433	0.020	0.402
GROW	−0.100	−1.236	−0.004	−0.731
CFO	0.640	1.176	0.548***	4.312
RSQ	0.004**	2.258	−0.000	−0.646
ACEXP	0.000	0.723	−0.000	−1.310
ACIND	−0.003	−1.026	0.000	0.450
NUMB	0.023	0.982	0.004	1.189
No. of observations	1,561		1,561	
Hansen j-test (*p*-value)	12.149 (0.352)		10.161 (0.515)	
AR(2) test (*p*-value)	−0.676 (0.499)		−0.534 (0.593)	

Note(s): *Significance at 10% level; **significance at 5% level and ***significance at 1% level
Source(s): Own elaboration

note that companies may engage in EM to meet the expectations of specific stakeholders within the company, particularly investors.

Our paper examines the direction and nature of causality between DP and EM in the French context. The findings align with our stated Hypothesis (H1) and demonstrate a predictive relationship, consistent with the signaling theory. Specifically, we confirm bidirectional and positive causality between DP and EM in French firms.

In this institutional context, characterized by a high concentration of ownership, the managers can utilize EM to signal to the market their ability to distribute dividends. We argue that this signaling mechanism is particularly valuable, especially in countries with weak legal protection for external investors (Easterbrook, 1984), as it helps reduce information asymmetry between managers and external stakeholders and enhances the company's reputation.

Our research provides empirical evidence supporting a significant and positive causal link between dividends and EM. This reinforces the notion that a higher dividend payout signals an expected increase in future financial performance.

6.2 Managerial/policy implications

From a managerial perspective, our study carries important implications for investors, regulators, auditors and academics:

Our research underscores the widespread use of EM in the French context, where it plays a central role in shaping DP. Additionally, we find that DP exerts a substantial influence on EM, consistent with the insights of Kasanen *et al.* (1996), who portrayed dividends as a driving force behind EM. These findings provide valuable insights for investors, analysts and scholars, contributing to a deeper understanding of the frequently debated concepts of DP and EM.

Our study also offers compelling evidence concerning French companies, which prioritize mitigating agency costs between majority and minority shareholders while safeguarding their reputations. Consequently, these firms have a strong incentive to engage in EM to signal their ability to distribute dividends to the market. Notably, in the contexts where foreign investors face weaker legal protection (Easterbrook, 1984), EM serves an informative purpose. This informative EM can be positively received by investors, and auditors have a vested interest in enhancing their reputation and market presence.

Variables	3 SLS		The iterative 3SLS	
	DPO	DA	DPO	DA
Intercept	−0.084	0.035	−0.088	0.034
	−0.93	1.46	−0.96	1.39
DA	1.924**		1.965**	
	2.49		2.51	
DPO		0.171***		0.170**
		2.56		2.53
SIZE	0.001	−0.000	0.001	−0.000
	0.24	−0.47	0.27	−0.41
DEBT	0.083**	−0.023**	0.083**	−0.023**
	2.08	−1.99	2.04	−1.99
ROE	0.077**		0.072**	
	2.08		2.04	
RSQ	−0.000	0.000	−0.000	0.000
	−1.35	0.61	−1.30	0.61
GROW	−0.243***	0.072***	−0.244***	0.072***
	−4.66	4.71	−4.58	4.64
LIQ	0.031***		0.032***	
	2.26		2.23	
CFO	0.860*	−0.614***	0.891*	−0.616***
	1.67	−11.66	1.72	−11.60
BM		−0.000		−0.000
		−0.83		−0.91
ROA		0.000		0.000
		1.23		1.36
ACEXP	0.000	−0.000	0.000	−0.000
	0.55	−0.96	0.54	−0.94
ACIND	−0.000	0.000	−0.000	0.000
	−1.42	1.52	−1.43	1.50
NUMB	−0.001	−0.000	−0.001	−0.000
	−0.60	−0.55	−0.59	−0.67
AUD		0.001		0.000
		0.47		0.18
CUMUL		−0.001		−0.001
		−0.54		−0.54
TACA		0.001**		0.001**
		1.99		2.04
CONC		−0.000		−0.000
		−1.43		−1.55
R^2	0.194	0.564	0.187	0.563
χ^2	78.68***	349.03***	75.29***	342.97***

Note(s): *Significance at 10% level; **significance at 5% level and ***significance at 1% level
Source(s): Own elaboration

Table 10. Results of the simultaneous equation model – alternative measures dividends to sales ratio and Kothari *et al.* (2005) model

Furthermore, it is essential to emphasize that various stakeholders in the financial market advocate for the highest quality of financial information, as mandated by companies' accounting systems. Therefore, standardization bodies, the Ministry of Finance, external auditors and stock exchange regulators should prioritize both internal and external governance mechanisms to enhance the quality of financial information disclosed by companies. The emphasis should be on optimizing the characteristics of each mechanism rather than merely establishing control measures.

6.3 Limitations and future research agenda

It is important to acknowledge that our study has certain limitations, offering potential avenues for future research. Notably, the measurement of DP remains a persistent challenge and should be explored further, encouraging future research to consider different measurement approaches.

Additionally, our empirical focus was specific to the French context due to its unique governance model, which can impact both EM and high dividend payout rates. However, the research framework can be adapted to other institutional contexts with distinct legal and management systems. The future extensions of our work could involve increasing the sample size and expanding the study to encompass a broader time frame, which could include periods both before and after the onset of the coronavirus (COVID-19) pandemic.

7. Conclusion

The aim of this paper is to investigate the reciprocal causal relationship between DP and EM in the French context. A review of the existing literature has revealed a lack of similar research exploring the bidirectional causal link between these two variables. Our panel analysis involves data from 280 firms over the period from 2008 to 2015. The estimation of our various empirical models, conducted using the Granger causality tests on panel data based on the GMM method as well as the models with simultaneous equations, confirms bidirectional causality with a positive direction between DP and EM. Consequently, the results of this study indicate that firms have a strong incentive to manipulate their earnings to signal to the market their ability to distribute dividends. As a measure of sensitivity, we also employ alternative measures for DP and EM, yielding similar outcomes.

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Corresponding author
Olfa Ben Salah can be contacted at: bensalaholfa@yahoo.fr