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Linking market capitalisation and voting pattern in corporate meetings

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ABSTRACT

This research seeks to investigate the connection between market capitalisation and the voting pattern related to proposals about executive compensation and directors' election, using data about banks from the U.S.A. concerning the 2003–2013 period. Our findings indicate that there is a direct relationship between voting pattern and market capitalisation, suggesting that they are mutually interdependent. When the market value of the bank increases (decreases), the support given by shareholders through their votes in meetings increases (decreases) as well. Also, when the approval showed by shareholders to managerial proposals through their voting decisions gets higher (lower), the market value of the bank gets higher (lower) too.

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1. Introduction

Assessing the causes and consequences of the voting pattern disclosed by shareholders in corporate meetings is a major concern for researchers and practitioners, with a special focus on votes related to executive compensation and directors' election. In particular, it has been argued that the market valuation of the firm can be considered an explanatory factor for the voting decisions (Ertimur, Ferri, & Oesch, 2013). On the other hand, it has also been stated that the relational influence is observed on the contrary, so that voting decisions exert some sort of effect over the market capitalisation (Fischer, Gramlich, Miller, & White, 2009). That is to say that the existing conclusions are not homogeneous and more investigation is clearly necessary on this subject (Choi, Fisch, & Kahan, 2008).

Lately, the focus has turned towards the banking business, as a consequence of recent corporate scandals (Fiordelisi, Soana, & Schwizer, 2013). That is why there is some specific investigation regarding voting pattern in the banking industry (Yahr, 2013). In addition, it has to be pointed out that banking activity has been traditionally considered a suitable target for research purposes, taking into account that its activity is deployed into an environment

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characterised by important information asymmetries, where firms act as intermediaries and designers of new financial products that relate to crucial aspects of any economic activity, including payment and risk management issues (Allen & Santomero, 1997, 2001; Bhattacharya & Thakor, 1993). Particularly, the U.S. banking industry tends to attract the focus of investigators in so far as there has been an intense deregulatory progression affecting this particular sector (Lounsbury, Hirsch, & Klinkerman, 1998; Marquis & Lounsbury, 2007).

The aim of this paper is to analyse the link between the market capitalisation of the firm and the voting pattern regarding proposals on executive compensation and directors' election, focusing on firms from the U.S. banking industry and proposing that these variables are mutually interdependent. The manuscript is organised as follows. The second section provides a theoretical framework for the investigation and states the propositions to be tested. The third section supplies a description of the data-set, and it also describes the variables and the model to be used. The fourth section discloses the results. Finally, the fifth section discusses and concludes.

2. Theoretical framework

Addressing the determinants of the voting decisions and their connection to corporate performance is one of the major concerns for researchers into the corporate governance field (Ng, Wang, & Zaiats, 2009), with a special prevalence of studies analysing proposals on executive compensation and directors' election. When it comes to considering the vote direction regarding executive compensation, the say on pay policy has become a prevalent topic through academic research, with some evidence of its linkage to corporate governance (Cai & Walkling, 2011; Cuñat, Gine, & Guadalupe, 2013). Actually, it has been proved that proxy advisors are prone to non-pro votes when a company with bad performance is characterised by high executive compensation (Ertimur et al., 2013).

On the other hand, the vote direction regarding directors' election has been related to corporate governance (Cai, Garner, & Walkling, 2009; Hillman, Shropshire, Certo, Dalton, & Dalton, 2011). Actually, there is a prominent research line that proposes votes for directors' election as an indirect measure of reputational performance (Bernile & Jarrell, 2009; Ertimur, Ferri, & Maber, 2012; Ferri & Maber, 2013), which is a complex and multidimensional concept (Pineiro-Chousa, Vizcaíno-González, & López-Cabarcos, 2016). In this same regard, some insights have been provided about how proxy advisors build their voting advice regarding directors' election, with mixed and not concluding results (Choi et al., 2008), indicating that more research in this area is clearly needed. So, we argue that the market capitalisation exerts some sort of influence over the voting pattern.

Hypothesis 1: The market value of the firm is a key explanatory factor for the voting pattern observed in corporate meetings.

In addition, the positive influence of shareholders' proxy access over financial performance has been established (Becker, Bergstresser, & Subramanian, 2013), as well as its influence over shareholders' wealth (DeAngelo & DeAngelo, 1989; Dodd & Warner, 1983). In particular, it has been shown how a strong degree of support disclosed through voting behaviour is followed by weak reactions in the market when news about executive compensation is publicised (Fischer et al., 2009). For this reason, we hypothesise that the voting pattern is an explanatory factor for the market capitalisation of the firm.

Hypothesis 2: The voting pattern observed in corporate meetings is a key explanatory factor for the market value of the firm.

As a consequence, driven out from the two propositions stated above, we argue that the market value of the company and the voting pattern observed in its corporate meetings can be analysed as interdependent variables that are significant in explaining each other's behaviour.

Hypothesis 3: The market capitalisation of the firm and the voting pattern observed in corporate meeting are mutually interdependent.

3. Data and method

3.1. Data sample

The voting data refer to managerial proposals on executive compensation and directors' election, captured from the non-profit and non-partisan organisation ProxyDemocracy, which collects votes disclosed by funds through U.S. Securities and Exchange Commission (SEC) N-PC filings. This organisation has been lately considered an appropriate supplier of this type of data for research purposes (Burns & Minnick, 2013; Pineiro-Chousa, Vizcaíno-González, & Caby, 2015). In addition, and following Vizcaíno and Chousa (2016), these voting data are completed with financial and accounting data collected from Bankscope, which is a well-known database that includes comprehensive statistics regarding banks all over the world. Crossing data from the two data sources, the final sample comprises 95,234 votes regarding 309 banks, and concerning the 11-year period from 2003–2013.

3.2. Model

In order to compute the bidirectional influence between the market capitalisation of the bank and the voting pattern, we propose a system of simultaneous equations suitable for a two-stage least squares estimation (2S.L.S.):

$$m_{it} = \alpha_1 + \beta_1 v_{it} + \theta_1 z_{1it} + \gamma_1 x_{it} + \delta_t + \varepsilon_{1it} \quad (1)$$

$$v_{it} = \alpha_2 + \beta_2 m_{it} + \theta_2 z_{2it} + \gamma_2 x_{it} + \delta_t + \varepsilon_{2it} \quad (2)$$

Focusing on equation (1), m_{it} is the market capitalisation of bank i in year t , α_1 is the constant term; β_1 is the estimated coefficient of the 2S.L.S. regression for the variable v that represents the voting pattern; θ_1 are the estimated coefficients for z_{1it} , which are the instrumental variables of this first equation; γ_1 are the estimated coefficients of the 2S.L.S. regression for the control variables x_{it} ; δ_t are year dummies; and ε_{1it} is the error term.

Turning the sights towards equation (2), v_{it} is the voting pattern observed in meetings held by bank i in year t , α_2 is the constant term; β_2 is the estimated coefficient of the 2S.L.S. regression for the variable m that represents the market capitalisation; θ_2 are the estimated coefficients for z_{2it} , which are the instrumental variables of this second equation; γ_2 are the estimated coefficients of the 2S.L.S. regression for the control variables x_{it} ; δ_t are year dummies; and ε_{2it} is the error term.

The two β -coefficients allow us to investigate the relationship between the two key variables in our research, that is, the interdependence between the market capitalisation of the bank and the voting pattern observed in its meetings.

3.3. Variables

3.3.1. Endogenous variables

The endogenous variable of the first equation is computed as the natural log of the market capitalisation for a certain bank and at the end of a given year (L.M.C.). Regarding the second equation, the endogenous variable is a measure of the voting pattern. In order to make this calculation, we compute the natural log of the ratio $\left(\frac{nov}{nof}\right)$, where *nov* stands for the total number of votes emitted in meetings held for a certain bank and year, and *nof* stands for the total number of funds that emitted at least one vote for any of the managerial proposals presented in meetings held by a given bank and for a certain year. Thus, this measure informs about the average number of votes by each fund. Next, we compute the ratio $\frac{1+f}{1+nf} - 1$, where *f* stands for the proportion of favourable votes received by a certain bank in meetings held in a given year, and *nf* stands for the proportion of non-favourable votes, including both 'against' and 'abstain' votes, for the same bank and year. Aggregating 'against' and 'abstain' votes is a typical method used by governance industry in order to compute a measure of dissension (Gregory-Smith & Main, 2013). As a consequence, this measure informs about the degree of approval given to managerial proposals. If it takes a negative value, it means that managerial proposals are mostly rejected. On the other hand, if its value is positive it indicates that managerial proposals are mostly supported. Finally, we multiply the average number of votes by fund plus the degree of approval in order to acquire a measure of the voting pattern observed in meetings held by the banks included in our sample.

3.3.2. Control variables

This is a set of variables that are included as explanatory variables in both equations of our system. So, they are determinants for the explanation of the market capitalisation and for the explanation of the voting pattern. We consider five different control variables:

- Price to earnings ratio (P.E.R.): ratio relating the market capitalisation to the net profit, for a certain bank and year.
- Return on assets (R.O.A.): ratio relating the operating profit to the book value of assets, for a certain bank and year.
- Net profit per share (N.P.P.S.): the amount of the net profit divided by the total number of shares, for a certain bank and year.
- Leverage (L.E.V.): ratio relating the book value of debt to the book value of equity, for a certain bank and year.
- Positive earnings (P.E.): a binary variable that takes the value 1 if the bank had positive earnings in the previous year, and takes the value 0 otherwise.

A reasonable link can be established between each one of the control variables and each one of the endogenous variables. For example, a company with positive earnings in the previous year or with a low leverage ratio is likely to have higher market capitalisation. In addition, a company with a higher return on assets or a higher price to earnings ratio is expected to receive higher support in its meetings.

3.3.3. Instrumental variables

The first set of instrumental variables are incorporated as determinants in the first equation in order to explain the behaviour of the market capitalisation, but are not determinants in the second equation for the explanation of the voting pattern. This first set is compounded by two different instruments:

- Assets (L.N.A.): the natural log of the book value of assets for a certain bank and year, as a measure of the size of the bank.
- Tobin's q ratio (Q): we compute the Tobin's q as a ratio relating the market value to the book value of the bank's assets. In order to estimate the market value of the bank's assets, we calculate the book value of assets plus the market value of equity minus the book value of equity. This calculation of the Tobin's q ratio is widely used in academic literature (Jiao, 2010; Kaplan & Zingales, 1997).

The second set of instrumental variables takes part in the second equation, so that these variables are used as determinants for the voting pattern, but are not included in the first equation. This second set is also formed by two distinct instruments:

- Votes (L.N.V.): the natural log of the total votes emitted by funds in meetings held by a certain bank in a given year.
- Dividends per share (D.P.S.): the amount of dividends, divided by the total number of shares, for a certain bank and year.

A reasonable connection between each set of instruments and their respective instrumented variable can be easily established. Thus, the total assets or the Tobin's q ratio are likely to be influencing the market value of the firm. Similarly, the total votes or the dividends per share are expected to be affecting the voting pattern observed in corporate meetings.

4. Results

In Table 1 we provide summary statistics broken down by year about the two key variables in our research: the natural log of the market capitalisation and the voting pattern ratio, computed as explained before.

Table 1. Descriptive statistics for market capitalisation and voting pattern.

| Year | Market capitalisation | | | | | Voting pattern | | | | |
|------|-----------------------|--------|--------|--------|---------|----------------|--------|--------|---------|--------|
| | Obs | Mean | S.D. | Min | Max | Obs | Mean | S.D. | Min | Max |
| 2003 | 129 | 6.0094 | 1.8793 | 2.5306 | 11.5235 | 3 | 0.4304 | 0.5310 | 0.0000 | 1.0239 |
| 2004 | 140 | 6.0999 | 1.8427 | 3.4117 | 11.8423 | 72 | 0.9992 | 0.8020 | -0.7484 | 2.6082 |
| 2005 | 162 | 6.0590 | 1.7724 | 3.5897 | 11.8596 | 83 | 0.9870 | 0.7388 | -0.3881 | 2.7282 |
| 2006 | 169 | 6.2344 | 1.7799 | 3.5147 | 12.0559 | 84 | 1.1864 | 0.7575 | -0.6931 | 2.7726 |
| 2007 | 192 | 5.9663 | 1.8442 | 2.9124 | 11.9907 | 174 | 0.8717 | 0.9108 | -1.1286 | 2.7081 |
| 2008 | 189 | 5.5084 | 1.9108 | 2.2394 | 11.6757 | 163 | 0.8402 | 0.7349 | -1.2825 | 2.7726 |
| 2009 | 235 | 5.4093 | 1.9583 | 0.9937 | 12.0089 | 197 | 0.9445 | 0.7618 | -1.0986 | 2.6391 |
| 2010 | 236 | 5.7604 | 1.9885 | 1.5455 | 12.0187 | 226 | 0.8445 | 0.8008 | -0.8047 | 2.8332 |
| 2011 | 236 | 5.7520 | 1.9643 | 1.3479 | 11.8868 | 159 | 0.2152 | 0.8199 | -1.3863 | 2.8332 |
| 2012 | 232 | 5.9965 | 1.8820 | 0.9738 | 12.1003 | 172 | 0.2621 | 1.0079 | -1.4166 | 2.7081 |
| 2013 | 217 | 6.3917 | 1.8555 | 1.0210 | 12.3848 | 184 | 0.3498 | 0.9228 | -1.3195 | 2.8622 |

Notes: In this table we provide the main descriptive statistics of the natural log of the market capitalisation, as well as the voting pattern, for each of the 11 years in our sample. The sample contains 95,234 votes for 309 banks in the 2003–2013 period.

Source: Authors' calculations.

In addition, in Table 2 we supply aggregate summary statistics for the fundamental variables in our research.

In Table 3 we provide information about the correlations between the core variables in our estimation. If we focus on the two main variables, the market capitalisation and the voting pattern, we can observe a positive relationship between them. This means that, as long as the market value of the bank increases (decreases), the support given by shareholders through their votes in meetings increases (decreases) as well. Moreover, when the approval showed by shareholders to managerial proposals through their voting decisions gets higher (lower), the market value of the bank gets higher (lower) too.

We estimate the system of simultaneous equations described in Section 3.2., suitable for 2S.L.S. estimation, with the aim of exploring the relationship between the two endogenous variables of our study described in Section 3.3.1. In order to conquer that objective, we use the control variables described in Section 3.3.2. In addition, we use as instrumental variables the two sets described in Section 3.3.3. Finally, we take into account year fixed effects incorporating a year dummy for each one of the 11 years in our sample. We also provide the p -values associated with the standard errors. The results are presented in Table 4.

The estimated coefficient of the second stage for the voting pattern is significant at the 5% level in explaining the natural log of market capitalisation ($\beta = 0.4638$, $p = 0.003$). In addition, the estimated coefficient of the second stage for the natural log of the market capitalisation is significant at the 5% level in explaining the voting pattern ($\beta = 0.0985$, $p = 0.000$). Both of these referred coefficients are positive, which is consistent with the previous analysis of the correlation between the two variables driven out from the figures of Table 3.

In order to test the robustness of the results, we calculate the Hansen-Sargan statistic in order to check for over-identifying restrictions (Davidson & MacKinnon, 2004). If this test results as significant, it may be informing about some identification failure in the equations in our model, or it may be related to the presence of invalid instruments. Once the test is computed, we observe that this statistic shows a value of 0.580 ($p = 0.7482$), indicating that the null hypothesis should not be rejected and, as a consequence, the instruments selected are suitable for the estimation. In addition, we compute an F -statistic for the joint significance of all variables, the exogenous variables and the year dummies, and all of them result as statistically significant at a 5% level of significance. Also, we check if the rank condition

Table 2. Summary statistics of the main variables included in the estimation.

| Variable | Obs | Mean | S.D. | Min | Max |
|----------|------|---------|----------|-------------|------------|
| L.M.C. | 2137 | 5.9042 | 1.9078 | 0.9738 | 12.3848 |
| Voting | 1517 | 0.7014 | 0.8951 | -1.4166 | 2.8622 |
| P.E.R. | 2315 | 16.4737 | 121.7681 | -2,913.1500 | 3,184.7390 |
| R.O.A. | 2380 | 0.0126 | 0.0427 | -0.3530 | 0.6888 |
| N.P.P.S. | 2316 | 0.5837 | 22.3738 | -901.5190 | 219.2830 |
| L.E.V. | 2380 | 0.8633 | 0.1332 | 0.0000 | 1.0004 |
| P.E. | 2152 | 0.8620 | 0.3450 | 0.0000 | 1.0000 |
| L.N.A. | 2380 | 8.0590 | 1.9048 | 1.1939 | 15.9808 |
| Q. | 2330 | 1.0583 | 0.4051 | 0.1279 | 7.8060 |
| L.N.V. | 1517 | 3.1146 | 1.2689 | 0.0000 | 7.6401 |
| D.P.S. | 2126 | 0.7485 | 4.0622 | 0.0000 | 91.6440 |

Notes: This table collects summary statistics of the key variables taking part in our study. The sample contains 95,234 votes for 309 banks in the 2003–2013 period.

Source: Authors' calculations.

Table 3. Correlations between core variables used in the research.

| | L.M.C. | Voting | P.E.R. | R.O.A. | N.P.P.S. | L.E.V. | P.E. |
|----------|---------|---------|---------|---------|----------|---------|--------|
| L.M.C. | 1.0000 | | | | | | |
| Voting | 0.2810 | 1.0000 | | | | | |
| P.E.R. | -0.0046 | 0.0254 | 1.0000 | | | | |
| R.O.A. | 0.1826 | 0.0153 | 0.0260 | 1.0000 | | | |
| N.P.P.S. | 0.0884 | -0.0257 | 0.0049 | 0.0803 | 1.0000 | | |
| L.E.V. | -0.0841 | 0.0013 | -0.0670 | -0.5010 | -0.0252 | 1.0000 | |
| P.E. | 0.2298 | -0.0297 | 0.0681 | 0.1939 | 0.1117 | -0.0620 | 1.0000 |

Notes: With this table we provide correlations between the key variables used in this study. The sample contains 95,234 votes for 309 banks in the 2003–2013 period.

Source: Authors' calculations.

Table 4. Results of two-stage least squares estimation.

| | First stage | | | | Second stage | | | |
|-------------------------|-------------|----------|-------------|----------|--------------|----------|-------------|----------|
| | L.M.C. | | Voting | | L.M.C. | | Voting | |
| | Coefficient | <i>p</i> | Coefficient | <i>p</i> | Coefficient | <i>p</i> | Coefficient | <i>p</i> |
| L.M.C. | | | | | | | 0.0985* | 0.000 |
| Voting | | | | | 0.4638* | 0.003 | | |
| L.N.A. | 0.9263* | 0.000 | 0.0919* | 0.000 | 0.8831* | 0.000 | | |
| Q | 0.1384 | 0.148 | 0.0877 | 0.542 | 0.0970 | 0.443 | | |
| P.E.R. | 0.0001 | 0.317 | 0.0003 | 0.101 | 0.0000 | 0.917 | 0.0003 | 0.118 |
| R.O.A. | 6.4332* | 0.000 | 0.3580 | 0.780 | 6.2679* | 0.000 | 0.2181 | 0.803 |
| N.P.P.S. | 0.0022* | 0.000 | -0.0003 | 0.689 | 0.0024* | 0.001 | -0.0006 | 0.487 |
| L.E.V. | -2.1078* | 0.000 | 0.0344 | 0.895 | -2.1238* | 0.000 | 0.2007 | 0.411 |
| P.E. | 0.5495* | 0.000 | -0.0563 | 0.471 | 0.5755* | 0.000 | -0.1158 | 0.145 |
| L.N.V. | 0.0751* | 0.000 | 0.1639* | 0.000 | | | 0.1574* | 0.000 |
| D.P.S. | -0.0036 | 0.277 | -0.0061 | 0.223 | | | -0.0058 | 0.260 |
| R-squared | 0.9371 | | 0.2724 | | 0.8933 | | 0.2546 | |
| Adj R-squared | 0.9360 | | 0.2591 | | | | | |
| F-statistic (all) | | | | | | | 43.55* | 0.000* |
| F-statistic (exogenous) | | | | | | | 27.61* | 0.000* |
| F-statistic (dummies) | | | | | | | 11.35* | 0.000* |
| Hansen-Sargan test | | | | | | | 0.58 | 0.7482 |

Notes: This table presents the results from the 2S.L.S. estimation of our simultaneous equations model. The sample contains 95,234 votes for 309 banks in the 2003–2013 period.

*Coefficients that are statistically significant at the 5% level.

Source: Authors' calculations.

is verified by computing the matrixes shown in Table 5. Using the *checkreg3* command in Stata, we find that equations (1) and (2) and the system of equations are correctly identified (Baum, 2007).

According to these results, we can conclude that the two key variables in our study, that is, the natural log of the market capitalisation and the voting pattern, are significant in explaining each other's behaviour. Furthermore, their relationship is positive, which means that there is a direct influence between them. So, an increase (decrease) in market capitalisation results in an increase (decrease) of the support disclosed by funds to managerial performance; and a higher (lower) approval of managerial proposals by funds results in higher (lower) market capitalisation. These findings confirm the propositions established in the theoretical background section.

Table 5. Coefficients matrix.

| | L.M.C. | Voting |
|----------|-------------------|--------|
| | <i>Endogenous</i> | |
| L.M.C. | -1 | |
| Voting | 0.5 | -1 |
| | <i>Exogenous</i> | |
| L.N.A. | 0.5 | 0 |
| Q. | 0.5 | 0 |
| P.E.R. | 0.5 | 0.5 |
| R.O.A. | 0.5 | 0.5 |
| N.P.P.S. | 0.5 | 0.5 |
| L.E.V. | 0.5 | 0.5 |
| P.E. | 0.5 | 0.5 |
| yr1 | 0.5 | 0.5 |
| yr2 | 0.5 | 0.5 |
| yr3 | 0.5 | 0.5 |
| yr4 | 0.5 | 0.5 |
| yr5 | 0.5 | 0.5 |
| yr6 | 0.5 | 0.5 |
| yr7 | 0.5 | 0.5 |
| yr8 | 0.5 | 0.5 |
| yr9 | 0.5 | 0.5 |
| yr10 | 0.5 | 0.5 |
| yr11 | 0.5 | 0.5 |
| L.N.V. | 0 | 0.5 |
| D.P.S. | 0 | 0.5 |

Notes: This table presents the endogenous coefficients matrix and the exogenous coefficients matrix. The sample contains 95,234 votes for 309 banks in the 2003–2013 period.

Source: Authors' calculations.

5. Discussion and conclusions

Using a sample of banks from the U.S., we study the relationship between the market value of the firm and the voting pattern observed in corporate meetings from 2003–2013. With that purpose, we build a system of simultaneous equations, suitable for a 2S.L.S. estimation. Our results demonstrate that the market capitalisation of the bank and the voting pattern are significant in explaining each other's performance. The empirical evidence shows a direct relation, so a raise (decline) in market capitalisation turns into a raise (decline) of the support revealed by shareholders to managerial proposals; and a higher (lower) agreement with managerial proposals disclosed by shareholders results in higher (lower) market capitalisation.

This investigation focuses on the relationship between voting pattern and market capitalisation. However, the influence of the voting pattern may be observable through other financial indicators of the corporate performance. As a consequence, future research should take this suggestion as a starting point to reach a full characterisation of the link between voting pattern and corporate performance. Also, this study does not consider the ownership structure. However, future research should address this issue comparing concentrated ownership to dispersed ownership, and comparing public owned firms to private firms.

Finally, the outcome of this study should be framed into the context of the research environment. Thus, regarding the voting pattern, it is worthwhile mentioning that the U.S. banking sector is characterised by a one-tier structure where the firm is governed by only one corporate body that assumes management and supervision tasks. Also, concerning market capitalisation, it needs to be pointed out that the U.S. offers well-developed and deep financial markets, with a high degree of liquidity. So, future research should investigate if

the findings of this study can be generalised, considering different research environments, including two-tier board structures and less developed financial markets.

Disclosure statement

No potential conflict of interest was reported by the authors.

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