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The Relationship between Shareholder Gender and Earnings Management in Private Italian Companies

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Abstract

Although the relationship between the type and characteristics of shareholders and earnings management practices is a topic that has been extensively investigated in the literature, the specific relationship between shareholder gender and earnings management practices has been overlooked by scholars. To contribute to filling this knowledge gap, this study investigates whether and how shareholder gender is related to the magnitude of abnormal (or discretionary) accruals in private Italian companies. It shows that the relationship between female ownership and the magnitude of abnormal accruals is not linear (and negative), but quadratic. This means that the practice of manipulating accruals is not contrasted by the presence of female ownership but by the presence of gender heterogeneity in the ownership structure.

Keywords: earnings management, female ownership, gender diversity, Italy, private companies

1. Introduction

The factors that may favour or contrast the practices of earnings management are a research topic that is widely explored in the literature. Among these factors, the type and characteristics of shareholders are aspects that have attracted particular attention. Although the conclusions drawn in previous studies are not fully conclusive, the existence of a relationship between them and companies' propensity to practice earnings management appears to be sufficiently demonstrated. However, previous studies have focused on specific shareholder types, such as institutional investors (e.g., Almazan, Hartzell, & Starks, 2005; Bange & De Bondt, 1998; Bushee, 1998; Chung, Firth, & Kim, 2002; Claessens & Fan 2002; Cornett, Marcus, & Tehranian, 2008; Duggal & Millar, 1999; Ebrahim, 2007; Koh, 2003; Porter, 1992; Pound, 1988; Sundaramurthy, Rhoades, & Rechner, 2005), public authorities (e.g., Aharony, Lee, & Wong, 2000; Capalbo, Frino, Mollica, & Palumbo, 2014; Chen & Yuan, 2004; Ding, Zhang, & Zhang, 2007; Liu & Lu, 2007; Roodposhti & Chashmi, 2011; Wang & Yung, 2011), families (e.g., Jaggi & Leung, 2007; Jaggi, Leung, & Gul, 2009; Prencipe, Markarian, & Pozza, 2008), and foreign investors (e.g., Beuselinck, Blanco, & Garcia Lara, 2013).

Whether and how shareholder gender is related to companies' propensity to practice earnings management, instead, appears to have been overlooked by scholars. To our knowledge, the only exception is Poli (in press) that has recently investigated whether and how shareholder gender is related to private (unlisted) Italian companies' propensity to engage in two specific earnings management practices, the so-called "earnings minimization" and "earnings change minimization" practices, finding that there is no relation between them.

To contribute to filling this knowledge gap and to extend the findings of Poli (in press), this paper investigates whether and how shareholder gender is related to the magnitude of abnormal (or discretionary) accruals in private Italian companies. This study differs from the previous one in that the earnings management practice considered is the one pertaining to the manipulation of accruals and the shareholder gender factor includes both female ownership, as in Poli (in press), and the degree of gender heterogeneity in ownership structure.

The paper is organized as follows. Section 2 reviews the literature and develops the research hypotheses. Section 3 describes the research design and the sample selection. Section 4 shows and discusses the empirical results. Section 5 summarizes the findings and highlights the main contributions to the literature, the limitations of the study and possible further research opportunities.

2. Literature Review and Development of Hypotheses

The hypothesis that the gender of its shareholders may influence a company's propensity to practice earnings management is inspired by the fact that previous studies have found that the behavior of individuals is influenced by gender in different contexts. For the purposes of this study, in particular, what is relevant is the fact that females are more risk averse and more ethical than males. Dwyer, Gilkeson, and List (2002), Graham, Stendardi, Myers, and Graham (2002), Jianakoplos and Bernasek (1998), Olsen and Cox (2001), Sunden and Surette (1998), Watson and McNaughton (2007), and Watson and Robinson (2003) have found that women demonstrate a greater aversion to risk and are less likely than men to be overconfident in the field of accounting and finance. Barber and Odean (2001), Bliss and Potter (2002), Johnson and Powell (1994) and Schubert (2006) have found that women seem to be less overconfident on financial matters than men. Eynon, Hill, and Stevens (1997), Khazanchi (1995) and Ruegger and King (1992) have found that women are more ethical in business contexts. Bernardi and Arnold (1997) and Betz, O'Connell, and Shepard (1989) have found that women are less likely to engage in unethical behavior in the work place to gain financial rewards.

The fact that earnings management through earnings manipulation can be viewed as risky and unethical behavior (e.g., Healy & Wahlen, 1999; Roychowdhury, 2006) would plausibly lead to the assumption that, because females are more risk averse and more ethical than males, female shareholders may be less favorable to earnings management practices than male shareholders. Female shareholders may be inclined to contrast earnings management practices, both directly, when they are involved in the management of the company (which frequently occurs in smaller companies when female shareholders hold the requisite portion of equity), and indirectly, appointing or influencing the appointment of managers that are less inclined to practice earnings management or monitoring the behavior of managers. Therefore, the research hypothesis being tested is the following:

H_1: *A negative linear relationship exists between female ownership and the magnitude of abnormal accruals.*

A different research hypothesis on the relationship between shareholder gender and earnings management practices is suggested by all the studies that have investigated the relationship between the degree of gender diversity in groups and the outcomes of such groups. Although these studies refer to very different aspects and contexts from those considered in this study, Herring (2009) has revealed that some studies show that a higher degree of gender diversity in groups has a positive impact on the outcomes of said groups (e.g., Cox & Beale, 1997; Cox, 1993; Cox, 2001; Florida & Gates, 2001, 2002; Gurin, Nagda, & Lopez, 2004; Hubbard, 2004; Richard, 2000; Ryan, Hawdon, & Branick, 2002; Smedley, Butler, & Bristow, 2004; Williams & O'Reilly, 1998); he has also stated that other studies, in contrast, have yielded just the opposite: a higher degree of diversity in groups has negative impacts on the outcomes of said groups (Jehn, Northcraft, & Neale, 1999; Pelled, 1996; Pelled, Eisenhardt, & Xin, 1999; Rothman, Lipset, & Nevitte, 2003a, 2003b; Skerry, 2002; Tsui, Egan, & O'Reilly, 1992; Whitaker, 1996). Although the results of the above studies relate to very different aspects and contexts compared to those considered in this study and they have come to different conclusions, they suggest that it would be worthwhile to verify whether and how the degree of gender diversity in ownership structure has an impact on earnings management practices undertaken by companies.

With regard to the ownership structure, the degree of gender diversity is the greatest when the portion of equity held by female shareholders is equal to that held by male shareholders. On the contrary, the degree of gender diversity is the smallest when all of the equity is held by either female or male shareholders. If the degree of gender diversity influences companies' propensity to practice earnings management and it is measured by the portion of equity held by female shareholders (FEM), the relationship between FEM and companies' propensity to practice earnings management is not linear (and negative), as tested in the previous research hypotheses, but quadratic (U-shaped or inverted U-shaped). In fact, when FEM assumes the value corresponding to the ideal degree of gender diversity, the dependent variable assumes the minimum value (if it consists of all positive values) or the maximum value (if it consists of all negative values). Instead, when FEM assumes values lower or higher than the value corresponding to the ideal degree of gender diversity, the dependent variable assumes higher values (if it consists of all positive values) or lower values (if it consists of all negative values). These values will be proportionally higher or lower depending on how far FEM is from the corresponding ideal degree of gender diversity. Therefore, the research hypothesis being tested is the following:

H_2: *A quadratic (U-shaped or inverted U-shaped) relationship exists between female ownership and the magnitude of abnormal accruals.*

3. Research Design and Sample Selection

OLS analysis was used to test the research hypotheses. Dependent, independent, and control variables as well as

OLS models are described below. All the variables are defined and measured as reported in Table 1.

3.1. Dependent Variable

The dependent variable is an accrual-based earnings management measure. Specifically, it is the "Abnormal Working Capital Accruals" (AWCA) estimated through the model suggested by DeFond and Park (2001). It is computed as follows:

$$\frac{\mathrm{WC}_{it}-\left(WC_{it-1}\times\frac{S_{it}}{S_{it-1}}\right)}{TA_{it-1}} \quad (1)$$

Where:

WC_{it} = non-cash working capital of company *i* in fiscal year *t*;

WC_{it-1} = non-cash working capital of company *i* in fiscal year *t-1*;

S_{it} = sales of company *i* in fiscal year *t*;

S_{it-1} = sales of company *i* in fiscal year *t-1*;

TA_{it-1} = total assets of company *i* in fiscal year *t-1*.

WC is computed as the difference between current assets, net of cash and short-term investments, and current liabilities, net of short-term debts.

In the literature, the abnormal part of accruals is most frequently measured through the residual of regression models (time-series or cross-sectional) used to estimate the normal (or non-discretionary) part of accruals, such as, for example, the Jones Standard model (Jones, 1991), the Modified Jones model (Dechow, Sloan, & Sweeney, 1995), the Jones Cash Flow model (Shivakumar, 1996), etc. Time-series regression models cannot be used because the required minimum number of firm-year observations per company (at least six) is not available. Similarly, cross-sectional regression models cannot be used. In this case, before applying the regression model to estimate the normal part of accruals, the total sample of observations is divided into sub-samples by economic sector. A certain number of the first digits or all the digits of the classification codes of the economic sectors can be used for this division. If the first two digits are used, as the literature confirms is generally done, this method does not take into account the high heterogeneity and specificity of the activities actually undertaken by companies; therefore, the estimates of the normal and abnormal parts of accruals would be unreliable. If, instead, all the digits are used, as in time-series regression models, the required minimum number of observations per sector is not available for most of the economic sectors; so, also in this case, the estimates of the normal and abnormal part of accruals would be unreliable. These considerations led us to use (only) AWCA as the dependent variable.

AWCA only considers the current component of total accruals. Measures of abnormal accruals of this kind, that do not consider the long-term component of total accruals, are widely confirmed in previous studies (e.g., Becker, DeFond, Jiambalvo, & Subramanyam, 1998; DeFond & Jiambalvo, 1994; DeFond & Subramanyam, 1998; DuCharme, Malatesta, & Sefcik, 2001; Guidry, Leone, & Rock, 1999; Klein, 2002; Park & Shin, 2004; Peasnell, Pope, & Young, 2005; Subramanyam, 1996; Teoh, Welch, & Wong, 1998). In fact, depreciation, the sole long-term component of total accruals generally considered in the literature, offers limited potential as a tool for earnings management because changes in depreciation policy cannot be made very frequently without attracting adverse attention from auditors or investors (Beneish, 1998).

The values of AWCA are taken both in absolute value and with their sign. We use the absolute value because either positive or negative abnormal accruals are considered to be earnings management behavior (Wartfield, Wild, & Wild, 1995; Gabrielsen, Jeffrey, & Thomas, 2002; Wang, 2006; Ali, Chen, & Wong, 2007; Barth, Landsman, & Lang, 2008). When they are taken with their sign, the total sample of observations is divided into two sub-samples according to the sign. The use of the absolute values of AWCA (|AWCA|) makes it possible to observe the influence of the independent and control variables on the magnitude of AWCA regardless of the fact that the value of abnormal accruals has an increasing or decreasing effect on the income of the period. The use of only the positive value of AWCA (AWCApos) and of only the negative values of AWCA (AWCAneg), instead, make it possible to observe the influence of the independent and control variables on the magnitude of AWCA when the value of abnormal accruals has an increasing or decreasing effect on the income of the period, respectively.

3.2 Independent Variables

To test research hypothesis H1, the independent variable takes two different and alternative forms. It takes the

form of a dummy variable (FEMD) that holds a value of 1 if the portion of equity held by female shareholders is higher than 0.50, and of 0 otherwise. Alternatively, it takes the form of a continuous variable (FEM) corresponding to the portion of equity held by female shareholders. If the signs of the coefficient of FEMD and FEM are negative and statistically significant when the dependent variable is |AWCA| and AWCApos and they are positive and statistically significant when the dependent variable is AWCAneg, research hypotheses H1 will be confirmed. Otherwise, it will be rejected.

To test research hypothesis H2, instead, the independent variable is FEM and its quadratic (FEM^2). If the coefficients of FEM and FEM^2 are statistically significant, research hypothesis H2 will be confirmed. Otherwise, it will be rejected.

3.3 Control Variables

Control variables are included to control for the influence of the factors that previous studies have found to affect the magnitude of abnormal accruals.

Company size (SIZE). According to the prevailing interpretation (e.g., Klein, 2002; Lee & Choi, 2002; Myers, Myers, & Omer, 2003; Bédard, Chtourou, & Courteau, 2004; Park & Shin, 2004; Sánchez-Ballesta & García-Meca, 2007; Prior, Surroca, & Tribo, 2008; González & García-Meca, 2014), larger companies are more carefully monitored by stakeholders, making earnings management more difficult to carry out. Therefore, it is expected that the relationship between SIZE and the magnitude of abnormal accruals is negative with reference to |AWCA| and AWCApos and it is positive with reference to AWCAneg.

Company return on assets (ROA). Dechow et al. (1995) and Kothari, Leone, and Wasley (2005) argue that the models used to estimate accruals are generally unable to capture the entire magnitude of a company's abnormal accruals. Considering this, they suggest including ROA as an additional variable to control for the abnormal part of the accruals that is not extracted by the abovementioned models. Previous studies (e.g., McNichols, 2000; Cameran, Prencipe, & Torretta, 2016) have found that a positive and statistically significant relationship exists between ROA and the magnitude of abnormal accruals. According to these studies, therefore, it is expected that the relationship between ROA and the magnitude of abnormal accruals is positive with reference to AWCApos and AWCAneg. With reference to |AWCA|, no predictions are made.

Company cash flow from operations (CFO). The existence of a negative relationship between CFO and the magnitude of abnormal accruals has been widely documented in the literature (e.g., DeFond & Jiambalvo, 1994; Dechow et al., 1995; Peasnell, Pope, & Young, 2000). With reference to the absolute values of abnormal accruals, Barua, Davidson, Rama, and Thiruvadi (2010) have found that the relationship is quadratic (U-shaped). According to previous studies, therefore, it is expected that the relationship between CFO and the magnitude of abnormal accruals is negative with reference to AWCApos and AWCAneg and it is quadratic (U-shaped) with reference to |AWCA|.

Company growth (GROWTH). Most of the previous studies conducted in this field have included a variable that proxies for GROWTH among the control variables. However, the relationship between this variable and the magnitude of abnormal accruals is still controversial due to non-convergent results. Barua et al. (2010) and Menon and Williams (2004) have found that such a relationship is positive with reference to the absolute value of abnormal accruals. On the contrary, Abbadi, Hijazi, and Al-Rahahleh (2016) have found that a statistically significant relationship does not exist. Some studies have found that companies that have a higher GROWTH are less likely to engage in earnings management practices (Bowen, Rajgopal, & Venkatachalam, 2003; Abdul Rahman & Haneem Mohamed Ali, 2006). Other studies, on the contrary, have found that companies that have high GROWTH are more likely to use earnings management (e.g. Matsumoto, 2002). Like previous studies, we include GROWTH among the control variables but, taking into account previous findings, we have no expectations regarding the existence or the sign of the relationship.

Level of company indebtedness (LEVERAGE). Despite the existence of a relationship between LEVERAGE and the magnitude of abnormal accruals having been widely documented in the literature, the sign of such a relationship remains controversial. According to the prevailing interpretation (e.g., Watts & Zimmerman, 1986; DeFond & Jiambalvo, 1994; Dechow et al., 1995; Mohrman, 1996; Peasnell et al., 2000), companies that experience financial constraints or difficulties (a high LEVERAGE can be considered a proxy for them) tend to manage their earnings to protect themselves from any action taken by debt holders. In other words, companies with a high LEVERAGE have incentives to manipulate earnings to show better results. In this perspective, the relationship is positive, that is, the higher the LEVERAGE the higher the magnitude of abnormal accruals. This means that the relationship is positive with reference to AWCApos and AWCAneg and difficult to predict with reference to |AWCA|. According to another interpretation (e.g., DeFond & Jambalvo, 1994), instead, companies

with a high LEVERAGE are more subject to the scrutiny of debt holders and other stakeholders and, therefore, they have disincentives to manipulate earnings. In this perspective, then, the relationship is negative, that is, the higher the LEVERAGE the lower (higher) the magnitude of positive (negative) abnormal accruals. This means that the relationship is negative with reference to |AWCA| and AWCApos and positive with reference to AWCAneg. Given that the relationship is controversial, it is expected that a relationship between LEVERAGE and the magnitude of abnormal accruals exists, but a prediction on its sign is not made.

Company age (AGE). Previous studies have shown that there is a relationship between AGE and the level of abnormal accruals (e.g., Myers et al., 2003). Specifically, younger companies tend to show higher levels of accruals. According to previous studies, therefore, it is expected that the relationship between AGE and the magnitude of abnormal accruals is negative with reference to |AWCA| and AWCApos and it is positive with reference to AWCAneg.

The variables YEAR and SECTOR are used for the fixed effects of year and industry.

3.4 Testing Methodology

The OLS models used are the following:

$$DV_{it} = \beta_0 + \sum_{\rho=1}^{m} \beta_\rho IV_{\rho it} + \sum_{\rho=m+1}^{n} \beta_\rho CV_{\rho it} \quad (2)$$

where:

DV = dependent variable, represented by |AWCA|, AWCApos or AWCAneg;

IV = independent variable, represented by FEMD, FEM or FEM and FEM^2;

CV = control variable, represented by SIZE, ROA, CFO (and CFO^2, when the dependent variable is |AWCA|), GROWTH, LEVERAGE, AGE, YEAR and SECTOR;

i, t = the reference to the company and the fiscal year, respectively.

In total, the OLS models are nine.

Table 1. Definition and measurement of the variables

Variables	Definitions
$AWCA_{it}$	Values of Abnormal Working Capital Accruals (AWCA) of company *i* in fiscal year *t*, computed as follows: $$\frac{\mathrm{WC}_{it} - \left(WC_{it-1} \times \frac{S_{it}}{S_{it-1}}\right)}{TA_{it-1}}$$ where: WC_{it} = non-cash working capital of company *i* in fiscal year *t*; WC_{it-1} = non-cash working capital of company *i* in fiscal year *t-1*; S_{it} = sales of company *i* in fiscal year *t*; S_{it-1} = sales of company *i* in fiscal year *t-1*; TA_{it-1} = total assets of company *i* in fiscal year *t-1*. WC is computed as the difference between current assets, net of cash and short-term investments, and current liabilities, net of short-term debts. WC has been estimated by using the items of the Italian financial reporting, as follows: + Inventories + Accounts receivable (deferred tax asset is excluded) + Accrued revenue and prepaid expenses – Accounts payable – Accrued liabilities and deferred revenue With regard to accounts payable, the financial reporting prepared in accordance with the Italian legislation does not report separately those involving parent companies, subsidiaries and associated companies. The items that report the amounts due to such companies include both accounts payable and

	financial debts, distinguishing them only according to the due time (before/after 12 months from the financial reporting date). To calculate WC, only the portion of the item due within 12 months from the financial reporting date (assuming that the rest is represented by financial debts) is taken into account.
$\|AWCA_{it}\|$	Absolute values of AWCA, computed as above.
$AWCApos_{it}$	Positive values of AWCA, computed as above.
$AWCAneg_{it}$	Negative values of AWCA, computed as above.
$FEMD_{it}$	Dummy variable that holds a value of 1 if the portion of equity held by female shareholders of company *i* in fiscal year *t* is higher than 0.50, 0 otherwise.
FEM_{it}	Portion of equity held by female shareholders of company *i* in fiscal year *t*.
$SIZE_{it}$	The natural logarithm of total assets of company *i* in fiscal year *t*.
ROA_{it}	The ratio between net income of fiscal year *t* and total assets of fiscal year *t-1* of company *i*.
CFO_{it}	The ration between cash flow from operations of fiscal year *t* and total assets of fiscal year *t-1* of company *i*.
	The Italian private companies are not obliged to prepare the cash flow statement. CFO, then, has been estimated by using the items of the Italian financial reporting, as follows:
	– Net income
	+ Depreciation, amortization and impairment of tangible and intangible assets
	+ ΔWC (computed as above)
	+ ΔDeferred tax asset
	+ ΔEmployee benefits
	+ ΔProvision for risks and charges
	– Revaluation (+ impairment) of financial assets
	– Positive (+ negative) extraordinary items
	Δ corresponds to the difference between the value of the item of a given fiscal year and the value of the same item of the previous fiscal year.
$GROWTH_{it}$	The ratio between change in sales of fiscal year *t* (namely, the difference between sales in fiscal year *t* and sales in fiscal year *t-1*) and sales of fiscal year *t-1* of company *i*.
$LEVERAGE_{it}$	The ratio between total liabilities of fiscal year *t* and total assets of fiscal year *t* of company *i*.
AGE_{it}	Number of fiscal years since the constitution of company *i*.
$YEAR_{it}$	Set of two dummy variables based on the fiscal year of reference (the base case is fiscal year 2011).
$SECTOR_{it}$	Set of seventy-four dummy variables based on the first two-digit ATECO 2007 codes (the base case is the economic sector that has the greater number of company observations). ATECO 2007 is the Italian classification of economic sectors.

3.5 Sample Selection and Data

The sample of companies was extracted from the "Analisi Informatizzata Delle Aziende" (AIDA) database supplied by Bureau van Dijk (the date of extraction is 19th March 2015). The AIDA database provides financial statement data for a vast set of Italian private companies operating in sectors other than the financial one. It was selected on the basis of the criteria that follow: limited liability companies (because they are the companies obliged to prepare financial statements); active companies; unlisted companies; companies that prepare their (non-consolidated) financial statements in ordinary form according to Italian legislation and generally accepted accounting standards in the time period 2010-2013; companies that are small- and medium-sized according to the quantitative size limits established by the European Union (companies that meet the following criteria were excluded: fewer than 10 employees and a balance sheet total below € 2 million or turnover below € 2 million in each fiscal year of the time period 2010-2013; more than 249 employees and a balance sheet total at least € 43 million or turnover of at least € 50 million in each fiscal year of the time period 2010-2013); companies that have a positive total shareholder equity in the time period 2010-2013; companies that have turnover of at least €

1000 in each fiscal year of the time period 2010-2013; companies that are owned only by individuals. The number of companies that meet the above selection criteria amounts to 6686.

With reference to shareholders, the database only provides information relating to the date of consultation (it does not provide historical information). While the Italian private companies considered generally have an ownership structure that tends to be stable over time, we have assumed that the ownership structure of the companies studied at the date of the consultation remained stable during the time period 2010-2013. Based on this assumption, the investigation was developed referring to three fiscal years (2011-2013). In doing so, the initial sample of companies included 20 058 firm-year observations. Considering how certain variables included in the OLS models are calculated, in order to have the variables related to the three-year period under investigation (2011-2013), we needed the data referring to four fiscal years. This explains why the criteria used to select the sample of companies refer to four fiscal years, while the period under investigation consists of three fiscal years.

From the sample of companies, the observations for which data are either incomplete or invalid (9 companies, corresponding to 27 firm-year observations) and those corresponding to the first and the hundredth percentile of signed values of AWCA were subtracted because they were considered outliers. Therefore, the sample of companies consists of 19 629 firm-year observations when the dependent variable is |AWCA|, 10 630 firm-year observations when the dependent variable is AWCApos, and 8999 observations when the dependent variable is AWCAneg.

Table 2. Sample companies

	Companies	Firm-year observations
Initial observations (according to the selection criteria)	6686	20 058
Observations with incomplete or invalid data	-9	-27
Observations with outlier values of signed AWCA		-402
Final observations		19 629
- with positive values		10 630
- with negative values		8999

Table 3 shows the main descriptive statistics referring to the firm-year observations, identified according to the dependent variable configuration.

Table 3. Descriptive statistics

Variables	Mean	SD	Q1	Median	Q3
|AWCA|	0.067	0.060	0.022	0.049	0.093
FEM	0.247	0.269	0.000	0.181	0.445
SIZE	16.253	0.774	15.753	16.219	16.715
ROA	0.019	0.051	0.001	0.008	0.032
CFO	0.041	0.095	-0.013	0.036	0.090
GROWTH	0.018	0.293	-0.086	0.003	0.095
LEVERAGE	0.673	0.205	0.537	0.713	0.837
AGE	29.976	14.523	20.285	28.288	37.085
observations	19 629				
AWCApos	0.067	0.058	0.022	0.051	0.093
FEM	0.249	0.270	0.000	0.190	0.203
SIZE	16.241	0.771	15.743	16.210	16.712
ROA	0.019	0.048	0.001	0.008	0.031
CFO	-0.003	0.078	-0.042	0.001	0.040
GROWTH	-0.026	0.309	-0.121	-0.028	0.053
LEVERAGE	0.666	0.208	0.528	0.706	0.833
AGE	29.730	14.272	20.153	28.279	36.830
observations	10 630				
AWCAneg	-0.066	0.062	-0.093	-0.048	-0.021

FEM	0.246	0.269	0.000	0.171	0.195
SIZE	16.268	0.778	15.766	16.226	16.722
ROA	0.018	0.054	0.001	0.008	0.032
CFO	0.093	0.087	0.039	0.081	0.134
GROWTH	0.070	0.263	-0.041	0.040	0.142
LEVERAGE	0.682	0.202	0.547	0.721	0.842
AGE	30.268	14.811	20.475	28.463	37.507
observations	8999				

4. Results and Discussion

4.1 Univariate Analysis

Each of the three samples of observations (|AWCA|, AWCApos and AWCAneg) was divided into sub-samples, according to the portion of equity held by female owners. The division was done in two different ways: firstly by distinguishing between "FEM ≤ 0.50" and "FEM > 0.50", secondly by distinguishing between "FEM ≤ 0.25 and FEM > 0.75" and "0.25 < FEM ≤ 0.75". The results of the test for differences between means applied to the sub-samples obtained according to the first criterion of division allows us to have preliminary indications about research hypothesis H1. If a linear and negative relationship exists between FEM and the dependent variable, the mean of the dependent variable in the first sub-sample will be higher (when the dependent variable is |AWCA| and AWCApos) or lower (when the dependent variable is AWCAneg), in a statistically significant way, than that of the second sub-sample. The results of the test for differences between means applied to the sub-samples obtained according to the second criterion of division, instead, allows us to have preliminary indications about research hypothesis H2. If a quadratic relationship exists between FEM and the dependent variable, the mean of the dependent variable in the first sub-sample will be higher or lower, in a statistically significant way, than that of the second sub-sample.

With reference to the first way of dividing the samples, for all of the dependent variable configurations, Table 4 shows that the difference between means is not statistically significant. Thus, it seems that a linear and negative relationship between FEM and the dependent variables may not exist.

With reference to the second way of dividing the samples, instead, for all of the dependent variable configurations, Table 4 shows that the difference between means is statistically significant. Thus, a quadratic relationship between FEM and the dependent variables may exist.

Table 4. Univariate analysis results

Variables	Observations	Mean	SD	Welch's test (p-value)	Wilcoxon's test (p-value)
|AWCA|	19 629				
FEM ≤ 0.50	16 903	0.067	0.060	0.678	1.334
FEM > 0.50	2726	0.066	0.061	(0.498)	(0.182)
FEM ≤ 0.25 and FEM > 0.75	12 795	0.068	0.061	4.703	3.291
0.25 < FEM ≤ 0.75	6834	0.064	0.057	(0.000)	(0.010)
AWCApos	10 630				
FEM ≤ 0.50	9152	0.067	0.058	1.642	1.503
FEM > 0.50	1478	0.064	0.057	(0.101)	(0.133)
FEM ≤ 0.25 and FEM > 0.75	6936	0.068	0.059	3.723	2.848
0.25 < FEM ≤ 0.75	3694	0.064	0.056	(0.000)	(0.004)
AWCAneg	8999				
FEM ≤ 0.50	7751	-0.066	0.061	0.645	-0.374
FEM > 0.50	1248	-0.068	0.065	(0.519)	(0.708)
FEM ≤ 0.25 and FEM > 0.75	5859	-0.068	0.063	-2.917	-1.763
0.25 < FEM ≤ 0.75	3140	-0.064	0.058	(0.004)	(0.078)

4.2 Multivariate Analysis

Before running OLS models, we verified that the independent variables were sufficiently independent from one other. Had this not been the case, there would have been collinearity among the dependent variables, which

would have yielded misleading results. The analysis was carried out by determining the correlation coefficients between the independent variables (Table 5) and the Variance Inflation Factors (VIFS).

According to Tabachnick and Fidell (1996), collinearity problems may exist when the correlation coefficient between independent variables is very high, i.e., equal to 0.90 or higher. Table 5 shows that this happens only between FEM and FEM^2. In all the other cases, instead, the correlation coefficient does not reach the critical level, remaining much lower.

With reference to VIFs, Rawlings, Pantula, and Dickey (1998) suggest using VIF>10 as a guideline for serious collinearity. The tests show that all VIFs of the variables in our regression are below 10. With reference to the model that uses |AWCA|, the VIFs relative to FEM and FEM^2 are 7.521 and 7.475, respectively. With reference to the model that uses AWCApos, they are 7.562 and 7.506, respectively. With reference to the model that uses AWCAneg, they are 7.510 and 7.475, respectively. The VIFS relative to the other dependent variables, in all the models used, are never greater than 1.764.

Thus, the presence of a serious collinearity among the independent variables can be excluded.

Table 5. Correlation matrix

	|AWCA| AWCApos AWCAneg	FEM	FEM^2	SIZE	ROA	CFO	CFO^2	GROWTH	LEVERAGE	AGE
|AWCA|		-0.0249***	-0.0095	-0.0502***	0.0551***	-0.0417***	0.3611***	0.1013***	0.1060***	-0.0745***
FEM	-0.0307***		0.9291***	0.0035	0.0023	0.0120*	-0.0016	-0.0119*	-0.0717***	0.0709***
FEM^2	-0.0307***	1.0000***		-0.0073	-0.0063	0.0068	0.0051	-0.0126*	-0.0462***	0.0361***
SIZE	-0.0629***	0.0165**	0.0165**		0.0453***	-0.0408***	-0.0570***	0.0915***	-0.0988***	0.1464***
ROA	0.0656***	-0.0004	-0.0004	0.0571***		0.4068***	0.3581***	0.1505***	-0.3370***	-0.0418***
CFO	-0.0883***	0.0106	0.0106	-0.0314***	0.3262***		0.4951***	-0.0115	-0.1876***	-0.0011
CFO^2	0.2968***	-0.0144**	-0.0144**	-0.0578***	0.2860***	0.5478***		0.0560***	-0.0676***	-0.0375***
GROWTH	0.0467***	-0.0051	-0.0051	0.1147***	0.2879***	0.0268***	0.0701***		0.0407***	-0.0124*
LEVERAGE	0.1055***	-0.0888***	-0.0888***	-0.0957***	-0.3369***	-0.1851***	-0.0595***	0.0352***		-0.2118***
AGE	-0.0830***	0.0931***	0.0931***	0.1437***	-0.0477***	-0.0014	-0.0522***	-0.0311***	-0.2370***	
AWCApos		-0.0283***	-0.0128	-0.0528***	0.0702***	-0.5473***		-0.0322***	0.1039***	-0.0892***
FEM	-0.0342***		0.9291***	-0.0029	-0.0104	0.0199**		-0.0066	-0.0705***	0.0752***
FEM^2	-0.0342***	1.000***		-0.0106	-0.0209**	0.0046		-0.0091	-0.0427***	0.0383***
SIZE	-0.0667***	0.0075	0.0075		0.0535***	-0.0024		0.0758***	-0.1038***	0.1415***
ROA	0.0647***	-0.0128	-0.0128	0.0747***		0.4276***		0.1505***	-0.3327***	-0.0451***
CFO	-0.5402***	0.0315***	0.0315***	0.0072	0.3235***			-0.0665***	-0.2952***	0.0329***
GROWTH	-0.1361***	-0.0062	-0.0062	0.1133***	0.3276***	-0.1256***			0.0310***	-0.0169*
LEVERAGE	0.0971***	-0.0870***	-0.0870***	-0.1007***	-0.3218***	-0.2994***		0.0346***		-0.2163***
AGE	-0.0917***	0.0974***	0.0975***	0.1384***	-0.0564***	0.0428***		-0.0520***	-0.2429***	
AWCAneg		0.0211*	0.0057	0.0473***	-0.0402***	-0.4530***		-0.2816***	-0.1088***	0.0588***
FEM	0.0269**		0.9290***	0.0111	0.0156	0.0132		-0.0178*	-0.0730***	0.0664***
FEM^2	0.0269**	1.0000***		-0.0032	0.0090	0.0164		-0.0163	-0.0501***	0.0337***
SIZE	0.0579***	0.0272**	0.0272**		0.0373***	-0.1148***		0.1101***	-0.0944***	0.1515***
ROA	-0.0668***	0.0141	0.0141	0.0370***		0.5231***		0.1629***	-0.3432***	-0.0381***
CFO	-0.4459***	0.0043	0.0043	-0.1141***	0.4593***			-0.1652***	-0.1790***	-0.0576***
GROWTH	-0.2702***	-0.0010	-0.0010	0.1110***	0.2625***	-0.1710***			0.0406***	-0.0143
LEVERAGE	-0.1170***	-0.0909	-0.0909***	-0.0912***	-0.3553***	-0.1755***		0.0167		-0.2088***
AGE	0.0729***	0.0884***	0.0884***	0.1494***	-0.0376***	-0.0726***		-0.0146	-0.2313***	

Note. Pearson correlation coefficients are in the upper triangle. Spearman correlation coefficients are in the lower triangle. ***, ** and * indicate significance at 1%, 5% and 10%, respectively.

Table 6 shows the results of the OLS analysis.

When the independent variable is FEMD or FEM, their coefficients are never statistically significant. Thus, research hypothesis H1 is rejected.

When the independent variable is FEM and its quadratic (FEM^2), instead, the respective coefficients are

statistically significant, whatever the dependent variable configuration. When the dependent variable is |AWCA| and AWCApos, the sign of FEM is negative and that of FEM^2 is positive. This means that a quadratic (U-shaped) relationship exists between FEM and both of the dependent variable configurations. When FEM increases up to a certain level (about 0.40), the magnitude of |AWCA| and AWCApos decreases, but when it increases above that level, then the magnitude of |AWCA| and AWCApos increases. Therefore, the lowest magnitude of |AWCA| and AWCApos can be found up to but not above level 0.40. When the dependent variable is AWCAneg, the sign of FEM is positive and that of FEM^2 is negative. This means that a quadratic (inverted U-shaped) relationship exists between FEM and AWCAneg. When FEM increases up to a certain level (about 0.43), the magnitude of AWCAneg increases, but when it increases above that level, the magnitude of AWCAneg decreases. Therefore, the highest magnitude of AWCAneg is found up to but not above level 0.43. Thus, research hypothesis H2 is confirmed.

Table 6. Results of the OLS models

Variables	Coefficients (Heteroscedasticity-robust standard errors – variant HC1)								
	Dependent variable: |AWCA|			Dependent variable: AWCApos			Dependent variable: AWCAneg		
Constant	0.092***	0.093***	0.093***	0.133***	0.133***	0.133***	0.008	0.007	0.007
	(0.001)	(0.009)	(0.009)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
FEMD	0.001			0.001			-0.002		
	(0.001)			(0.001)			(0.001)		
FEM		-0.001	-0.008**		-0.000	-0.008*		0.002	0.012***
		(0.001)	(0.004)		(0.002)	(0.004)		(0.002)	(0.005)
FEM^2			0.010**			0.010*			-0.014**
			(0.005)			(0.005)			(0.006)
SIZE	-0.003***	-0.003***	-0.003***	-0.005***	-0.005***	-0.005***	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
ROA	0.001	0.001	0.001	0.494***	0.494***	0.494***	0.465***	0.465***	0.464***
	(0.024)	(0.024)	(0.024)	(0.032)	(0.032)	(0.032)	(0.031)	(0.031)	(0.031)
CFO	-0.167***	-0.167***	-0.167***	-0.543***	-0.543***	-0.542***	-0.540***	-0.540***	-0.540***
	(0.014)	(0.014)	(0.014)	(0.017)	(0.017)	(0.017)	(0.018)	(0.018)	(0.018)
CFO^2	1.236***	1.236***	1.235***						
	(0.107)	(0.107)	(0.107)						
GROWTH	0.013***	0.013***	0.013***	-0.024	-0.024	-0.024	-0.106***	-0.106***	-0.106***
	(0.002)	(0.002)	(0.002)	(0.019)	(0.019)	(0.019)	(0.016)	(0.016)	(0.016)
LEVERAGE	0.018***	0.018***	0.018***	0.001	0.001	0.001	-0.024***	-0.024***	-0.024***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
AGE	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	0.000	0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
YEAR	YES	YES	YES	YES	YES	YES	YES	YES	YES
SECTOR	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	19 629	19 629	19 629	10 630	10 630	10 630	8999	8999	8999
Adjusted R^2	0.230	0.230	0.230	0.463	0.463	0.463	0.481	0.481	0.481
p-value of *F*-test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note. ***, ** and * indicate significance at 1%, 5% and 10%, respectively.

Table 7 compares, for each of the dependent variable configurations, the expected sign of the coefficients with that resulting from the regression models (and the relative statistical significance).

Table 7. Expected versus actual signs

Variables	Dependent variables					
	|AWCA|		AWCApos		AWCAneg	
	Expected	Actual	Expected	Actual	Expected	Actual
SIZE	–	–***	–	–***	+	–
ROA	?	+	+	+***	+	+***
CFO	–	–***	–	–***	–	–***
CFO^2	+	+***				
GROWTH	?	+***	?	–	?	–***
LEVERAGE	+/–	+***	+/–	+	+/–	–***
AGE	–	–***	–	–***	+	+

Note. With reference to the expected signs: + = a positive sign is expected; – = a negative sign is expected; +/– = an association is expected but a specific sign is not expected; ? = no expectation. ***, ** and * indicate significance at 1%, 5% and 10%, respectively.

SIZE and AGE are negatively related to both |AWCA| and AWCApos, as expected. Instead, they are not related to AWCAneg, contrary to what is expected. The relationships between ROA and CFO and the magnitude of abnormal accruals are those that are expected. ROA is positively related to AWCApos and AWCAneg. It is not related to |AWCA|. The relationship between CFO and the magnitude of abnormal accruals is negative with reference to AWCApos and AWCAneg and it is quadratic (U-shaped) with reference to |AWCA|. GROWTH is positively related to |AWCA| and negatively related to AWCAneg. It is not related to AWCApos. With regard to LEVERAGE, the results are not consistent with any of the interpretations previously illustrated. The companies with a high LEVERAGE do not appear to have incentives to manipulate accruals in order to achieve better results (LEVERAGE is negatively related to AWCAneg). At the same time, they do not appear to have disincentives to manipulate accruals because they are more under the attention of debt holders and other stakeholders (LEVERAGE is negatively related to both |AWCA| and AWCAneg).

5. Conclusions

This study has shown that the relationship between female ownership and the magnitude of abnormal accruals is not linear and negative but quadratic U-shaped, when the dependent variable is |AWCA| or AWCApos, or inverted U-shaped, when the dependent variable is AWCAneg. This means that the practice of accrual manipulation is not contrasted by the presence of female ownership but by the presence of gender heterogeneity in ownership structure.

However, the practice of accrual manipulation is not at its minimum level when the portion of equity held by female shareholders and that held by male shareholders are the same. This does occur, instead, when the female-held equity amounts to about 0.40 (when the magnitude of abnormal accruals is measured through |AWCA| and AWCApos) or 0.43 (when the magnitude of abnormal accruals is measured through AWCAneg) and the male-held equity amounts to the remainder. So, it seems that there exists an ideal mix of female and male ownership at which point the practice of accruals manipulation reaches its minimum level.

Through this demonstration, this study contributes to two lines of research. The first regards the relationship between the type and characteristics of shareholders and earnings management practices. The second concerns the impact of gender diversity in the business context. With reference to the latter, females do not appear to be more risk averse and more ethical than males when they are shareholders and the degree of gender diversity in the shareholder group has a positive impact (in terms of smaller magnitude of abnormal accruals) on the outcome of said group.

As noted in the introduction, this study is the second that investigates the relationship between shareholder gender and earnings management practices in the context of the Italian private companies. The previous study (Poli, in press) investigated whether and how female ownership is related to two specific earnings management practices, earnings minimization (EM) and earnings change minimization (ECM), showing that statistically significant relationships do not exist between them. This study, instead, has investigated two aspects: whether and how female ownership and level of gender heterogeneity in ownership structure impact on the magnitude of abnormal accruals. This study, therefore, extends the current knowledge on the relationship between shareholder gender and earnings management practices in the context of the Italian private companies. In addition, it extends the current knowledge on the earnings management practices undertaken by Italian private companies (e.g., Poli, 2013b, 2013c, 2015b) and on their earnings quality (e.g., Poli, 2013a, 2015a).

This study has revealed another finding that deserves to be highlighted. It is related to the relationship between LEVERAGE and the magnitude of abnormal accruals. As previously noted, the finding is not consistent with any of the two possible interpretations suggested by the literature. In fact, if companies with a high degree of indebtedness were encouraged to positively manipulate accruals in order to achieve better results, the relationship between it and AWCApos and AWCAneg had to be positive and statistically significant. Instead, if companies with a high degree of indebtedness were discouraged from manipulating accruals because they are subject to closer monitoring by stakeholders (especially by banks, which, for the companies studied, traditionally are the most relevant stakeholders), the relationship between it and |AWCA| and AWCApos had to be negative and statistically significant, while that between it and AWCAneg had to be positive and statistically significant. Contrary to expectations, the study has shown that companies with a higher degree of indebtedness are more likely to manipulate accruals and they do so especially to reduce their earnings. This may be due to two factors: on the one hand, because Italy is a country where there is a close alignment between accounting and tax rules (e.g., Gavana, Guggioli, & Marenzi, 2013; Poli, 2015a), fiscal incentives encourage companies to manipulate accruals in order to reduce earnings and, as a result, the amount of taxes to be paid (e.g., Poli, 2013b, 2013c, 2015b); on the other hand, because Italian banks do not traditionally rely very much on balance sheets when they are considering whether or not to lend money. This is why, especially with reference to the type of organization under analysis in this study, Italian banking institutions almost always approve financing only on the condition of personal guarantees from shareholders.

The main limitation of the study relates to the earnings management measure that was used. Although the reasons why AWCA was used were clearly presented, highlighting the problems that led to the exclusion of the most frequently adopted earnings management measures supported in the literature, the fact that only AWCA was used had not allowed us to appreciate the robustness of the results with respect to the earnings management measure used.

The sample that was used consists only of companies whose shares are held by individuals. On the one hand, this allowed us to conduct the analysis in a context in which the question of shareholder gender is more obvious and more easily observed. On the other hand, however, it limited the observation to a sample that does not entirely reflect reality. Further studies could extend the analysis to companies whose shares are not solely held by individuals.

Because of the way in which the analysis was conducted, the number of shareholders and their characteristics, other than their gender (for example, age, level of education, etc.), are aspects that were not taken into account. However, these aspects may be relevant for the purpose of this study and could be included in further studies.

Future research could also investigate the impact of shareholder gender on the other earnings management practices suggested in the literature, as well as carry out international comparisons.

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